

International Professional
Urban Workshop

Context document

Green and innovative Kampala



**Generate Synergies and Join
Forces for an Urban Transition
to face Climate Change**

les ateliers
maîtrise d'œuvre urbaine

26 October – 8 November 2019
Kampala, Uganda

Context document,

Green and Innovative Kampala

‘Generate Synergies and Join Forces for an Urban Transition to face Climate Change’

International Urban Professional Workshop

From 26th October 2019 to 8th November 2019

Kampala, Uganda

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Foreword

Since 2018, the Kampala Capital City Authority (KCCA), with the support of the French Development Agency (AFD), has been engaged in a joint process of reflection as part of the Climate Change Action Plan to forge a vision of a sustainable future for the city of Kampala.

In order to complement the actions of the Climate Change Action Plan and adopt a more strategic and transdisciplinary approach, KCCA and AFD have jointly agreed on bringing in the French non-profit organization Les Ateliers internationaux de maîtrise d'œuvre urbaine de Cergy-Pontoise, to organize an international urban professional workshop with the Kampala authorities under the theme:

Green and Innovative Kampala

'Generate Synergies and Join Forces for an Urban Transition to face Climate Change'

Les Ateliers de Cergy is a non-profit association created in 1982 at the behest of the urban planners involved in the creation of the New Town of Cergy-Pontoise. Today, it is an international network of professionals, academics and decision-makers tied to the field of urban planning. Focused on the practice of urban development, the association organizes workshops envisaged as spaces for collective design and creativity. In France and elsewhere, these workshops provide project managers with an international perspective and illustrated proposals highlighting territorial strategies and urban development projects. By bringing together different professions and cultures, they also offer the opportunity to exchange at the highest levels.





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Introduction

Uganda has prioritized increasing domestic revenues, investment in public infrastructure, efficiency in service delivery, use of technology and innovation. However, the ambitious and comprehensive nature of the agenda requires further enhancement of capacity on how to steer inclusive development in compliance with gender and equity. The country intends to partner with the international community in delivering this global development agenda. The current situation of Kampala may be defined by two major features, each of them may be a threat as well as an opportunity:

Kampala is a survival city where the employment rate, the weight of informal activities, the risk of natural hazards, are very high. The constraints on the city are tremendous in terms of use of scarce resources such as space, money, time, energy, land, food, jobs, facing demographic pressure and climate change violent episodes. As well as a threat for the social development of the country and the sustainable structure of the city, it may be an opportunity to enhance and recover these resources and turn them into assets through a regeneration process of the city. How to think each project or action of the urban daily life for regenerating and creating value more than using and spoiling scarce resources.

Kampala Capital City Authority has a wide range of studies, projects, cooperation programs and some fundings. The threat is the impossible lead of all of them because all of them cannot be financed, and even if they could be, the abundance may lead to collapse. So the question of choice is prominent, coming back to the previous point where less may be more. The opportunity is to step back and think about mitigating overlaps between projects, combine them together with significant synergies in complementary ways, and coordinate the functions.

So, the main point to address is how to reconnect the city elements and let them interact altogether. The challenge of Kampala consists in reconnecting territories, infrastructures, organizations, institutions, communities, all together in order to save money, lever up the existing assets, avoid ruining resources, enhance the potential for development, pool common deposits, and make every resource productive or preserved.














The workshop of Les Ateliers is able to establish the linkage and make the cement of numerous scattered on-going actions for the benefit of Kampala.

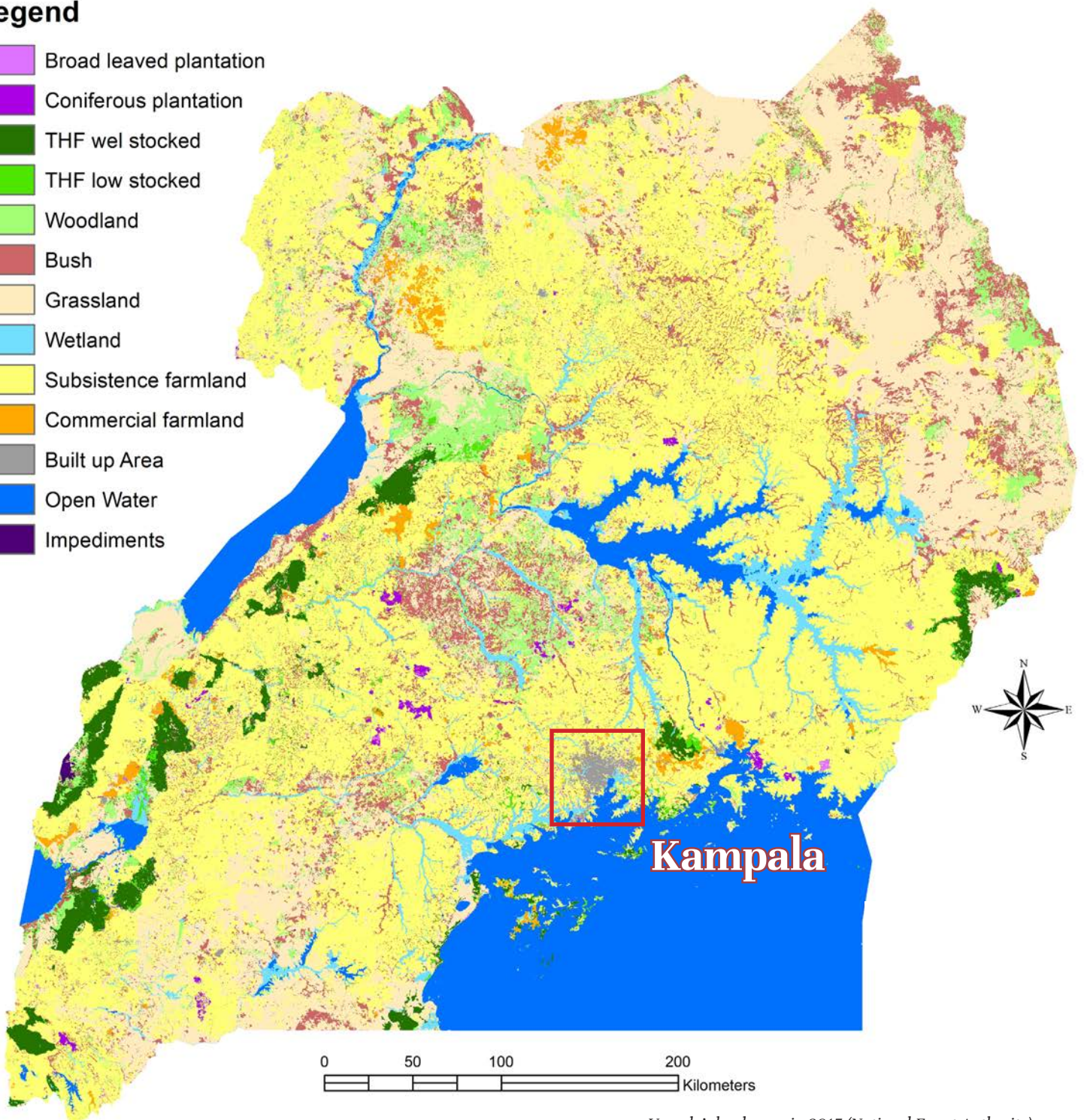
Reader information:

The Context document of the Kampala workshop is peculiarly thick, broad, well-informed. It aims at being a reference document sourcing numerous on-going issues identified during the exploratory mission, field visits, local exchanges with experts and stakeholders. It will help the participants to go deeper within one or several subjects they would need to tackle in their project proposal.

The idea is that any participant can readily be aware of the whole content through each entry, the titles, the boxes, then choose to jump in the advanced reading of dedicated parts.

Legend

-  Broad leaved plantation
-  Coniferous plantation
-  THF wel stocked
-  THF low stocked
-  Woodland
-  Bush
-  Grassland
-  Wetland
-  Subsistence farmland
-  Commercial farmland
-  Built up Area
-  Open Water
-  Impediments



Uganda's land cover in 2015 (National Forest Authority)

First steps in Kampala

An introduction to Uganda

Uganda's urban landscape

History

Prerequisites before diving into Kampala

First look on Kampala's territory

City of hills : Kampala's urban planning history

A strong international presence



An introduction to Uganda

UG's ID

Form of the State: Republic
President: Yoweri Museveni
Official languages: English, Swahili
Capital city: Kampala
Area: 241 550 km² (approximately the size of Michigan, or about 1/3 of France)
Population: 41 millions of inhabitants
Urban population: 23.8% of the total population (2018)
High demographic growth (about + 3.3% per year)
Median age: 15.9 years (42.5 in France, 27.1 in South Africa, 19.7 in Kenya)
GDP: \$27.48 billion (2018)
GDP per capita: 709.70 USD (\$1807.37 PPP; 2018)
Currency: Ugandan Shilling

Geography and Climate

Uganda is located in East Africa and lies across the equator, about 800 kilometres inland from the Indian Ocean. The country is landlocked, bordered by Kenya in the East, South Sudan in the North, Democratic Republic of Congo in the West, Tanzania in the South, and Rwanda in South West. The territory is on the East African Plateau: it averages about 1,100 metres. Its highest peak is to be found on the western border, on the Mount Stanley, its name being the Margherita Peak. It has an elevation of 5,109 metres, making it the third highest peak in Africa.

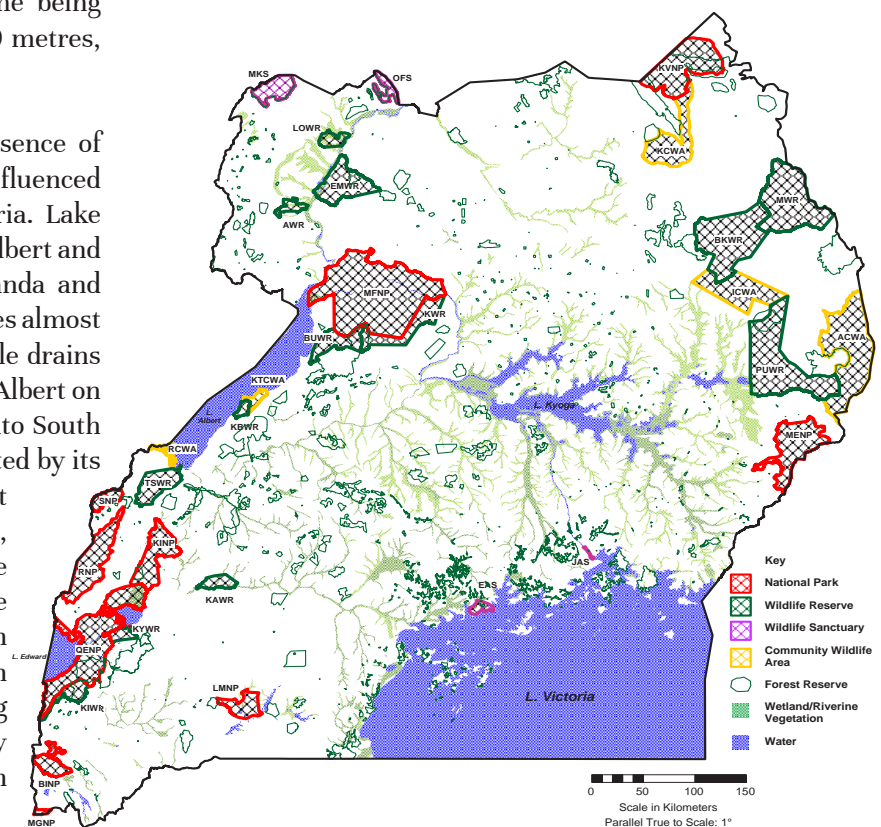
Uganda is also characterized by the strong presence of water. Much of the south of the country is heavily influenced by one of the world's biggest lakes, Lake Victoria. Lake Kyoga is in the centre of the country, while Lake Albert and Lake Edward draw the borderline between Uganda and Democratic Republic of Congo. The country also lies almost completely within the Nile basin. The Victoria Nile drains from Lake Victoria into Lake Kyoga and into Lake Albert on the Congolese border. It then runs northwards into South Sudan. Uganda enjoys equatorial climate moderated by its location on a raised plateau. The country (except the northern area) usually has two rainy seasons, from March to May for the first rains, and the second rains from September to November. The day temperatures fall in the 25–29°C range on an average, while the evenings can be chilly with temperatures in the 17–18°C range, even during the dry season. Most of the areas in the country receive between 750 mm and 2,100 mm of rain annually.



Location of Uganda in East Africa

Nature and Environment

Uganda was once referred to by Sir Winston Churchill as the 'Pearl of Africa'. The favourable climatic conditions, the presence of water and the relief have shaped landscapes with a strong diversity and great contrasts, as well as rich biological environments. It is home to species of world-wide importance and contains a globally recognized biodiversity of species and habitats that are distributed throughout the country's vast wetlands, lakes, forests, and savannah grasslands. Uganda is especially renowned for hosting half of the whole population of mountain gorillas (about 1000 individuals worldwide).



Protected areas in Uganda (Uganda Wildlife Authority, 2010)

There are 720 protected areas representing approximately 30% of Uganda's land surface. These protected areas are for wildlife (10 National Parks, 12 Wildlife Reserves, and 12 Community Wildlife Areas) and protected forests (506 Central Forest Reserves, 192 Local Forest Reserves). These areas are managed by the Uganda Wildlife Authority and the National Forest Authority. Both are semi-autonomous government agencies created in 1996 (UWA) and 2004 (NFA).



Bwindi Impenetrable National Park (A. Byaruhanga)

Economy

Uganda is a low-income country, ranking as the 15th wealthiest country in Africa (between Ivory Coast and Zimbabwe).

The economy has a rather high growth since the 1990s (the real Gross Domestic Product (GDP) grew at an average of about 7% annually during the period 1990–2010), even if Uganda's economy has recently grown at a slower pace, the average annual growth is 4.5% in the five years to 2016.

The significant natural resources, including fertile land, regular rainfall, and mineral deposits, are showing a strong economic potential.

Agriculture is the backbone of Uganda's economy. It employs about 70% of the labour force, it contributes more than half of all exports and about one-quarter of the GDP. Coffee is Uganda's star product: the country is Africa's second largest producer after Ethiopia. Nevertheless, its agri-food system remains largely untapped.

More than half of the GDP comes from the services (it was about 32% in 1990). With its numerous national parks that contain a wide variety of animals, Uganda is a natural tourist destination. Tourism has rebounded in recent years after having been affected by political instability in the surrounding areas. It still has potential to grow : 20% of international arrivals in Uganda are leisure tourists (75% in Kenya and Tanzania). Information and Communications Technology (ICT) has become a major interest in the

Ugandan government. This sector would represent about 6% of GDP and is growing at 7.9% per annum.

Industry is the last quarter of GDP and has also grown in the last twenty years. Uganda processes sugar, tobacco, cotton, it has important breweries and produces cement and steel.

Uganda is part of the East African Community, an intergovernmental organization with Burundi, Kenya, Rwanda, South Sudan and Tanzania. It consists of a common market, a customs union, and a political confederation. People and goods move freely within the 6 member countries. A monetary union and single currency shall come to life in the coming years. As part of this integrative process, the Standard Gauge Railway is an international train network project in progress linking the community. The Uganda Standard Gauge Railway should link Kampala to Mombasa (Kenya) and Kigali (Rwanda), as well as Juba (South Sudan) and Kisangani (the Democratic Republic of the Congo), as part of the Northern Corridor Integration Project (NCIP). It is developed using a larger gauge than the old trains, the Chinese National Railway Class 1 standard. As for now, only the Mombasa-Nairobi connection has been completed.

The discovery of important reserves of oil in the Lake Albert is also expected to be a major source of income in the coming years. The French Total, the Chinese CNOOC and the UK Tullow Oil created a joint-venture to start exploiting Uganda's oil from 2022, but the deal keeps being threatened (and therefore the exploitation postponed). Tullow Oil was stepping back from the deal in late August 2019, resulting in Total's decision to suspend their Uganda-Tanzania pipeline project in September.

According to Harvard's Atlas of Economic Complexity, Uganda has a moderately more complex economy than expected for its income level. Because of that, its economy is projected to grow rapidly (it foresees a growth of 7.6% annually over the coming decade, ranking in the top decile of countries globally).

Converted wetlands for agriculture in Kisoro (A. Byaruhanga)

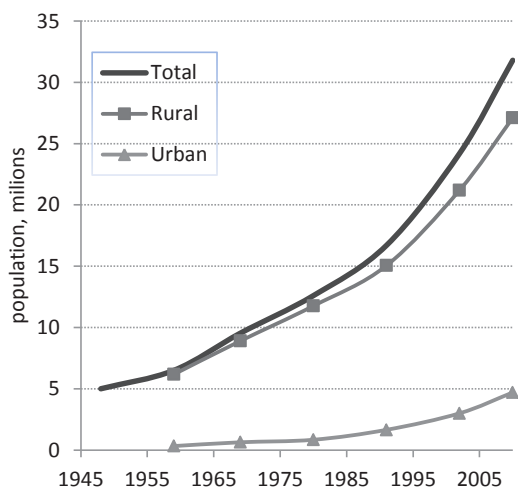


Uganda's urban landscape

Uganda is a rural country but the situation is shifting at a fast pace. Kampala is welcoming most of the urban population, and is complementary to two middle-sized towns : Entebbe and Jinja.

Uganda is nowadays one of the countries with the fastest-growing population in the world: it has a growth rate of 3.3% every year, and the average fertility rates are estimated at 5.6 live births per woman. Uganda is at an early stage of its demographic transition: death rates have dropped significantly without a corresponding fall in birth rates, resulting in a large increase in population. Population should then go on growing in the coming years, even if the birth rate starts to lower progressively.

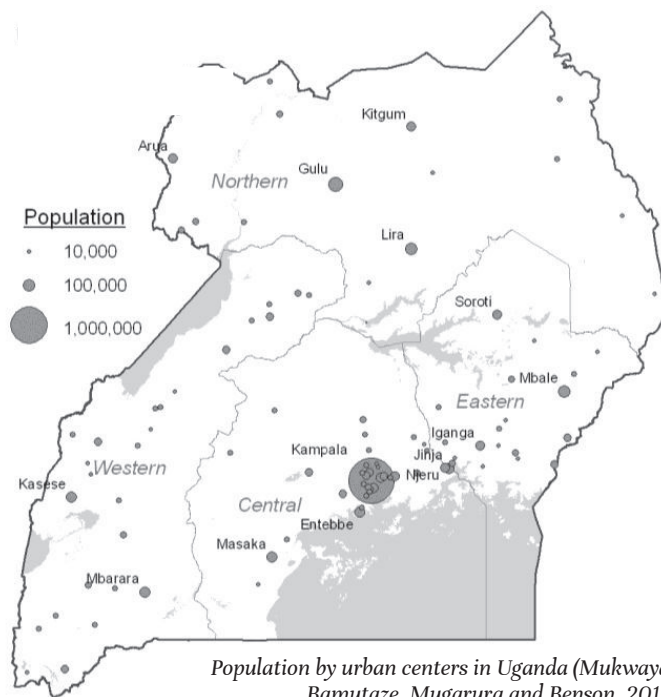
This increase is contemporaneous with the urbanization of the country. Uganda is still a very rural country, with more than 75% of the population living in rural areas. But this situation is changing at a fast rate: when 12.3% of the national population was urban in 2002, the urban population accounted for 23.8% of the population in 2018.



Evolution of the urban and rural population in Uganda between 1948 and 2010 (Mukwaya, Bamutaze, Mugarura and Benson, 2011)

In this accretive cityscape, one urban area is predominant : Kampala, Uganda's main city. While Kampala hosts about 1.6 million inhabitants within its borders and more than 6 millions if you take into account the districts around (Wakiso, Mukono, Mpigi, Buikwe, Luweero), the second biggest city, Gulu, has a population of about 150,000 inhabitants. It is not even a tenth of Kampala city.

At least 50% of the national GDP is produced in Kampala. It is estimated that 80% of the country's industrial and service sector firms is there, and the city is growing at a rate of 5% per year. The importance of Kampala in Uganda's economy and urban structure should be even stronger in coming decades.



Population by urban centers in Uganda (Mukwaya, Bamutaze, Mugarura and Benson, 2011)

In this domination of Kampala in Uganda's urban landscape, two historical cities have also developed synergies with Kampala, being quite close and having complementary assets :

Entebbe



Green and blue Entebbe (Klara Gallop)

Located about 37 kms south-west from Kampala, Entebbe lies on a peninsula into Lake Victoria. It used to be the seat of government for the Protectorate of Uganda prior to independence, in 1962. Nowadays, its numerous resorts, beaches, the zoo and the overall green feeling makes it a leisure destination. Entebbe has quite a low population (about 70,000 inhabitants) but welcomes a national infrastructure, the Entebbe International Airport. At least 105,000 people commute daily on the Entebbe-Kampala axis. In order to alleviate the congestion on the road between the two cities, a major infrastructure was developed in the last 10 years, the Entebbe-Kampala expressway.

The expressway is a four-way highway linking directly the Entebbe airport to Kampala, at Busega where it joins the northern bypass. It was made possible because of a massive loan from the Chinese Government (US\$ 350 millions repayable in 40 years). The expressway is the first PPP (public-private partnership) arrangement in the road transport sector in Uganda, which was concluded with the China Communication Construction Company. The highway takes a longer route than the “old” Entebbe - Kampala road (51 km against 40 km) and goes impressively over the Nambigirwa swamp near Entebbe thanks to a 1.45km suspension bridge. The Munyonyo spur also connects the highway to the shores of Lake Victoria, with interconnection at Kajjansi. The highway was commissioned in June 2018 and is operational but the toll fees should start to be collected from January 2020 (the law authoring the building and use of toll roads has not been passed yet).



Jinja's Source of the Nile Bridge, commissioned in 2018, is an important point of the Jinja-Kampala expressway (The Independent)

Despite the new highway, the Entebbe - Kampala road remains busy and lively. Some drivers think the new expressway does not feel safe at night, the collective transport means (“taxis”) also keep using this road since it allows to stop regularly.

Jinja

Jinja at 70 km flying distance on the East of Kampala has a very strategic location in the national territory. It sits on the shores of Lake Victoria, at the source of the Nile river, and is in the path between the Ugandan capital and the Indian Ocean (Mombasa, Kenya). It used to be the industrial centre of Uganda in the 60s and 70s, because of the nearby electric power station at the Owen Falls Dam (nowadays called the Nalubaale Power Station), constructed by the English Colonial Government in 1952. Jinja also welcomes tourist attractions such as rafting activities on the Nile and one of the biggest music festivals in East Africa, Nyege Nyege.

The Jinja - Kampala road is the busiest in the whole country with 120,000 commuters using it daily. It is then no surprise that an expressway project, following the Entebbe model, is ongoing. The Kampala - Jinja express will be a 77 km long toll highway, developed as a PPP. Its completion is expected in 2025 and its cost will be 1.1 billion USD, with 400 million from the government as a “viability gap funding” committed by the African Development Bank, European Union and the French Development Agency, and 600 millions from a private company (not selected yet). Its path is set on the southern side of the current road, and will be connected to the Kampala southern bypass (18 km, expected in 2026) and finally to the Kampala - Entebbe expressway.

These expressways are the first ones of an ambitious expressway network around the Kampala metropolis unveiled in summer 2019 by the Uganda National Road Authority and the JICA (Japanese Cooperation Agency): 10 expressways should be constructed in and around the metropolis in the next five years according to the plan [learn more in Infrastructure entry].

Route of the expressways (Ugandan National Road Authority)



History

Uganda is home to several ethnic groups coexisting peacefully. This situation is the heritage of long-existing communities and of the irruption of the English colonial power in their lives.

A long period without contact with the world

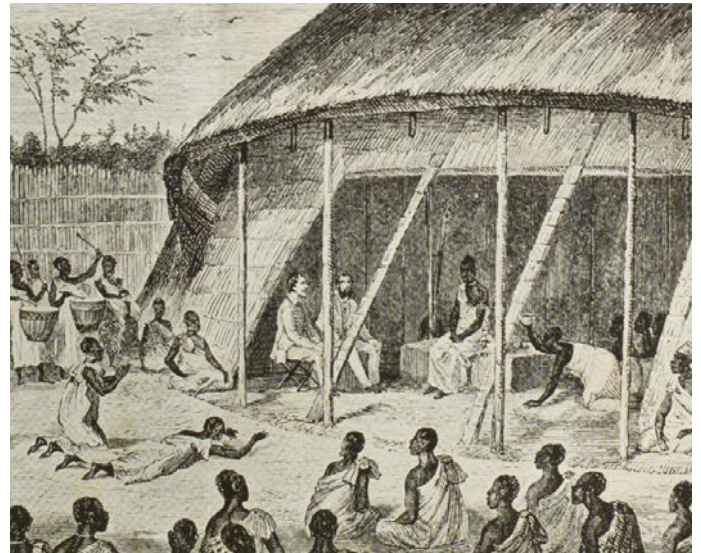
Different kingdoms and chiefdoms are existing in Uganda. These groups have different languages, and have cultural specificities that are shaping strong identities : food, dance, or architecture differ from one to another. These are direct legacies from kingdoms and communities who started to rise from the 16th century and which had different political systems. In the middle of the 19th century, the most important of them was Buganda, on the northern shores of Lake Victoria, where lies nowadays Kampala. The king of Buganda is the kabaka, and his people are the Baganda. It had a singular method for designating the king where every clan provided a wife to the kabaka. The sons of these wives were potential kings. The successor was chosen by clan elders from one of them when the ruler died. Buganda kingdom had a vast territory, a large capital (about 40,000 inhabitants) and a sophisticated political organization (with a noticeable debating assembly called Lukiiko). There was an internal trade system between kingdoms but also rivalry between Buganda and the neighbouring Bunyoro.



Kingdoms (red) and chiefdoms (blue) in modern Uganda

The outside world finally entered because of long-distance trade for ivory. Arab traders based in Zanzibar reached Lake Victoria by 1844 and offered the Baganda people to acquire imported cloth, guns and gunpowder in exchange of their ivory. They also introduced Islam. The guns interested Buganda to set their domination against the Bunyoro kingdom.

The explorer John Hanning Speke passed through Buganda in 1862 and claimed he had discovered the source of the Nile. He sent letters to Europe praising the Baganda for their organisational skills and willingness to modernise. Missionaries from England, France and Germany were soon sent to convert the population to Christianity.



Print of Speke and Grant meeting the kabaka Muteesa in 1862

In 1892, fighting broke out between Protestant and Catholic Baganda converts, and European countries. The British won the fight, notably because of new machine guns, and claimed the land north of Lake Victoria. Allying with the Protestant Baganda chiefs, they started to conquer the rest of the country. After five years of bloody conflict, they occupied Bunyoro and conquered Acholi and the northern region. The outlines of the Uganda Protectorate was beginning to take shape

Mulago Hospital in 1987 (A. Cook)



Colonial times

Buganda became a protectorate of the British Empire in 1894. Buganda was transformed into a constitutional monarchy - the Lukiiko was progressively institutionalized as a parliament and the role of the Kabaka was reduced. The British relied largely on the Protestant 'Bakungu' client-chiefs, while British officials administering the country were just a few. The chiefs had then the opportunity to preserve Buganda as a self-governing entity, and bargained to secure private land tenure for themselves and their supporters. The Buganda kingdom succeeded in keeping about half of all the land in Buganda, letting to the British a lot of swamps and scrublands.



A traffic officer in Kampala in 1961 (Uganda Tourism Board)

The Baganda also offered to serve as administrators for the British. They used it to impose the use of their language (Luganda) and dress code to other tribes. Agricultural production was also often placed in their hands. The income generated by cotton sales made the Buganda kingdom relatively prosperous. Nevertheless, the British made the chiefs limit their rent in 1927, and agricultural production shifted to independent smallholders. For other businesses, the British administration decided to seek support from its Empire. South Asians were brought (mainly from India) to "serve as a buffer between Europeans and Africans in the middle rungs of commerce and administration". They were also given the monopoly for cotton ginning. In addition, 6,000 labourers from British India stayed in the country after the completion of the Uganda Railway.

After the second world war, the British Empire was starting to fall apart, and riots from the Baganda occurred. The British began to move ahead of the Ugandans in preparing for independence in 1952. Finally, the first elections took place in 1962, with a strong opposition between parties opposed to the Buganda hegemony and Baganda supporters. In the end, both sides found an agreement, Obote being elected prime minister and the kabaka as president.

An independent country

First years of independence were troubled times. Obote diminished the prerogatives of the kabaka and made his party the only legal political party in 1966. He persecuted opponents, Indians, and kingdoms were abolished in 1967. His Commander of the Army Idi Amin seized power in 1971 through a military coup. He led an infamous dictatorship for 8 years, with extensive use of torture and executions. One of his notorious policy was the "economic war". In order to bring the economy and the businesses back in the hands of Africans, Idi Amin ordered the 80,000 Asians to pack their bags and leave the country within 90 days. Their companies, houses and cars were reallocated to Ugandans. This policy finally had a terrible effect on the economy, the producers and farmers ended up smuggling, even if this practice was punished by death. Idi Amin fled the country in 1979 when the Tanzanian army took Kampala. This event closed the Uganda - Tanzania war which started when Idi Amin annexed a Tanzanian territory.

After this period, Obote won elections but Museveni, a former military commission member, disputed the election results because of suspicions of irregularity. It led to the Ugandan Bush War, a civil war that saw rebel groups fighting against the armed wing of the national government

(1980-1986). When the rebel NRA group took Kampala in 1986, Museveni was installed president, promising a return to democracy.

From this time on, the situation in Uganda has been more peaceful. Museveni restored the kingdoms but as cultural institutions. The country began to participate in an IMF Economic Recovery Program in 1987, it privatized most of the public enterprises in the early 1990s and opened its territory to the international markets. In terms of health, Uganda registered successes in tackling the AIDS epidemic in the 1990s. The first elections since 1986 took place in 1996, won by Museveni. Constitutional amendments scrapping presidential term limits (2005) and the presidential age limit (2017) allowed the president to stay in office for more than 30 years.

Prerequisites before diving into Kampala

As in every country, the administrative limits and the political system shape a specific terminology in which the newcomer gets easily lost. Uganda has a feature that makes the comprehension of the territory even more arduous : a particularly complex land tenure system.

Local governments hierarchy

Village

A village is the lowest political administrative unit. it usually is home to between 250 and 1,000 people. Each village is run by a local council – the local council I (LC1). There are 3230 villages in Kampala.



Parish

The parish is the next level up from the village. Each parish has a local council II (LC2) committee, constituted of the chairmen from the villages (LC1s) . LC2s are caring about settling land distribution and activities for the community. A parish chief (a government employee) provides technical leadership to the LC2. There are 76 parishes in Kampala.



Sub-County

The sub-county is made up of several parishes. It is led by an elected local council III (LC3) chairman and by the sub-county chief for the technical aspects. The council consists of elected councillors representing the parishes, other government officials involved in health, development and education, and NGO officials in the sub-county. In towns such as Kampala, a sub-county is called a division.



County

Counties are the next level up. The same system applies : LC3 executives committee members elect a LC4 executive committee from among themselves. Each county is also represented in the national parliament as an MP. These committee have limited power, except in urban areas. The county becomes then actually a municipality, such as Entebbe, or a city, like Kampala. The committee is in this case running the municipality (in Kampala, there is a specific organization as already seen).



District

A district is composed of several counties and any municipalities in that area. Wakiso district is made up of two counties and a municipality: Kyaddondo County, Busiro County, and Entebbe Municipality with a population of about 2 millions. A district is led by an elected local council V (LC5) chairman and his executive, and a chief administrative officer. It has various departments such as education, health, environment and planning.

Land tenure system

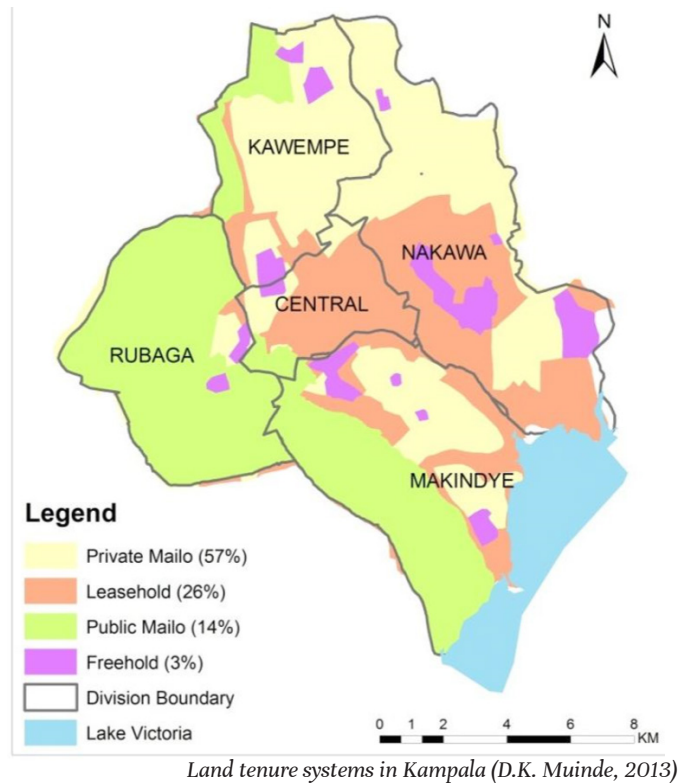
The multi-facet history of Uganda resulted in what is considered as one of the most complex land tenure systems in the world, particularly in Kampala where four different land tenure systems operate alongside each other. The Land Act (1998) helped in defining these different types of lands :

- The Freehold Land is owned by private individuals, public institutions, NGOs, churches, mosques or charities. One can hold it in perpetuity and has the right to sell, lease, mortgage, pledge and sub-divide it. It used to be granted by the Crown during the colonial rule. Currently, the registration of all freehold land is done by the Ministry of Lands, Housing and Urban Development (MHLUD);
- The Leasehold land involves a contract between a landlord and a tenant to grant him exclusive possession of land. It usually applies for a definite period of time. In Kampala, this comprises KCCA's land which is currently managed by the Kampala District Land Board (KDLB), an entity of the MLHUD.

- The Mailo land tenure comes from the 1900 Buganda Agreement, when the land was allocated between the Crown and the Buganda Kingdom. It separates the ownership of land from the ownership of developments on land made by a lawful or bonafide occupant. A lawful occupant uses land with the consent of the owner. The bona fide occupant occupied or developed a land unchallenged by the registered owner for 12 years before the enactment of the 1995 Constitution. Local authorities can also benefit from it. There are two types of mailo land: private mailo land (held by private individuals) and public mailo land, which was returned by the central government to the Buganda Kingdom in 1993. The Buganda Land Board is the authority issuing the ownership certificates.

