YOUTH LED MWANZA CITY INFORMAL SETTLEMENTS BASELINE SURVEY

STATE OF LIVING CONDITIONS AND ACCESS TO URBAN BASIC SERVICES

European Investment Bank

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UN HABITAT FOR A BETTER URBAN FUTURE

Youth-Led Mwanza City Informal Settlements Baseline Survey
State of Living Conditions and Access to Urban Basic Services

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UN HABITAT

Acknowledgements

This document is part of the community mapping sequence of reports, an initiative of UN-Habitat funded by the European Investment Bank (EIB) and the Agence Française de Développement (AFD) for the Lake Victoria Water and Sanitation programme (LVWATSAN) in Mwanza, Tanzania. This series of studies aims to combine local and intellectual knowledge in providing basic services to informal settlements.

Surveys were conducted from September to October 2016 by volunteers from the informal settlement community. Mobile data collection and enumeration was done by 40 youth from Mwanza's informal settlements of Kilimahewa, Kwimba, and Unguja. They participated in the planning, data collection and capturing of images of the existing situation.

UN-Habitat extends its gratitude to the following groups, individuals and organizations that made the survey possible: Mwanza City Council, Mwanza Urban Water Supply and Sanitation Authority (MWAUWASA), hamlet leaders, ward executive officers, community liaison officers, representatives of community-based organizations, members of the multi-stakeholder forums, and community members.

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Acronyms and Abbreviations

AFD	Agence Française de Développement (AFD),
ARAP	Abbreviated Resettlement Action Plan
BUWASA	Bukoba Urban Water Supply and Sanitation Authority
CBO	Community Based Organization (s)
EIB	European Investment Bank
ESIA	Environmental and Social Impact Assessment
LVWATSAN	Lake Victoria Water and Sanitation (Mwanza)
MAUWASA	Magu Urban Water Supply and Sanitation Authority
MDG	Millennium Development Goals
MIUWASA	Misungwi Urban Water Supply and Sanitation Authority
MoWI	Ministry of Water and Irrigation
MUWASA	Musoma Urban Water Supply and Sanitation Authority
MWAUWASA	Mwanza Urban Water Supply and Sanitation Authority
RMF	Resettlement Management Framework
SDG	Sustainable Development Goals
SS	Simplified Sewer

Foreword

In recent years, many cities and towns in lower-middle income countries have witnessed rapid urbanisation characterized by rapid urban population growth. However, at the same time, unplanned urbanisation, growth of informal settlements and rising inequality as well as impacts of climate change have been witnessed in most cities.

In 2015, UN-Habitat estimated that 54 per cent of the world's population, equivalent to 3.9 billion people, were living in cities. It is projected that the figure will rise to 68 per cent by 2050.

Although urbanisation is a positive force underpinning profound social, political and economic transformation, the twenty-first century has been characterized by the continual growth of informal settlements, especially in the developing world. The city of Mwanza, Tanzania, exemplifies this, where 75 per cent of its 706,453 residents live in the informal settlements of Kilimahewa, Kwimba and Unguja.

In November 2014, UN-Habitat signed a service contract with the European Investment Bank (EIB) whereby UN-Habitat would support the Mobilization and Institutional Facilitation of Sanitation component of the Lake Victoria Water and Sanitation programme in Mwanza (LVWATSAN-Mwanza) whose overall objective is to protect the lake's environment and well-being of the area's population. The role of UN-Habitat has been to provide technical assistance, capacity enhancement and day-to-day guidance to all stakeholders in implementing the project's sanitation components. The project will deliver over 300 sanitation facilities to meet the needs of about 250,000 persons, including 150 schools in low-income settlements.

This youth-led baseline survey provides an inventory of the standard of living, housing and basic infrastructure services in Kilimahewa, Kwimba and Unguja. It is our hope that the survey results will provide vital information to the Government of Tanzania, Mwanza City Council and other stakeholders to guide future investments in housing and infrastructure services as well as inform urban basic services provision in the areas of housing, water supply, sanitation and slum-upgrading. The information provided will also guide urban planning processes and evidence-based decision-making on resource allocation.