- The Customary Land Tenure recognizes the traditional occupancy and ownership of the land. It follows the rules of specific communities. Individuals can obtain a private certificate if the owner (often the clan of a tribal chief) allows it. Customary tenure systems regulate 75% of the total land and are still the most common form of tenure in the country, but is almost non-existent in Kampala. Customary tenure applies to former public land that has not been registered.

This complex situation and the ambiguity of the systems can result in difficult cases: some lands have an unclear status, creating many land disputes all over the country. In Kampala, the former capital of the Buganda kingdom, we logically find a majority of mailo land.



The Mailo Land Tenure system is challenged by its dual ownership mechanism, creating competition and legal fights between tenants and landlords. The law is protecting the tenant if he does pay the “nominal ground rent” annually. This rent, also called Busuulu, is set by the MLHUD, its amount currently being 50,000 shillings (about 14 USD). It is nevertheless often ignored by the occupant and sometimes leads to evictions.

Property rights also plays an important role in the quality of housing and life because living under the potential threat of an eviction does not encourage investing. In a 2015 study, Collier showed that households with weaker property rights invested less in housing quality than those with stronger property rights. This is one of the factors making difficult the improvement of informal settlements, often on mailo land.

“This property is not for sale”

One may be surprised in Uganda by the high number of signs and paintings on houses and fields stating this singular sentence : This property is not for sale. The owners are trying to protect themselves from scammers selling the land from under them.

First look on Kampala's territory

This first glance on the Greater Kampala introduces schematically the different components of the city.

Kampala's divisions

Kampala is the capital and biggest city in Uganda. It has a total area of around 195 km², with 33 km of shoreline on Lake Victoria. Kampala has an estimated population of 1,610,500. The population under 30 years of age represents 77.8% of the total. Kampala is a district and a city. It is comprised of five divisions: Central, Nakawa, Makindye, Lubaga and Kawempe.

Central division

The central division is the economic heart of Kampala. The colonial city started to develop on the following hills: Old Kampala and Nakasero, first planned district in 1912. Nakasero which is nowadays the Central Business District, on which there are official buildings including the Uganda Parliament, the Kampala Capital City Authority's headquarters, and several government ministries. The top of the hill also accommodates upscale hotels and restaurants. On the east, the hill of Kololo is more residential despite the Acacia Avenue and its intense nightlife. The biggest markets and a large industrial area are also in this division.



Nakasero (KCCA)

Rubaga division

Rubaga (or Lubaga) is the historical and cultural division of Kampala. The inherited monuments from the Buganda times are to be found here: the Kabaka's Palace is in Lubiri, on Mengo hill, and the Kasubi Tombs, the official burial place of the Kings of Buganda, is on Kasubi hill. The western parts were urbanized more recently.



Kasubi Tombs (Venture Uganda)

Kawempe division

Kawempe is the most populated division (340,000 inhabitants in the 2014 census). It can be seen as the "educational" part of the city. This image is mostly because of the south of the division, devoted to the Makerere University. The University is a large, green and pedestrian campus, with distinguishable houses for every department. It is often ranked in the top 10 of the best African universities. The northern part of the division is quite densely populated, with some of the largest informal settlements of Kampala.



Makerere University (KCCA)

Makindye division

Makindye is the division lying on the shores of Lake Victoria, from the south until the mouth of the Nakivubo Channel. It is a mostly residential district, with both upscale neighbourhoods and low-income settlements. Its lakefront welcomes more diverse activities: Muyenga hill has many institutions, there are the fish market, universities and a boat dock in Ggaba, and two important resorts in Munyonyo.

Nakawa division

Nakawa is a large division, extending from the Nakivubo wetland on Lake Victoria to the Northern border. It is known for its eponymous industrial area, that is gradually being relocated further in the metropolis. Port Bell is also a small industrial. The biggest brewery is in Port Bell, on the Lake.



Munyonyo in Mankindye, and the tallest tower in the city in Nakawa (KCCA)

Greater Kampala and further

Looking at the wider picture, Kampala is surrounded by three districts, that are partly within the Greater Metropolitan Kampala area (GKMA).

Wakiso

Wakiso is the district literally encircling Kampala City. It is made up of two counties (Busiro and Kyadondo), in which there are four municipalities (Entebbe, Makindye-Ssabagabo, Nansana and Kira), eleven town councils and six rural sub-counties. The is the second most populated district in Uganda. About 50% of the people working in Kampala City live in Wakiso. Most of the current impressive growth happening in Kampala is actually taking place in Wakiso. Some of the Buganda Kingdom’s cultural sites are in Wakiso and the district has also a large shoreline along Lake Victoria. Wakiso’s economy has transitioned from agricultural-based, to trade and industry.



Residential development in Wakiso (Nelor)

Mukono

Mukono is located in the East of the metropolis, on the way towards Jinja. Mukono has changed a lot over these last years to become the “industrial hub” of the GKMA with over 200 industries in Namanve Park and over 50 in Mbalala Park, with more expansions planned. Mukono also welcomes many agricultural lands, planned residential areas, and a great potential in lakesides to serve the growing population.

Mpigi

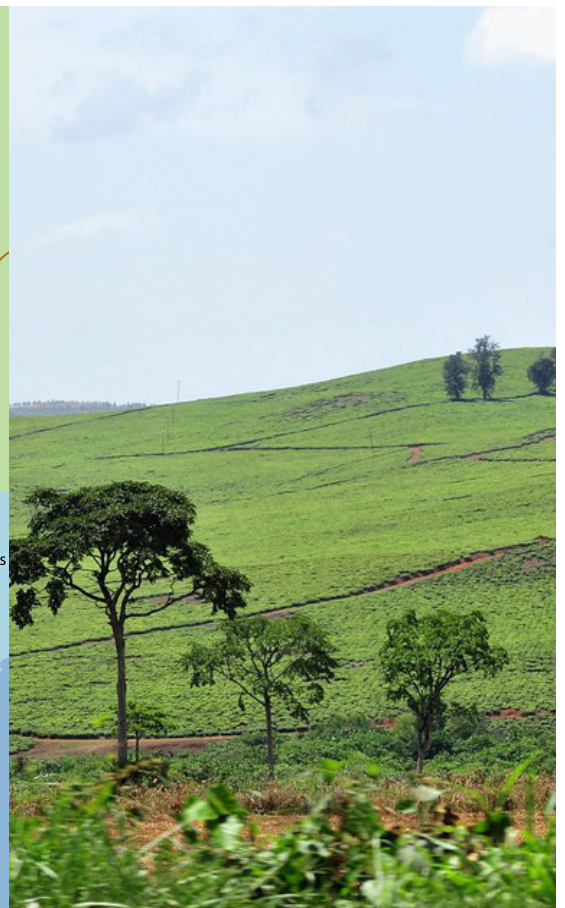
Mpigi is a more natural and rural area in the metropolis. Only 17% of the population was living in an urban area and 80% of households activities were based on agriculture in 2014. If subsistence farming is the majority, some of the crops, beans, fruits and vegetables are feeding the city. It is also the centre for drum-making: the drums for the Buganda Kingdom’s were already produced here.



The equator monument in Mpigi (Mpigi)



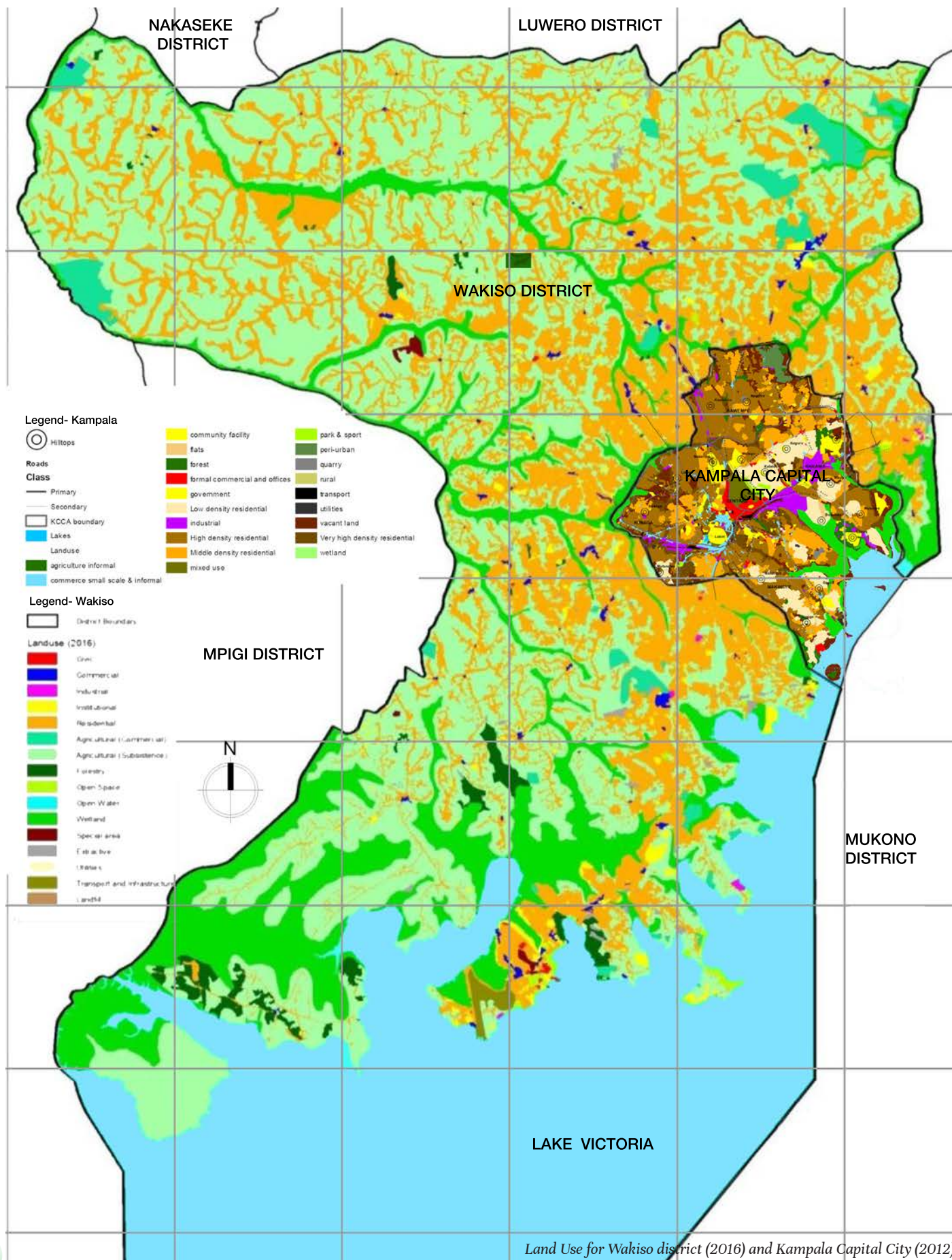
The Greater Kampala Metropolitan Area, and Kampala divisions (KCCA)



Tea plantation in Mukono (Q. Atbar)

Land Use

Nowadays, KCCA has very few vacant lands which are not restricted areas. At the Wakiso district level, the situation is still mixed, between the surroundings that are getting very quickly urbanized and further areas that remain rural despite important evolutions.



Land Use for Wakiso district (2016) and Kampala Capital City (2012)

City of Hills : Kampala's urban planning history

From the Buganda times until the twenty-first century, an investigation on the different plans through time reveals a mix of the colonial and contemporary urban fabric, based on the research of Dr. Fredrick Omolo Okalebo.

Kampala "is like ancient Rome- only much more so - a city of seven hills. Each suburb or portion of the straggling town of some 77,000 souls is a hill or a hillock in itself".

Sir Harry Johnston, The Uganda Protectorate (1902)

"This important metropolis was more of a collection of villages than a city proper. (...) But this collection of agglomeration remains invisible, because Kampala is less a city than a gigantic garden."

P. B. Leblond, Le Pere Auguste Achte (Algiers, 1912)

Buganda's Kibuga

During centuries, the capital of Buganda was moving periodically: upon the death of one king, his palace became his tomb. The new king had to establish capital elsewhere. Its large residence was called the kibuga, and it was every time located on hilltop. When the first explorers and colonial missions arrived close to Lake Victoria, the palace was settled on Mengo hill. They found a relatively sophisticated urban settlement, which stopped to move from then on.

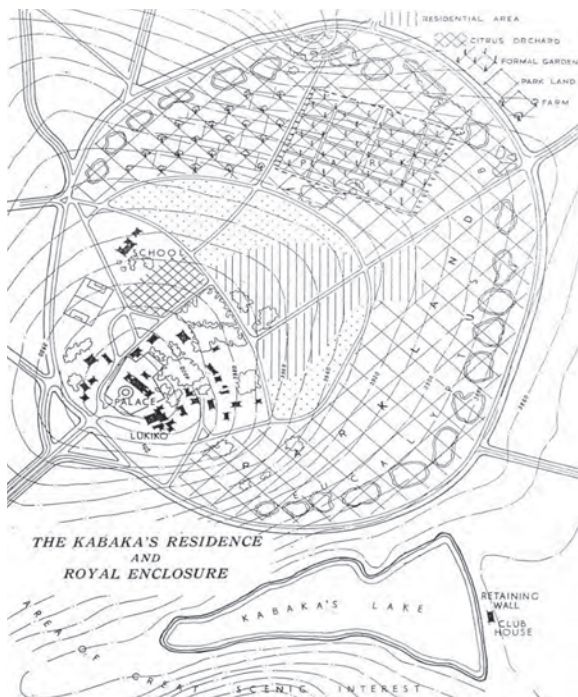
Being based on a hill offered to the king an undeniable effective defence. His palace was protected by a bamboo fence and surrounded by villas of the chiefs and close confidants of the Kabaka in a concentric way. The neighbourhood of the capital was a series of hills, intersected by swamps. All the paths approaching the capital had to cross these, and there were only a few banks allowing the crossing, where one could find an executioner. Agriculture was part of the ecosystem. The spaces downhill had fertile soils and were used to feed the city and as a buffer zone.



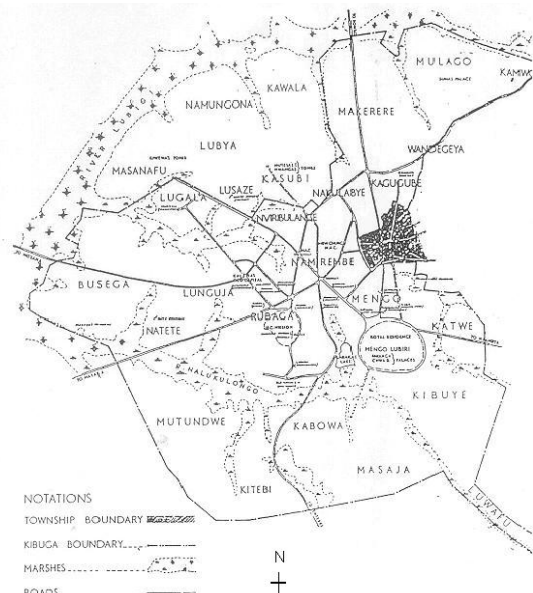
Kampala from Namirembe Hill, 1897 (A. Cook)

The segregated garden-city

With the Buganda agreement in 1900, lands were separated between the Buganda kingdom and the British colonial government. The kibuga remained as a separate entity from the town that took the name of Kampala. The British set up a township on the hill next to the kibuga, called afterwards "Old Kampala". The immediate result of this situation was a dual city : an African dominated part administered by Buganda government was adjoining Kampala, inhabited by Europeans and Asians.



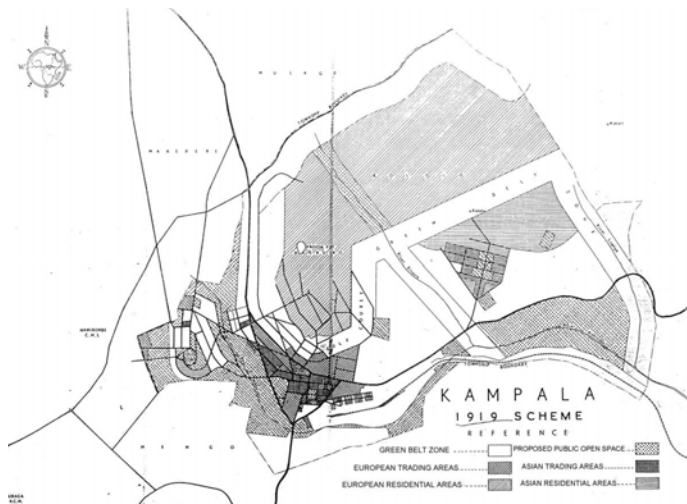
The kabaka's palace : Lubiri (Gutkind, as cited in Omolo Okalebo, 2011)



The Kampala township (in black), the kibuga and the surroundings in 1902 (Prabha, 1993, as cited in Omolo Okalebo, 2011)

The first planning scheme for Kampala township was prepared in 1912. It consisted of a rational plan based on civic design tradition and covered the town centre and the Nakasero hill which was quickly urbanizing.

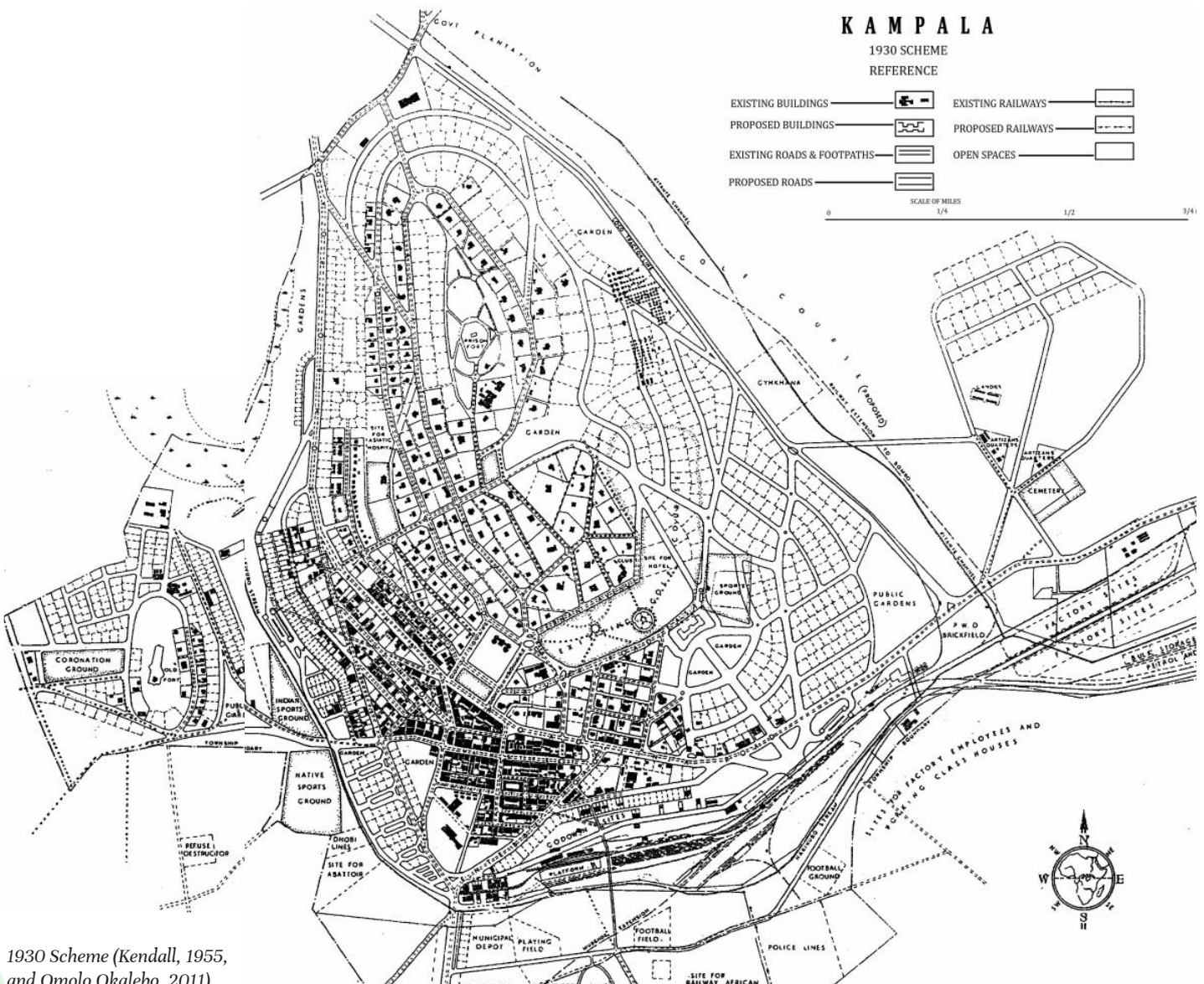
While the city was growing, hygiene and sanitation became central concerns. Invited to Uganda to advise the planning of Kampala, Professor William J. Simpson expressed “the necessity of securing its development on healthy lines; by physical separation of Europeans, Indians and Africans by the use of green belts that neither could “encroach” on.”



1919 plan “C” (Kendall, 1955, as cited in Omolo Okalebo, 2011)

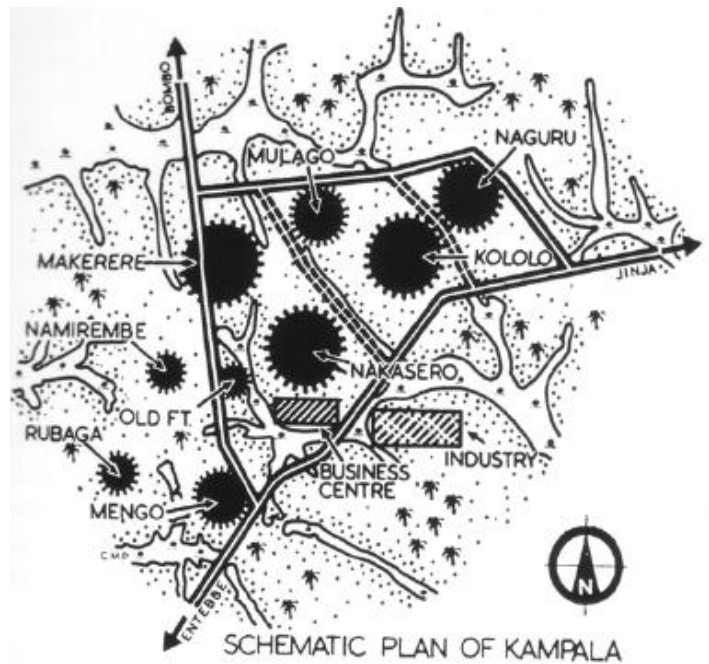
This racist ideology was then at the centre of the 1919 Planning Scheme, drawing in Kampala residential areas for Asians and others for Europeans. A large green belt zone was keeping the different groups at a respectable distance. Africans were kept out of the township, in the Kibuga or in the surrounding rural areas.

The growth made the British abandon quickly the green belt. But this main direction was to be continued in the upcoming plan while including elements of modernity: drainage, electricity, railways were under development. The 1930 Planning Scheme let in some heritage in the city, notably through the implementation of open spaces. The “Green Belt” became overtime the Golf Course, and “Kampala Gardens” is nowadays the main taxi park.

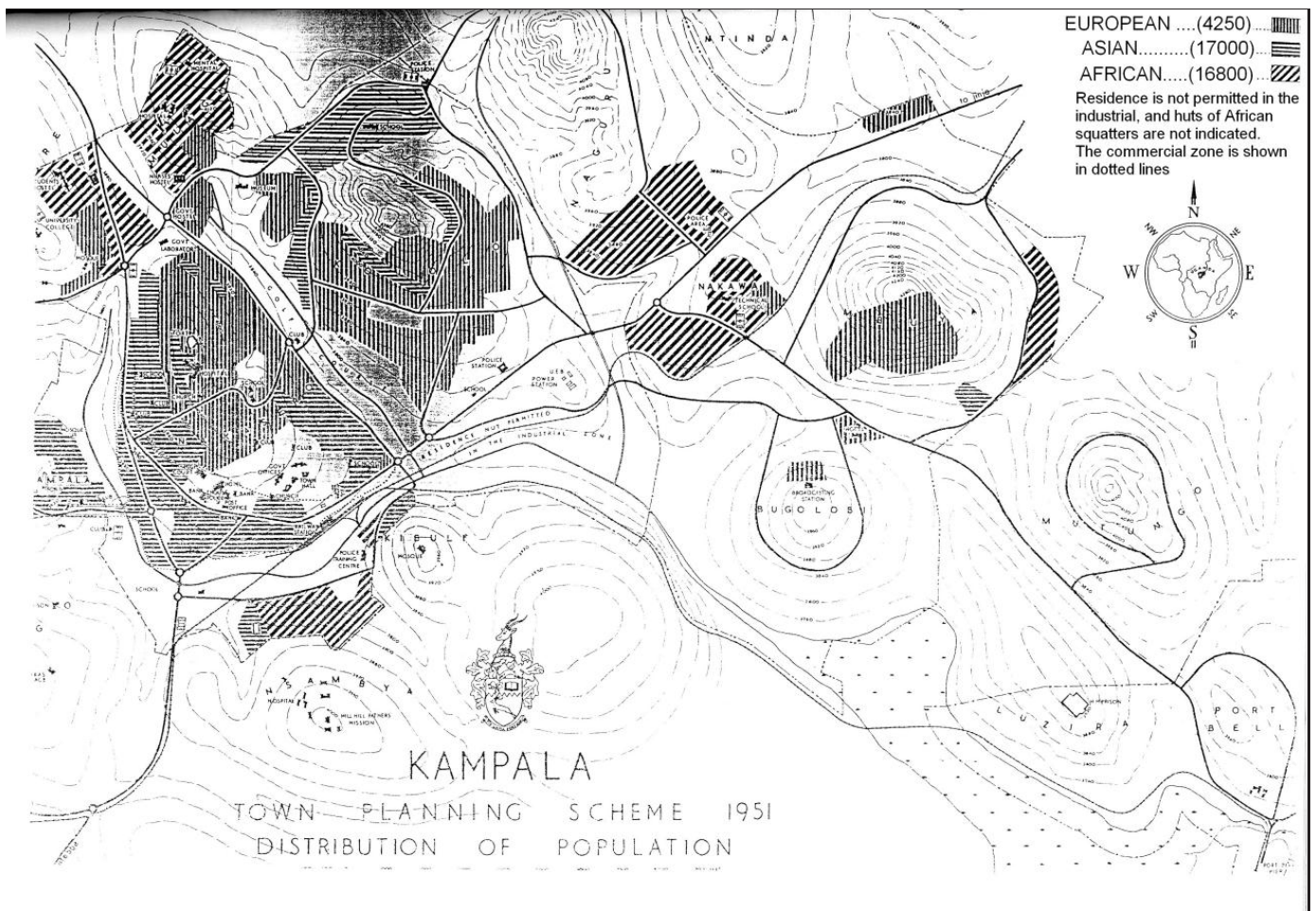


1930 Scheme (Kendall, 1955, and Omolo Okalebo, 2011)

After the Second World War, the British invited a famous urban planner, Ernst May, to work on Kampala. He first saw the city as a “beautiful garden city”, and intended to keep this feature in his proposals. He wanted to emphasize the natural topography and conceptualized Kampala as a “satellite city” made of nine separated settlements, each on a different hill. The expansion of the city towards new hills on the East allowed him to offer to build for the first time in East Africa large settlements for low and middle-income Africans (in Naguru and Nakawa). This plan aimed at doubling the township population (to 40,000 inhabitants).



The diagrammatic scheme from Ernst May. Its report was then used as a basis for the 1951 scheme (Omolo Okalebo, 2001)



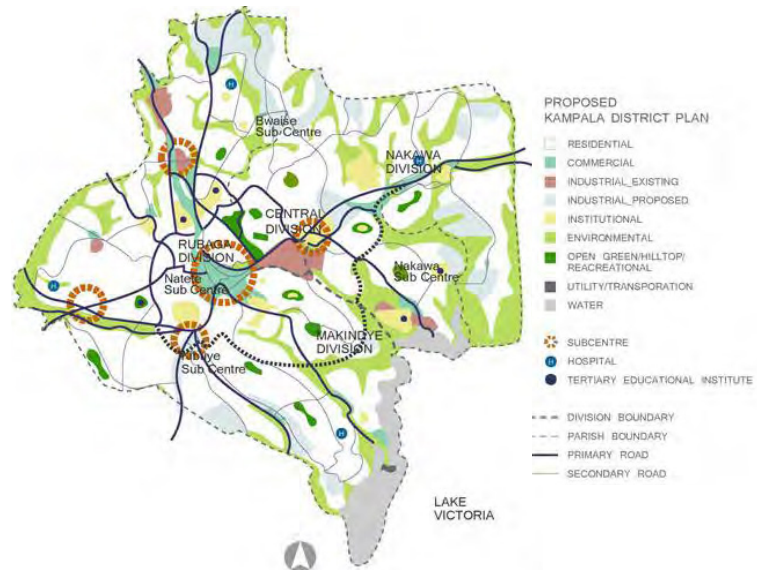
Henry Kendall's town planning scheme from 1951 (Kendall, 1955, cited in Omolo Okalebo, 2011)

Post-independence Kampala

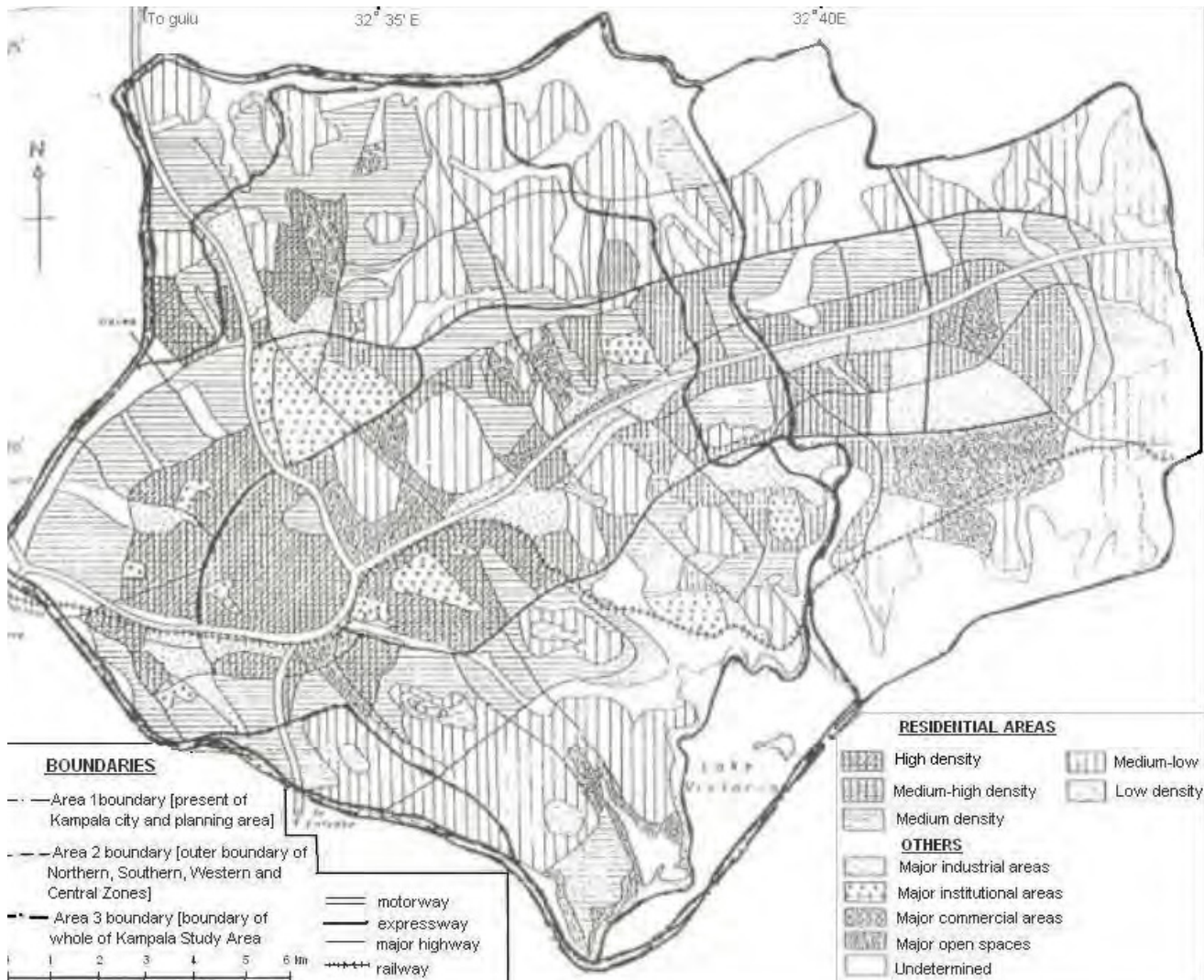
After the independence, Kampala welcomed more national institutions because of its new capital status. This meant an ever faster growth for the city. The first obstacles were linked to institutions. While the kibuga was included in a new Mengo municipality, the other areas of colonial Kampala were different authorities. The United Nations launched two Kampala-Mengo Planning Missions between 1962 and 1969. From this time, the idea of a Kampala Metropolitan Authority was born. They also offered an extensive and theoretical approach to Kampala's territory based on a hexagonal grid for towns and neighborhoods.

In 1968, the administrative boundaries of Kampala expanded from 28 square kilometres (in 1951) to 195 square kilometres. The 1972 Kampala Development Plan was then an attempt to bring coherence to this patchwork and to tackle the upcoming urban extension. A new transportation network was designed: the northern and southern expressways appeared for the first time, with the goal to be completed in 2000 (the works finally started in 2004). The Plan was also stressing on housing and industries. Due to the lack of funds and interest from the Idi Amin regime, it has not been fully implemented.

The Kampala 1994 Structure Plan was funded by the World Bank and commissioned to Planning-Alliance, a Canadian consultancy firm. It represents a shift of planning philosophy. It is a comprehensive plan that promotes mixed-use areas (the type of zones only give primary preference to particular cases) and insists on protecting environmental areas such as the wetlands.



The 1994 Structure Plan (KCC, Omolo Okalebo 2011)



The Kampala Development Plan focus : transportation express scheme, from 1972 (Kampala City Council, as cited in Omolo Okalebo, 2011)

Kampala's governance and planning documents : the nesting dolls

Kampala has a peculiar governance with different leaders, due to its history. The planning documents on the territory are existing at different levels and work as nesting dolls : every level must comply with the strategy stated in the larger scale plan

In 2010, the Ugandan government reorganized the city services, to renew the staff and to enhance the accountability of the local government. The Kampala Capital City Authority (KCCA) was then created by the Kampala Capital City Act (KCCA Act 2010), promulgated by the Uganda Parliament in late 2010. The Act introduced a new division of powers at the top of Kampala :

- The Lord Mayor is the political head of the Capital City. He is directly elected. He presides over all meetings of the Authority, performs ceremonial and civic functions, he also hosts foreign and local dignitaries, heads the Authority in developing strategies and programmes for the development of the Capital City. The current Lord Mayor is Mr Erias Lukwago.

- The Executive Director (ED) of KCCA is running the Authority. He is responsible for the functions of the Authority, which are notably : to initiate and formulate policy, to determine taxation levels, to enact legislation for the proper management of the Capital City, to construct and maintain roads, drains, street lights, to organize and manage traffic, to carry out physical planning and development control, to mobilise the residents of the Capital City to undertake income generating activities and self-help community projects... The ED is appointed by the national government. The current Acting Executive Director is Eng. Andrew Kitaka.

- The Minister for Kampala Capital City and Metropolitan Affairs is part of the national government. As such, she is appointed by the president. The Ministry is enforcing and ensuring compliance with the KCCA Act 2010 and the other bills related to Kampala. It is also monitoring the city developments. The current Minister is Hon. Min. Betty Kamya-Turwomwe.

The KCCA Act also stipulates the creation of the Metropolitan Physical Planning Authority (MPPA). The MPPA should handle and address planning issues within the capital city and the neighbouring districts of Wakiso, Mukono and Mpigi. The MPPA is also supposed to plan major transportation, infrastructure, recreational parks, tree planting, to approve the capital city, municipal and town structure plans and to oversee and monitor the execution of a Metropolitan Authority Development Plan. Nevertheless, the MPPA has not been operationalised yet. From 2011 to 2018, KCCA was led by Jennifer Musisi, who became famous for being very active in the city affairs. She notably brought about a new waste management system,



KCCA tower, symbol of the local authority and landmark in the city (JG)

succeeding in making the city cleaner, and implemented many initiatives, such as KCCA Health Centers, the Employment Service Bureau, the Kampala City Festival, the Sunday Market, Kyanja Agricultural demonstration centre among others. She finally became in 2019 the first City Leader in Residence at Bloomberg Harvard City Leadership Initiative in Cambridge, USA.

Kampala has been endowed with the Kampala Physical Development Plan from 2014. This plan complies with the national main orientations documents: Uganda Vision 2040 and the National Physical Development Plan. The Wakiso Physical Development Plan also gives us orientations for the metropolis' future.

Uganda Vision 2040 started in 2010 and provides development paths and strategies to operationalize the following statement: “A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years”. It aims at making Uganda an upper-middle-income country. It recommends to strengthen the infrastructure, to invest in Science, Technology, Engineering and Innovation (STEI), to enhance the land use and management, to foster the urbanisation, to work on the human resource, and to guarantee the peace, security and defence.



On the urban developments, Uganda Vision 2040 (UV2040) offers to bring some balance in the current national urban system. It proposes five regional cities (Gulu, Mbale, Kampala, Mbarara, and Arua) and five strategic cities (Hoima, Nakasongola, Fort Portal, Moroto, and Jinja). To that effect, Cabinet pronounced itself and approved the creation of nine cities, five of which will become operational on July 1, 2020, i.e. Arua, Gulu, Jinja, Fort Portal, Mbarara while Hoima and Mbale will become operational on July 1, 2021.

On the Greater Kampala Metropolitan Area (GKMA), it plans to implement an extensive road network around the metropolis, with three ring roads at different scales. It will be complemented by high-quality public transport systems (heavy rails, new light rail systems and bus rapid transit and trams).

Urban sprawling shall be controlled through legislation, integrated physical planning and strict development control. In order to raise the density in Kampala, UV2040 foresees a well-planned high-density settlement with high rise buildings. The integrated physical planning is also to be used to emphasize the environment and waste management. It logically orders the elaboration of physical master plans for GKMA.

The vision has the goal to facilitate the access to land. It states that the land acquisition should be driven purely by market forces.

All these projects will be financed by national revenues, Public Private Partnerships, concessional loans and grants, and borrowing from domestic and international markets.

The Draft **National Physical Development Plan** (NPDP) was finalized in February 2019 by the Ministry of Lands, Housing and Urban Development and its on display awaiting regional consultations. It “gives a strategy to resolve the conflicting sectoral pressures on uses of land, a finite resource of the territory of Uganda, as the population grows, and the country modernizes”. Its analysis draws a hierarchy of settlements and depicts the principal land uses and the infrastructure networks.

In terms of strategy, the NPDP promotes a polycentric settlement system at the national level, connected by a triangle of expressways. These main arteries shall be used to channel the urbanization and to limit the expansion of Greater Kampala Metropolitan Area. It also identifies strategic agricultural zones and bioregions as key elements for long-term growth and sustainability.



NPDP Settlements & Land Use Map



Legend

Strategic Agricultural Lands	Rurbanization Zones	Landing Site
Secondary Agriculture	New City	Port
Protected Areas	AGUR Blocks	Water Transport Routes
Bio-Region	Main River	Oil Pipeline
Permanent Wetlands	River Nile	Airports
Seasonal Wetlands	Transportation	International Airport
National Resources Blocks	Class A	Domestic
Oil in Uganda	Class B	Border Crossings
PROPOSED_REFINERY_LAND	NPDP Expressways	East African Towns
Urbanization Zones	NPDP Highways	State Capital
Secondary City	Passangers/Cargo Railway	Province Capital
Regional City		Central Town
GKMA Urbanization Zone		



The pattern showing the Kampala metropolis on the map represents the entire maximum area of expansion, from Mityana in the west to Lugazi in the east and Entebbe in the south. In the north, it will be stopped by a new expressway. (NPDP, MLHUD)

Kampala's main strategy is portrayed in the **Kampala Strategic Plan 2014-2019** : Laying the Foundation for Kampala City Transformation. The KCCA Strategic Plan 2019-2024 is under preparation

This strategy's territorial materialization is to be found in the **Kampala Physical Development Plan**. Its draft was delivered by a team of different consultants in October 2012. There has not been an amended version since then.

The vision behind the document is to build a "Modern, Functional, Balanced City and Metropolitan System", making Kampala as the main engine to drive "Uganda's Growth, Transformation and Modernisation". It also uses the motto of KCCA as a goal : "Ensuring Kampala's future as a Vibrant, Attractive and Sustainable City".

It encompasses all the strategies from the Uganda Vision and from the NPDP and brings a detailed spatial strategy for Kampala. In the KPDP, The Capital City will become a multifocal and multifunctional city. The CBD will be extended, accessible by an Urban Freeway. The connection between the Lakefront, area of potentials, and the inner city will be enhanced. Wetlands will become central parks in the city. The hilltops are to be developed for public use, recreation and tourism. New housing models, including affordable housing, will be implemented. To mitigate the growth, two satellite cities are planned. One is located in Sissa (south of Kampala) and will be developed between 2020 and 2025, the second one is expected for 2030 and is located in Nakisunga (on the western shores of the lake from Kampala). They have the ambition to welcome up to 250,000 inhabitants by 2040. In Ggaba, on Lake Victoria, the port is planned to be upgraded.

The detailed planning tool proposed in the KPDP is the Precincts. The Precincts are neighbourhood plans with land use proposals at the parcel level. In order to start with this long and ambitious process, Kampala has chosen four central parishes to develop these precincts: these are Nakasero, Kololo, Makerere and Mulago. Public meetings have been held to present different scenarios for the population.

In order to prepare the KCCA Strategy 2019-2024, Kampala is also getting equipped with the **Kampala Disaster and Climate resilience strategy**. It focuses on governance strengthening, risks analysis, investment in risk reduction and infrastructure, integrated planning notably in the wetlands.

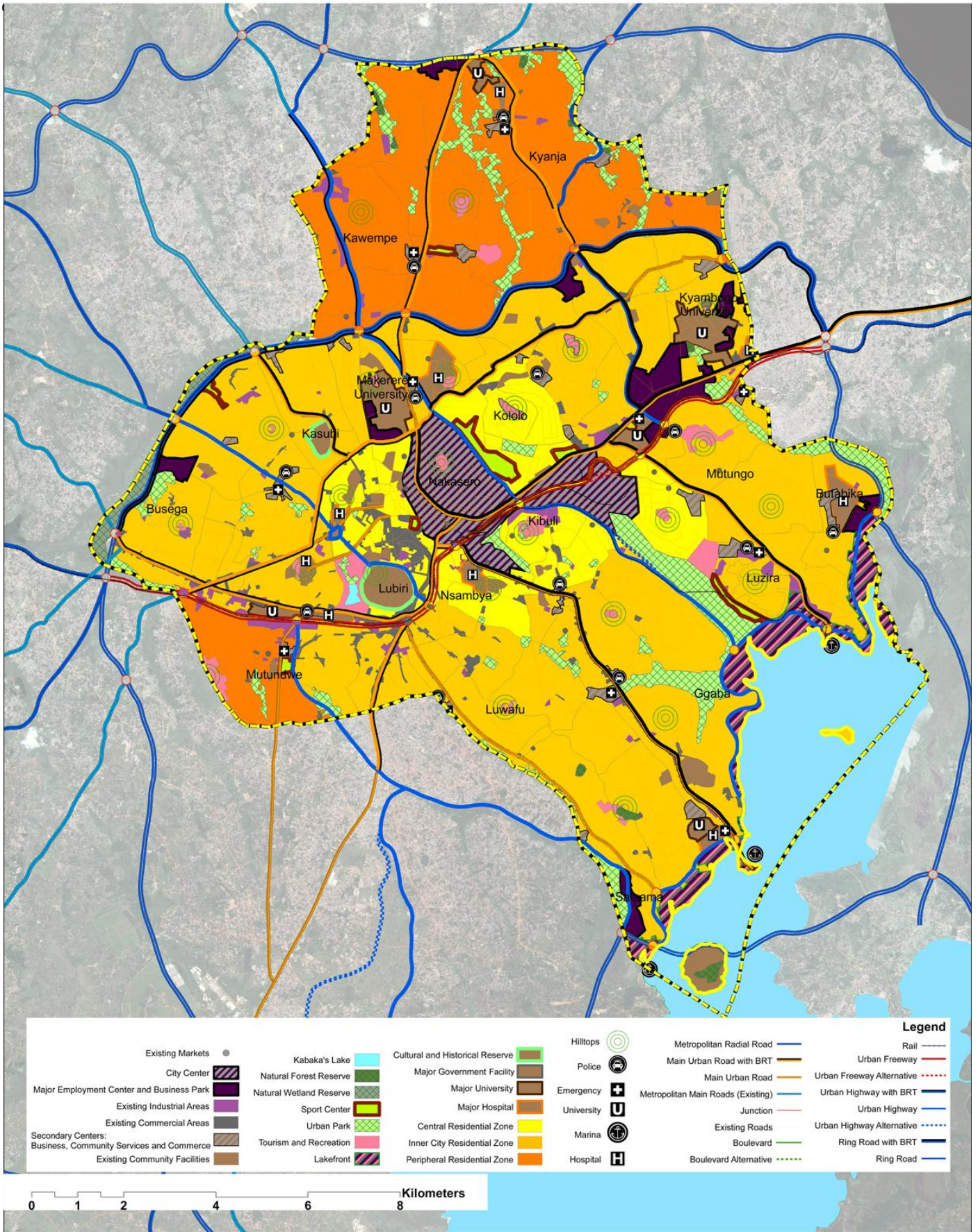
To have a broader image of the metropolis, it can also be interesting to have a look on the **Wakiso Physical Development Plan (WPDP)**.

Its draft was published in 2017 and prepared by Savimaxx Limited, a Ugandan firm. It also draws on the district's five-year strategic economic development, which vision is "A Transformed Wakiso District Community from Semi Peasantry to a Modern and Urbanized District". The WPDP coherently wants "to improve, transform and develop the district in a sustainable manner towards a modern society".

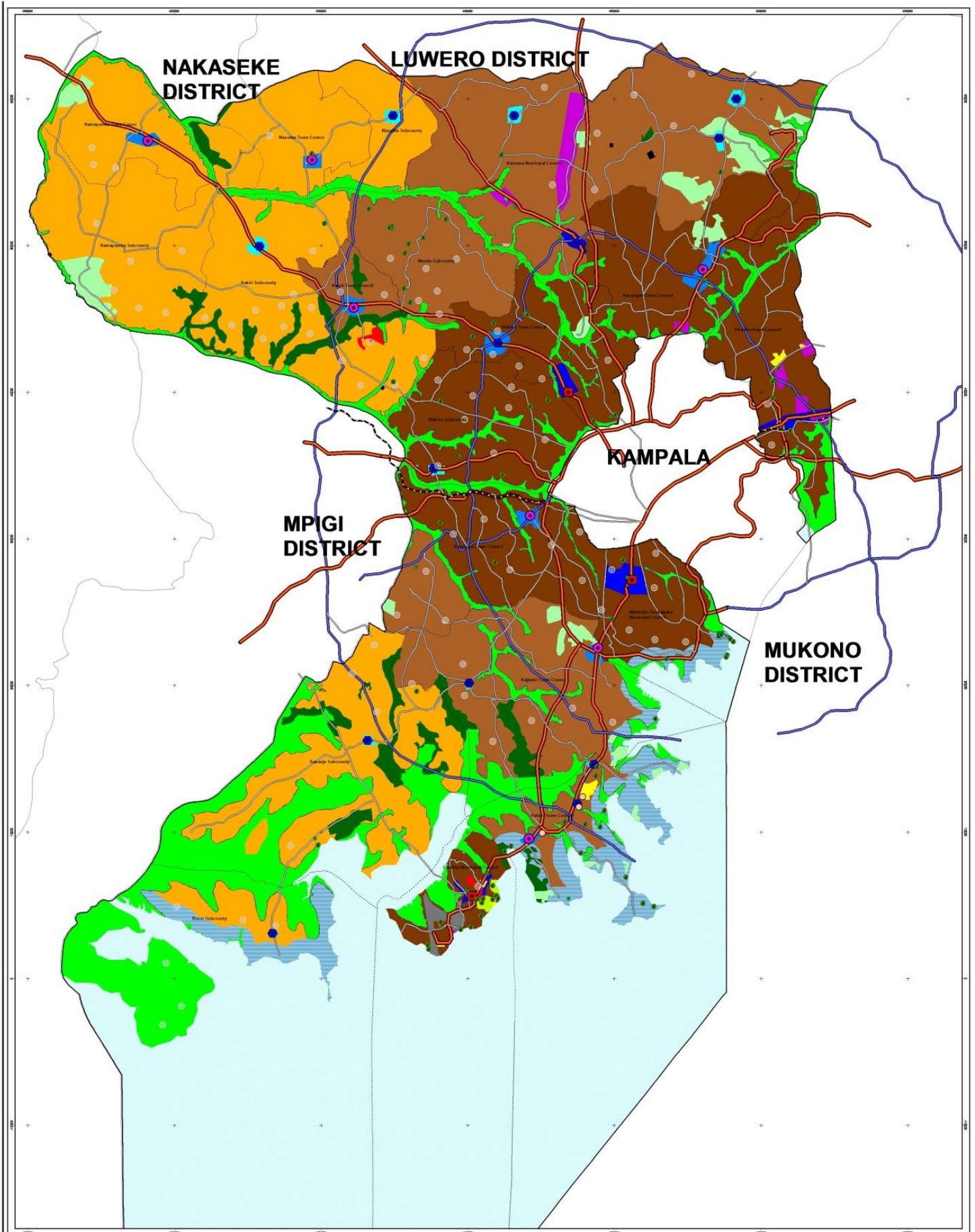
In this plan, Wakiso district shall offer a modern urban metropolitan system alongside a rural agricultural economy. The existing urban cores will be planned and strengthened, and the metropolitan road system will connect these urban centres with Kampala. Some buffer areas between Kampala city and the district, as well as between the outlying districts and Wakiso are designed. And the agricultural, environmental and rural economic set-up and ecosystem will be protected.

One should finally mention the Greater Kampala Economic Development Strategy. It has been written under the coordination of the National Planning Agency and was published in July 2019. It offers a strategy for a "united effort towards job creation, improved livability and sustainable development in the Greater Kampala" and looks at the period until 2025.

As a Greater Kampala strategy, it calls for advanced collaboration between the different local authorities of the GKMA. According to the report, in 2025 the Greater Kampala is creating more quality jobs, thanks to different programmes of business support that transforms the informal sector, the youth and economic cluster growth. The development of touristic sites such as Namugongo, Kasubi tombs or Munyonyo is also a key element. The livability will be improved through increased access and quality of services - because of infrastructure plans, affordable housing programs, and better local government efficiency.



The Kampala Physical Development Plan (KCCA, 2012)



INTEGRATED LANDUSE

<ul style="list-style-type: none"> ● Tourism and Cultural Sites ○ University ○ HRSPs ● Markets ○ Commercial Areas ○ CBD ○ District Centre ○ Local Centre 	<ul style="list-style-type: none"> — District Boundary --- Administrative Boundaries — Roads — Major Arterial Roads — Minor Arterial Roads — Existing Railway for Upgrading 	<p style="text-align: center;">Legend</p> <ul style="list-style-type: none"> — Collector — Landuse — Buffer — Commercial (CBD) — Commercial (District Centre) — Commercial (Local Centre) — Industrial — Institutional — Landfill — Natural Forest Reserve — Open Water — Recreational — Residential (Dense) — Residential (General) — Residential (Peripheral) — Sewer Lagoon — Special Area — Transportation — Urban Agriculture — Water Front — Wetland 	<p style="text-align: center;">Scale: 1:82,000</p> <p style="text-align: center;">Drawing No.: WPDP/2017/20</p> <p style="text-align: center;">Client: Wakiso District Local Government</p> <p style="text-align: center;">Consultant: Savimaxx Limited P.O.Box 25250 Kampala (Uganda)</p>	<p>This is the Plan referred to in Minute:.....</p> <p>This Plan is approved under Section 28 (1) of the Physical Planning Act 2010</p> <p>Chairman: National Physical Planning Board Ministry of Lands, Housing and Urban Development</p> <p>Signature:..... Date:.....</p>
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The Wakiso Physical Development Plan (Wakiso district, 2019)

A strong international presence

Uganda has been a stable country for more than 30 years, with a relatively open economy. This has made the country a good candidate for international organisations, which are represented in many major investments. This list aims at giving an overview of some of the organisations and agencies involved in loans and projects in Uganda and especially in Kampala. It is not an exhaustive catalog, some important organisation may be missing. Many of the projects are led in cooperation with other organisations. The National Bureau for NGOs also holds a database of 3810 NGOs with valid permits.

Organisation	Sectors of intervention
World Bank	All sectors (with focuses on economy, infrastructure...)
African Development Bank	All sectors
IMF (International Monetary Fund)	Economic development
UNDP (United Nations Development Programme)	Inclusive governance, inclusive economic development
European Union	Transport infrastructure, food security, governance
DFID (UK's Department for International Development)	Health, corruption, economic development, financial services...
AFD (French Development Agency)	Infrastructure (sanitation, street lighting), Climate change and natural resources,...
GIZ (German Cooperation Agency)	Renewable energies, water and sanitation, rural development
JICA (Japan International Cooperation Agency)	Road infrastructure, traffic management, health services and water supply, rural areas
USAID (USA International Development Agency)	Resilience, health, economic development of youth, governance...
KOICA (Korea International Cooperation Agency)	Rural communities empowerment
ENABEL (Belgian Development Agency)	Health, education
Sino (China) - Uganda Bilateral Relations	Development of special economic zones: Industrial parks, Infrastructure building, Investment, Health, Tourism, Energy, Mining, Agriculture, Youth, Defence, Counterterrorism and International Affairs
SNV (Netherlands Development Organisation)	Sustainable agriculture business
SIDA (Swedish International Development Cooperation Agency)	Democracy, human rights, women rights
Danida (Danish International Development Agency)	Poverty reduction, democracy
Austrian Development Agency	Government and civil society, water and sanitation
Norad (Norwegian Agency for Development Cooperation)	Clean energy, petroleum management, women and gender equality
GGGI (Global Green Growth Institute)	Energy, Irrigation
Bill and Melinda Gates Foundation	Fecal sludge management in Kampala



Along the Kampala - Entebbe road (JG)

An ecosystem challenged by a tremendous growth

The unlimited potential of the lake

The disappearing ecosystem between land and lake

Urban greening

A demographic tsunami



The unlimited potential of the lake

A fragile ecosystem with physically unlimited potential in the region, Lake Victoria provides the Kampala city with a lot of natural outputs and attractiveness for both aquaculture and eco-tourism.

Lake Victoria, also named Nyanza is the largest lake in Africa and the second in the world by area. The water surface is 68,100 km², and volume 2,750 km³. It was named by the British explorer Speke who was the first European to reach it in 1858. He baptized it in Queen Victoria's honour.



A beach of Lake Victoria in Entebbe (JG)

Lake Victoria's shoreline, its islands, and the associated resources are unique to Greater Kampala and play a key role in the city's economy, particularly in tourism and recreation, transportation and fishing. Birders flock to Greater Kampala to catch a glimpse of the elusive Shoebill Stork, while its islands have been named one of the best secret Island destinations in the World. The Lake Victoria is a fragile ecosystem providing the city and region with a lot of natural outputs. It has a potential of attractiveness for both aquaculture and eco-tourism.

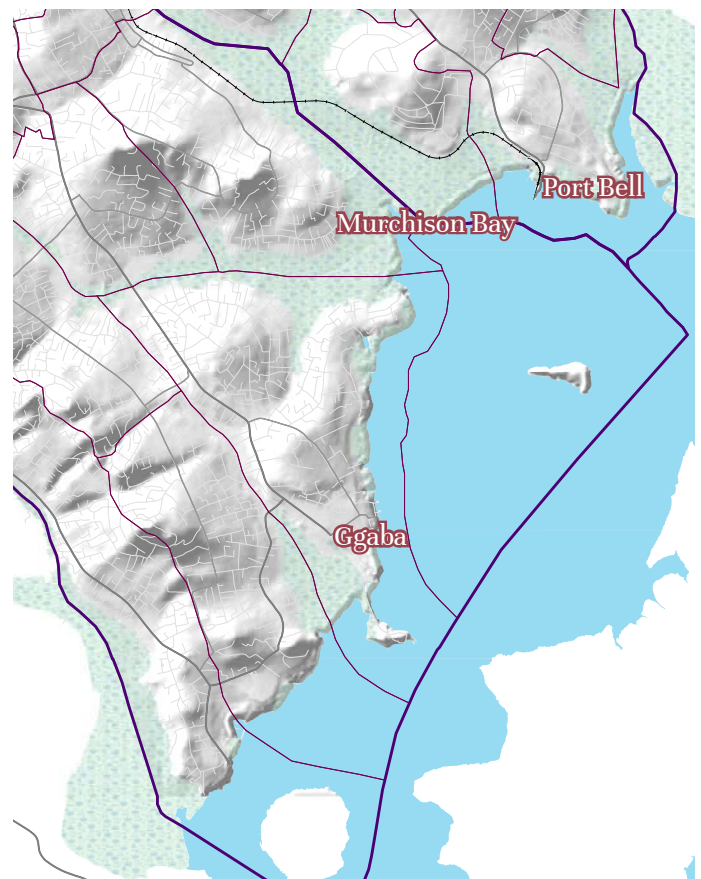
Lake Victoria is an asset for Kampala District. Kampala has a big inland water body connecting Uganda to two other countries. Portbell Kampala and Kisumu (Kisenyi) have rail-docking facilities. This lake can be exploited to promote trade in the regional (with Kampala as a major part) fishing industry, paper industry (because of papyrus swamps or wetlands surrounding the lake) and holiday resorts along the lake.

The fishing industry

The historical context and recent development of Lake Victoria fisheries industrialisation can be treated in two distinct phases, constituting the "Pre-Nile perch" and "Post-Nile perch" regimes. Up to around the late 1970s - early 1980s, the Lake fisheries could be characterised as a multi-species, multi-gear subsistence and artisanal fishery based largely on the exploitation by means of gillnet and canoe of tilapia, the catfishes Bagrus and Clarias, the lungfish

Protopterus, and other table fish of lesser importance. In the 'Post-Nile perch' regime, the bounty of the new fishery for Nile perch has to some extent compensated not only for setbacks in the agriculture and livestock sectors, but for the temporary displacement or decline of the contribution of the other major fisheries of the country. From a human nutrition point of view, the sudden availability of vast quantities of high quality animal protein from Lake Victoria must be seen as one of the more fortunate events in the recent history of Uganda marked by widespread instability and severe disruption in food production both at the farm and processing/manufacturing levels.

Parts of the Lakefront such as the stretch from Portbell to Ggaba on Lake Victoria are of special interest to the existing ecosystem in the metropolis. Dotted with several fishing grounds, fish catch in the open waters of Lake Victoria (thousand tonnes), from 2013 to 2016 was as follows: 193,000; 245,000; 238,630 and 252,804 respectively. In 2015 and 2016, Lake Victoria which had been the most important water body in Uganda both in size and contribution to the fish catch in the past years accounted for 40.0 % of the country's total fish catch. And this was surpassed by that of Lake Albert at 44. 0% in the same years.



A map showing part of Lake Victoria lakefront in Kampala (GIS KCCA)

Tand stop encroachment by development of the lakefront through proper drainage and design. The lakefront will combine nature, public services, recreation and tourism, and form a link between natural and urban.



Fishing and water transport activity at Ggaba Landing Site (JG)

The crocodile industry on Lake Victoria in Uganda lacks support by private entrepreneurs to develop commercial crocodile rearing farms in Uganda. Nonetheless, several parties are now showing an interest in such enterprises so perhaps it's a potential to explore the technical and financial feasibility of commercial crocodile farming around the fringes of Lake Victoria.

Water quality of the lake:

Visible carpet of algae and water weeds covering Lake Victoria (JG)



Water quality

Overtime, Kampala has had its water quality deteriorating due to contamination of water by pit latrines, frequent flooding that ends up draining the pit latrines direct into the water tables, industries that have been constructed close to wetlands, releasing their effluents into the water and the silt which is being eroded from the opened up areas and during the rains is swept down into the water sources. All this waste water ends up into the Lake Victoria.

The waste water from the city flows into the lake through the Nakivubo Channel, which was built to stop the lower areas of the capital from flooding. Overtime the water in the Lake Victoria has become more turbid and this has a negative impact on the fish industry since it leads to silting up of the breeding grounds for fish. A thick carpet of algae has covered Lake Victoria's Murchison Bay, causing a sickening stench in Luzira, Ggaba and Munyonyo. The algae mass, which looks like green oil paint on the lake surface, is a result of increased pollution from human disposal and industrial waste.

In the Kampala Physical development plan, there's a goal to develop Kampala as a Lakefront city that will connect the lake to the inner city in order to protect the lakeshore. In the Uganda Green Growth Development Strategy by National Planning Authority, green growth will be defined as an inclusive low emissions economic growth process that emphasizes effective and efficient use of the country's natural, human, and physical capital while ensuring that natural assets continue to provide for present and future generations. Emphasis is on sustainability of the country's natural resources such as Lake Victoria.

The disappearing ecosystem between land and lake

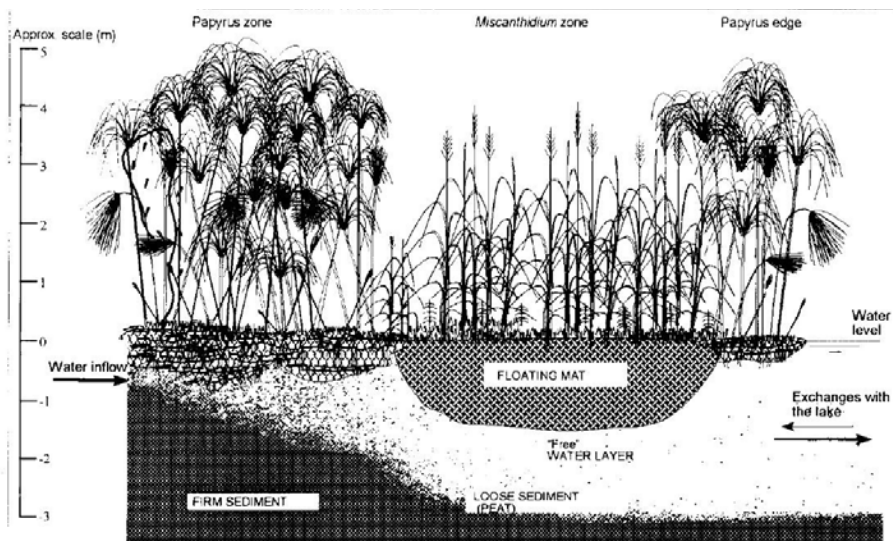
Wetlands in Kampala are a vital link between the city and Lake Victoria with their rich biodiversity, potential for flood attenuation, eco-tourism and industry from papyrus to paper and support for the livelihoods of citizens. Currently, they are being encroached upon and reclaimed increasingly for settlements and agriculture.

Wetlands as natural 'sieves'

Kampala city, comprising an area of about 150km², extends over a series of hills with gentle to steep slopes separated by valleys consisting of natural streams or drainage channels and wetlands. Wetlands have a natural function of filtering run-off water, waste water, and pollution before it reaches the Lake Victoria; they act as a natural sieve. This function should be particularly relevant for a city such as Kampala because it generates all kinds of polluted effluent, and, if the existing wetlands are working properly, then the pollution will be naturally filtered out before it reaches the lake at the Murchison bay. 4KM from the bay is the intake of drinking water supply from the lake. Wetlands would contribute to filtration of the drinking water from bacteria and raw sewerage.

The current situation in Kampala is that inhabitants have already built on most of the wetlands, so in order to mitigate flooding there has been a need to construct a network of channels in the wetlands to drain the flood water rapidly into Lake Victoria. This is a response to the tremendous growth of Kampala, but it is a trade-off between giving the city room to grow in the valleys and wetlands and having a natural filtration system in the form of wetlands which serve the city.

The situation could be controllable if the drainage channels were draining only storm water, but in many cases, they have become open sewers channeling the effluent of the city straight into the lake at the very outlet of the main water treatment plant located in Ggaba. This defeats the natural purpose of the city's wetlands since channels have been driven straight through them and leading directly into the lake.

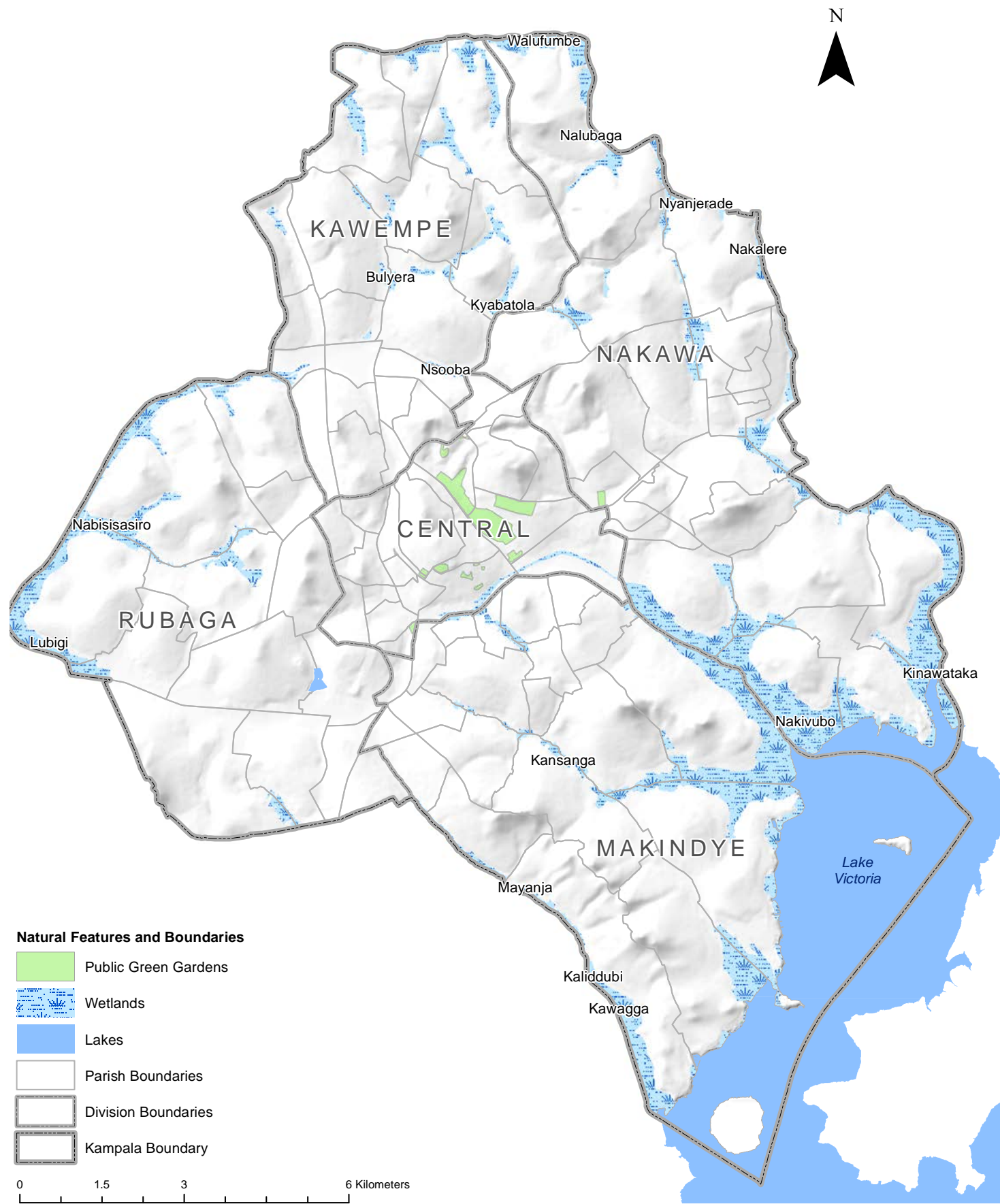


A longitudinal section of a Nakivubo swamp showing the dominant vegetation and functioning of the wetland (Kansiime & Nalubega, 1999)



View of Murchison Bay on Lake Victoria from Ministry of Water and Environment Headquarters

Map showing wetlands in Kampala city, GIS KCCA



Existing wetland systems

However, there are still existing wetlands which have been encroached upon and are getting much attention such as: The Nakivubo wetland, Kinawataka wetland, Lubigi wetland and Nalukolongo wetland. Kampala is served by two major wetland systems; namely the Nsooba – Lubigi and Nakivubo Wetland systems. These also act as the main drainage systems out of Kampala. These areas are important to the city for their role in flood risk management through their natural flood attenuation capacity. There are approximately 70 remaining wetlands identified by Kampala Capital City Authority within the city that are remnants of larger wetlands that have been largely lost through gradual encroachment. The encroachment is from several categories of people: ordinary Ugandans who have built their houses further and further into the swamps since that is where land is available; slum dwellers who build temporary structures right to the border of the wetland channels; and businessmen who see an opportunity to fill in a wetland for development because the land is cheap.