UN-Habitat is grateful to the EIB, Agence Française de Development (AFD) and the Government of Tanzania for the financial support which enabled the implementation of this survey as part of the Lake Victoria Water and Sanitation programme in Mwanza.

Under Secretary General of the United Nations
Executive Director of UN-HABITAT

Executive Summary

This study provides a baseline inventory of the standard of living, housing and infrastructure services as well as access to urban basic services in the three informal settlements of Kilimahewa, Kwimba, and Unguja in Tanzania's north-western city of Mwanza. It was carried out as part of the Lake Victoria Water and Sanitation project in Mwanza (LVWATSAN-Mwanza). The Project is being implemented by UN-Habitat in collaboration with the Mwanza Urban Water Supply and Sanitation Authority (MWAUWASA), the Musoma Urban Water Supply and Sanitation Authority (MUSOMA), and the Bukoba Urban Water Supply and Sanitation Authority (BUWASA).

The main objective of the study was to examine and analyse the linkage between housing and basic social infrastructure services as a factor largely determined by spatial location, level of development of a place and the associated impact on the living conditions of these variables on residents of informal settlements in Mwanza.

Data was collected in the period between 11 September and 2 October 2016, mainly from households and from the general population, using a research method that combined quantitative and qualitative approaches. The sample used for the quantitative data was randomly drawn from the three informal neighbourhoods. A total 1,987 people took part in the research.

KEY RESULTS:

- Urban basic services such as water, sanitation, roads, waste management and community facilities are not readily available in Mwanza's informal settlements.
- The living conditions (safety, number of rooms, land tenure and spatial planning) are generally low due to the absence of urban basic services.
- The level of development as measured against living conditions, employment, education and welfare is typically low.
- The five top priorities in Mwanza's informal areas are water, sanitation, roads, wastewater management and electricity.
- The average household size is nine, whilst the average number of households per structure is three; and the total population of Kilimahewa, Kwimba and Unguja informal settlements is 20,553.
- Sixty per cent of the houses fall in the category of formal house structure.
- Employment categories indicate 23 per cent are full-time workers, 23 per cent are part-time workers and 55 per cent are self-employed.
- Household income is low; 20 per cent do not have any earnings.
- House and structure ownership are high, with 73 per cent of the households not paying rent.
- Household monthly expenses are low at an average of USD 5 (TSh 10,000).
- Fifty-eight per cent of Mwanza's informal settlements dwellers rent the houses in which they live.
- The main use of the houses is residential (94 per cent), while mixed use for service provision is 6 per cent.
- An average of 35 per cent of the households live in one-room structures.

- A total of 74 per cent of the houses in Mwanza's informal settlements are permanent structures.
- More than half (53 per cent) of the houses in these settlements are built with permanent roofing material.
- Eighty-five per cent of the people in these settlements do not have land tenure security.
- The common water sources are a mix of unimproved, improved and other sources. The improved include communal tap (30 per cent), water tanker (17 per cent), neighbours' house (15 per cent), water vendor (14 per cent), a tap in the yard (14 per cent), and other sources (10 per cent).
- The common type of toilet used is pour flush, employed by 50 per cent of Mwanza's informal settlements.
- Faecal sludge management in the informal settlements is unsustainable as 57 per cent of the households bury their raw sludge. Other options used include discharge of raw sewerage in the open during rainy seasons, discharge in open drains, and manual emptying by a frogman. Only 21 per cent have City Council-managed sewerage systems.
- Seventy per cent of the people are aware of the importance of handwashing.
- Accessibility within the informal settlements are an enormous challenge as footpaths and unimproved staircases on the steep slopes are the only options available. There are no public transport routes due to the absence of a road network.
- The actors involved in solid waste management include the City Council (37 per cent) and community groups (16 per cent), whereas garbage dumps average 13 per cent and uncollected garbage average 14 per cent.
- Disposal of grey and black water is a challenge in the informal settlements. Households tend to pour wastewater onto open spaces around the house, around the yard, in small pits, and in toilets.