The Lubigi Wetland system

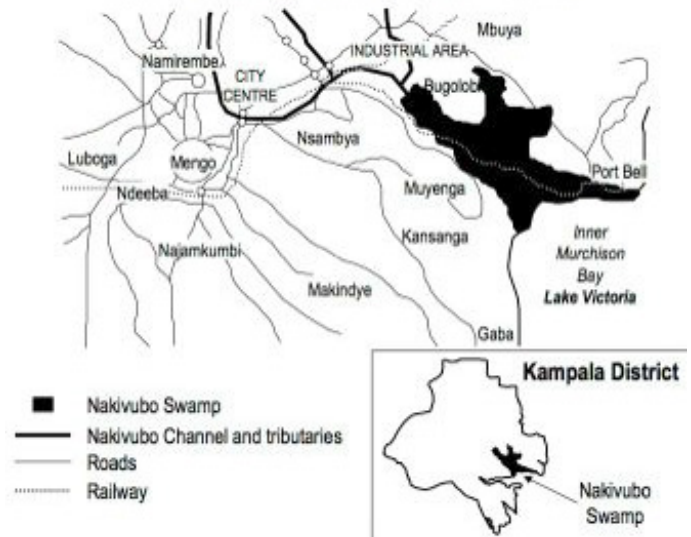


Current state of Lubigi channel, Bwaise, Kawempe division (JG)

Lubigi is one of the largest wetlands in the Kampala District running along its western borders. It is permanently waterlogged, being fed by the Nsooba River, Nabisisasiro River and others. It drains into and forms part of the lake Mayanja Kato. The plant community is dominated by papyrus with patches of *Loudetia* sp., *Typha* sp., *Mischantus* sp., *Echinochloa* sp. and Phoenix palms, although significant cultivation takes place at the fringes. The wetland is used for brick-making and sand extraction and papyrus and palms are harvested here. Subsistence cultivation, brick-making and settlement occur on the surrounding land. This wetland has been given a score of three for its moderately good condition, and it has a low to medium preservation status. The Kampala Northern By-Pass traverses Lubigi wetland and the Lubigi channel is close to the road. The current users or the residents in the Lubigi catchment area have grave concerns about the poor state of the channel regarding it as a ‘death trap’ or even

‘an eye sore.’ Yet still, children will be found swimming and fishing in the channel, hawkers selling their merchandise on the channel’s banks. The existence of the channel has a direct impact on the day-to-day social lives of the people living in its surrounding areas.

The Nakivubo Wetland system



Location of Nakivubo wetland and channel in Kampala (KCCA)

The Nakivubo channel and swamp is the largest wetland in Kampala, covering (surface area of 5.29 km², with a total catchment extending over 40 km²). It runs from the central industrial district of Kampala; goes through dense residential settlements and industrial areas and terminates at Murchison Bay on Lake Victoria.

It functions as a buffer for wastewater being discharged into Lake Victoria at Murchison Bay. And also maintains the quality of both the city’s water supply and the open waters of the Murchison Bay. The Nakivubo wetland has a cooling effect on the city and is home to thousands of flora and fauna. Currently wastewater loads from industrial areas, high-cost/formal housing and low-cost/informal settlements respectively are directly entering the Nakivubo swamp and eventually drain into Lake Victoria at the Murchison bay. A greater percentage of this wastewater ends up at Ggaba water treatment plant. In what has become a vicious cycle, treated water is then supplied back into Nakivubo’s catchment areas and greater Kampala.



A reclaimed part of Nakivubo wetland in Namuwongo

Many families find and claim unoccupied land in Kampala's wetlands. A significant consequence of the decades of rapid urbanization is manifest in the vast area of informal settlements that have proliferated in Kampala and have increasingly encroached into the wetlands and drainage corridors. The scale and density of informal settlements are unprecedented and have overwhelmed the capacities of the city's urban and environmental management systems. The physical and human impacts of this type of development are one of the most significant drivers of vulnerability for Kampala's environment and ecosystems.



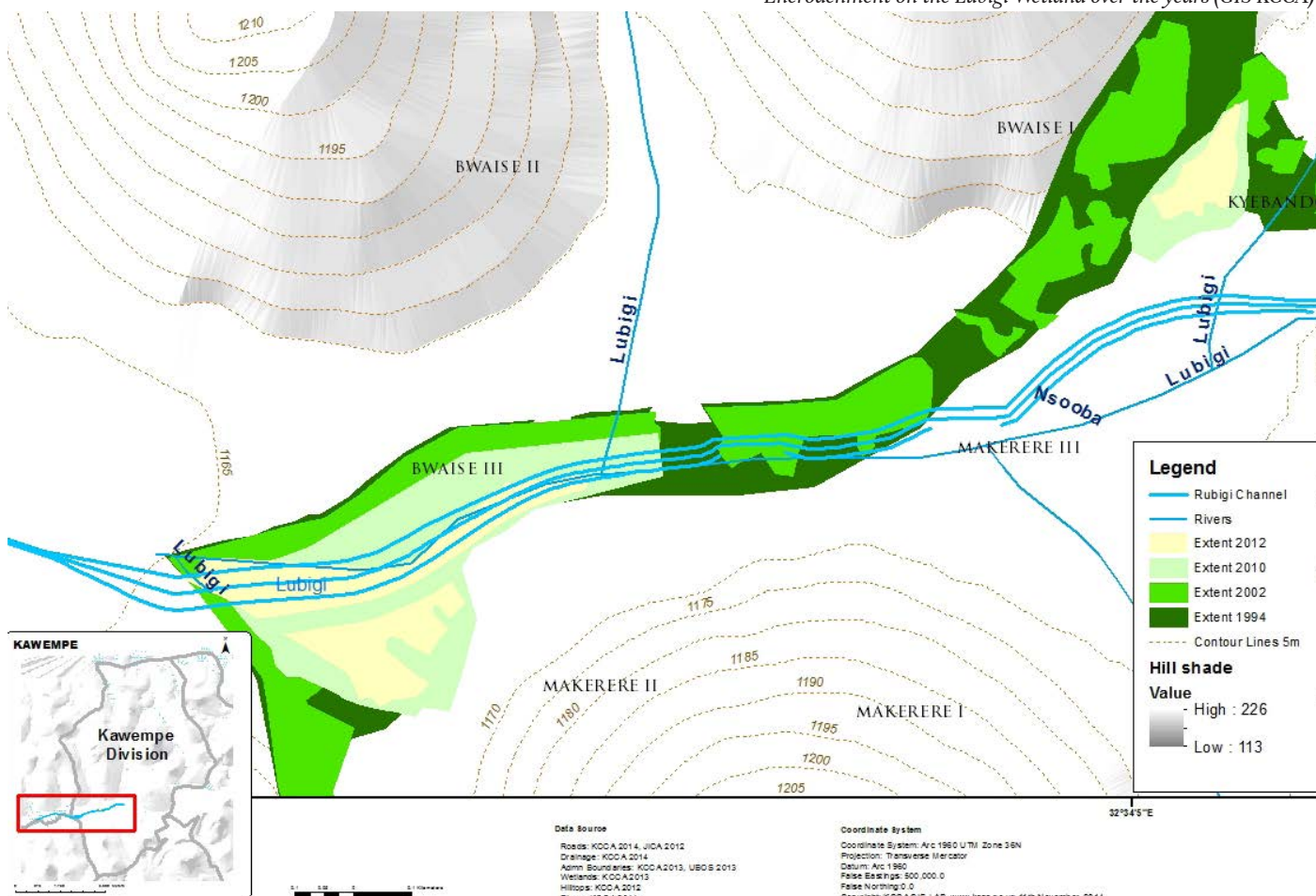
Papyrus plantation in Lubigi wetland along the Northern Bypass (JG)

On-going conservation plans for Kampala's wetlands

In 2008, an Environmental and Social Impact Assessment summary (ESIA) prepared for the Kampala Sanitation Programme states that, Lubigi and Nakulongo wetlands will be used as faecal sludge treatment plants and will each require approximately 6.0 and 6.5 hectares respectively. President Yoweri Museveni commissioned the Lubigi wastewater treatment plant in March, 2014. The plant treats approximately 5.4 million litres per day, in addition to piped sewage and waste water from septic tanks and pit latrines from the city's informal settlements. The new plant serves catchment areas of Kawempe, Bwaise, Katanga, Makerere, Nsooba and surrounding hotspots including Mulago Hospital and Wandegeya. The Lubigi

plant is part of the Lake Victoria Protection Project (Phase 1) intended to reduce pollution of Lake Victoria and improve wastewater treatment. Two major wetland systems; the Nsooba – Lubigi and Nakivubo Wetland systems have been heavily reclaimed and this could get worse with the rapidly growing population in the city. The Lubigi wetland is heavily degraded and modified along eastern sections by settlement and drainage works; good condition along western-most sections; Nabiasiro is considered 100% modified. In the Nakivubo wetland 50% is modified; there is significant loss of surface area due to encroachment in upper sections by industry and housing; downstream areas retain functionality; heavy effluent loading; water purification uses. There are 62 informal settlements in Kampala and the biggest coverage is in the two main wetland systems of Lubigi and Nakivubo.

Encroachment on the Lubigi Wetland over the years (GIS KCCA)



Urban greening

Green spaces make up the biosphere of Kampala's biophysical environment not limited to wetlands, natural drainage channels and all other low-lying water catchment areas. Kampala's wetlands and waterfront (lakefront) constitute the only effective potential land reserves to provide the city and its inhabitants the free open space they require since most green spaces are privately owned.

Urban green spaces: "Green spaces for and by the inhabitants." The sustainable city seeks to offer a pleasant living space, allowing both a comfort of life and the development of social ties. Throughout the world, urban dwellers are investing to bring this city to the fore, and thus participate in the fight against the effects of global warming and the erosion of biodiversity.

Urban green spaces, quality of life (II), In Africa and France, Building together the sustainable and inclusive city of tomorrow, International Seminar Strasbourg 25Th & 26Th April, 2019

Kampala Capital City is blessed with a lot of plant life that can be seen in almost all parts of the City. The plant life and green spaces in Kampala are currently at risk of being damaged and eventually being totally destroyed by the fast-paced development that is happening.



Kabaka's Lake, Mengo, Rubaga division



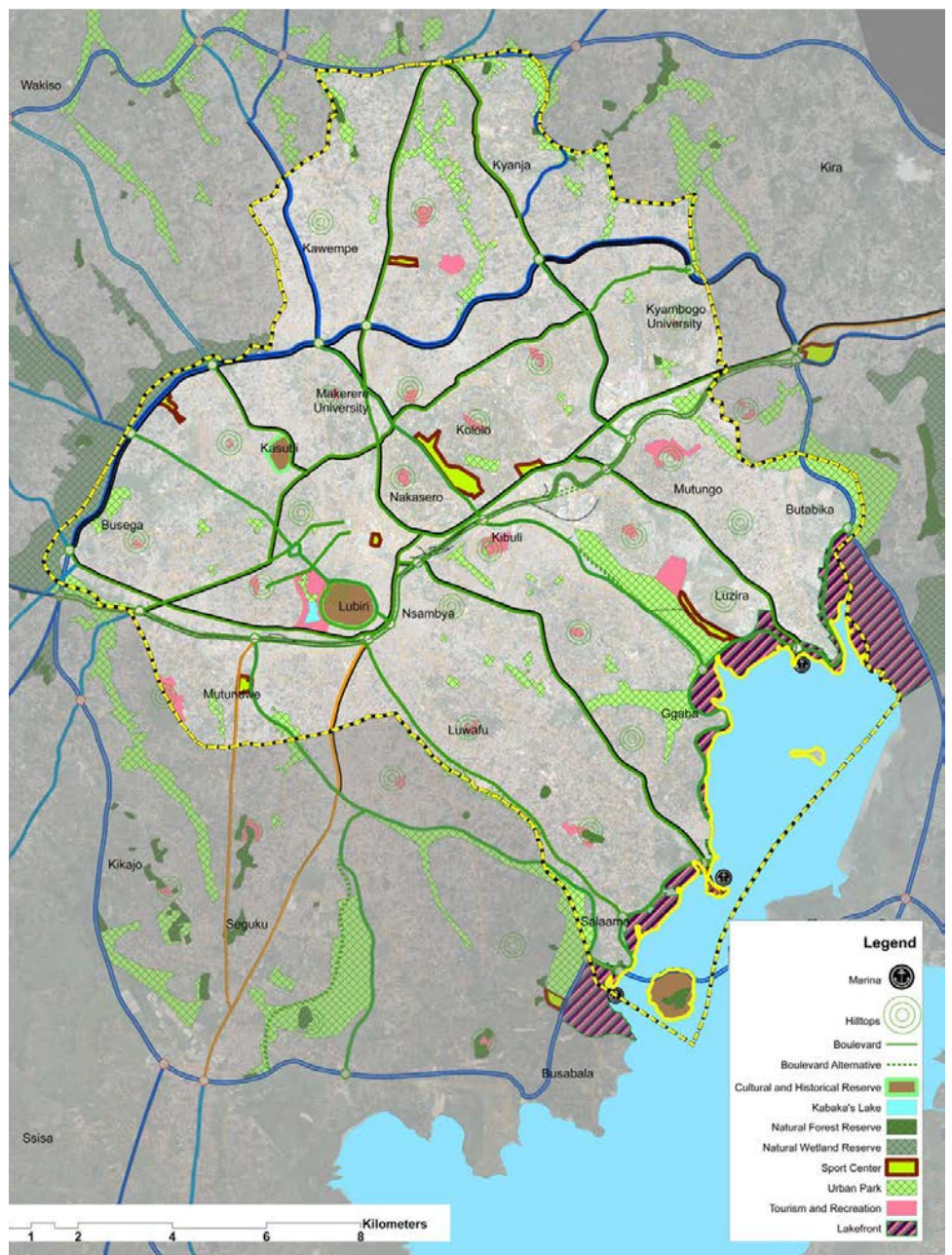
KCCA green open space, City Hall (JG)



School yard at Kisaasi Primary School, Kampala



Private green space (JG)



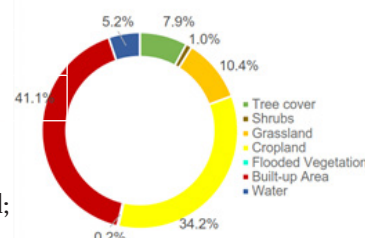
Map showing different green spaces in Kampala (GIS KCCA)

At national level, there was a significant reduction in land cover composition between 1995 and 2005 where the central region represented the largest increase in built up areas as reflected by the expansion in Kampala and Wakiso districts. Using the same classification in the report above, Kampala’s land cover distribution in 2005 was as follows;

Area (Ha)	A	B	C	D	E	F	G	H	I
19,7	33	489	202	41	822	1456	14,951	1,69	16

Land cover distribution in Kampala 1995-2005, Biomass Technical Report, NFA 2009

A-Broadleaved plantation; B-woodland; C- bush; D- grassland; E- wetland; F- Small scale farmland; G- Built up area; H-open water; I- impediments



Land cover distribution in Greater Kampala, Draft Kampala Resilience strategy (KCCA)

The draft Urban Green Infrastructure ordinance

The draft Urban Green Infrastructure ordinance is a timely proposal that will set out to define green spaces and the need for public space by the growing city population while addressing issues of climate change. According to the draft, green spaces are further defined into several categories and those pertinent to this section will include; Public Open Spaces, Private Open Spaces, Private Spaces, Trees, Vacant Lots, hilltops and hillsides otherwise known as “Green infrastructure.” “Green infrastructure” shall include but is not limited to trees, vegetation, green roofs, public and private gardens, parks, woodlots, wetlands, urban forest, agricultural land, vacant lots, green walls, green pavements, infrastructure corridors and water bodies;

TERM	DEFINITION
Green space	land that is partly or completely covered with grass, trees, shrubs, or other vegetation
Playground	a garden or a piece of land used for play and includes both public and private open spaces
Private Open spaces	land owned by an individual, private business or a non- government body and is accessible to the public
Private spaces	land owned by a national, local government body, an individual, private business or a non- government body and is for private use only
Public Open Spaces	land owned by a public body that is open for public access
Reserve	an area of land set aside for potential infrastructure construction and on which building is not allowed
School yard	an area in or next to a school which can be used for games or sport
Significant trees	either dead or living trees that contribute to the quality of living in a given area whose removal has a noticeable impact on the environment
Street trees	trees, shrubs and all other woody vegetation on land between property lines on either side of all streets, avenues or ways within the city
Urban Forest	a collection of trees and vegetation that grow within Kampala city
Urban Green	an area of grass, trees, or other vegetation within Kampala city
Vacant Lot	a plot of land that is not developed.

Adapted from the Draft Kampala City Green Infrastructure Ordinance, 2019

The aforementioned will emphasize the multi-faceted benefit of preserving these spaces. One of the city’s biggest challenges is that whilst the city seems to be green, accessibility of its inhabitants to green spaces is limited. These spaces are merely referred to as land reserves or empty spaces. The gradual moving away from an urban center coincides with the inability to manage open spaces. Fringe areas become undefined spaces, characterized by degradation and inequalities. Urban edges become resilient belts on different scales; a means of adapting to climate change, a mechanism for giving open space an identity and spatial, economic and cultural resource.

Kampala widely known as a green city should be able to strike a balance between preserving its vast green cover and the pressures from its tremendous population growth. The major actors in the city’s environment are therefore tasked to promote a high level of biodiversity and conservation of the natural ecosystem through active participation of the resident urban communities in the sensitive green spaces especially in wetlands and lakefront. The city will evolve into a habitat that resonates with locals and appeals to tourists, business visitors and government delegations, an enriching relationship between the city and its environment. The city then begins to reap ecological and social benefits in urban planning and development at all scales.

A demographic tsunami

Growing too fast for the city to plan ; unplanned development, informal settlements and urban sprawl in environmentally sensitive areas are new realities for Kampala.

Uganda's demography is experiencing one of the highest growth rates in the world reaching 3.0% annually. The greater Kampala Metropolitan area demographic growth rate was higher than the national one at 3.9% in 2015. Mpigi District population grew by 1.2% annually from 2002-2014. While KCCA and Mukono grew by 2%, and 2.9% respectively, Wakiso District grew by a whopping 6.8% annually over the same period. Kira, the second largest city in the country after Kampala City, grew 6.9% annually while Nansana Town grew an astonishing 15.9% annually. Most of the population projections reflect a demographic tsunami in Uganda and Kampala will be gravely affected. The higher increase is attributed to four factors, including;

- Gazetting of new urban areas.
 - Natural increase (difference between the number of live births and number of deaths).
 - Redemarcation of the boundaries of selected urban areas
- Rural
- Urban Migration



An aerial view of Kampala showing the extent of urban development (KCCA)

The potential livelihood strategies of Uganda's population are influenced by the relative composition of the land cover types. Subsistence farming is the largest land cover type representing about one third of Uganda. It is followed by grassland and open water which constitute 16% and 15% respectively.

The area specific profile of Kampala according to the National Population and Housing Census 2014 states the following population data :

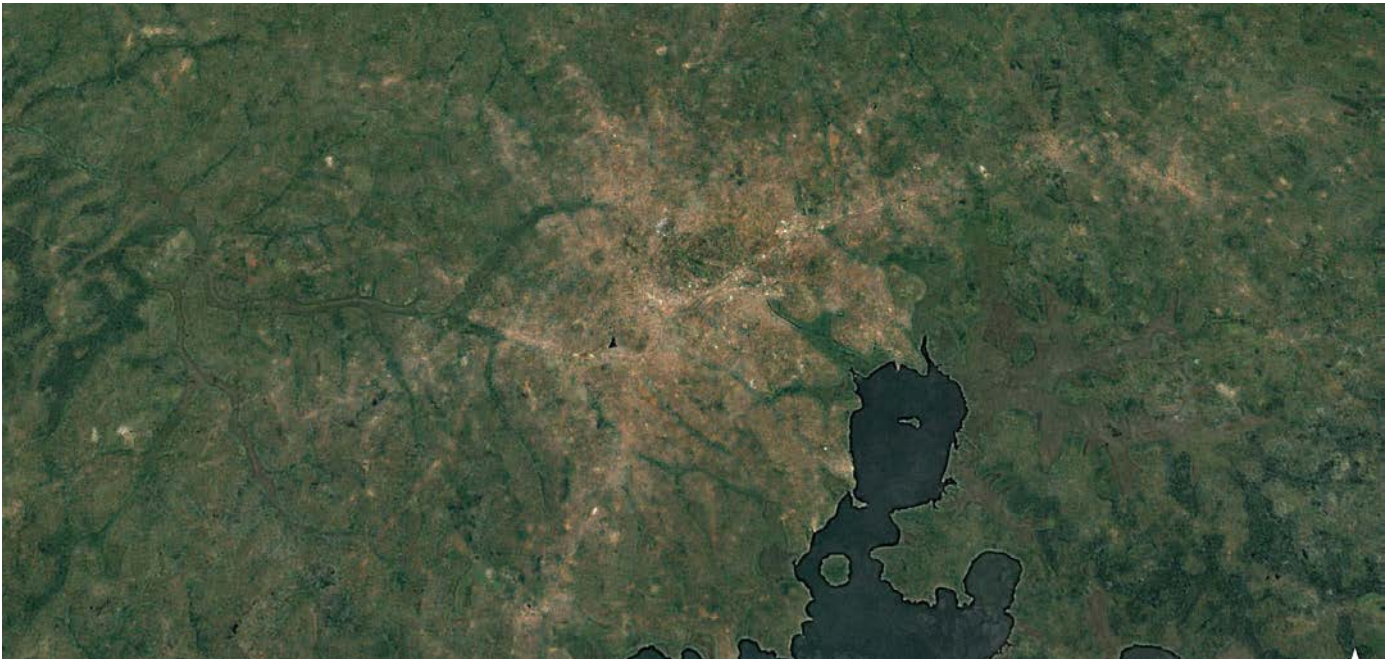
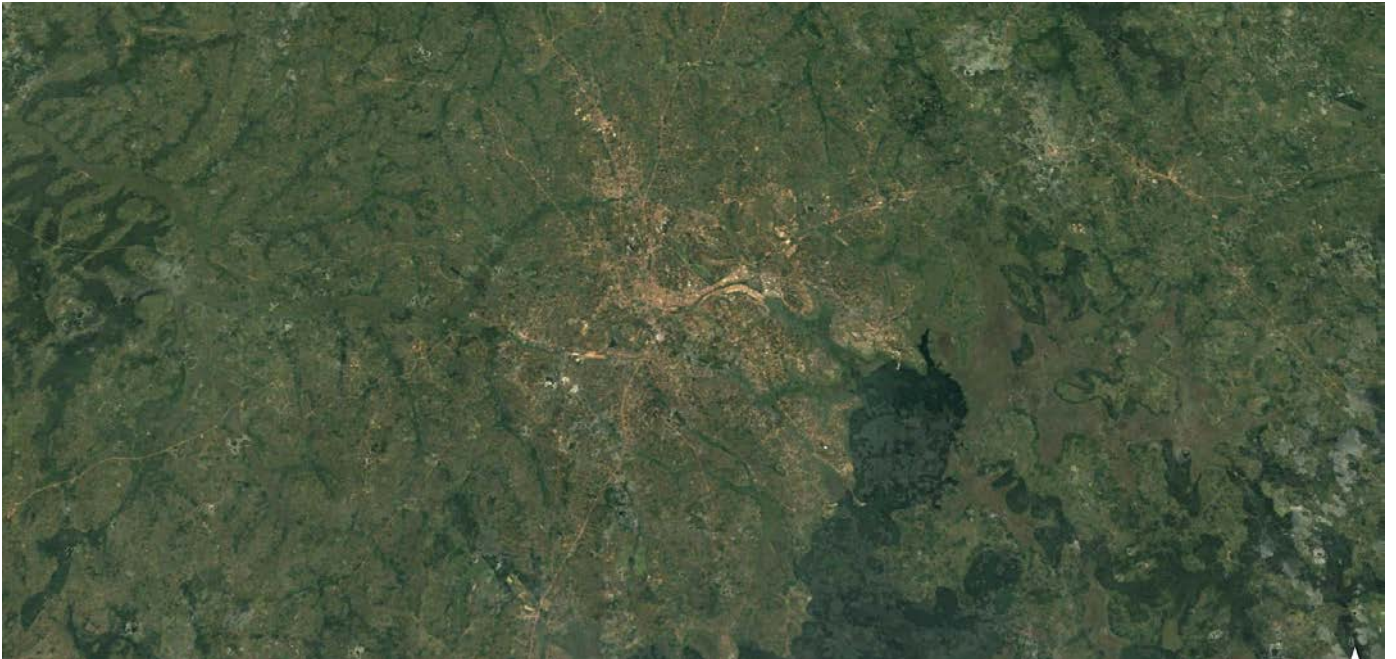
- The total population size of Kampala is 1,507,080 people and 52.7% is the female population.
- The total number of households is 414,406 where 69.7% of the households are headed by men and 43% by youth aged between 18 and 30 years.

- Youth between the ages of 0 and 17 years make up the highest percentage of the population by age group at 41.3%. Growth over the years has not been equally distributed and marred by income inequalities and regional imbalances. One of the principles that govern green growth is social inclusiveness and the transition will address the growing inequality and imbalances. The inclusive aspect of the NDP II, entails reducing poverty levels from 19.7% in 2012/13 to 14.2% in 2019/20 and less than 5 percent by 2040, and increasing the share of the national labour force employed from 75.4% to 79% and 94% from 2012/13 to 2019/20 and 2040, respectively, by means of regional equalization grants among others.

Uganda aspires to achieve the aforementioned economic and social targets while maintaining the integrity and functionality of its environment, ecosystems and natural resources. The attainment of development priorities at the expense of the environment not only undermines the sustainability of such growth and achievements but also harms the most vulnerable groups who depend on the environment and are at a high risk of being excluded from the development process. This exclusion, coupled with the impacts of climate change, end up compounding poverty and exacerbating the existing economic and environmental scarcities faced by such groups.

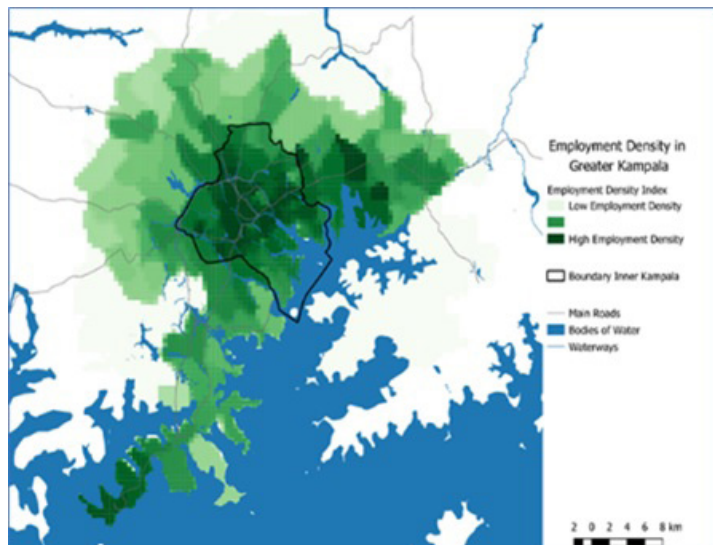
Image showing an influx of people in downtown Kampala (JG)





Sattellite images showing the urban expansion in the Greater Kampala Metropolitan Area in 1985 (above), 2002 (center) and 2016 (below, Google Earth)

The existing planning in Kampala has not kept up with rising challenges associated with tremendous growth. As the Greater Kampala has expanded, employment has dispersed further from the urban core in a non-uniform fashion reducing economic density and creating a more fragmented city. In terms of jobs, Kampala has a very concentrated nucleus but the rest of the city is characterised by mixed land use. The CBD accounts for 11% of manufacturing jobs and 18.5% of services employment. The CBD and most of the adjacent area, where the highest concentration of jobs is located, have some of the lowest population densities in the city. 60% of the total city population dwell in informal settlements that are scattered within short distances from the CBD. These settlements receive new inhabitants every year creating pressure on the city's wetlands.



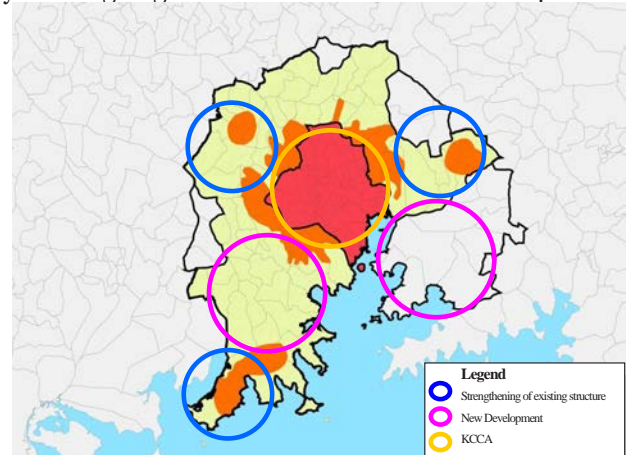
Employment density in Greater Kampala, Draft Kampala Resilience Strategy (KCCA 2019)

The Uganda National Physical Development Plan draft (NPDP) 2019-2040 from the Ministry of Lands, Housing and Urban Development uses the aspects of population and urbanization growth rate projections of Kampala city, its principal secondary cities or towns and rural areas to predict the immense pressure in terms of land use on Uganda's grasslands, forests, protected areas and seasonal wetlands. This plan categorizes New Towns as potential growth poles and these will include satellite cities that will have a benefit of starting from a planned growth pattern that takes into account their regional and economic status.

The fifth pillar in the NPDP about settlement states that the pilot project to develop the first Kampala Satellite city in Ssisa will be implemented under the House retrofitting investments – 1st stage in NDP 3 – 2025 followed by the second Kampala satellite city under 2nd stage in NDP 4 – 2030.

In March 2018, the government unveiled plans to set up a multibillion satellite city in Nakigalala along the Kampala-Entebbe expressway in partnership with Malaysian investors. This project falls within the first Kampala satellite city in Ssisa NDP 3 – 2025. At city scale, there's a

proposed 'Independent Satellite Cities' model that suggests creating independent regional centres surrounding the KCCA metropolitan centre. These new focal points will reduce pressure on the city's infrastructure and services by offering migrants urban alternatives to Kampala itself.



Independent Satellite Cities model (KPPD, KCCA 2012)

The rapid population growth in Kampala City, amidst widespread underemployment and a dominant informal sector, has caused structural and socio-economic challenges, including: the lack of an integrated transport system; mismanagement of the environment; unplanned settlements; spiraling urban poverty, exacerbated by poor infrastructure for markets, water and health service systems, housing, solid waste management; as well as overcrowding, congestion and pollution. These challenges are contributed to and affect wider areas that surround the city, including; Wakiso, Mukono and Mpigi district.



An aerial view of a suburb in Kampala with a mix of high-rise, high density buildings. (JG)

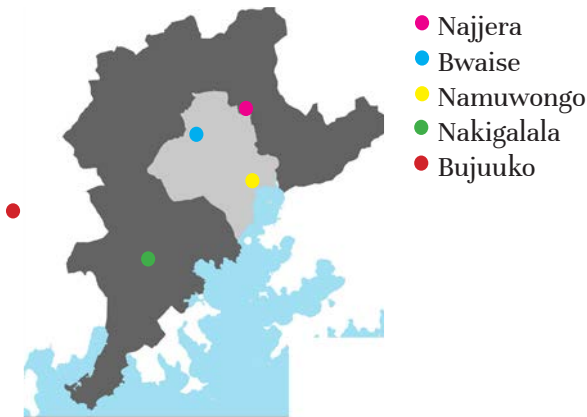
Infrastructure and services : in need of innovative ways to fill the gaps

- Not enough houses on not enough land : Kampala's housing challenges
- An impressive portfolio of transport infrastructure to achieve
- How accessible is Kampala water ?
- From waste to resource
- Towards more decentralized energy systems
- Kampala, hospitable city ?



Not enough houses on not enough land : Kampala's housing challenges

Kampala's formal housing sector is not succeeding to meet the demand nor to be accessible for the majority of the inhabitants. As a matter of fact, informal settlements welcome more than half of them. But for slum dwellers as aspiring landlords, salvation seems to be found in the Greater Kampala suburbs.



in Kampala central area or Makindye, detached houses on average go for Shs. 600 million. This a strong part of the explanation of this dynamic, along with the availability of the land.



Preview of the Najjera Heights (Buildnet)

Finding a home in Kampala is not an easy task. Rent can be very high as the housing market is constantly under pressure. In fact, Uganda is facing a massive shortage of housing, directly linked to the demographic growth and to economic changes. The annual need for new housing for the entire country is estimated at 200,000 houses. The estimated construction rate of reasonably good houses is estimated at 60,000 housing units. This annual deficit of 140,000 houses is a real challenge for the country, compared to the estimated shortage of 1,600,000 housing units already existing from previous years.

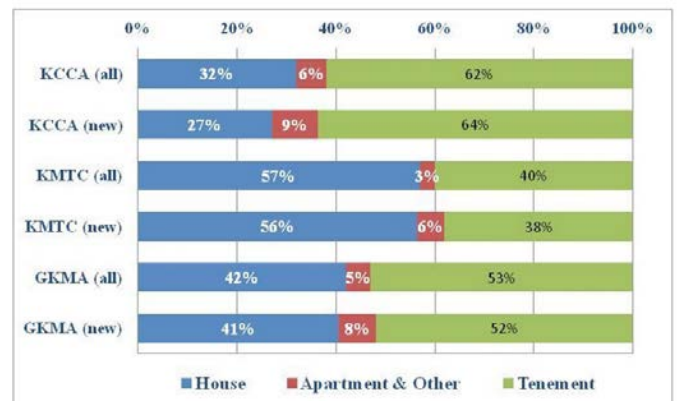
Despite this traditional taste, the metropolis is booming with real estate projects, many whose advertising covers the city centre selling apartments built-in modern residences such as in Najjera. It seems that an increasing part of the youngsters consider this as a good alternative to bungalows: "The situation is similar to the 'Grand Domestic Revolution' of the West. You can buy cooked food, do your laundry in a machine or at the dry cleaner's, etc. So you opt for a smaller home", says Dr Namuganyi from Makerere University.



Residential suburb in Kampala (JG)

While these evolutions are slowly taking place, it is important to stress that the access to formal housing is actually low. 49% to 64% of the population of Kampala is living in informal settlements.

In the capital city, it is estimated that Kampala alone would have a current deficit of over 200,000 units (UBOS). The KPDP was estimating in 2012 that about 55,000 housing units should be built every year to face the demographic dynamics in GKMA. Wakiso district is proposing that in the coming years, the area will need about 35,000 units per year. A large proportion of the working population in Kampala is already living in the Wakiso district. People from Uganda are traditionally attached to the bungalow setting, having a detached house with a proper garden represents a certain quality of life. In Wakiso, the average price of a detached house in goes for Shs. 330 million while



Distribution of residential types per area (KPDP, KCCA)
KMTC represents in this scheme the adjoining towns and sub-counties (GKMA without Kampala)

These settlements have a long history: some of them (like Bwaise) started to grow in the 1920s. According to Lutwama Meddie, executive director of ACTogether, 60% of the city's informal settlements have existed for more than 60 years. After the colonial period, plans were prepared but were not enforced as a non-planning culture took root, hence a lot of unguided development. The mailo land tenure system is also a major challenge that made complicated any action in these areas. The urban planning culture after the colonial rule had a great influence on the constitution of these areas. KCCA has a list of 62 recognized informal settlements in Kampala, covering a large part of the territory. In the Wakiso district, the situation is quite different, the Wakiso Development Plan estimates the proportion of households living in tenements or muzigo (two-roomed units) at about 20%.

Informal settlements are a diverse reality, with both low-income areas and middle-class neighbourhoods. In many cases, the situation in terms of vulnerability to flooding, access to water, sanitation systems, health conditions are problematic and lead to a high mortality rate. In Ugandan urban areas, 57% of households use a single room for sleeping (households have an average size of 4 people), making these districts especially dense and disease transmission is likely within families.



Houses in the informal settlement Kasanvu

Most of the houses in informal settlements are built in burnt bricks (58.1% of the tenements in urban areas in Uganda). Burnt bricks are usually cheap, but are also environmentally harmful due to (often excessive) soil extraction which may directly or indirectly affect agriculture and the health of local communities. The production needs firewood and also causes air pollution. Other usual materials of construction include poles and mud, iron sheets and cement blocks.

Housing policies

In 1992, the Government adopted the National Shelter Strategy, which had an “Enabling Approach” as its major policy objective. Under this approach, the Government was to support individual households, the private sector, NGOs and CBOs to operate effectively and efficiently to provide decent and affordable shelter. In 2016, the Uganda National Housing Policy was published with the under title

“Adequate Housing for All”. It notably aims at increasing the production of housing units, improving the security of tenure for property owners, and making housing more accessible and affordable. It encourages urban authorities to be active in this matter and landowners to provide private land for mass production of housing as well as real estate development, through Public-Private Partnerships (PPP).

In Kampala, efforts are done to build more housing units, with a focus on satellite cities with high-rise buildings, to increase the density. As mentioned previously, the first step of this policy will happen next to the gateway onto the Entebbe expressway, in Nakigalala. The proposed Master Plan of the area has been revealed and was provided by APUDG for Matrada. It was compared by the Ugandan Minister of State for Urban Development to Putrajaya, the administrative centre of Malaysia planned in the 1990s as a garden and intelligent city. It is described as “a catalytic growth centre that provides employment, housing, recreational open spaces, infrastructure and community facilities that set a new standard of urban development for Uganda”.



Preview and project of masterplan of the eco-satellite city (APUDG website)

On the other side, Slum Upgrading programmes have started to be implemented for more than 30 years. In Kampala, the Namuwongo slum upgrading and low-cost housing project was the first of its kind in the city in 1987-1994. In this type of project, a redevelopment of the settlement is planned: roads, piped water, electricity, sanitation facilities and social services like health facilities and schools are provided. The beneficiaries are allocated land with title deeds and given loans to construct their houses. Some are trained in skills of production of building materials, house construction, and loan management.

The Namuwongo neighbourhood where the project was developed is nowadays a neighbourhood with proper fenced houses, roads, middle-income households. But the project did not succeed in keeping the residents in the area. The poorer sections of slum dwellers who could not afford price increases created by the upgrading improvements just sold their rights and started to build another informal settlement a few metres across the road, encroaching, even more, the wetland than previously.

The National Slum Upgrading Strategy and Action Plan for Uganda (2008, Ministry of Lands, Housing and Urban Development with the support of the United Nations Development Program) took into account these difficulties in their recommendations for the upcoming Slum Upgrading Plans. The document insists on the fact that these projects must be thought of as development projects, directed towards the poorest part of the population. It proposes an integrated and participative approach, complemented with preventive actions that stall the emergence of new slums.

Organizations have an important role in these projects and in helping to define informal settlement policies. Shelters and Settlements Alternatives (focusing on lobbying, advocating and sharing information to improve the human settlements) and Actogether (developing organizational capacity at the local level and promoting pro-poor policy) are both developing specific projects with the communities and are important links with the authorities. Local leaders are obviously representing the residents by addressing the difficulties they are facing.



An elevated house in Namuwongo to face floods



Different types of housing coexist (taken from Kanyogoga in Namuwongo),

Housing co-operatives are one of the solutions that these organizations are promoting in the communities. This type of cooperative allows a group of persons to buy a piece of land in order to build their houses on it. It makes the purchase of land cheaper for everyone and gives the community a certain reputation for reliability. It is nevertheless a tough path. The registration process is complicated and a housing co-operative needs 30 members to become official. Keeping 30 slum-dwellers together long enough (they may need at least five years to be able to save enough to buy a plot of land) is hard in informal settlements, where evictions and financial difficulties can take a toll on the slum dwellers without notice.

These cooperatives usually start as saving groups, contributing towards a common fund on a weekly basis, and then evolve into housing cooperatives. The members are then able to buy a piece of land in another area in the metropolis, where land is available and cheap. Shelters and Settlements Alternative already led such a project with a community. 24 houses have successfully been built in Bujuuko, about 15 km away from Kampala in Wakiso district. The residents have built their houses themselves, learning simultaneously the construction techniques. Each house is bought at the price of 26 million shillings (about 7000 USD), with a commitment fee of 1 million shillings (about 270 USD). The members will pay 70,000 shillings (19\$) monthly for a duration of 30 years to own the houses for good.



The 24 houses of Bujuuko (Uganda Housing Cooperative Union Ltd)

A building made with plastic bottles and plastic bags in Kamwokya by the Ghetto Research lab



To replace the traditional bricks that need to be burnt, a few community groups are producing an alternative building material : the Interlocking Stabilised Soil Blocks. These bricks are made from soil stabilized with 5% cement, compressed in manually operated machines, and dried in the sun. Shelters and Settlements Alternatives are building facilities for the communities with these blocks to show their efficiency. The main challenges remain that these are not recognized yet as trustworthy building material by the authorities, and that their price remain slightly higher than fired bricks'.



An impressive portfolio of transport infrastructure projects to achieve

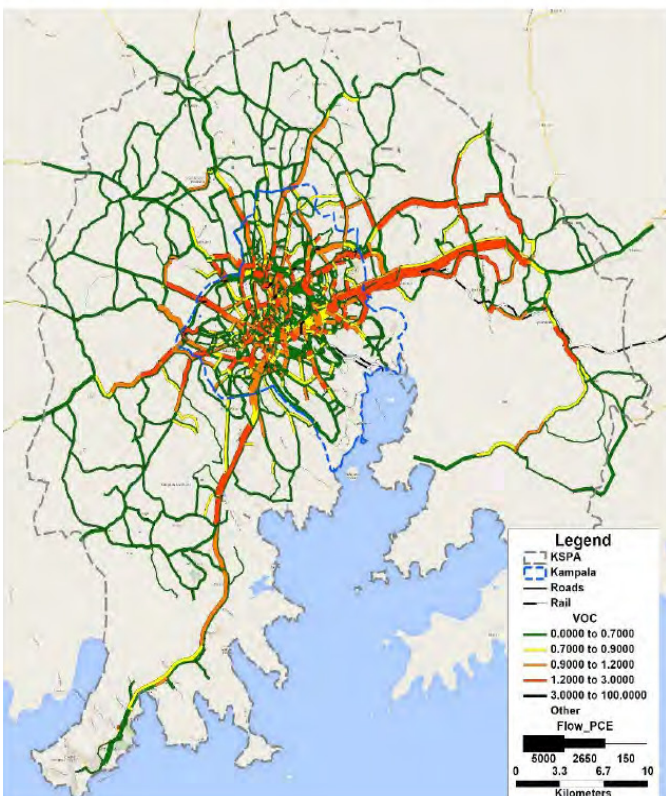
The city has grown and the infrastructure has not : it is simple to understand Kampala's jam issue. This has led innovative actors to offer in this context cheap and collective ways to move around in the city. The capital has now many projects of transportation to support its future of massive city, but it will demand important investments.

Mobility is a high stake in daily life in Kampala. Traffic jams and personal experiences are seeding an immeasurable amount of conversations in the city.



Congestion and informal activity encroaching on the road (JG)

People often plan their day around the traffic jams, meaning they may start very early (from 5 AM) or go back to their home very late since the jam is otherwise continuing throughout the day. Even driving short distances can be painful. The worst places are roundabouts and T – Junctions, key points in the city. At these spots, traffic police officers may stop one side of traffic for a very long time so that the most important traffic flow takes all the space of the street.



Traffic and congestion in Kampala (Volume capacity of roads compared to numbers of passengers car equivalent, KCCA 2016)

The road network is mainly inherited from the 1960s and did not change much as the city was growing. It is constituted of two-lane roadways, the regional road network linkages forming a cross-shaped north-south and east-west array of intersecting axes with the nexus located in the city center. Kampala has a total road network of 2,110 km of which 575 km (27.3%) are paved roads and 1,535km (72.7%) are unpaved roads.

Until 1972, Kampala had a passenger bus service run by Uganda Transport Company (UTC), whose brand colours were green and gold. Its collapse led to the rise of taxis: they are the most commonly used mode of transport in Kampala, at 46% of the motorized trips. Taxis are 14-seat private minibuses, equivalent to the Kenyans matatu. These Toyota minibuses are easy to notice with their blue square stripes on a white car body. Taxis are driving on fixed routes, mainly from the center to the suburbs. In Kampala, most of them gather in the “old taxi park”, gigantic parking lot located in the center of the city. It is the cheapest way to move in the city, most of the trips being charged for less than 1,000 Ugandan shillings (0.30\$), but it is also not the fastest. Taxis are often stopping on their way, looking for new travellers or allowing the customer to get out at the desired spot.

Some additional taxi parks were created to decentralize the service, like in Usafi. The Usafi taxi park was gazetted in 2014 to shuttle passengers who use the southern routes. The pedestrian access to Usafi from the CBD is nevertheless not the most convenient. Taxis started to park on the way, at illegal stages around Clock Tower, Shoprite and Entebbe Road. Fewer passengers reached the Usafi park, which is therefore partly abandoned by taxi operators. KCCA stated they are evicting the illegal taxis to ensure order and is working with the Ministry Of Works And Transport to set up new satellite parks.



The Old Taxi Park (JG)

The other main “public” means of transportation are boda-bodas, which have increased massively in the last decades (32% of the trips). Boda-bodas are motorcycle taxis, taking the passenger to a given point. Their main advantage is to be way faster than taxis or private cars: the boda-bodas can weave between the cars stuck in the traffic jam, sometimes beyond any safety concern. Its agility can come at a terrible price: safety is an important issue, spectacular accidents are regularly making the news. They are more expensive than the taxis but remain accessible, a trip within the city will be charged about 2,000 - 3,000 Ugandan shillings (about 0.50 to 0.80 \$). Private actors entered the market for 5 years with e-bodas. One can order a boda from his smartphone so that it takes you directly from home or wherever you are, informing the customer about an estimated price defined by the app. Safeboda, Uber, and Bolt are the three companies ruling this service.



Boda-bodas in the CBD (JG)

Private cars count for 19% of the trips. It is the most convenient means of transportation and the favourite among many Ugandans but is clearly the most expensive. It also gets stuck in the traffic jam: the average travel time in Kampala city is 42 minutes by car and 50 minutes by taxi.

2% of the trips are made on buses. Buses are very rare in Kampala but a few private lines exist. Pioneer easy bus operates 4 lines, from Kampala to the suburbs. Fares are especially low (1000 Uganda shillings for a long trip, 500 Uganda shillings for a small one).

Transportation via boats on Lake Victoria is also existing in an informal way, it is still quite weak.

The passenger trains reopened in 2016, on a single line from Kampala main station to Namanve, out of Kampala towards East. They welcome about 200 passengers, for an affordable trip of 45 minutes in total, stops taking place in Nakawa, Kireka, and Namboole. There is a train in each direction in the morning, and another in the evening. Other trains one may hear during the day or night are freight trains, going from the Port Bell on Lake Victoria to Kampala’s industrial area.

Despite the importance of motorized transport in the city, it is important to note that the actual most prominent mode of transportation for most non-work-related trips in the Greater Kampala is walking, rated at 46%. In their free time, Kampala inhabitants may not want to face the jam. A lot is happening at the neighbourhood level in terms of leisure and restaurants, while the CBD is deserted at night times. Low-income levels and limited reach of taxis to some communities are also constraints for transportation access. [more in Kampala, a hospitable city? entry]

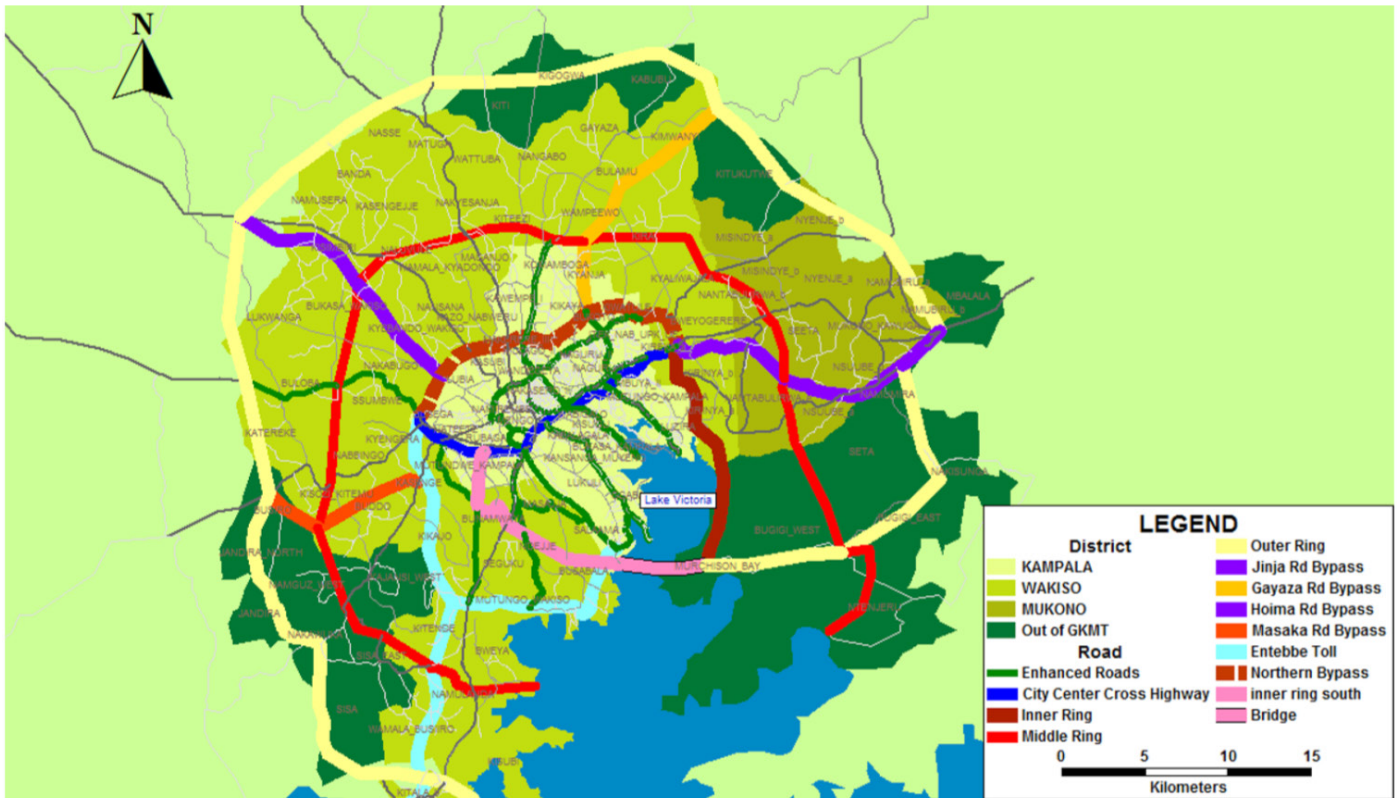


Bikes are still used for many purposes (JG)

Many projects to shape a radically different mobility

Transportation issues have received a lot of attention and many projects have been imagined for the 20 coming years. The National Transport Master Plan was setting out a framework for the development of the transport sector over the period 2008-23. It included a first Transport Master Plan for Greater Kampala Metropolitan Area (GKMA). A Multi-Modal Urban Transport Master Plan 2018/2040 is also expected for GKMA. All the main infrastructure projects are listed in the Second Kampala Institutional and Infrastructure Development Project (KIIDP-2) as a deal between KCCA and the World Bank, signed in 2014. The KIIDP-2 is in line with the National Development Plan, Vision 2040 and the 2011 World Bank Africa Regional Strategy.

These different documents all refer to a metropolitan road system made of several rings around Kampala that reach further than the GKMA borders. This network is directly linked to the Kampala-Entebbe expressway (completed) and to the Jinja expressway (works have started). This ambitious plan means the upgrade of many existing routes, and the design of new expressways. All the expressways plans will be detailed in the Expressway Development Master Plan, expected in 2020.



The metropolitan road system (KPDP, KCCA)

The Japan International Cooperation Agency (JICA) is playing an important role. JICA reviewed the National Transport Master Plan in 2010 and identified candidate projects for official development assistance from Japan, as well as other co-financing opportunities with international organizations. It is financing most of the projects of the road system.

The Northern bypass is a 23 km urban highway, part of a plan to complete the East African Northern Corridor linking Rwanda, Uganda and Kenya. Initially scheduled to be completed in 2016, the bypass is now expected to be fully operational in 2021, 17 years after it the construction began. Its urban character made the process of land acquisition especially slow and controversial: some discontented landowners have either rejected the money offered or gone to court. There are some 1,207 project affected persons according to UNRA (Uganda National Roads Agency). Some speculators purchased land in the area once the proposed corridor was surveyed and was paid a windfall as compensation. Variations in the original plan (a sixth and new interchange was added to the road) also led to rethinking the road design. The construction was conceived in two phases: during the first phase, a two-lane single carriageway was constructed and completed in October 2009. It is becoming a 4-lane dual carriageway during the current second phase.

The northern bypass will come to an end in Busega, close to the Kasubi Tombs. Busega, at the heart of the historical Kampala, is already one of the main gates into the city and will become one hub of Kampala's road network, connecting the Northern Bypass to the Kampala-Jinja Expressway,

to the Kibuye-Busega-Mpigi Expressway, and to the Kampala-Entebbe Expressway. In order to make all these connections work while having an area where pedestrian and other means of transportation can coexist, the works for a flyover were launched in late 2018, with an estimated cost of 295 billions of shillings (appr. \$ 80 million). It should also be connected to the Bus Rapid Transit pilot Project and the proposed Nakasero – Northern Urban Expressway. The flyover project actually consists of two flyovers and a road improvement on a length of 3.5 km. The project is expected to be completed within 3 years.

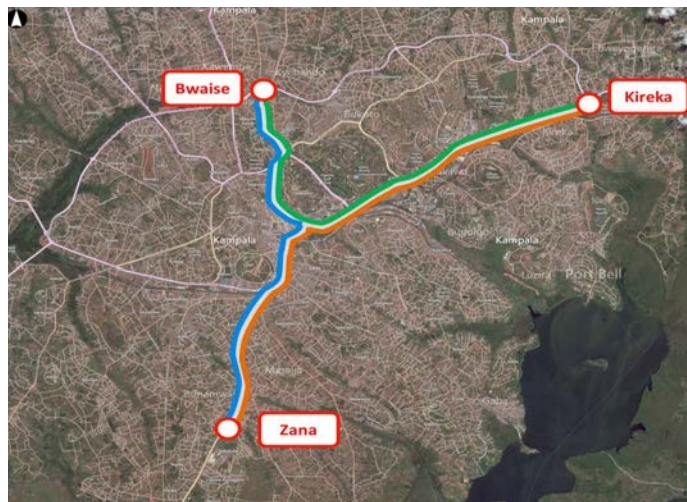
JICA is also assisting Kampala with traffic management. In 2009, Kampala used to have only seven traffic lights in the city. More traffic lights were installed these last years, and 42 more junction signalisations were announced in 2017. Some of them are already in use. KCCA has also implemented a pilot traffic control centre to monitor and manage traffic in the city. It monitors field radio communication among traffic wardens, ambulance and enforcement staff and security personnel. The centre is currently operational and monitors traffic at 12 signalised city road junctions through surveillance cameras, it will move towards a larger office to increase the monitoring capacity.

Along with these massive road investments, Kampala also wants to fully change its public transportation system, that would transform drastically the city system. Its vision can hold in three words: BRT, LRT and Metro.

BRT : Bus Rapid Transport lines

Kampala is looking at becoming the fifth city in Africa to implement a BRT system: a network of rapid buses driving on designated lines. BRT systems have the advantage of being relatively cheap to implement and to accommodate passengers up to 10 times the number of cars can per hour. 9 corridors were proposed in 2010, meeting in a city centre interchange.

A pilot BRT travelling on three routes between the areas of Bwaise, Kireka and Zana is the first step of the implementation. The study estimated the service could transport more than 37,000 passengers per day. In Kampala, where the land tenure system is complex and where there is no existing bus fleet available, the pilot routes for the BRT could cost over 400 million USD to build.



Route of the proposed BRT (KCCA)

LRT : Light rail transport

The LRT is a middle-sized train network linking suburban areas and close cities to the city-centre. In Kampala, each train will have the capacity to carry 350 passengers, with an expected day capacity of 750,000 passengers per day. It will be the second LRT scheme in sub-Saharan Africa following the opening of a 17km light rail line in the Ethiopian capital Addis Ababa in 2015.

The first phase of LRT will consist of four lines radiating from Kamala station:

- a 12km line running East via Nakawa, Banda, Kireka and Bweyogerere to Namanve
- a 9km line running north via City Square, Buganda Road, Wandegeya, Mulago, Kubbiri and Bwaise to Kawempe, and
- two 7km lines which will share a common section as far as Kibuye, with one branch heading west to Kyengera, and the other running south via Zana to Lubowa.



Preview of the routes of the LRT (SGR website)

In the long term, the network will be extended to a total of 240km including a 37km line south to Entebbe and two 20km lines running to Nisangi and Wakiso. It is developed by GSR, in charge of the GSR (train network with neighboring countries).

Metro

At a 2040 perspective, the city wants to implement metro lines (underground trains). The Multi-Modal Master Plan should include three major metro lines in addition to the four light rail lines and five bus rapid lines. The plan will be implemented in five phases, namely the pilot phase (2018-2021), short-term phase (2022-2025), mid-term phase (2026-2030), long-term phase (2031-2035), and the horizon phase (2036-2035).

Cable-cars have also been looked at as an option for Kampala City, fitting with the hilly territory, but the limited capacity of this type of transportation may not suit to the need of mass transportation Kampala is having.

How accessible is Kampala water ?

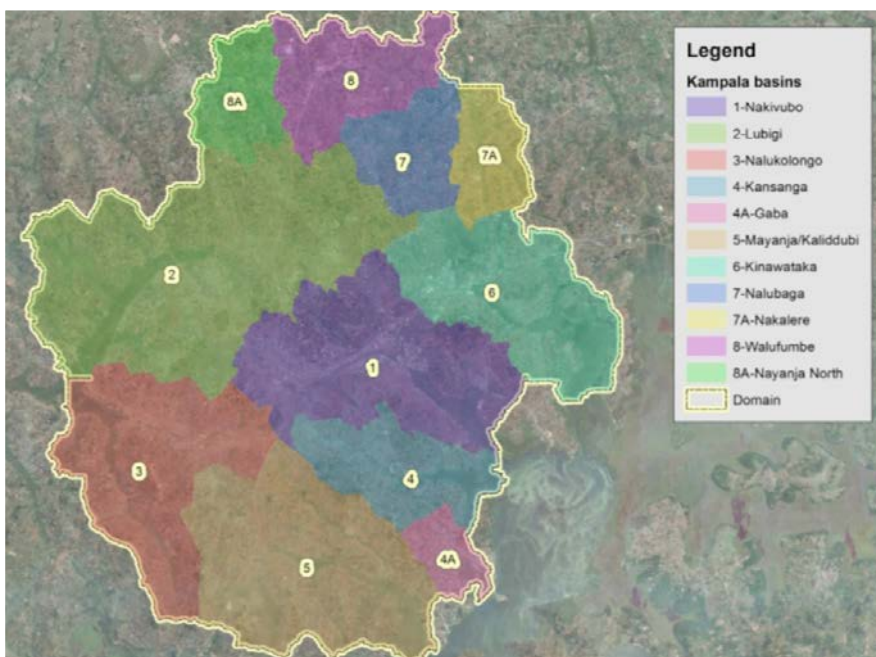
Kampala, city of water: the drains of the lake flow in all the city and represent a flood danger maximised by climate change. Even if water is everywhere, water supply and sanitation remain challenges, that are tackled not only in completing the infrastructure networks but also through the involvement of communities.

Drainage system

Kampala is drained by 8 main drainage systems with a total catchment area of 278.71 km². The largest include the Nakivubo and Lubigi systems. As already stated, the environmental functions they used to provide for the city are being threatened by the fact that the wetlands are degraded. The encroachments tend to grow very fast: between 2002 and 2010, the area of wetlands declined from 18% to 9% of the city surface area.



Floods are a common thing on the city's primary roads (JG)



The main drainage systems (Kampala Drainage Master Plan, KCCA 2016)

With the city getting bigger and more populated, the consequences of floods on human activities and lives are getting stronger. In Kampala, 62 floods were listed as disasters between 1991 and 2018, causing 35 deaths and affecting not less than 86,000 inhabitants and damaging 2,006 buildings. Floods are the most recurring natural hazard in Kampala, accounting for 40% of the total number of events recorded. They mainly take place during the two annual rainy seasons. In the last 15 years, an annual average of three major flood events has been recorded, with hotspots in low-lying areas remaining flooded from several hours up to several days. Informal settlements are very often located in the low areas and less prepared to face these events, so the consequences can be very dramatic for the poor communities.

Global climate model projections for Uganda indicate a 10 – 20% increase in rainfall over most parts the country including Kampala, leading to an increase of flood probabilities.

To prevent the floods, the city has realized with the World Bank support the Nakivubo Channel rehabilitation between 1999 and 2003. The channel, with an overall length of about 9 km, drains approximately 95% of the water from the developed central area of the city into the swamps at the entrance to Lake Victoria. The works deepened and widened the stormwater drainage channel in order to accommodate the 1-in-10-year return period storm flow. This was followed by the Drainage Master Plan in 2003 and an update of the Drainage Master Plan in 2016, to improve the other drains through

channelization, retention ponds and or inter-catchment transfers. As planned under KIIDP 2, Lubigi channel will be expanded and lined with concrete from Bwaise to Kawaala, and similar works are planned in Nakamizo and Nalukolongo.



The Nakivubo Channel near Owino market, as it is after its restoration

Water supply in Kampala

The initiative to have a public water supply constructed on Lake Victoria came in 1928 under colonial rule. The initial plan was to supply water to 14,700 people, both in households and government institutions. Soon after households in Nakasero were connected to the water system, outdoor taps became the source of abuse by people who didn't want to pay for the water consumed. By 1937, Public Works Department started rationing water.

From these times, all the water comes from the Ggaba Water Treatment Plant, located on the shores of Lake Victoria in Ggaba (Makindye, Kampala). It is run by the National Water and Sewerage Company (NSWC), which is an independent agency within the Ministry of Water and Environment. A New Water Plant was commissioned in 2017 at the same location that increased water supply in Kampala from 200 million litres to 250 million litres per day. This is part of a larger project financed by the European Union, the Kampala Water Lake Victoria WatSan Project, aiming at improving the water challenges in the GKMA up to the year 2035. It includes a new water treatment plant in the East of Kampala (Katosi) that should add 160 million litres of water and specific actions towards informal communities.

In Kampala nowadays, most of the city has water supply 24/7, and network coverage is over 70%, but access is still low. About 18% of the households have piped water to the dwelling. Most rely on communal standpipes and water vendors, who deliver and sell water in jerry cans from taps or public springs. One can also buy water from the small minority with private connections at a price up to 3 times higher than the legal one. Boiling water before drinking is the method the most commonly used.



Transporting water in Kasanvu

The low proportion of piped water in the households is notably due to the fact that the connection to the network is a billed service. The fee for the connection has already been largely lowered thanks to subsidies: NSWC asks for 50,000 Ugandan shillings (\$15) to have the water connected. This nevertheless remains out of reach for many slum dwellers, who also often do not feel like investing in their “temporary” settlement. Once connected, a cubic metre of water costs a little over Shs 2,000 (\$0.6). If a household cannot pay water, NWSC has a firm policy of disconnecting the supply where the bills are in arrears. It is common for landlords to sell water to their tenants for four times the official rate. Poor families who are unable to afford the inflated rate continue to use polluted springs.

In the meantime, NWSC has created a pro-poor unit since 2006. They implemented with KCCA a toll-free hotline whereby households can report problems, pay bills, or apply for a new connection. With the support of other bilateral and multilateral funding schemes, it extended piped water service, usually in the form of shared standpipes, and constructed new toilet blocks in areas without access to sanitation services.



Prepaid water in Kampala (UNDP)

As part of different projects led with the World Bank, the German government, the African Development Bank and the Coca-Cola Foundation, NWSC has also started to implement a pilot program of pre-paid water meters from 2006. More than 1600 prepaid meters are operated by an electronic key (a “token”), that is pre-loaded with credit. Anyone can buy a token and refill it with credit. As water is dispensed, the meter deducts the credit from the token at the official rate. This avoids the intervention of middlemen to inflate the price. Consumers benefit from safe, affordable water, while NWSC benefits from knowing that by paying upfront. There have been a few cases of vandalism but the results are positive. NWSC is now expanding the device nationally.

Sanitation

A sanitation system was introduced in township in 1916: “the bucket latrines”. These buckets were carried and buried every night in the fringes of the township. In the Kibuga, the situation was different -it was called by Gutkind and Southall “the septic fringe”. A modern sewerage system was then designed and built between 1930 and 1940, covering Mulago, Makerere and Nakasero hills.

The current situation is inherited from these times. Only 8% of the population has a sewer connection (in the central area); the majority rely on on-site pit latrines and septic tanks. 70% do not have access to improved sanitation. Without affordable pumping and treatment solutions, households open their latrines during the rainy season to flood them out, which can be a favourable environment for diseases such as cholera. In informal settlements, 50% of the latrines are abandoned, and 30% are emptied in the environment. It is estimated that in the city, 50% of the sanitation facilities are shared with more than 2 households (10 people).

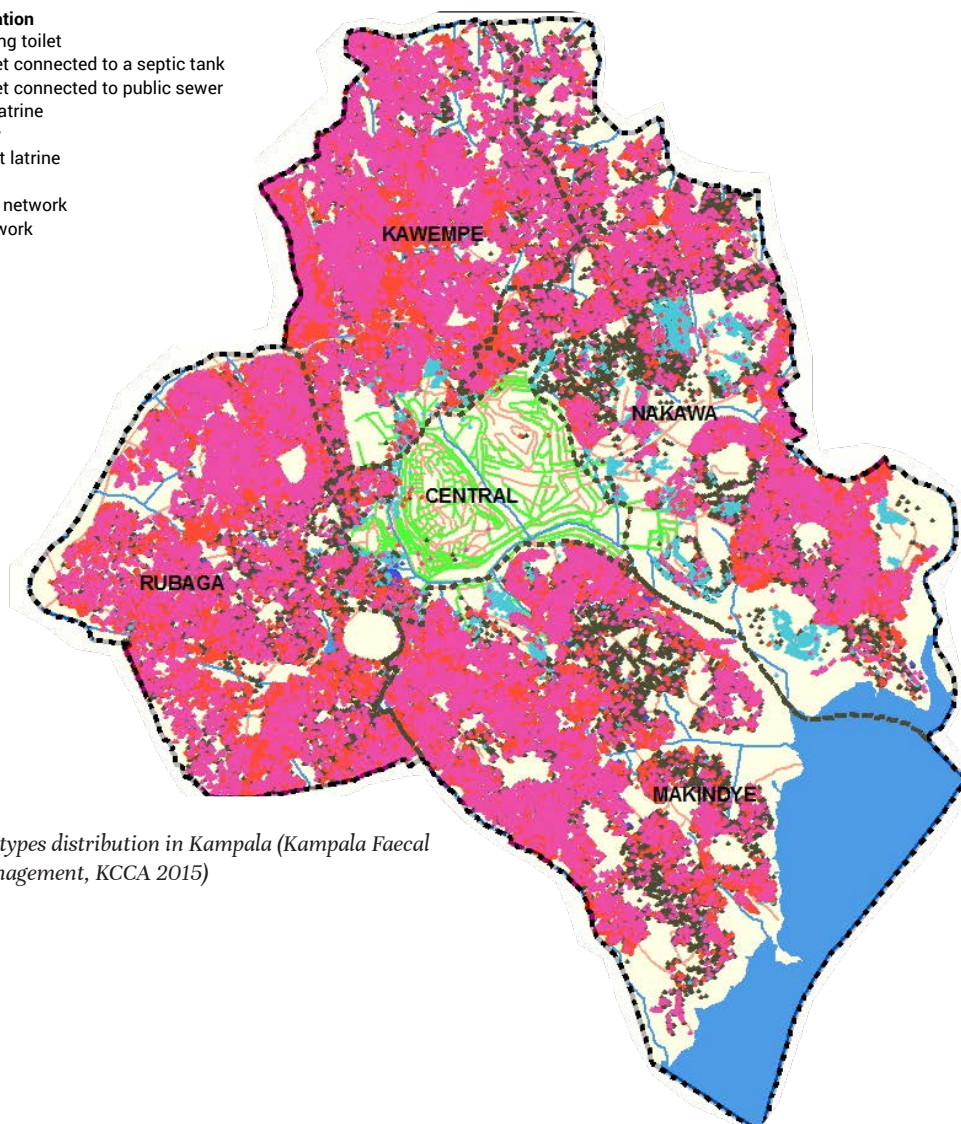
In 2014, the Lubigi Waste Water Treatment Plant opened in the Lubigi Wetland, expanding by far the capacities of the NSWC. This new plant could treat the sludge taken from the latrines while the previous plant was only taking care of what was coming from the sewers. Between 2003 and 2015, the NSWC increased the amount of human waste treated from 2,460 m³ to 80,927 m³ despite a negligible increase in sewer connections. NSWC views sludge management as an intermediate fix before expanding higher-quality sewers and community septic tanks. The largest plant in East Africa is under construction in Bugolobi, on Nakivubo wetland, and two more plants should open in the coming years for the GKMA needs.