At the end of the study, the following recommendations were made for decision makers to undertake:

MWANZA CITY COUNCIL

- View the service priorities for the informal settlements on a descending scale as: water, sanitation, roads, wastewater management, and electricity. The City Council should provide practical solutions to these basic human needs through policy reforms and innovative development projects at the city scale focusing on pro-poor and human rights-based approaches.

- Prioritise the formalisation of land markets, clarify property rights and institute effective urban planning that allows land to be consolidated.

- Undertake integrated and coordinated infrastructure investments that allow for inter-linkages between housing, water, sanitation, energy and mobility infrastructure plus commercial and industrial development.

- Aim to provide public goods and services to improve city livability.

- Increase the amount of water, sanitation and hygiene infrastructure, and urban basic services in informal settlements to ensure, at the very least, effective access for all.

- While strengthening the operations and maintenance of existing infrastructure, consider the sustainability and resilience of the investments on new and conventional technologies at city level as well as including smart information communication technologies in service provision.

- Intensify advocacy and hygiene awareness campaigns for those living in informal areas.

- Consider multiple and innovative investments in new sanitation technologies and facilities that best suit the geographical location of its informal settlements.

- Strengthen action-oriented research to inform decision makers and others engaged in providing urban basic services.

- Strengthen evidence-based advocacy to promote the integration of provision of urban basic services into public policies, national and local development strategies.

POLICYMAKERS (TANZANIA NATIONAL GOVERNMENT AND MWANZA CITY COUNCIL

- Strengthen institutions that govern land markets and coordinate urban and infrastructure planning. There is fragmented physical development in Mwanza city, limiting productivity and livability.

- Focus on early, coordinated infrastructure investments. Without this, it will remain a local city, closed to regional and global markets, trapped into producing only locally traded goods and services and limited in its economic expansion. Mwanza needs to create an internationally competitive tradable sector in order to stay open for business. For that to happen, city leaders must urgently find a strong and new urban development path.

- Integrated urban planning through national urban policies, rules and legislation, new financing modalities and local implementation is an urgent need.

- Mwanza City Council and the central Government should intensify investment interventions for the urban poor and informal areas as they constitute 75 per cent of the city's total population.

Ultimately, the findings indicated in this report can be further updated to link the results with the Sustainable Development Goals' indicators and targets as a comparative analysis at regional and national levels.

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01

Introduction

As many as 529,839 out of 706,453 (75 per cent) of the population in Mwanza city live in unplanned settlements. These settlements, apart from lacking basic facilities such as roads, schools, sanitation and water, are on steep, rocky hills where it is almost impossible to provide basic sanitation services.

Mwanza city nestles on the spectacular southern shores of Lake Victoria in north-west Tanzania. The city spreads over 1,337km2 of which 71.55 km2 is water. Approximately 86.8 km2 is urbanized while the remaining areas consist of forested land, valleys, cultivated plains, grassy and undulating rocky hills.

The city is typified by gently undulating granites and granodiorite physiography with isolated hill masses and rock inselbergs, for which it has earned the moniker "The Rock City". It is also characterized by well-drained sandy loam soil generated from coarse grained cretaceous rock. The vegetation is typical savannah with scattered tall trees and tall grass (Mwanza City, 2017).

Each of the city's two districts, Nyamagana and Ilemela, is administered by a council under a single mayor. However, the day-to-day administration is by the city director, assisted by heads of departments and sections (Mwanza City, 2017).

Mwanza is 1,134 metres above sea level. The city receives between 700mm and 1,000mm of rainfall yearly, falling in two fairly distinct seasons: October to December, and February to May (Mwanza City, 2017).

Scenic as it is, Mwanza's topography poses serious land-use planning challenges. Mwanza exemplifies the effects of urbanization on medium-sized cities, in this case with just 25 per cent of the total city population living on flat land with access to urban basic services and the rest in informal settlements. The majority of residents have no access to water, sanitation and only limited accessibility (but no roads). Living conditions are squalid, overcrowded; susceptible to water, air, land and vistas pollution. There is no security of tenure.

This has resulted in a disconnected and costly city. This situation, therefore, calls for integrated urban development through national urban policies and enforcement of urban planning design, rules and regulations. At the same time, there must be provision of new opportunities for the application of modern urban planning and design concepts and implementation of urban development strategies through local city and town governments. Foremost are institutional and regulatory constraints that misallocate land and labour (sprawl versus agglomerations), fragment physical development, and limit productivity

(local commerce and service industry versus internationally tradable goods and services). (World Bank, 2017).

The World Bank states that as long as African cities lack functioning land markets, regulations and early coordinated infrastructure investments, they will remain local. The cities will be closed to regional and global markets, trapped into producing only locally traded goods and services, and limited in their economic growth (World Bank, 2017).

Such conditions are evidence of unlivable cities lacking basic amenities, housing and services. In a policy view, most African cities need to determine their future by shaping urban development in a sustainable way (World Bank, 2017).

1. SOCIOECONOMIC-ENVIRONMENTAL CONTEXT

Mwanza Region is a major industrial centre and a leading producer of cotton for export. Fishing and livestock rearing are also major economic activities. The majority of economically active people are self-employed. Despite this, the region is among the poorest in Tanzania. The region has an overall low level of economic performance when measured by per capita gross regional product: tenth amongst 12 regions (Mwanza City, 2017).

Mwanza is not only the most populous region, it also has the highest population density at 150 people per km2 (the average for Tanzania being 39 people per km2, excluding Dar es Salaam Region. The high population density aggravates the already serious pressure on land and on food security in Mwanza Region (2012, Census).

In terms of education facilities, there are 1,185 primary schools 258 secondary schools, 8 colleges and 3 universities in Mwanza Region (Mwanza City Council Socioeconomic Profile, 2016).

Health statistics indicates a high incidence of waterborne or related diseases and vectors such as malaria, schistosomiasis, enteric worms, typhoid, diarrhoea, skin diseases and cholera (Lake Victoria Water and Sanitation Initiative Project Formulation Report, Atkins 2012).

The entire region is characterized by a high risk of desertification as a result of severe localized land degradation and overstocking of cattle per capita plus food insecurity. The average household size is 5.7 people compared with the national average of 4.8 (Census 2012, Mwanza City informal settlements at a Glance, UN-Habitat 2016). This is due to social, cultural, religious and health practices such as a lower level of family planning awareness, higher fertility among females and a higher incidence of polygynous practices (Atkins 2012).

There is considerable variation in agricultural and demographic characteristics in a region that lacks food self-sufficiency. As a result, food must be imported to meet shortfalls. With a growing population dependent on agriculture for its livelihood, the general strategy for attaining the region's food self-sufficiency is intensified farming. Agricultural production could be enhanced by rainwater harvesting and by drawing water from Lake Victoria for small-scale farming irrigation (Atkins 2012).

Economic activities

i. Agriculture

Mwanza is Tanzania's main region for cotton production, one of the country's major export crops. Major food crops in the region are maize, cassava, sorghum, millet, sweet potatoes, rice and vegetables. Maize, cassava and sweet potatoes constitute about 71 per cent of all the region's food crops. Paddy and maize are sometimes grown for cash. The region is normally unable to feed itself due to persistent droughts. This could be overcome by introducing irrigation schemes using water drawn from the lake and the ponds in numerous river valleys in the region. Currently, about 6.4 per cent of the region's arable land is under irrigation (Mwanza City, 2017).

ii. Livestock

Work with livestock is one of the most significant economic activities for most Mwanza residents, and the city is second only to Shinyanga in terms of numbers, with approximately 2.89 million cattle, sheep, goats, pigs and donkeys in total (Mwanza City, 2017).