KCCA and its partners (NSWC, GIZ) launched in December 2015 the Kampala Faecal Sludge Management project, to improve the access and the efficiency of sanitation services. It consists of several components. First of all, a citywide sanitation GIS-based database was mapped to have a better knowledge of the needs. A toll-free hotline was implemented to get information about the sanitation process and to allow anyone to be put in relation with a service provider. KCCA owns only a few trucks, these ones are reserved for the city facilities such as the schools. The hotline guarantees

a negotiated rate with the service provider. Clients who used Cesspool technology (96% of the cases) were charged about 100,000 shillings (about 26\$) for the emptying job. Then, it also includes a behavioural change communication component, focused on information about pit emptying, sanitation and hygiene, and need to have or construct an emptiable toilet. They created a label of “model village” in each division, a community where access to toilets, sanitation and hygiene is well maintained, to serve as a reference point to other zones.

Legend

- Division boundary
- Primary Sanitation**
 - Composting toilet
 - Flush toilet connected to a septic tank
 - Flush toilet connected to public sewer
 - Lined pit latrine
 - No facility
 - Unlined pit latrine
- Drainages
- Sewerage network
- Road Network
- Lakes



Sanitation types distribution in Kampala (Kampala Faecal Sludge Management, KCCA 2015)

Innovative projects

KCCA has implemented innovative toilets in some schools. For instance, Kansanga primary school in Kampala has been granted with bio-latrines since 2014. It has 14 toilets, and requires little water to push the waste into a 30-cubic-metre digester, where decomposition takes place. The digester, made out of concrete, acts as the pit, but also produces gas that is dispatched through a plastic tube, where it's connected to a biogas stove for cooking.

Some toilets are built by organizations encouraging the communities in becoming more sustainable. Shelters and Settlement Alternatives have built with the assistance of the French Embassy latrine toilets in informal settlements. They were built with Interlocking Stabilised Soil Blocks to demonstrate the efficiency of the material. The way they are managed and maintained depends on the community in charge of them. Some are asking for a small fee for each use (100 shillings usually), some require a monthly membership per household to have a key to access it, and some let the key at the church nearby without asking for a fee.

The SEEK project (Sludge to Energy Enterprises in Kampala) is establishing a pilot-scale research facility at NWSC Lubigi Wastewater and Faecal Sludge Treatment Plant. It uses dried faecal sludge to make fuel pellets, used notably for cooking purposes. The leader of this research is working with Makerere University and also conducts market research towards the market implementation of technologies and end products.

In the Ghetto Research Lab, a large informal community of “activist” youngsters in Kamwokya, colorful toilets were built with plastic bottles filled with about 300 polythene bags, and cement. In there, the human waste generated in dry toilets is not dumped but rather kept safely and decomposed in a pile for organic manure.



A building with sanitation facilities and public meetings room in Bwaise provided by the Slum Dwellers Federation of Uganda



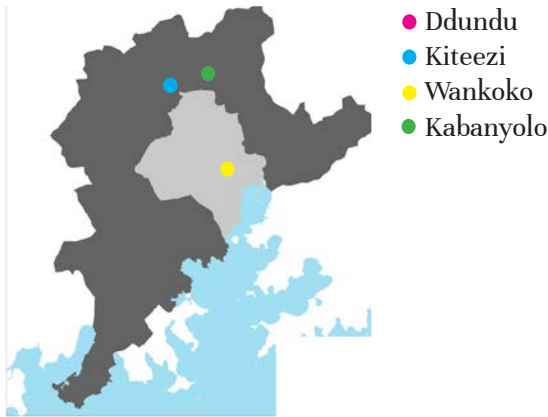
Sanitation facilities built with Interlocking Stabilised Soil Blocks in Kanyogoga



Toilets built by the Ghetto Research Lab

From Waste to Resource

Waste management is an important mission for KCCA, which is implementing a large scale facility to face the city growth. In the private sector and in informal settlements, waste is more and more being seen as a valuable resource. Many initiatives are supported by international and local partners but scaling-up remains a challenge.



In Kampala, it is estimated that the per capita generation of garbage is one kilogram per day. In 2014, about 28,000 tons of waste were collected and delivered to a landfill every month. KCCA records show that this represented approximately 40% of the waste generated. The remaining uncollected waste is usually dumped in unauthorized sites, where it can cause health and environmental problems. 88% to 95 % of the garbage is organic matter, followed by soft and hard plastic, and paper and board.

Waste used to be openly gathered and burnt at various locations such as Bukoto, Busega, Kinawataka, Lugogo bypass, before being transported to Lubigi and Lweza dump sites. In 1994, the city bought land in Mpererwe (12 km from the city centre, in Wakiso district) to open a new engineered landfill site, with the help of the World Bank. The Kiteezi landfill was commissioned in 1996 for an expected lifetime of 10 years. In the end, the landfill was not as full as expected in 2006, and the 2010's Kampala Infrastructure Improvement Programme (KIIP1) allowed an extension of the site (as well as a plan for a new site).

The Kiteezi landfill is one more hill in Kampala's landscape: it reaches the height of 35 metres and keeps growing. Upon arrival of a truck, the waste is weighed and dumped on the site. Then, some of the 600 waste pickers start to sort the waste, and remove from it the material with a market value, namely plastics, paper, and metals. 3% to 5 % of the waste is collected and sold by them. The waste is sometimes sprayed with insecticide to kill off flies before it is covered with soil. Wastewater is confined in an impermeable natural liner which prevents the leachate from infiltrating into the soil and redirects it to a leachate treatment plant. Nevertheless, people living near the landfill site complain that the facility has made their place uninhabitable and that their land has lost value.



Kiteezi landfill (L. Schoebitz)

A new land, 4 times bigger than Kiteezi (135 acres), and 36 km away from the Kampala was bought in 2016 in Ddundu. Ddundu is to be an integrated waste management center, run as a PPP. The facility will consist of a landfill, but also a waste to energy plant, a recycling centre, composting activities and a small equipment devoted to hazardous substances. The PPP will be opened to the market in December 2019, and the opening is set for 2022. Kiteezi landfill will then be converted into a transfer station, where waste will already be sorted.

In 2000, KCC passed the Solid Waste Ordinance. It formally forbade the deposit of waste in open spaces and putting fire in skips, and mandated the local governments and its agents to ensure that solid waste is collected and conveyed to treatment installations to satisfy both public health and environmental conservation requirements. In order to fulfil the mission, a PPP has been chosen (the city had not enough trucks to ensure the service) and contracts were signed for 4 years from June 2015. Kampala is subdivided into 7 Solid Waste Management service zones managed by 3 concessionaires (Nabugabo Updeal Joint Venture, Homeklin Uganda Limited and Kampala Solid Waste Management Consortium). The contracts have then been extended for one more year.



Plastic bottles collection in Namuwongo



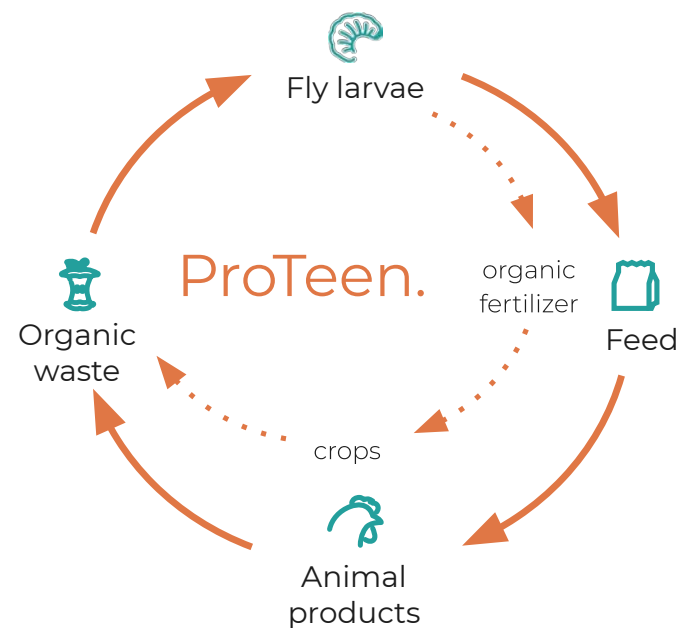
The Wankoko Waste Recycling Plant

KCCA is implementing a plastic collection centre in each division as a partnership with Coca-Cola. 3 are already operational, in Rubaga, Kawempe and Central. Anyone can bring collected empty bottles - a kilogram of plastic bottles is sold 700 shillings (about 0.18\$). It is then brought to Coca-Cola plastic bottle recycling plant in Kampala. The plant transforms the bottles in plastic flakes and then sends it abroad to manufacturers of plastic fibre and polyester looking for cheap raw materials, mostly in Turkey and India, since China banned the import of this type of plastic in 2017.

This waste to animal feed transformation may be implemented thanks to a partnership with the ProTeen project (to be finalized). ProTeen uses the black soldier fly insect to process organic waste into animal feed that can be given to fish, pigs and chickens. The leftover of the process can be used as a fertilizer.



The Coca-Cola Plastic Bottle Plant (Amref)



The circular economy of ProTeen (ProTeen)

The city authority is also getting ready to open the KCCA Waste Recycling Plant Wankoko, in Industrial Area. This plant is thought as an operational plant as much as a demonstration centre, to show to the population innovative ways of dealing with waste. One of the buildings will be used for plastics, still in collaboration with Coca-Cola. The other one will deal with organic solid waste. The waste from the city markets will be reconverted into animal feeds for non-herbivorous animals, and manure for the new city plant nursery, located right next door.

The start-up started in 2017 in Uganda and has a Research and Development prototype in the Makerere Agricultural Research Institute Kabanyolo. They also sell kits including everything needed to start the process to farmers.



The different steps of briquettes making as demonstrated in the 1-Stop Youth Center Kabalagala from KCCA (JG)



Informal communities are also involved in innovative ways of dealing with waste, available in quantity in the settlements. Plastic bottles are reused to build toilets as explained in the sanitation entry. The Kasanvu Environmentalists Group and the Kanyogoga Women Community Group, both located in Namuwongo, also make paving stones from plastic bottles. The Kasanvu Group makes them by heating polythene until it turns into a liquid, and then mixing it with soil. The mixture is then poured into paver shapers and covered. This process needs a rare and expensive machine (20,000,000 shillings, 5.400\$).



Paving stones made of plastic (and a briquette) in Kasanvu

The same process is led by EcoBrix to make their pavers. EcoBrix is a charity from the UK, which engages communities through 16 Community Recycling Centres in Uganda. They collect an average amount of 240 kgs of plastic per collecting point every week that is paid around 75,000 shillings (about 20\$). After this, they make pavers or resell the plastic they got to Coca-Cola.

The most common initiative from informal communities is the energy-briquettes production, that can be done in different scales. Organic waste (mainly bananas) are dried, crushed and mixed with a binder (Cassava porridge, clay mixture or cow dung mixture) and poured into a briquette machine before drying under the sun. The briquettes can also be prepared by hand, they look like smaller spheres. The briquettes are cheaper than traditional charcoal, and they burn three times longer than ordinary charcoal. Communities usually use their own production and sell it to the neighbors but miss a bigger market to increase their production.

Waste to energy pilots in informal neighbourhoods demonstrates how a network of community actors can overcome not only energy but also health and poverty-related challenges, through recycling waste materials for production of energy briquettes. Their experimentation is majorly driven by the following: the desire to overcome confinement to services regulated by the government and promoting alternative sources of cooking energy that stem from locally available technologies. This community led mobilization process is contributing to the reduction of extreme poverty in Kampala by increasing levels of prosperity at a local scale.

“We have to start with what we have and in Kampala, where materials that have been traditionally thought of as useless and therefore transported to a landfill... can now be thought about as materials which can be transformed into energy briquettes, into animal feed, and into composite manure. The idea is to create economic opportunities that the city has not previously thought about...”

Prof Shuaib Lwasa (KNOW City Research Lead for Kampala)



Towards more decentralized energy systems

The Nile brought for a long time more electric energy than the rural Ugandans needed. Large projects are ongoing to accompany the industrialization and urbanization. But the biomass remains the main energy for Ugandans, even in cities. That raises environmental questions - and innovative solutions.

Biomass is the predominant type of energy used in Uganda, accounting for 94% of the total energy consumption in the country. Charcoal is mainly used in the urban areas while firewood, agro-residues and wood wastes are widely used in the rural areas. These types of energy are mainly used for cooking purposes. Demand for charcoal has increased dramatically over recent years, driven by population growth and urbanization. It is causing rapid destruction of the country's forests. Each year, about 80,000 hectares (200,000 acres) are cleared for the production of charcoal or timber, according to the National Forestry Authority. This means a deforestation rate of about 2% per year.



The Isimba hydropower dam commissioned in 2019 (CGTN)

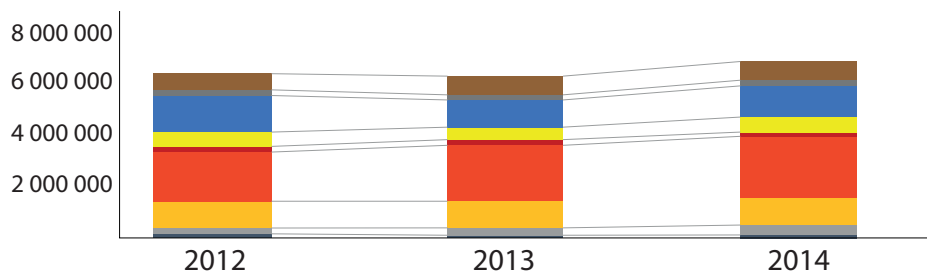
15% of the Ugandan population had access to electricity in 2013. Ironically, the country used to be overproducing and was selling the surplus to neighbouring Kenya. Uganda was indeed benefiting from the hydro-electric plants using the power of the Nile flows, source of a very large part of the Ugandan electricity production (more than 80%). As a result of urbanisation and industrialisation, this situation is no longer true and the country had to plan the construction of new plants. The current installed capacity

of 932 MegaWatts will be more than doubled because of the Karuma Hydroelectric Power Station (600MW, opening in December 2019) and the Ayago Power Station (600 MW, start of the works planned in 2020). In the long term, Uganda aims at multiplying its electricity supply through nuclear energy - memorandums of understanding already have been signed with Russia and China.

Two heavy fuel oil thermal power stations also exist in the country, used as stand-by power sources to avoid load-shedding when hydropower generation fails to meet demand. Five sugar manufacturers use their biomass residues for a total cogeneration capacity of about 110 megawatts (50% of it is available for sale to the national grid). Solar energy is growing, with two solar plants commissioned in 2019, leading the total amount of solar-generated in the country to 50MW.

Uganda is currently importing all the petroleum products it is consuming, but the discovery of the fourth-largest oil reserves in sub-Saharan Africa around Lake Albert and the projects of refineries and pipelines should reverse the situation.

Kampala Metropolitan Area currently contributes about 70% of Uganda's national demand, currently at about 653 MW at peak. This demand is expected to grow to 987MW by 2030. Most of the electricity is used in the industrial sector followed by household sector. There are frequent outages in the city, so the main buildings are also furnished with generators. They use gasoil for electricity production which contributes to the green house gas emission into the environment. These generators are supposed to be used mainly as back up in case of electricity distribution networks breakdown, but it was shown in 2014 that in the case of the KCCA buildings and facilities, the energy consumptions were mainly composed by gasoil (71%).



- Energy Production
- Food
- Transport
- Fishing
- Household
- Industrial Sector
- Waste
- Construction
- Freight
- AFOLU
- Tertiary



In informal settlements, charcoal is the main energy source for cooking. Firewood is a cheap alternative but is not available everywhere - in Kampala, the Bwaise settlement dwellers are close to carpenters and can, therefore, find some wood at a low price. The average household in Kanyogoga uses about 1000 shillings to 2000 shillings (up to 0.5\$) worth of charcoal a day. Electricity can also be found in some settlements, with legal or illegal connections. In some cases, one registered meter can charge neighboring consumers a fee depending on their consumption.

“Improved stoves” are quite common in the settlement. The improvement often constitutes applying a ceramic lining to better retain heat. They can save up to 50% of fuel,



Improved stone (and non-improved stone behind) (M. Balder 2018)

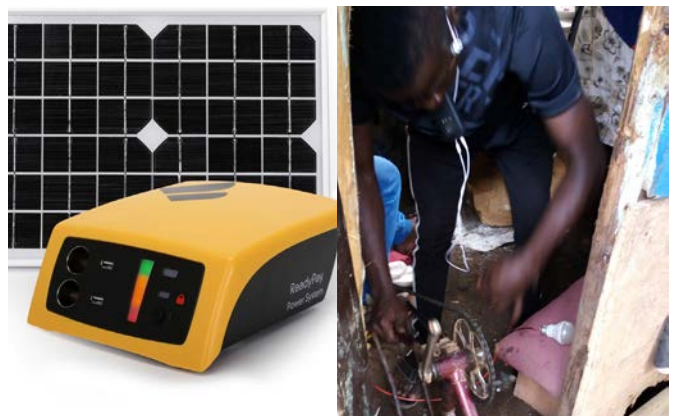
and mean significant savings in the long-run. However, the initial expense for improved stoves acts as a barrier: it costs around six times the price of a traditional stove. Cheap metallic stoves can be found at around 4,000 shillings, while an improved cookstove will start at around 25,000 shillings. The Kanyogoga Women Community Group also weave some baskets from papyrus that may be used to cover the stove, acting as a kind of oven to retain the heat.

The energy briquettes introduced in the Waste entry are a growing alternative to charcoal. Cheaper alternatives, the briquettes tend to burn for a longer time than charcoal (4-5 hours compared to 2 hours for an equivalent amount of charcoal). They are especially useful for slow-cooking dishes. There are some differences in lighting and cooking timing, but require cooking competencies are similar.



Drying spherical briquettes in Kasanvu

Decentralized electric solutions are an increasing market in Uganda as well. The ReadyPay Solar Power Systems are developed by the American company, Fenix and accessible through a partnership with the telecom company MTN. Initially, customers pay a small deposit (from 19,000 shillings, 6\$) and bring home a kit including a solar panel, a battery pack featuring two USB ports and two-car lighter adapter ports plus a range of lights and phone charging accessories. To access to electricity produced by the solar panel, they need to pay a small fee every day with their mobile money (from 600 shillings, 0.16\$), until their kit is paid off. Afterwards, owners will access power for free. These types of kits are mainly used for lighting, charging phones and listening to the radio. Fenix announced in June 2018 that they provided electricity to 200,000 homes, 84% of them being in rural areas.



On the left, ReadyPay kit (MTN). On the right, demonstration of energy producing (for phone charging) in Ghetto Research Lab

Mandulis energy is a Ugandan startup launching biomass gasification plant projects. The biomass is turned into a synthetic gas that generates electricity. The by-product, biochar, is used to make briquettes. REPARLE develops an off-grid electrification project with 8MW of power generation. It will use the agricultural residues of rural farming communities. Their second project, EARTH ENERGY, will be the first and largest grid-tied biomass gasification power plant in Africa (20 MW) and will be located in Gulu, Northern Uganda.

Kampala, hospitable city ?

Kampala used to be and still is a city where people walk a lot. Nevertheless, the motorisation has increased very quickly, and the very high number of expressways planned show this process is not meant to stop. This movement gives to the inhabitants more freedom in their mobility but is also causing new issues. What space is left for pedestrians, and what quality of non-motorized mobility? What consequence on air pollution? According to the AirVisual's 2018 World Air Quality Report, Kampala has already the second-worst air in Africa. In the perspective of sustainable development, the city has to think about alternative ways of mobility.

Issues about pedestrians and non-motorized transport are intertwined with the safety issue. If Kampala is a safe city (crime rate is relatively low), traffic fatalities per vehicle are one of the highest in the world, the city may become more welcoming through a few initiatives.

Nighttime

The night in Kampala is dark. Except for a few streets downtown and a few accesses, there is no light, making the period from 7PM until 6AM a continuous dark time. Night then becomes less safe (walking is more dangerous because you don't know where to put your feet, and vandalism can easily take place in dark areas), and street activities cannot happen anymore.

The Kampala Street Lighting Master Plan, supported by the French Development Agency, will increase greatly the number of street lights in Kampala's suburbs. The project was expected to be powered with solar energy, but the price drop of electricity from the national grid may influence the final decision.

Trusting the boda

Boda-boda is not the safest means of transportation. Riders often do not respect the traffic lights. The Mulago Hospital alone receives between 10 and 20 victims of boda-boda accidents daily. Boda-bodas are also not trusted by women. A 2013 survey showed that 80% of girls (11 to 23 years old) felt 'very unsafe' or 'unsafe' in public spaces in Kampala. They fear theft and rape incidents, in markets, roads, recreational centres, and when using public transportation, such as boda-bodas.



Some SafeBodas come with an umbrella for two in case of rain

The private initiative SafeBoda was created in 2014 to tackle these challenges. SafeBoda is a smartphone app, allowing its user to order a boda-boda for a single trip, from door to door. The fare is indicated at the end of the trip in the app, so there is no bargaining. SafeBoda drivers follow trainings (from the "SafeBoda academy"), where they are taught to strictly respect the traffic regulations and learn first aid. They all wear a helmet, and must offer to their customer a spare helmet as well. Every trip is rated by the customer at the end of the travel, from 0 to 5 stars. The app has known a tremendous success since its launch: there are now more than 8,000 SafeBoda riders in Kampala, and the service also started last year in Nairobi, Kenya. Ricky Papa Thompson, one of the founders of SafeBoda, has also indicated they were planning to expand in Lagos, Nigeria

Walking and biking



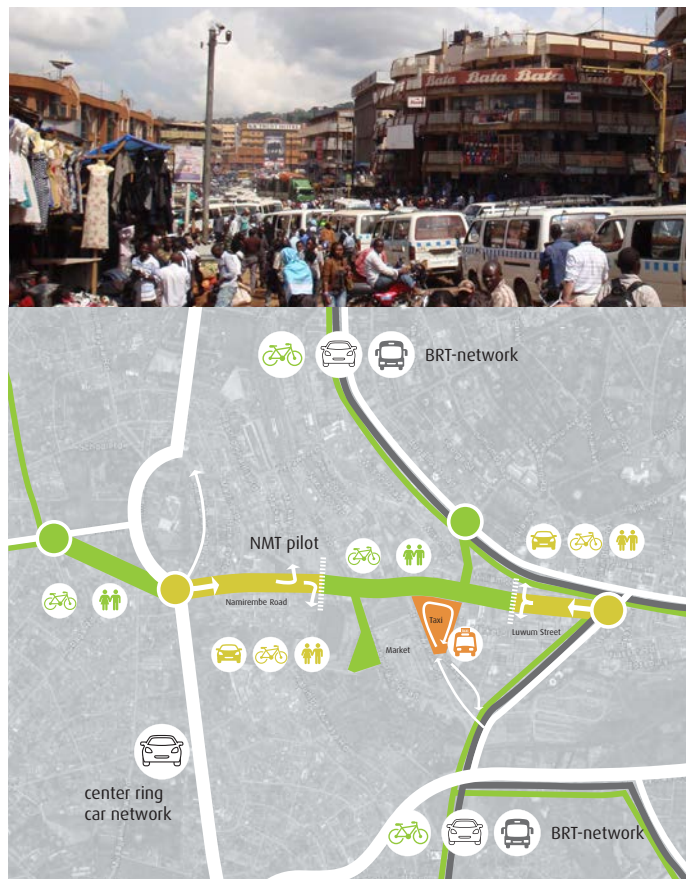
You don't always find a sidewalk (JG)

The Non-Motorised Transport (NMT) modes are still the main means of transport in the country. In Kampala, 50% of all trips are made by walking. Even among the high-income group, 45% of all trips are by walking. Bicycling has long been widespread in Uganda, and it continues to exist in Kampala but in a smaller proportion. Despite its importance, the practice of walking and cycling does not appear as the most comfortable and safe means of transportation, due to the lack of specific space for it. Pedestrians have to rub against cars and taxis, many roads have open side drains creating safety hazards in crowded streets, and when there are footways, these are occupied by parked or loading vehicles, taxis and motorcycles or street vendors.

The National Non-Motorized Transport Policy (draft in 2012, disseminated in 2019) from the Ministry of Works and Transport asks to the local authorities to integrate pedestrians and cycles policies in all infrastructure constructions or rehabilitation, and promotes the ‘Universal design’ principle (access for everyone, “including the elderly, men and women in wheelchairs, people with small children and those with various disabilities, including mobility problems and visual impairment”) in all projects. At the Northern Bypass, which is becoming a four-lane dual carriageway, three footbridges are being built and will be opened to the public in November.

In Kampala, non-motorized awareness is a concern for the local authority. From 2012 until 2017, the Kampala City Festival was a yearly street festival organised by KCCA, during which several streets in the CBD were closed off for vehicles and open to pedestrians. In 2015, KCCA launched the Sunday Market: every Sunday morning, Luwum, Burton, Dastur and Namirembe streets are occupied by a lively street market. These initiatives act as showcases to understand the benefits of using the streets differently.

As part of the KPDP, a Non-Motorized Transport pilot zone will come to life on the same area where the Sunday Market takes place: Namirembe Road and Luwum Street. Part of the road will still allow cars to drive in a shared space with pedestrian and cycles, and two sections will be devoted to NMT only. This street leads directly to the “old taxi park”, the main parking area for taxis, making it one of the “gates” of Kampala. The concept guide of NMT-zone also calls to design bike lanes along the BRT (which is not planned in the first BRT plans).



The NMT pilot plan (Smart Moving Kampala, KCCA)

E-mobility

The case of Ampersand in Rwanda must be pointed out. The American company intends to provide Kigali with electric motorbikes for people transportation and inner city trips. The product is under test in the capital city where the population highly claim for moto-taxis able to move between cars within traffic jam. The “e-Moto” is able to travel around 65 km with passengers at a speed of 80 km/h, up to 188 km per day. The Authority is very sensitive to the climate situation and willing to mitigate pollution and CO2 emission through locally zero emission means. Moreover the e-Moto will be sold around 1300 US \$ more affordable than a conventional motorbike costing 1900 US \$. Total cost operation will be less and the driver will save 1100 US \$ per year. In Kigali there are about 25 000 moto-taxi drivers. In Kampala, the boda-bodas business might be about to know a great transformation : e-motorbikes are currently developed by the company Zembo. SafeBoda has announced being partnered for a pilot project, and Zembo’s co-founder said they plan to have up to 200 electric motorcycles and five charging stations in Kampala before the end of the year.



Demonstration of Zembo electric motorbikes with SafeBoda (Zembo)

Obviously traffic and congestion are highly relevant concerns. With a self-directed scrutiny, Europe is rich of a development history plenty of mistaken decisions in many areas. These mistakes are no longer to be committed. This point is able to enrich a cooperation process, especially with a country searching for leapfrogging solutions. European cities grew based on specialization, speed, concentration, leading to large road infrastructure networks, then bottlenecks, unavoidable long lasting traffic jams... In fact, the more roads you build, the more cars you attract, until the infrastructure clogs-up once more in an endless mechanism.

In some way, it is a great chance in Kampala that the road infrastructure network might not be completed yet.

How to spare expenditure in not building additional infrastructure but enhance efficiency through a new way of managing the existing one in a distributed and decentralized way?

Cross Cutting Entry : Heterogeneous Infrastructure Configurations

The Heterogeneous Infrastructure Configuration concept is born in 2016 from an international team of researchers (including Mr Shuaib Lwasa from Makerere University). It invites to look at uses and habits to broaden the concept of infrastructure, notably on waste and sanitation. In-depth observations based on everyday experiences are led in Kawempe and Nakawa divisions for more than 3 years, with the assistance of Actogether and the support of Swedish Research Council.

The concept of Heterogeneous Infrastructure Configurations may help us to move beyond technological and performative accounts of existing infrastructure, and provides a comprehensive understanding of what consists in infrastructure. It comes from an assessment of the current situation:

- Infrastructural artefacts are part of geographically spread socio-technological configurations, might involve many different kinds of technologies, relations, capacities and operators, entailing risks and power relationships: formal/informal; legal/illegal; ...
- Utilities/service delivery are characterized by multiplicity, overlap, disruption and inequality
- Modern infrastructure ideal has limited possibilities for achieving universal, uniform networked access to services, especially in southern contexts where disruption is the norm.
- A widely accepted political and social goal to provide universal, uniform infrastructure globally, and continues to underpin normative prescriptions including in the global south.
- The normative ideal of homogeneity and centralism continues to significantly shape the way residents, planners, governments and academics think about infrastructure.
- The current situation has resulted in a legacy of non uniform modes of service provision, and urban regions display the existence of centrally planned infrastructure, with infra initiated by local entrepreneurs, grassroots social movements, international NGOs, and individuals,...

- Infrastructure have become layered by multiple and partial infrastructures including different coverage, technologies, operations, logics and ownerships.
- Move beyond over state/private/community ownership, as well as formal or informal infrastructures, towards possible incremental change of infrastructure in sustainable urban conditions

The export of water infrastructure to Kampala, including the consideration of different possible technical solutions to Kampala's growing needs is an example. European-style water supply and sewage system had emerge as a real possibility among the experts and administration in Entebbe, no other solution appeared plausible. The colonial system covered the entire European administered part of Kampala and catered for all inhabitants with racially segregated levels. Notably, other urban areas still managed water, waste, and sanitation, but through a plethora of socio-technical configurations that provided differentiated alternatives depending on social position (class, ethnicity, gender). Though the modern environmental movement was occurred and local voices called for African cities to use "appropriate technology", large scale, centralized model for water, sanitation, and waste management was adopted by post-colonial governments with financial and technical support from international partners. Public funds, often obtained through international loans were used to extend low cost service provision via networked services. By the 1980's that state budget could no longer support this vision largely due to global economic trends.



An informal settlement in the fringes of the CBD (KCCA)

The normative ideal of homogeneity and centralism continues to significantly shape the way residents, planners, governments and academics think about infrastructure. Despite the importance of existing power relations, networked services have also inspired new forms of collective organizing and self-built systems that offer various alternatives to formal, networked infrastructure pursued in the absence of large-scale state and market investment. Thus while constructed as a means through which to obtain services, social mobilization for infrastructure can also generate more widely relevant “platforms of engagement”.



Sanitation facility provided by SSA:UHSNET in Namuwongo

- The term HETEROGENEOUS : aspects of the diversity of infrastructure, the presence of multiple technological artefacts, contrast with the uniformity of the modern infra ideal, the blurring of formal/informal binary. Captures not simply the mixing of two (or more) kinds, but that the kinds being mixed are not clear from the outset. Heterogeneity also resonates with the notion of “worlding” the idea that what emerges locally can have many sources, not simply the result of colonization, globalization or developmentalism but also local innovation.

- The term INFRASTRUCTURE : implications of uniformity and material connectivity. A wider concept would be delivery. Notion of infrastructure includes « people as infrastructure ». Deeply embedded in social relations as well as acting as part of material conduits; consider infrastructure to be a practice of connecting people, socio-material relations that sustain urban life, changing ways of connecting.

- The term CONFIGURATION : rather than « systems » to de-centre the ordered exchanges between diverse technologies that act as sub-systems. The notion of system compels an external observer to analyze, monitor and control the hierarchical system. Close association with the verb RECONFIGURE, emphasizing that infra is dynamic, on-going changes of construction, assembling, repairs and maintenance. Continuous process of small incremental adaptations over time

On another hand, the replacement of fixed infrastructure by service delivery avoids massive investments and may adjust changes of the city with flexibility. This is close

to decentralized or distributed services close to smart-grid management, off-grid issues. The example of waste in Kampala demonstrates interrelationships between different artefacts and processes, including consideration of the ways in which “redundancies” redistribute and reduce risk.

The threefold main stake utilities delivery is to fill the gap (of void, inexistence of provided structured service), assemble (the existing know-how, the ways to access to services even partially; there digitization play a significant role even within bottom of the social pyramid), partly based on human sensors (belonging to the informal sector potentially, able to be a significant link within the formal chain of utility delivery, such as valve-men in the water distribution network for instance). Having in mind the physical infrastructure, the technical process, the management of the system and of the service (the delivery)...



A section of the Nakivubo drainage channel (JG)

How to design circular, green, and holistic infrastructure?

A user centric approach, as design thinking, may help to assess the requirements of the place and match the demand and global : accommodate rainfall water, move people, mitigate heat, offer space for feeding the population, deliver environmental activities as composting, enable area premises for activities (street vendors), produce or store energy at a micro-scale, provide recreational areas, ensure road safety and street security, with embedded city life and civility... A configuration might be thought as a range of infrastructure options potentially available to a person for everyday use, shifting from focusing on the system developed from outside towards situated users.

Most of these elements are close and interact together: sewage of grey water to be considered as a resource for watering urban farming areas, in the same time agriculture plots offer an asset for filtering grey waters... All those requirements take place in a context of imperative scarcity with a significant lack of money, space, time, energy, building stuff, land,... Shared-use of means and solution might be thought about. All the here-up described concerns partially overlap. They are linked together, one feeds into the other.

More than building distinct new infrastructures to accommodate buses, traffic, pedestrians, water flows; how to combine their functions together? How to integrate and combine them to the existing infrastructure? How to design municipal networks, utilities and public spaces through a green infrastructure concept within a systemic metabolism? How to design new types of pathway to provide more safety, security, and comfort to the pedestrians? How to take into account habits at the household level in projects of infrastructure? The Use of marginal materials for road construction: recycled and secondary materials such as recycled tyres, recycled plastic may create a new sector providing jobs and sustainability to the communities.

The very beginning point of an innovative design for infrastructure could be the needs, the variety of requirements. How an efficient single and simple infrastructure design may solve numerous issues in the same time? How to assemble the various components to match requirements of mitigating climate change within a green and multipurpose infrastructure? One single infrastructure may accommodate various functions or utilities within its strong grip and volume, more than dedicate one fixed space segment for each purpose. This consideration may bring the opportunity of decreasing investments in not multiplying various single purpose infrastructure. Integrated design combination may provide innovative solutions.

Moreover the uses change from day to night depending on the time-slot. Space-time management of the infra may bring flexibility providing more capacity and effectiveness. An interesting example is reverse lane use, in an informal way in Kampala but in a formal one in other countries such as Brazil (Rio de Janeiro, Sao Paulo) to mitigate traffic congestion and match the peak demand. One main avenues or expressways morning and evening peak time widen the high demand directions of these road. A major profitable principle to apply during steep growth periods



Kasanvu

in compelled situation is how to do more with less? The key point of avoidance cost or avoid option should be high-ranked in the solution finding process.

How to make road infrastructure, and green spaces smart and sustainable? How to mitigate congestion, not attract additional traffic, tackle climate mood, segregate, drain and store heavy rain falls, connected to the blue network (rivers, canal), produce energy locally (micro hydro), accommodate urban farming in interstitial areas, produce and store renewable energy through public lightening, ensure safety for pedestrian... within the same project? How to plan areas for awareness, training and education for families, households towards better fooding, driving behaviour,...