iii. Fisheries

Fishing on Lake Victoria is one of the most important activities in Mwanza, particularly among folk living along or close to the lakeshore and those living on the numerous islands in the lake. According to the March 2006 census, the region had 56,321 fishermen with 208,079 fishnets, 3,455 special fishnets for dagaa (Restrineobola argentius) and 2,264,792 fish hooks. There are seven fish factories, which together process an average of 60,000 tons per year. The factories are Mwanza Fishing Industries Ltd, Nile Perch Fisheries Ltd, Omega Fish Ltd., Tanzania Fish Processors Ltd, Vicfish Ltd, Tanzania Fish Development Co and Tan Perch (Mwanza City, 2017).

iv. Trade and Companies

Mwanza city is second only to Dar es Salaam in the size of its trade and industries. There are more than 18,095 registered trade and industrial businesses in Mwanza Region. They include wholesale and retail businesses dealing, for example, in construction and industrial equipment and materials, pharmaceuticals, fuel, jewelry, textiles, fish, and agricultural equipment. The region has 125 large- and medium-size companies: construction (35), hotels (30), cotton ginneries (16), transport (15), fish processing (7), printing and publishing (6), food processing and confectionery (3), oil and steel (3 each), beverages (2), breweries (2), fish gear and fishnet (1 each) (Mwanza City, 2017).

The 2012 Population and Housing Census Report shows that Mwanza City Council, like its twin, the Ilemela Municipal Council, has vast economic opportunities due to diversification of industries in the city. Commercial food crops and forestry were reported to be the main sources of income for Mwanza City Council and engaged 13.9 per cent of its residents. It was followed by selling of food (13.6 per cent of the population), trade and commerce (12.9 per cent), manufacturing (11.7 per cent), construction (7.2 per cent), services for food hotel and lodges (5.5 per cent), domestic services (5.0 per cent), haulage and storages (4.7 per cent), administration and security services (3.3 per cent), education services (3.1 per cent), and fishing, hunting, livestock and other areas (2.5 per cent) (Mwanza City, 2017).

The economic diversification of Mwanza city can be seen by the large varieties of primary occupations, at which individuals spend most of their working hours. For all residents aged 10 years and older, the primary occupations are as service workers, shop and shell sales (21.9 per cent), crafts and related workers (16.1 per cent), elementary occupation (12.6 per cent), farmers (12.5 per cent), street vendors and related workers (9.2 per cent), technicians and associate professionals (5.7 per cent), plant machine operators and assemblers including drivers (4.7 per cent), professionals (4 per cent), and small business managers (3.6 per cent). Other common occupations such as fishermen, livestock keepers, legislators, administrators and managers, and clerks employ less than 2 per cent each (Mwanza City Council Socioeconomic Profile, 2017, National Census 2012).

Gender Equity

Tanzania National Water Policy requires sensitivity to gender issues with the goal of ensuring active and effective participation of women and men in rural water supply programmes. Mostly, women bear the burden of searching for water and play a pivotal role, one that is seldom reflected in institutional arrangements in the development and management of water supply and sanitation services.

The European Investment Bank (EIB) Standard 7 on Rights and Interests of Vulnerable Groups sets out guidelines to mitigate and resolve potentially harmful effects of the project operations to vulnerable individuals and groups whilst seeking equal access to project benefits. Necessary measures were taken to manage, appropriately, the risks and adverse impacts of the EIB-financed operations on vulnerable individuals and groups, including women and girls, minorities and indigenous peoples (European Investment Bank, 2017).

This is being done through stakeholder engagement, community engagement and environmental and social impact assessment. The promoters[1] seek to avoid the exposure of vulnerable populations to project-related risks and adverse impacts by screening project-affected people and by carrying out a Resettlement Management Framework and Abbreviated Resettlement Action Plan.

All stakeholders were required to uphold, respect and protect the rights and interests of vulnerable individuals and groups within the designated operational scope throughout the project life cycle. Such rights include non-discrimination, equal treatment of women and men and those of indigenous peoples (Lake Victoria Water and Sanitation Initiative – Mwanza Project, Stakeholder Engagement Plan, 2015).

2. PROJECT BACKGROUND

The Lake Victoria Water and Sanitation (LVWATSAN) initiative was launched in 2004 by the ministers responsible for water from Kenya, Tanzania and Uganda with the aim of achieving the Millennium Development Goals for water and sanitation in secondary centres within the Lake Victoria basin.

The Water Sector Development Programme (WSDP; 2005-2023), established under the Ministry of Water and Irrigation and under which LVWATSAN is being implemented, is the main financing mechanism for the water sector in Tanzania. Its past five-year programme has seen almost USD 1 billion of funding for the WSDP. An Environmental and Social Management Framework and a Resettlement Management Framework for the programme were prepared and completed in 2006.

Following a request from the Tanzania ministers in 2009, the EIB launched a project formulation study in 2010 to develop plans to scale up the UN-Habitat-promoted LVWATSAN Initiative. This initiative was to include the major cities around the Tanzanian part of the lake, which are Mwanza, Musoma and Bukoba together with three smaller satellite towns around Mwanza: Misungwi, Magu and Lamadi. This study, concluded by Atkins Design, Engineering and Project Management Consultancies in August 2012, resulted in a Project Formulation Report covering the six aforementioned shoreside towns.

Volume 3 of the Project Formulation Report deals with the proposed project interventions in Mwanza city. Supplementary studies were conducted on the same, findings of which are reflected in the Supplementary Engineering Report (SER, August 2012). Both reports include sections on preliminary perceived environmental and social impacts of the interventions, which were regarded as mostly positive.

Improved sanitation in informal and low-income areas as well as communal facilities of Mwanza was a priority, following discussions between the EIB, Agence Française de Développement (AFD) and local funding agencies including the Government of Tanzania and the Mwanza Urban Water Supply and Sanitation Authority. Both the provision of sanitation facilities to the expanding informal settlements in Mwanza and management of human and industrial waste in the city are of critical importance to the environmental sustainability of Lake Victoria.

UN-Habitat is responsible for implementing the sanitation component of the EIB-AFD-funded Mwanza Project, which aims to improve the health of the people living in the Lake Victoria basin and its surroundings. This particular project is envisaged to be achieved through a significant contribution to the improvement of sanitation and public health conditions in Mwanza city's informal settlements, primary schools, and public service areas. For the implementation of LVWATSAN,

UN-Habitat is mandated by the East African Community to provide facilitation and capacity-building for the sanitation component of the project. For this project, EIB and AFD entered into an agreement with UN-Habitat for the design and monitoring of stakeholder engagement as well as community utilisation and capacity-building to support the development of integrated sustainable sanitation in the city.

In particular, UN-Habitat supports the cooperation between Mwanza's urban authorities and
Mwanza Urban Water Supply and Sanitation Authority as well as setting out and mobilising a sanitation strategy. UN-Habitat provides hands-on assistance for engagement of communities and non-governmental organizations (NGOs) and for documenting lessons learnt in implementing a project, including best practices to improve service delivery.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