Land-use, transportation, agriculture, water, natural risk, demography, gender issues are fully related. By taking a more broad-based approach, how an urban project may put through a holistic vision including all these inter-related factors? How can any activity, equipment, premises, be a support for innovative and design thinking urban projects? To what extant do they offer an opportunity to design better public spaces, organize better the municipal areas? How to accommodate existing activities of street vendors, water distribution, social meetings premises as an opportunity to redesign urban space or refurbish areas to emphasize local civility neighbourhoods and communities?

The railways are used as a non-motorized corridor in the city





Kampala at work

Quality of education

The tenacity of informality in the city

Markets defining a way of life in the city

Urban agriculture in Kampala's interstitial spaces

Green industry for the city

City of innovation

Culture mix



Quality of education

Education is by far a key factor to national development. Formal and informal education practices simultaneously contribute to skilling and empowering the citizens, especially among the youth.

Educative and learning city: “Developing a territorial education policy by mobilizing all the educational players”. Supporting the territory, a local educational project allows all educational partners to formulate common goals and to appropriate a shared culture and language. It leads to a rethinking of education as a whole because it covers all the times of the school child, extracurricular and extracurricular by seeking an articulation between each of them. It aims to foster enhanced educational cooperation among educational actors.

The sustainable city, an educative and learning city, In Africa And France, Building Together The Sustainable And Inclusive City Of Tomorrow International Seminar Strasbourg 25Th & 26Th April, 2019

In the case of Uganda, it is the Ministry of Education and Sports (MoES) that is charged with the responsibility of providing high quality education in the country at the lowest affordable cost and accessible by all.

An image of two Primary school children of ages 6 to 12 years (JG)



The education structure

It currently includes the following sub-sectors:

- Pre-primary / Nursery section
- Primary
- Secondary
- Post primary / BTVET
- Tertiary
- Non-formal

The Annual Education Census 2011 states that Primary and Secondary Schools in Uganda include Government, Public Private Partnership (PPP) and Private Schools.

The education system in Uganda has a structure of 7 years of primary education, 6 years of secondary education (divided into 4 years of lower secondary and 2 years of upper secondary school), and 3 to 5 years of post-secondary education. The BTVET (Business Technical Vocational Education and Training) school level which aims at skilling Uganda, has certificate courses and diploma programs in its curriculum. One has to have completed primary level to qualify for a National Junior Vocational Certificate, 4 years of lower secondary school to qualify for a National certificate and 2 years of upper secondary school to qualify for diploma programs in courses offered at Technical, Vocational and Farm institutions.

The majority of literate Ugandans go through two basic levels of education i.e. primary and secondary schools and very few make progress to university and other tertiary institutions. The official school going age is 6-12 years for primary education, 13-18 years for secondary education and 19-24 years for tertiary education. To take into consideration those who start primary level at more than 6 years, they are included in the age-group 6-15 years. Those who have never been to school, are considered in the age group of 15 years and above on the assumption that by age 15, there are minimal chances for one joining school for the first time.



Kisaasi Primary School improved by KCCA, Kawempe division

Literacy statistics

The National Population and Housing Census 2014 indicates that in Kampala the percentage number of persons aged 18 years and above who cannot read and write is 5.6%. Males and females aged 18 years and above who are illiterate constitute 4.0% and 7.0% of Kampala's population respectively.



Nakivubo Settlement Primary School developed by KCCA

In contrast, statistics show an increase in the use of ICT (Information Communication Technology) across different age groups. Internet Usage by persons aged 10 years and above is at 37.5% of Kampala's population. The percentage number of males and females aged 10 years and above that use internet is 44.5% and 31.8% respectively. Using the same age group, persons that own at least one mobile phone are at 76.9% where males and females constitute 79.7% and 74.6% of the city's population respectively.

With the aforementioned quality of education offered in Uganda and its accessibility, the education composition of 9,932,000 persons in the country's total labour force is 9.9% for those with no formal schooling, 53.6% completed at primary level, 24.3% at the secondary level, 12.2% at post-secondary level and the rest did not state their level of education. The formal labour market is expanding at a much slower rate compared to the labour entering the market.

School going children during a break (JG). 53.6% of Uganda's labour force complete Primary level education



Educating the city

To prepare youth and children in the city for the labour market, the Kampala City Council Authority (KCCA) has in the 79 Government aided Schools in Kampala, set up infrastructure in some of these schools constructing over 104 classrooms and 6 science laboratories. The KCCA through its partners empowers youth with skills not limited to ICT and leadership.

An Employment Services Bureau was set up to provide training for youths, link unemployed youths to employers and operationalize the information exchange unit of the job center. An example of the Bureau's initiatives is the I-Serve Volunteer Programme 2015, a national service programme, which involved youth from the different divisions of Kampala.



One Stop Youth Center, Kabalagala, a KCCA initiative

A One-Stop Youth Centre was recently set up by KCCA to equip communities with life skills and spur the lives of the Kampala City Youths. The Youths aged 18-35 years undergo free hands-on training in Leather turning, Electrical repair & Installation, Hair dressing among other skills.

The tenacity of informality in the city

The prevalence of urban informality in the city is attributed to limited planning and governance capacities. Kampala is a city running on unwritten rules. The urban poor and high unemployment rate partly account for the informality.

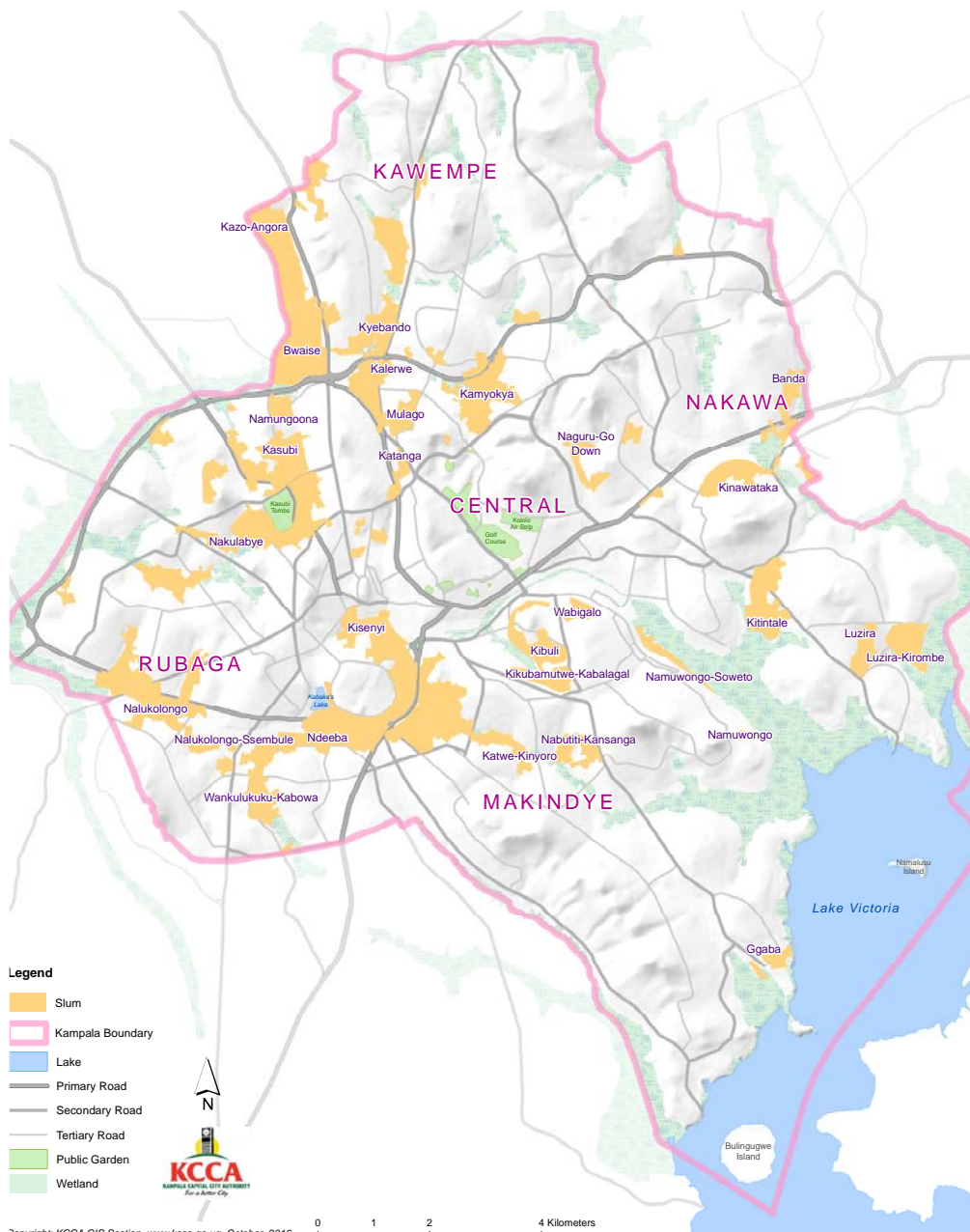
A new normality

This urban form arose from the dualism between the local 'Kibuga' and the early Kampala township or municipality. The latter was fully planned and highly controlled while the former was largely unplanned and informal. The emergence of slums in Kampala City has been gradual and sustained over a long period of time, and this greatly influenced the city's identity. The once renowned "kibuga" has lost its glory to a chaotic layout of buildings and streets. Informal activity in Kampala has become the new normality making up at least a quarter of the total city area and informal settlements housing 60% of the total city population.

Uganda's changing political and institutional landscape has created new opportunities for urban informal groups to exert their influence. Through their sheer numbers, their centrality in the urban economy and their youth, there lies an underlying threat of potential violence. These groups have made themselves politically matter.

In the early 1990's, 'survival' in Kampala meant engaging in informal behind the scenes agreements with local authorities, enabling both informal economic actors and local officials to secure extra income illicitly in the context of very low wages paid by the government. The new 'politics

of survival' are rather about attracting the attention of State House, and has become a central tactic in popular efforts to block the city authority's attempts to regulate and control urban space. The notion 'politics of survival' in Kampala has therefore become 'nationalized' in the sense that national level politicians, and especially the President, regularly engage themselves at local level and in ways that reinforce the acceptability rather than illegality of informal economic activities.



Informality illustrated by the city's housing sector

There is no sector that compares to housing as one which best illustrates the “informality” and its presence in Kampala (Lwasa, 2014; UN-Habitat, 2009). The quality of housing is not easily controlled, neither are standards being enforced due the poor livelihood of city dwellers in the informal sector. Most informal settlements are located in Kampala's low-lying areas. Large areas of wetlands have been backfilled during the night; small houses have sprung up across the wetland; and as slum dwellers have pushed the boundaries of their settlements further and further into the lowest lying areas. Somewhere in the midst of all this there is the National Environment Management Authority (NEMA), which is supposed to demarcate the boundaries of the wetlands so that everyone knows their extent or in this case where they build. In the Namuwongo informal settlement where the railway line cuts through the settlement, one side of the line will be deemed dry land, while the other side will be wetlands. However, despite NEMA having been in existence for years, it appears that the exercise of demarcating extents of wetlands is still not complete allowing the informal settlements to sprawl further into the sensitive environment.

Amidst the chaotic expansion of the city, and KCCA is supposed to enforce the law on those who have built without permission by destroying their developments and returning the area to its original state. KCCA provides basic infrastructure and waste management services to the informal settlements (60% of the city's population) since the informal economy is a huge contributor to the city's revenue. This presents an inbuilt contradiction where the city authority plans to enforce the law on evicting the slum dwellers yet they contribute greatly to Kampala's economy.



A vendor illegally trading within a road reserve (JG)

An informal economy

A not so organised city, where the housing sector is characterised by informality and overcrowding as result of rapid economic growth, commercial developments are also adopting different facades that are characterised by lack of individuality and “soul”. In response to this growth and expansion of the city ahead of existing formal planning, informal settlements have also spread across the different divisions of Kampala, especially in the low-lying and sensitive areas of the city. Unplanned “informal” settlements are not only just poor settlements with deficits such as city congestion ; informal vending and transport services and low contribution to city revenue, but also form the larger part of the city providing livelihoods and careers, alternative infrastructures, innovation and entry into the urban economy especially for the most vulnerable of the urban poor. There are 2.5 million people working in the informal sector, most of them actively engaged in the trade sector. The informal economy accounts for 50% of total labour force.

Carpenters at work (JG). The informal sector is a big contributor to Kampala's economy



In greater Kampala at the Kyaliwajja – Namugongo junction located in Kira municipality, in 2012, an informal/rural market emerged where a network of transporters and vendors gathered at the intersection illegally. After a demonstration of 6 years of effective productivity, the market leaders negotiated with the local authorities to move their roadside activity into 50 – 60 semi-permanent lockup stores. This is a good case illustrating how informality can be formalized in an agile and adaptive way. Such a case can be precedent to other sectors with a lot of informality not limited to agriculture, environment, energy, housing and transportation.

Two significant policy extremes co-exist in addressing urban informal development issues ; some focus on punitive and regulatory measures to enforce formalization or evict vendors outside the city, while other approaches focus on unleashing the untapped entrepreneurial potential of the informal sector. City planning authorities emphasize the former whereas community-based, civil society and international organizations have specific initiatives based on the latter approach and livelihood improvement.



Left and above: Temporary markets of different magnitudes located in the informal sector, JG

It is therefore not surprising to acknowledge that, Kampala is a city running on unwritten rules. And also where high-rise apartment buildings fin into a watery skyline amidst informal settlements.

'My city', Davina Kawuma

ACTogether the national support NGO charged with providing technical and financial assistance to the National Slum Dwellers Federation of Uganda (NSDFU), oversees the creation of community-based saving groups and their integration at regional/federation and national level. Its core functions are not limited to sourcing community data through settlement profiling, household remuneration and settlement mapping; savings and livelihood programmes by creating a fund for communities; slum upgrading projects in water supply and sanitation and also advocacy through community collaboration and negotiation with government in settlement, city-level and municipal development forums.

Another network of civil society organizations, communities and individuals is the Shelter and Settlements Alternatives: Uganda Human Settlements Network (SSA: UHSNET). Its mandate is in decent and affordable housing and monitoring how informal settlements are planned through advocacy by ensuring the representation of vulnerable and urban poor communities in the national development process; community empowerment through innovative projects such as recycling biodegradable waste into briquettes, making soil stabilized bricks, in collaboration with other partners; trainings and linkages between informal communities with the government

Markets defining a way of life in the city

This is where cookie-cutter malls, wobbly kiosks and street vendors have colonized, or are trying to colonize every inch of cityscape ; unassuming open-air food markets rub shoulders with supermarket chains such as Shoprite ; seasonal and daily markets with an influx of vendors and customers in a bustle of both legal and illegal trade activity.

The earliest legislation on markets in Uganda is the Markets Act 1942 which provides for the establishment and management of markets. The law states that no person or authority other than the administration of a district, a municipal council or a town/urban council shall establish or maintain a market. There are also markets established and managed by private individuals either on land belonging to an individual or land belonging to a local authority but given out to vendors. The act does not clearly define the term 'Market' and this gap provides leeway for various interpretations of what a market is. There are several types of markets in existence in Uganda. These include the traditional type of markets, markets in the rural areas known by different names or the type of goods they deal in and newly emerged markets also known by different names such as super markets, satellite markets, roadside markets, street vending, open public space markets, mobile markets, car boot sales and black markets among others. Some of these markets are legal while others are illegal.

There are byelaws and ordinances governing the administration of markets according to the conditions in the Market Act 1942. However, the byelaws and ordinances provide for general issues and not issues peculiar to the management and control of specific markets. Only 30% of the bye laws provide for fees paid in markets. An Ordinance to licence and regulate the establishment, maintenance and control of markets in Kampala city and for other connected matters was passed and commenced in 2006 as the Local Governments (Kampala City Council) (Markets) Ordinance, 2006. Kampala City Council Authority established by the KCCA act 2010 has prepared the new Market Ordinance which will guide market developments in downtown Kampala.

This new ordinance harmonizes the 2006 ordinance. It, among others, seeks to provide for a clear and comprehensive licensing for permanent, semi-permanent and temporary markets, overall management and control of all types of markets in the city, and processes through which market leaders in public markets can be elected.

Ggaba market (JG)



Private investors willing to establish markets in the city will have to pay monthly licences to KCCA levied according to the grade and number of facilities. A Grade 1 market will pay a monthly licence of Shs600, 000 (USD 162); Grade 2, Shs500, 000 (USD 135); Grade 3, Shs400, 000 (USD 108); Grade 4, Shs300, 000 (USD 81), and Grade 5, Shs200, 000 (USD 54). This will resolve the current problem of mismanagement and maladministration of market facilities and infrastructure by private investors and market vendor associations.

There are traditional, permanent and semi-permanent, open-air markets in Uganda which mainly deal in fresh produce, dry foods, clothes, electronic items and a variety of household items. Markets tend to attract large crowds and open early in the morning till late. Kampala is a host of several of these markets which are overseen by the Kampala City Council Authority (KCCA) and Market Vendors Associations.

The five divisions of Kampala are home to some of the main open-air or flea markets that have been in existence in the city for many years, and new modern markets are also being constructed to either replace the old ones or to meet the needs of the growing population of vendors, traders and customers. Markets vary in scale depending on the form of trade (wholesale or retail basis) and magnitude of their customers. The following markets serve other secondary markets and roadside/street vendors in Kampala and surrounding areas :

Nakasero Market



Vendors in Nakasero market (Olive Nakiyemba, Culture Trip)

Currently located at the foot of Nakasero hill, Nakasero Market started in 1895 where it was first established in the Lubiri (Palace). Later, in 1905 Nakasero Market was moved to Kagugube (close to Makerere University) which was initially a temporary structure. It is now one of the biggest markets in Kampala city Central Business District divided up into two areas; the open area which is partially covered and the closed area which is in an old building. In the open area, fresh produce is mainly sold and in the closed area one would find hardware, clothes and tourist items on sale. It serves most restaurants and upscale hotels in the city centre. The prices are lower at dawn, when the produce is delivered fresh from the farms, and they increase as the

day goes on. Nakasero market is managed by Nakasero Market Vendors and Traders Association and overseen by KCCA.

St. Balikuddembe Market / Owino Market

It is located near Nakivubo Stadium between Kafumbe Mukasa road and Nakivubo place road in Central Division. It was started in 1971 with 320 vendors who were reallocated from Nakasero Market. The City Council named the new market Municipal Market, which was later renamed by vendors to Owino Market after an old man called Owino whom the vendors found on the site roasting maize and sweet potatoes. It is famous for its secondhand clothing and as a whole sale market for farmers produce with aim of supplying other markets in Kampala and surrounding areas. Other commodities sold in the market include foodstuffs, electronics, shoes and scrap among others. Vendors at Owino Market, which is quite a maze of a market, will earnestly seek your attention and test your haggling skills. This is the biggest open market in Uganda and possibly in East Africa built on 7.04 hectares of land. With time, it became overcrowded, vendors and traders are in excess of 50,000 vendors, 70% of whom are women. At least 300,000 customers visit the market on a daily basis and the number of customers increases over the weekend and a few days before a public holiday. This has forced the market to sprawl around the Nakivubo Stadium. Management and ownership of the market is by Kampala Capital City Authority (KCCA). The vendors and traders under St. Balikuddembe Market Stalls, Space and Lockup Shops Owners Association Ltd (SSLOA) are in the process of obtaining a sub-lease from KCCA.

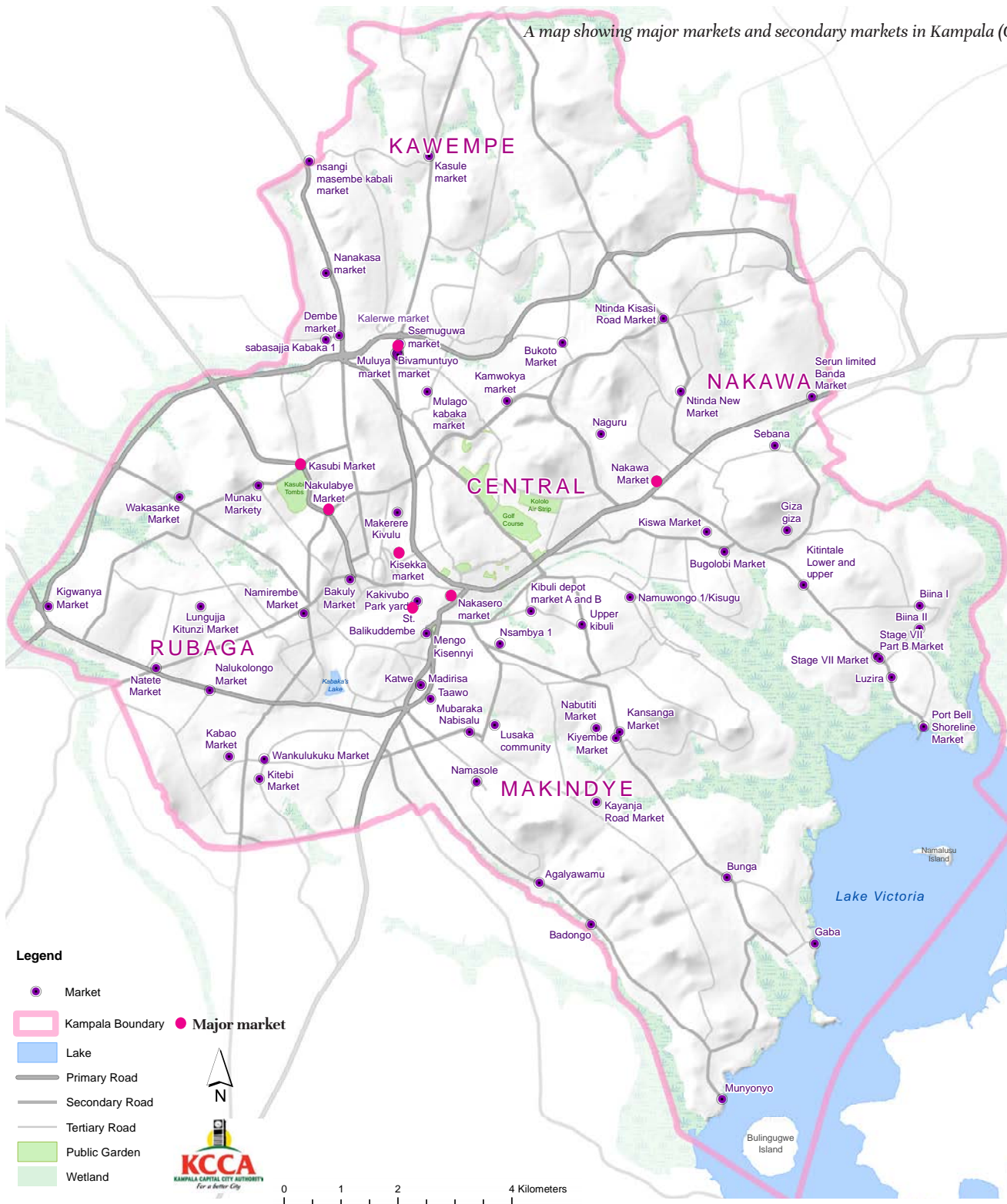
Kisekka Market

The market used to be next to Bus Za Baganda on Nabugabo Road in Kampala Central Division. It was muddy when it rained and dusty on sunny days. The then Kampala City Council later relocated it to the present-day site. The market was named after the former vice president of Uganda, Samson Kisekka, who owned a hospital in that location. The market is a go-to-place for cheap car parts, mobile phone repairs and car mechanics in shops along a busy stretch of road in downtown Kampala. Kisekka market has recently gained notoriety for suspect dealings and political activism fuelled by very many unemployed youths who loiter in the area. The management of the market is under Kisekka Market Vendors Associations. This type of ownership has created conflicts where people who are not vendors take up leases to manage the market and vendors end up being evicted. In light of such cases, Kampala Capital City Authority (KCCA) has resolved to stop subleasing markets such that they can be controlled by the authority.

Nakulabye Market

It is located at the junction of Makerere Hill road and Hoima road, near the Nakulabye round about in Rubaga division. The market accommodates close to 6,000 traders and

A map showing major markets and secondary markets in Kampala (GIS KCCA)



vendors who used to trade from stalls built with eucalyptus poles and roofed with iron sheets. Some would trade on the ground, near the roadside. New structures have been put up and has become a place of trade for mainly fresh produce. Nakulabye Market is managed by Kampala Capital City Authority (KCCA).

Kasubi Market

It is located along Kampala - Hoima Road within 5 kilometres from Kampala City Central Business District. Kasubi market is one of Kampala's largest food markets situated opposite the road to Kasubi Tombs Rubaga division. The land on which the Market is located belongs to Buganda Land Board and for decades, it has been the arrival point of fresh produce

which are offered at affordable prices normally by farmers from Masaka, Mpigi, Wakiso, Luwero and Mukono who sell to wholesalers who in turn sell to retailers. The market is both a wholesale and retail market. For sixty years, vendors and traders sold on the ground, or make-shift stalls along the road. Often times this popular market started to spill into the road, narrowing traffic flow to a halt. This put at least 1650 sitting traders and their customers at risk of being knocked by speeding vehicles. This roadside market also lacked basic hygiene and sanitation facilities. Kampala Capital City Authority (KCCA) who are in charge of Kasubi Market have responded to the aforementioned challenges by constructing a new market where Kasubi roadside market will be relocated. This construction was launched on 17th May, 2019.

Kalerwe Market

It is an open air market located on Gayaza Road near the Northern By-pass and the Lubigi wetland in Kawempe division. For decades, Kalerwe Market has been the arrival point of fresh produce from Luwero, Mbarara, Wakiso, Mukono and other districts. The main form of trade is wholesale for fresh foods. Traders who run small stalls in Bwaise, Wandegeya and neighbouring areas, come to the market to buy on a whole sale basis, to go and sell on their stalls. The market is quite busy in the morning hours as there is a bit of traffic jam since the market is located along the busy Gayaza Road and is easily accessed via the Northern By-pass which is currently under construction. Kampala Capital City Authority (KCCA) manages the Kalerwe Market.

Nakawa Market

It is located along the Kampala - Jinja road in Nakawa division and is one of the largest markets in Kampala. The market started with temporary infrastructure and eventually permanent structures were developed due to the increased number of traders and customers, making it a popular market in Nakawa Division that currently serves other nearby markets and traders on wholesale basis. The market has all kinds of commodities for sale, ranging from foodstuffs to school supplies, clothing and household items and locally made crafts. The market is now managed by KCCA as result of conflict from the previous management.

The Gender, Community Services and Production directorate at KCCA has registered great success in developing markets in Kampala city. Several markets have been constructed including Wandegeya Market which was completed in 2014 to accommodate 1,200 vendors and currently has a vendor occupancy of over 60%. The 6-acre Usafi Model Market was also acquired for the market vendors that were transacting business in non gazzetted areas downtown Kampala in 2013 providing a cheaper solution for all traders. Usafi (Swahili for cleanliness) has the capacity to accommodate close to 8,000 vendors, but initially started with 3,200 vendors There is

a plan to construct an ultra-modern transport terminal and market in downtown Kampala. A three-level market in Busega is being constructed to provide 2,000 work-spaces to the community and the planned date of completion is in December 2019.

The Sunday Market Initiative along Luwum Street was launched in May 2015 as a way of giving an opportunity to street vendors to sell their merchandise in an affordable trading space. The market has gained momentum and to-date has between 800 – 1,000 vendors operating at the market every Sunday in a car free zone. Mobile markets that usually constitute traders and vendors that migrate from rural areas to urban areas depending on the market have benefited from the Sunday Market Initiative.



KCCA car-free Sunday market from Luwum street to Namirembe road and adjoining streets, JG

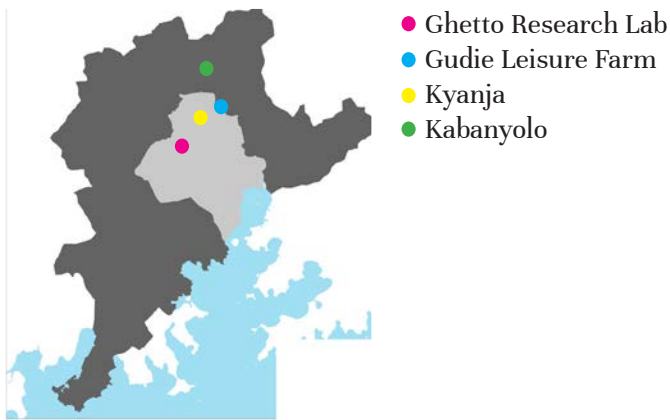
It is important to note that male dominance in markets is the norm although, women comprise 53% of the economically active population in Uganda, with 55% of them involved in trade, according to the Uganda Bureau of Statistics. Many are single mothers fending for their families. Up to 48% of women are self-employed, compared to 38% men, and 51% of women are in so-called elementary occupations like market vending. In markets, up to 70% of vendors are women. Despite their numbers, majority of these women endure high levels of intimidation and exclusion in the way the markets operate. Rarely are they involved in the market decision-making. But that is changing as markets in the city develop.



Neighbourhood market in Najjera 2, Kira, Greater Kampala

Urban agriculture in Kampala's interstitial spaces

Faced with both challenges and opportunities for urban food production, the 'in-between' spaces in the city have become areas for innovative urban farming practices



Urban Agriculture: "Rethinking food governance to meet the challenges of safety and nutrition"
 The way cities are developed leads to increasing soil sealing. At the same time, the modernization of agriculture has led to a dissociation between agricultural production and food production. At a time of climate change, the movement seems to be reversing, with the declared desire to preserve the agro-natural base in the cities and to relocate nourishing agriculture to the territories; an issue of food security as much as nutrition.

Urban agriculture: at the heart of the sustainable city, In Africa And France, Building Together The Sustainable And Inclusive City Of Tomorrow International Seminar Strasbourg 25Th & 26Th April, 2019

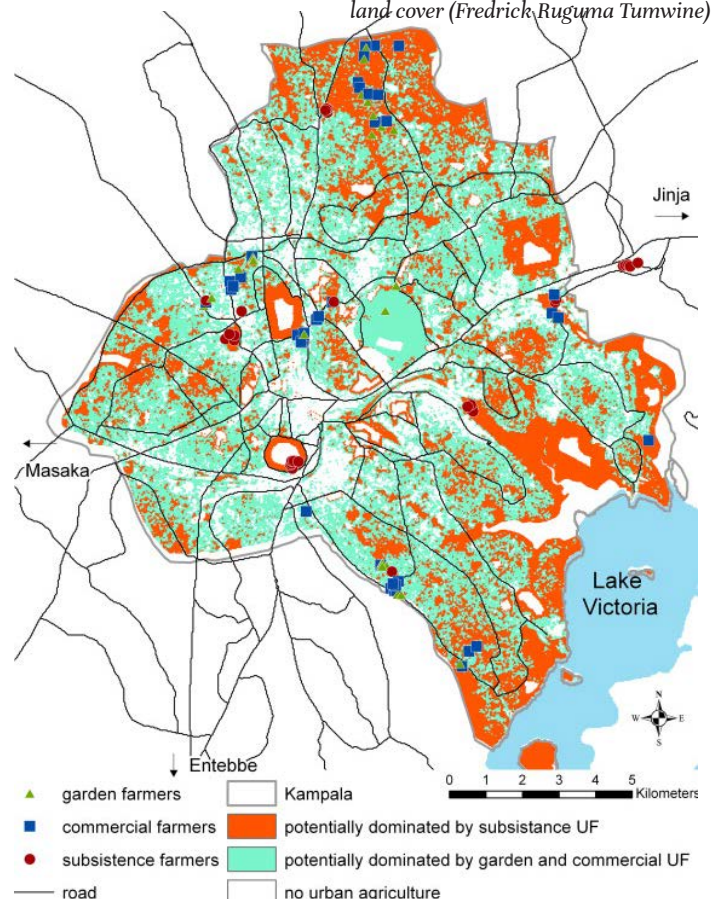
A study of the potential impact of green growth conducted by the Government of Uganda in partnership with the New Climate Economy (NCE) and the Global Green Growth Institute (GGGI) revealed that a green growth strategy is a viable development strategy for Uganda. The study identified agriculture as one of the four sectors having the greatest green growth potential with resource productivity, infrastructure investment and innovation being the main potential drivers of growth in these areas. Uganda is a rural country where urban concerns are growing. 80% of the Uganda population live in rural areas, 75% of the job force is employed in the agriculture sector. Urban population is increasing faster than the rural one (4 to 5 %). Various urban centers are emerging but Kampala attracts 40% of the urban population and contributes to more than 60% to the national GDP.

The current land management system in Kampala limits the supply of developable land, driving informal agricultural development to 40% of the unbuilt area that lies in marginal and environmentally sensitive areas. This distorts the spatial structure of the city and complicates and delays urban planning and development.

An Urban reality

In Kampala, urban agriculture has become a diffuse and abundant reality, and a mostly self-employed subsistence type of farming aiming at providing additional income to about half of the households in the city. About 37% of Uganda is under small scale farming, the corresponding absolute area converted to agriculture amounts to about 480,000 ha. Subsistence farming is the largest land cover type representing about one third of Uganda. Households engaged in either crop growing or livestock farming recorded in the area specific profile of Kampala during the National Population and Housing Census 2014 were 41,782 making up 10.1%. These statistics show that Kampala Capital City which was the most populous urban centre with 1.5 million persons has a deficit of developable land for urban agriculture. The inhabitants therefore penetrate within narrow and limited spaces of the city such as backyards, abandoned areas, schools in order to do commercial urban farming on very small size yards/plots and breeding of small livestock without generating disturbances. There is a hierarchy in thresholds of production building a whole professional sector that emphasizes short loops and community supply circuits.

A map showing distribution of different types of farmers and agriculture land cover (Fredrick Ruguma Tumwine)



Kampala's population is projected to grow to 8-10 million people by 2030 from 1.5 million and 3.5 million persons in the city and the Metropolitan Area respectively. It therefore creates both challenges and opportunities for urban food production. The stake of Kampala Capital City Authority is to upgrade the productivity to improve nutritional condition of the population. The job creation and revenue increase issues are a major target related to urban farming development.

Urban agriculture at macro and micro scales

The National Agricultural Research Organisation (NARO), the apex body for guidance and coordination of all agricultural research activities in Uganda, has a mandate to enhance sustainable agricultural productivity, sustained competitiveness, economic growth, food security and poverty eradication. Its projects are aimed at reducing existing challenges faced by smallholder farming communities at national level. National Agriculture Advisory Services (NAADS) whose vision is a commercialized agricultural sector for sustainable household food security and incomes has strategic targets and these include: Increasing access to critical and quality agricultural inputs for smallholder farmers including women, youth, older persons and people with disability and supporting the development of agriculture commodity value chains through provision of agribusiness, value addition and marketing linkages.