1.2 The Challenge

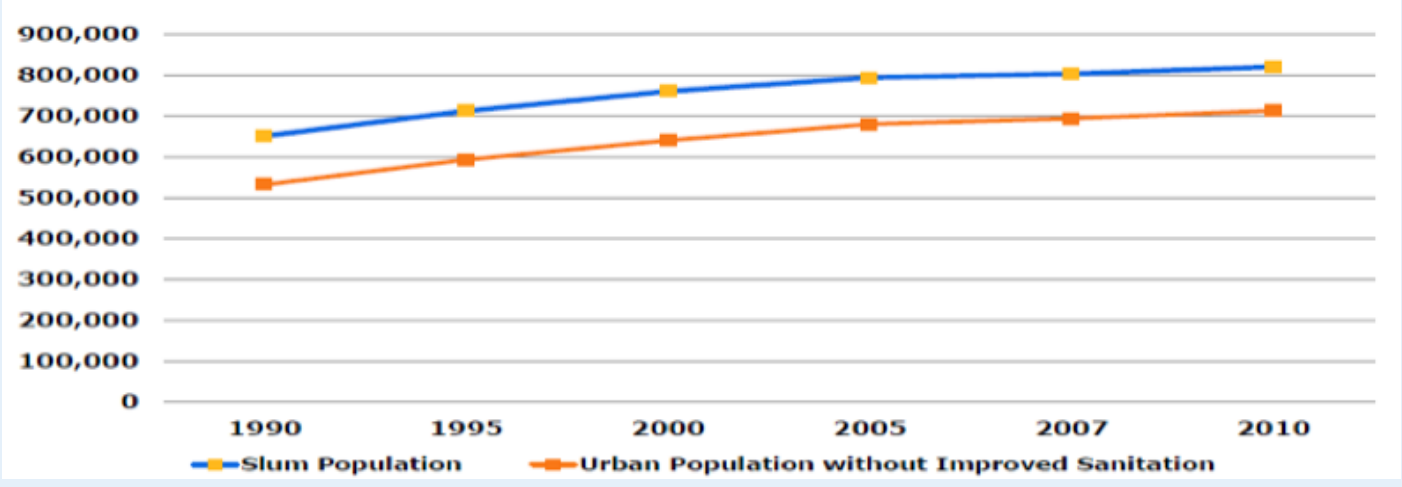
Africa's urban population will rise to 1 billion by 2040

Africa's urban population stands at 472 million. As cities grow in size, another 187 million people will be added by 2025. Africa's urban population will double over the next 25 years, reaching 1 billion by 2040 (World Bank, 2017). In 2030, cities will be a home to 5 billion dwellers; and 95 per cent of future urban growth will happen in Africa and Asia (UN-Habitat, 2016).

Today, 62 per cent of the world's urban population live in small- and medium-sized cities of fewer than 1 million inhabitants, whilst just 9 per cent of the global urban population resides in megacities of more than 10 million people. Urbanisation, especially in Africa and many developing countries, has resulted in several challenges such as rapid spatial expansion of cities with metropolitanisation, suburbanisation, uncontrolled peri-urbanisation and fragmentation. Informality is the dominant characteristic of urban spatial expansion in developing countries or the growth of slums. In such countries, urbanisation has also resulted in inequality, exclusion, inadequate provision of urban basic services, insecurity, displacement of people, urban poverty and low capital investments to finance urban growth.