At greater Kampala (GKMA) level, the Makerere University Agricultural Research Institute, Kabanyolo (MUARIK) hosts demonstrations to many visitors including school going children, youth and farmers to encourage them

to get involved in starting food gardens at their schools, backyard farming and greenhouse farming respectively, following the agricultural technologies principles used at the educational farm.

Kampala Capital City Authority established the Kyanja Agricultural resource center to promote modern urban farming for people from within and outside Kampala. The center sits on 31 acres of land with over five projects, including poultry, piggery, fish ponds, and vegetables including tomatoes, sweet pepper and sukumawiki all grown in green houses. It is funded by the National Agricultural Advisory Services and non-tax revenue from the authority in order to offer knowledge and practical skills on urban farming technologies. The main objective of the the yet to be expanded center is to showcase and demonstrate innovations in urban farming with the aim of engaging communities to intensify and expand their participation in urban agriculture as a source of income and food security. To date the center has supported over 3,000 urban farmers with inputs and new farming techniques.



Kyanja agricultural resource center by KCCA (JG)



Innovative vertical gardens with small plot coverage at the Ghetto Research Lab, Kamwokya, Kampala



Fish farms at Gudie Leisure 'Zero-waste' farm, Najjera 2, Kira Municipality

Networks of urban farmers like AgriProFocus Uganda and private demonstration farms such as Gudie Leisure Farm with a zero waste policy in urban farming, have responded to the existing challenges in urban farming. There are also very many successful urban agriculture projects and initiatives at community and household level using innovative technologies to create gardens on limited space. The Ghetto Research Lab, an organisation by the youth in Kamwokya slum, uses research and innovation to run value addition projects on very limited and environmentally sensitive land such as composting for sale as manure, rabbit rearing for their fur, aquaponics (a system where waste produced by farmed fish supplies the nutrients for plants grown hydroponically, which in turn purify the water) as well as vertical gardens where crops are grown in sacks. Products from these projects are shared with the local community through training as a way of scaling up their activities.



Cidades sem fome, Sao Paulo, Brasil (Globo Urbano)



Public farm 1, New York, USA (Mas Context)

Towards a sustainable and food secure city

The legacy of Kampala land tenure shows that there is an opportunity to think urban farming in a different way, able to design new spaces in the cities, and use interstitial areas in a productive manner. The following give precedent to such an opportunity from different parts of the world.



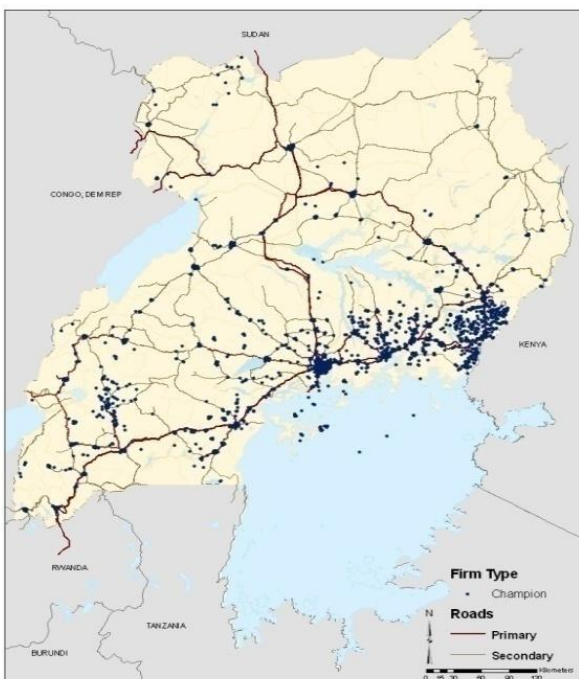
Awaji Yumebutai 100 Step garden, Hyogo, Japan (Awaji Yumebutai)

Green industry for the city

Industrial and Business Parks represent the future for new industry in Kampala but unfortunately located in environmentally sensitive areas. This not only affects their operations but also endangers the environment and the lives in the surrounding communities.

Industry makes up 25.5% of Uganda's economy. The Industrial sector consists of construction, mining and quarrying, formal manufacturing, informal manufacturing, electricity supply, water supply and waste management activities. Manufacturing contributed 8.2% of the country's GDP in 2011. Industry workers made up 6% of the total employment in 2009 [World Bank] and industrial production was estimated to be growing at a rate of 3% in 2012; Current statistics show that the overall industry activities grew by 6.1% in 2017/18 compared to 3.4% in 2016/17. This increased growth is attributed mainly to strong performance of the agriculture activities, which in turn provide raw materials to manufacturing, and construction activities. The industrial sector recorded a 19.9% contribution to GDP in 2017/18 as compared to 20.3% in 2016/17.

Construction activities include; construction of buildings, civil engineering, specialized construction activities. Mining & quarrying activities include; extraction of crude petroleum and natural gas, mining of metal ores, other mining and quarrying, mining support service activities. Manufacturing activities include; Manufacture of food products, beverages, tobacco products, textiles, wearing apparel, paper and paper products, among other activities. Electricity activities include; electricity, gas, steam and air conditioning supply. Water supply activities include; water supply; sewerage, waste management and remediation activities.



Concentration of manufacturing on Kampala - Jinja axis (Lall, Schroeder and Schmidt, 2009)

Industry size and ownership

In terms of size and distribution, micro enterprise employing up to four people is the commonest industrial enterprise in Uganda, then small and medium-scale enterprises (SMEs) which account for over 90% of industrial enterprises, followed by medium-sized enterprises which constitute only 9% and finally a very proportion of large-scale enterprises. Most of these enterprises are located in Kampala which is emerging as the major industrial town after Jinja town in the eastern region that was the main industrial hub of Uganda.



Vehicle repair and assembling as an example of a Small and Medium Enterprise (GJ)

Ownership of these enterprises is either domestic, foreign or joint-ventures. The Ministry of Trade, Industry and Cooperatives has a mandate to promote and ensure expansion and diversification of environmentally sustainable industrialization in the domestically owned enterprises. The ministry has joint-ventures with relevant stakeholders such as Uganda Manufacturers' Association and Uganda Small Scale Industries' Association that serve as collective lobbyists and mouthpieces for their members who are Ugandan industrialists and manufacturers as well as Micro, Small and Medium Enterprises (MSMEs) respectively. One of the campaigns being run by the ministry with tagline 'Buy Ugandan Build Uganda' prioritizes locally manufactured products but offers limited support to enterprise owners in regard to accessibility to markets for their quality products.

The Uganda Investment Authority (UIA), established under the Investment Code 1991 (revised in 2019) as a semi-autonomous government agency which drives national economic growth and development in partnership with the private sector, has provided a conducive regulatory

environment for opening and operation of different types of enterprises. Uganda is the most open country to Foreign Direct Investment (FDI) within the East African region with all the sectors fully liberalized for investment and 100% foreign ownership permitted.

National priorities

The Government of Uganda has several national priorities that it is giving utmost emphasis for investment and these include manufacturing, pharmaceuticals, mineral beneficiation, tourism, agro-processing and ICT. Government through Uganda Investment Authority is in the process of establishing a minimum of 22 Industrial and Business Parks (IBPs) throughout the country to mainly create jobs and add value to locally available raw materials.

There are already a number of industrial zones in Kampala such as Bugolobi, Ntinda, Nakawa, Luzira, Nalukolongo, Kawempe and Namanve. Industrial estates such as Nsimbe Estates, Seeta, Bweyogerere are proposed to be developed. Uganda Investment Authority is mandated to continue to buy land at good prices from private land owners in order to build a land bank for the purpose of industrial development. The proposed new enterprises or industries, in addition to processing, should be light engineering types not limited to metal fabrication, machine making, electronics, garbage processing among others. The Uganda Investment Authority (UIA) is currently setting up the following IBPs in Kampala and the Greater Kampala region.

The Kampala Industrial and Business Park, Namanve, located 11 km East of Kampala city. It is a 2,200-acre facility that will include a number of industrial clusters and large projects. More than 200 investors have been allocated land in the Park. The Luzira Industrial Park, Nakawa division located 5km East of Kampala. The 70-acre facility is operational with functional infrastructure (road, water, electricity).

Electricity supply is currently being upgraded to investors' requirements. About 15 investors are at various stages of establishing their enterprises.

The 45-acre Bweyogerere Industrial Estate, Kira municipality (Greater Kampala/GKMA) located 10km North East of Kampala. The land in the industrial estate has been allocated to 7 investors.

To support investment, the following government institutions collaborate with UIA to reduce the risk-return ratio for investors; Uganda Registration Services Bureau (URSB) for company registration, Uganda Revenue Authority (URA) for tax advice and registration, The Directorate of Citizenship and Immigration Control for issuance of work permits and other immigration documents, The Lands Registry which assists in the verification of land ownership, The National Environmental Management Authority (NEMA) to facilitate the investor to environmental compliance and Uganda National Bureau of Standards (UNBS) for standards advice.

Even with the aforementioned integrated approach, the industrial sector still faces challenges such as the disappointing level of value addition in manufacturing, the poor quality of physical infrastructure worsened by limited access to long-term oriented affordable credit, the low ability of manufacturing firms to create what the International Labour Organisation calls decent jobs and to create products that will compete in the national, regional, and global markets. It is also important to note that most Industrial and Business Parks are located in environmentally sensitive areas. This not only affects their operations but also endangers the environment and the lives in the surrounding communities.

Inland container depot in Nakawa





Timber processing, a common micro-enterprise (G.J)

The National Environmental Management Authority (NEMA) as a body responsible for environmental management in Uganda has the authority during environmental enforcement to permanently shut down part of an operation of an industrial facility that is seen to have irreversible impacts on the environment.

An integrated approach to green industry in the city

Kampala Capital City Authority (KCCA) also responded by spearheading the establishment of the Kampala Pollution Control Task Force with support from GIZ- Reform of the Urban Water and Sanitation Sector (RUWASS) Programme in 2012. It was an integrated approach between government bodies and the private sector. Coordinated by KCCA, the Pollution Control Task Force (PTF) comprised of the Directorate of Water Resources Management (DWRM) - Ministry of Water and Environment (MWE), National Environment Management Authority (NEMA) and National Water and Sewerage Corporation (NWSC). Uganda Manufacturers Association (UMA) and Uganda Cleaner Production Centre (UCPC) were also brought on board to enhance the engagement of the industrial sector through a Public-Private Dialogue (PPD) regarding cleaner production and improved resource recovery and reuse efficiency with focus on water, waste and energy optimization.

The Kampala Pollution Control Task Force initiated a campaign called Kampala Green Industry Campaign 2016 (GIC 2016) to enhance industrial compliance to DWRM/ NEMA permit regulations regarding wastewater discharge into sensitive areas of the environment. Before the campaign, it was noted that 80% of industries in Kampala drain their waste into the Murchison bay in Lake Victoria and 4km away from this point there is an intake for drinking water supply for Kampala. After the initiation of GIC 2016, industrial enterprises were forced to be compliant and responsible through self-monitoring, recycling most of their waste and waste water management systems. This response not only created efficient production in the resource perspective but also contributed to a more sustainable environment. Small investments in recycling boosted further the production efficiency of these industries.

20 industries were selected for training under the GIC 2016 which ended in December 2016 and the implementation process started thereafter with emphasis on self-regulation by the participating industries. At the end of this stage, the Kampala Green Industrial Campaign 2016 was a success and it culminated into an awards ceremony that awarded the best performing industrial enterprise in each industry category mentioned above. The outcome of the campaign is now continuous transformation of Kampala's industrial sector into a green economy.

City of Innovation

Innovation is one of the main solutions set to tackle Uganda's social and environmental challenges. It offers an abundance of opportunities for both government and private sector players to explore and improve the quality of life by providing green and sustainable services in the smartest ways possible.

Ugandan innovators are reported to be generating a great number of ideas, but very few reach the full implementation stage or demonstrate scalability and self-sustainability. This is attributed to challenges of financial constraints and uncertainty faced by young innovators who eventually quit their projects to find well-paying jobs. Weak laws on processes to enforce intellectual property rights as well as limited mentorship programmes have greatly affected innovation in the country.

However, successful innovation stories have been registered in making better use of natural resources, technology for improving access to information, import replacement with products that are better adapted to local constraints among others. Digitization has also made it possible for digital innovation. Africa is the youngest continent in the world in this digital revolution but it is the leading continent in the world in mobile money transactions. Leapfrogging in Africa is significant. In 1990, Uganda became the first country of the continent where the number of mobile subscriptions surpassed land-lines. The expanding mobile infrastructure has provided access to telecommunications to huge numbers of people for the first time, and their initial encounters with telephony have been mobile. The total number of mobile subscriptions rose sharply, from 127,000 in 2000 to 16.4 million in 2012. While international investment was funding the rollout of mobile masts across the country, repair workshops were also blooming. Repair technicians contribute to the adoption of telephony in Kampala. Technicians' practice in downtown Kampala is shaped by connections to trans-local bodies of repair knowledge, largely accessible through Internet.

Uganda's economy has also benefited from the growth of mobile money transactions and digital banking systems. Using innovations in digital technology and results-based programming, citizens can now conduct their daily transactions including paying for basic services. Most of Uganda's population is young and is affected by high unemployment rate coupled with frustration. Opportunities in the digital economy through innovations aim to help young Ugandans realize their right to participation.

Blockchain is a promising emerging technology breakthrough. Its application may be very relevant in emerging countries in order to establish short cuts of transaction within communities for local resources. East Africa is a conducive area to test this new technology enabling decentralized exchanges. It enables groups of people, communities to settle a kind of local sub-market to exchange goods or products locally produced and outside of market price regulations. Renewable energy, urban farming, waste, transportation, finance, are possible examples of application of this distributed transaction. It allows very short cycles and responsive transactions. It may bring new business models for circular economy and green business providing these activities with value and profitability. This technology is based on open consensus building. A group of independent participants exchange messages and data; this group of people sit together to come up with one value. When the algorithm of consensus ends, everyone agrees, and the transaction is proceeding.

In the local context at cityscale, innovation considers provision of original solutions that combine low tech and high tech components to create highly efficient outcomes. It is therefore not about finding a great idea but fixing a recurrent problem by a dedicated solution able to be replicated or scaled up.

A good case of scalable solutions are the bottom-up innovative initiatives that are finding a niche in the renewable energies market providing cleaner and more efficient energy products from waste recycling. These projects not only reduce greenhouse gas emissions and waste but they also diversify the economy and create new jobs. While there are several of these initiatives, they still remain at a small scale and account for a small portion of energy produced. Examples of such small scale initiatives include the youth-led that demonstrates the making of energy briquettes from Kasavu Environmental Group and the stabilised interlocking bricks from Kanyogoga Women group.



Mobile money kiosk and agent banking (JG)

Uganda's innovation ecosystem

The growth of the innovation ecosystem in Uganda has mainly been private sector led with minimal direct support from government. For Information Communication Technology (ICT) initiatives, this approach has not been very successful and it has created standalone and closed software applications that have not promoted innovation at a national level.

Government of Uganda through the Ministry of ICT & National Guidance has designed the National ICT Initiatives Support Programme (NIISP) to facilitate the creation of an ICT Innovation ecosystem and marketplace for Ugandan innovative digital products. The specific objectives for this programme are : to provide systematic and sustainable support to national ICT innovators, to promote ICT products, services and solutions for improved service delivery as part of a wider digital ecosystem, to establish and operationalize ICT innovation parks and to promote local electronics manufacturing and assembly.

The programme has so far had two phases where ICT innovators have been awarded for creative and sustainable solutions that facilitate the growth and development of the software applications and innovations industry. Categories considered for the award include agriculture, health, education, public sector management and other sectors. There is a plan by the Ministry of Science, Technology and Innovations to construct a national science and engineering centre in Namanve to support research and innovations across the country through skills development, knowledge transfer, addressing technology gaps and boosting value addition.

Startups have been at the forefront of job creation and we are delighted to support young innovators like those who have locally made a mobile money Automated Teller Machine

Dr. Elioda Tumwesigye, Minister

The Uganda Registration Services Bureau (URSB) located in Kampala is the WIPO Technology and Innovation Support Center (TISC) focal point as the national IP office and also hosts 1 TISC. By June 2018, there were over 25 TISC host institutions including the TISC at URSB head office located in Central Business District. TISC institutions in Uganda are mostly based in Institutions of Higher Learning like universities and in Research Institutions. A good number of these institutions are located within the greater Kampala metropolitan region making it a major centre for innovation.

Still at national scale, UNICEF supports the government of Uganda and its partners to build sustainable and scalable innovations that increase the quality and coverage of basic

services for children using widely available technologies like basic mobile phones and text messaging service. The development agencies such as Swiss and German cooperations in Uganda are running on-going projects to promote the recovery and safe reuse of water, nutrients and energy from the solid and liquid waste flows, and to implement Resource Recovery and Safe Reuse Business Models in Kampala city. UNHCR in Uganda gives refugees access to innovation services by organizing the Humanitarian Innovation Jam that brings together humanitarians, academics, and the private sector to discuss and problem-solve around humanitarian innovation.

Kampala City has been selected as the lead among the twelve (12) African cities in the Africa Smart Towns Network (ASToN). Kampala Capital City Authority (KCCA) placed strong emphasis on automation of processes in service delivery like the Revenue Management System (e-Citie), Smart Permits, Traffic Control Centre, Digital Communication among others to make a competitive submission to the call for applications organized by the French Development Agency (AFD) at the start of 2019. KCCA has also signed a collaboration agreement with the Government of Korea to facilitate knowledge sharing and provide a platform to enhance E-Government (ICT) systems aimed at improving urban Administration, effectiveness and efficiency in public service and information delivery.

The era of innovation hubs

In the Greater Kampala area, over 20 innovation hubs and business support organisations have been mapped, including for example the Social Innovation Academy (SINA) in Mpigi, and the biggest number found in Kampala city such as Design hub, the Innovation village, the Hive Colab, Outbox, the Mara Launchpad among others. These hubs and organisations provide support to new entrepreneurs to help them launch new businesses, or find funding. Each has supported its members through the process of innovation in a variety of ways. The key driving principle in these hubs is the innovation process that is thought out to be a four-stage journey of problem definition, solution identification, testing and adapting the solution and finally scaling it up. Many of the hubs offer networking events, where individuals could engage with new people and share expertise to help further define opportunities and problems they are considering as entrepreneurs. Most new innovation hubs also offer different levels of membership that could come with office space, internet access, mentorship as well as access to venture capital and funders through the innovation hubs' networks when initiatives have scaled up.

An increase in innovation hubs, co-working spaces, and entrepreneurial activity in Uganda is also contributing to Africa's innovation scene. Africa is becoming a vibrant digital ecosystem and the African Tech industry is rising-up. Mainly, East Africa is becoming a global Tech



Design Hub, Nakawa (Design Hub)



Innovation Village, Ntinda (Innovation Village)

Hub where regional innovation is simmering in diverse manners. Moreover, East Africa has a (british) business-oriented mindset.

Toyota is experimenting drone-based logistics for remote areas in Rwanda, Google claims to launch its first AI global research center in Ghana; next Einstein Forum to be held in Kigali, AFD betting on the coders country of the world, supporting Andela company.

In October 2013, Uganda was party to the adoption of the Smart Africa Manifesto document by seven(7)African Heads of States (Rwanda, Kenya, Uganda, South Sudan, Mali, Gabon, Burkina Faso) in which they committed to provide leadership in accelerating socio-economic development through ICT's. Uganda is therefore responsible for 'Big Data & Data Measurement for Development' as a SMART Africa project among other country flagships.

The major challenge innovators face in the specific ecosystem of innovation hubs, is exclusivity to those who could afford time at the hub developing new ideas. Many of the members are recent Information Technology graduates from the universities in the city and already had some connection to the networks that the innovation hubs were catalysing. In this regard, locals who have not attained the same level of skills are relatively excluded from this supporting environment. Only a few members of various communities (informal and formal) in Kampala have heard of the innovation hubs on offer in the city, and have used them.



1-Stop Youth Center, Kabalagala (KCCA)

With traditional African building, methods to create an innovative approach, are focusing on local, social, and traditional requirements, as well as integrating local communities into the process. High quality aesthetics hold equal weight with his deep-seated ethical concerns in design involving the population

Diébédo Francis Kéré, (Radically Simple Architect) renowned for Architecture, Innovation and Circular economy.

Community participation at the heart of innovation in the city

Beyond the movement of innovation hubs, community based business support services, funding initiatives, and institutional training institutes are very common in Kampala. The main aim is to contribute to new skills, networks and seeding entrepreneurial activity for their members. These also contribute to the network and environment of innovation support that makes up the ecosystem and circular economy. These initiatives are commonly accessed by the organized groups with a saving incentive. Katwe located in the informal settlement across the Entebbe – Kampala highway is an example of such initiatives. Its renowned for metallic ingenuity and local artistry using both low tech and high tech innovations. Renewable energy, urban farming, waste recycling, transportation, finance, are possible examples of application of innovation and the circular economy.

Protean and its larva transforming waste in animal food is a good example of scaling-up. They signed a memorandum of understanding with Kampala Capital City Authority

(KCCA) to run their operations into the KCCA Waste Recycling Plant and reach even more farmers at a broad scale.

Ghetto Research Lab is a good case of a community based youth led organisation that has no external influence from innovation hubs, mentors and the government but solely relies on innovative acumen to conserve the environment, train and create new jobs for unemployed youth living in the informal settlement of lower Nsooba, Kamwokya Kawempe division in Kampala and beyond. There is no other limit to the innovative ideas created by the Ghetto Research Lab apart from scaling up their initiatives. These initiatives include ; urban agriculture through aquaponics with crops grown hydroponically, grafting tomatoes, rearing rabbits on limited space and vertical gardens in sacks picked from dumping sites, plastic bottle brick projects using plastic bottles from waste and stuffing them with more than 200 polythene bags to improve strength, a composting pour flash toilet, value addition to fruit seed waste to make nutritional supplements among others. Funding for these projects is from sales of the urban agriculture produce and well wishers paying for the composting toilet.



From junkyard to valuable products (JG)

Culture mix

Uganda is a country where the rural and the urban meet and have complemented each other in a harmonious way for years, offering a rich heritage including traditional governance systems, transmissible agricultural methods, agricultural products, handicrafts among others.

Culture has always been an essential dimension of the development process as a tool for achieving sustainable impact and from a cultural rights and diversity perspective. The Commonwealth People's Forum held in Kampala in November 2007 emphasized that all member states (including Uganda) should ratify the UN Educational, Scientific and Cultural Organisation's (UNESCO) convention on the protection and promotion of the Diversity of Cultural Expressions and meaningfully involve and support civil society in its implementation at national, regional and international levels, notably in the development and application of cultural policies and strategies.



Karimajong slum dwellers in Kampala, from one of the several ethnic groups in Uganda (KCCA)

Uganda on 08th April, 2015 ratified the legal instrument that is the Convention on the Protection and Promotion of the Diversity of Cultural Expressions (Paris, 20 October 2005). Before that confirmation, Civil society had proposed that 5 priority areas be reflected in the 2008-2012 National Development Plan, in relation to culture and development and these include: Policy and legal frameworks for the promotion and conservation of Uganda's tangible and intangible heritage; Promoting cultural infrastructure and financing; Defining a national culture, values and agenda; Cultural heritage education and languages; and Subjecting sectoral plans and development goals to a 'cultural audit'.

While efforts have been made to develop a national policy on culture, cultural affairs command less than 0.1% of the national budget, there is no approved plan to implement the culture policy and the cultural infrastructure is either limited or faces threats of demolition to create access to 'modern' developments.

The growth of Kampala as Uganda's capital took on a modern approach from the colonial times where economics shaped outlooks. As a result, ideas, technologies and development initiatives have rarely been owned, internalized and retained. Simultaneously, valuable traditional norms and principles that can inform sustainable solutions to development challenges have often been disregarded.

Yet, the 1995 Constitution guarantees a right to culture. Evidence increasingly shows that, for equitable and sustainable development, the cultural aspect of any activity must be harnessed as an essential driving force while simultaneously acknowledging that each culture is unique and valued by its people. There is need to exploit the strength of cross-cultural interaction in our diversity.

Kampala is a host to all Ugandans from the 65 recognized ethnic groups, with their distinct culture, and often with their own language. However, this cultural diversity has several challenges today especially by proving difficult to bring together Ugandans of different backgrounds, class, and religions. Without a common language, national identity, or unified cultural thinking, dealing with culture becomes a sensitive issue.

Cross - Cultural Foundation of Uganda is a registered, not-for-profit non-governmental organization, governed by a locally appointed Board of Trustees is dedicated to promoting culture as essential for equitable and sustainable development. They performed a tour of Uganda to capture on-going experiences, where incorporating culture in development initiatives has led to or can create positive changes. Some of their observations indicate the following: Culture goes beyond the performing and creative arts. Use of dance and drama to convey development messages, including messages related to the grave crisis that is HIV and AIDS.

Culturally-rooted conflict resolution mechanisms in Northern Uganda. The restoration of cultural institutions in 1995 has allowed kingdoms and chiefdoms to regain a measure of authority.

In health care, there were signs that traditional healers and herbalists are increasingly recognized as providing effective alternatives to western-inspired services and medicine, including in the provision of mental health care. Besides medicinal herbs, Uganda's natural environment offers plentiful cultural resources. The forests, lakes and swamps for instance provide food, raw materials for artefacts and spiritual nourishment. As an agrarian society, farm management practices and skills have been passed



Culture in development in Uganda; Experiences and Prospects, Cross-cultural Foundation Uganda, 2008

down generations and learnt through shared experiences. In western Uganda, communities have sought to increase the participation of women in business activities by exploring how culture could be used, not only to understand gender disparities, but also to enhance society's appreciation of the role of women in business development. The recent introduction of local languages to teach in primary schools to replace English, this is where an important effort has been made by Government to incorporate culture in development.

By adopting a westernized culture, it was perhaps assumed that traditional values of integrity and sincerity would automatically be assimilated. This has proved elusive because in the absence of controls that affect people where it matters most (clan and family identity, a sense of belonging, the fear of banishment or other cultural punitive measures), individuals have abused power and resources in their charge. Success has become increasingly defined by one's ability to 'beat the system' and amass wealth. The country boasts unique natural and man-made heritage sites. Man-made heritage sites such as the Nyero rock paintings, Kasubi tombs and the Kabaka's Lake in Kampala, Kings' palaces, churches and mosques. Some of the natural heritage sites include Murchison Falls, Bwindi Forest, and the snowcapped Rwenzori mountains. These are too often unfamiliar and unloved better known to tourists than citizens.

There is money in culture too. There's a potential source of income to be earned by the often-undocumented profession of cultural service providers who enjoyed a high social status. They are believed to have embodied societal norms; their knowledge, often acquired informally around the fireplace from parents or friends, represented

the wisdom of earlier generations. Their services had long been important to pass educative messages, to settle conflicts, to entertain, to help young people behave in suitable ways, to ensure successful marriage ceremonies, to promote moral values, and generally to preserve our cultural heritage. This will create a shift from the urban and tourism-oriented view of culture as business generated from crafts for foreigners; concerts in theatres; local food fare in expensive restaurants among others.

The aforementioned observations indicate that our tangible culture heritage is however fast vanishing, as there is as yet limited appreciation of its significance, and therefore interest in protecting and exploiting it. The status quo has become replacing the traditional and less desirable with that which is new usually associated with what is modern and even desirable. Amidst challenges such as; low priority given to strengthening culture as part of human potential and the notion that local culture does not appear to translate into material benefit, there are still some positive aspects of culture that can be upheld. These include but not limited to; the spirit of communal responsibility and accountability, conflict resolution, informal moral education and inculcation of values such as honesty, industriousness and abstinence.

Focus areas

Metropolitan focus : from Kampala to Kira

City focus : from Nakivubo to Victoria

Neighborhood focus : Makerere - Bwaise



Metropolitan focus: from Kampala to Kira

At a metropolitan scale in Wakiso district, lies an interesting geographical link between Kira Municipality and Kampala city via the Northern Bypass urban highway.



While Kira municipality is still very green, with an exemplary and innovative zero-waste urban agriculture farm at Gudie Leisure in Najjera, Kampala city's outward demographic expansion is likely to change the status quo in the neighbouring urban area in the coming years.

Kira receives the direct effects of the city's growth by taking up Kampala's working population by night.

An area-specific comparative study shows these urban challenges.

The municipal urban council is experiencing new pressures on service delivery to accommodate the demographic tsunami.



Najeera 2 / Buwate road



Najeera 2 market area

Gudie Leisure Farm




2008 Satellite image of Kampala / Najjera / Kira



Kira
Kampala

2018 Satellite image of the same area

400 m



1. Industrial area: the main industrial zone within the CBD of Kampala and a major contributor to industrial waste that ends up in the Nakivubo channel and eventually into Lake Victoria.

2. Bugolobi: a formal settlement with planned condominium housing bordering the Nakivubo wetland on its low lying fringes.

3. Portbell: Kampala's main inland port connecting Uganda to other regional ports across Lake Victoria such as Kisumu in Kenya and Mwanza in Tanzania

4. Namuwongo informal settlement: a reclaimed area receiving an influx of slum dwellers from different parts of Uganda in increasing numbers into 6 zones on one side of the Nakivubo channel thus putting a lot of pressure on service delivery by city authorities and encroaching further into the wetland. These slum dwellers live in uncertainty in fear of eviction.

5. Muyenga hill: an affluent residential neighbourhood, a few metres from the Namuwongo informal settlement, where inhabitants live in gated premises.

6. Ggaba: a centre of trade along the shores of Lake Victoria bustling with an open-air market, a fish landing site, active water transportation as well as the Ggaba Water Treatment plant that is responsible for the water supply to the greater Kampala. It is also a tourist centre with several private beaches and resorts.

City focus: from Nakivubo to Victoria



The Nakivubo wetland system is the most dominant wetland of the Kampala urban area. Gradually, an informal but vibrant community arose of farmers, shopkeepers, and fishermen all hustling to raise enough money to feed their families and pay their children's school fees, communicating in a mix of Luganda, English and words from diverse local languages from around the country. Their eventual settlement has slowly destroyed the Nakivubo wetland over the past decades, transforming the swamp into a zigzagging web of farmland and slums. According to a 2015 study by researchers at Makerere University, 56% of the original wetland had been modified, mainly due to industrial development and small-scale farming.

Potentials of Nakivubo in focus area

- Source of livelihood
- Restoration of a natural habitat
- Flood Management
- Community spaces
- Ecotourism potential
- Transport link

Constraints of Nakivubo wetland to focus area

- Problems with flooding
- The need to learn from the mistakes elsewhere along the channel
- The human and industrial waste
- Where is the access to the Channel?
- Encroachment and over-crowding

Projects

- A Concept Masterplan For The Redevelopment Of The Nakivubo Channel and its Precincts, a draft proposal by KCCA, 2013



Kasanvu (above) and the Lake from Muyenga (below, D. Darbella)



Evolution of encroachment of the settlements on Nakivubo wetland, between 2000 (above) and 2019 (below).

The 6 different zones of settlements are approximately defined below.



Neighborhood focus: Makerere-Bwaise

An area of projects : the Makerere knowledge precinct (zone A) will be granted with a detailed Neighbourhood Plan, part of the Multi-level Physical Planning and Land Use Management, focusing on building climate resilience.



1. Kampala's Central Business District (CBD): A low-density central urban area with several greenspaces located on two of the 7 original hills in the Kampala Central Division
2. Kasubi hill: A UNESCO world heritage that holds a lot of cultural significance to the Buganda kingdom; the Kasubi tombs, a burial site for fallen Buganda Kings. It is still conserved in its natural state as a green open space.
3. Makerere University: A localized green zone on Makerere hill (another of the aforementioned 7) and home to the biggest public university in Uganda. This centre of knowledge in the city is surrounded by vibrant communities with informal settlements/ student housing, markets, other institutions, large infrastructure projects...
4. Neighbourhood settlements: the 3 main informal settlements in the low lying areas of Makerere hill are 'Katanga' to the East, 'Kikumi-kikumi' in Makerere Kavule and Makerere Kikoni south of the University. They are home to the biggest percentage of the University student population and large contributors to the city's informal economy
5. Flood risk precinct of Bwaise-Kawempe: located in the catchment area of the Lubigi wetland, it is a strategic program for KCCA project implementation of the Integrated Neighbourhood Planning in the Strategic Plan 2014/15-2018/19. Bwaise is one of oldest informal settlements in Kampala.

Geographical context of the Makerere precinct, satellite map 2018





Comparative study over 16 years (2002-2018)

Projects

100 m

- The Northern Bypass, urban highway transformed the urban form.
- Clusters of high-density settlements emerged along the new highway. Green spaces in the informal settlements disappeared.
- A drainage channel was constructed the Lubigi wetland to mitigate floods resulting from an increase in human settlements that have modified the wetland.
- A car junkyard emerged in the green open space. It hosts many activities (garage, repair, trade...).

1. On-going expansion of the Northern Bypass road.
2. Settlement scale projects such as;
 - Safe and Inclusive Cities Project (Actogether)- To empower youth with leadership in the Bwaise informal settlement and capacity to make the community safe, especially at night against crime perpetuated by unemployed youth.
 - Heterogenous Infrastructure Confederation of Cities in Uganda Project (Urban Research Lab at Makerere University and Actogether), Bwaise informal settlement is a study area on this research-based project.



Lubigi drainage channel (JG)





Keynote

Coming back to the topic, the workshop's outcomes might emphasize the Green & Innovative potential of the Capital City of Kampala. The team of Les Ateliers, while preparing the workshop, wanted to call a brand-new glance to bring together bottom-up initiatives and top-down approaches. The spirit of the workshop is to share and settle cross-cutting visions in order to provide orientations regarding sustainable development issues.

The teams would accommodate the interacting components of the urban ecosystem and extract proposals to assemble, to fill the gaps, to generate synergies, and join forces for a sustainable future regarding climate change concerns, the scarcity of natural resources, the lack of money for investing and maintaining the current situation.

Regarding the situation of the project field areas, each team will have the opportunity and the freedom to draw-up a holistic landscape of proposal, keeping in mind that the more complex the problem, the simpler the solution must be.

The challenge of the workshop is to instill a new dynamic of tackling these issues, in a frugal way based on existing assets to reveal and develop the city, offering to do more with less. Share, pool, coordinate, optimize, refurbish, devolve, instead of spoil, use, increase expenses, delay, centralize,... One will keep in mind that the various topics expressed in the context document (landscape, water, land-use, mobility, urban farming, gender issues, informality,...) are closely interrelated and interact within an unsteady ecosystem.

The workshop does not intend to demonstrate any certain conviction nor ideology but will give the chance to work together, to learn from each other, considering that our Kampala partners have strong know-how, a high level of skills and experience regarding all these topics.

So, let us make these cross-breeding sessions together as beneficial as possible for all.

Do your best!

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