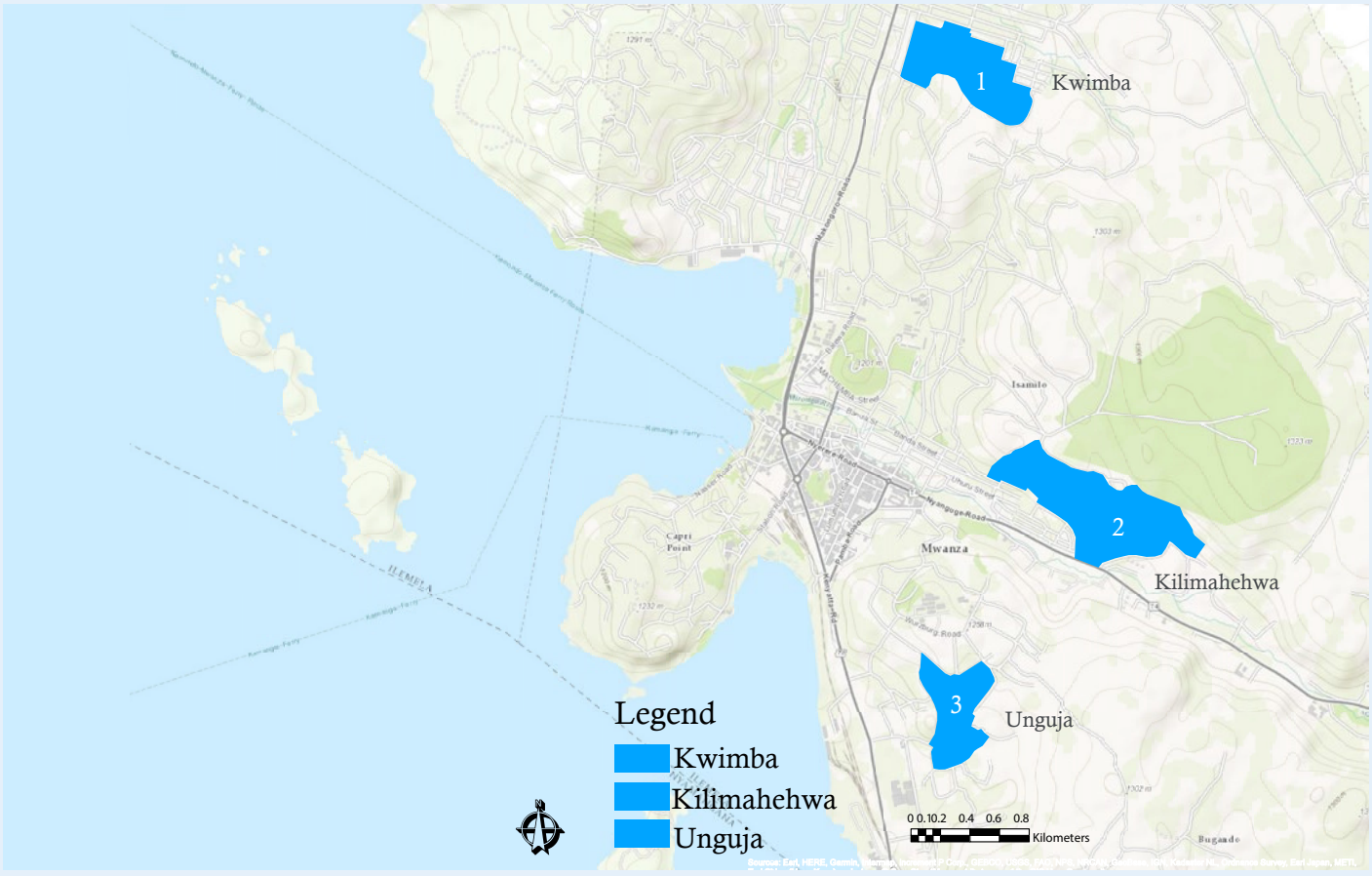
Today, 70 per cent of Mwanza city's settlements are unplanned. Only 5 per cent of its residents are served by conventional sewers; the rest rely on site sanitation solutions. Currently, there

FIGURE 1: RELATIONSHIP BETWEEN URBAN BASIC SERVICES AND SLUM GROWTH



SOURCE: JMP/UN-HABITAT

MAP 1: GEOGRAPHICAL LOCATION OF KILIMAHEWA, KWIMBA AND UNGUJA, MWANZA, TANZANIA



is no standard sanitation technology for a large percentage of the city as much of the population resides in informal settlements.

The Sanitation Design Manual by COWI (2016) states that there is no specific definition for simplified sewerage. A simplified network is usually constructed with smaller diameter pipes, laid at shallower depths, flatter gradients and fewer manhole inspection chambers than conventional sewers. These simplified systems have fewer conservative design standards than conventional sewers, allowing for more flexible design at lower costs. It is especially appropriate for dense urban areas where space for on-site technologies or conventional sewers is limited. The design can also be adapted to areas with steep gradients of rocky hillsides, such as Mwanza's unplanned low-income, less accessible areas. Pipes are usually laid within property boundaries and along narrow trails rather than beneath roads. This allows for fewer, shorter and cheaper pipes because of the absence of heavy load.

Two important adoptions to standard simplified sewerage had to be made for application in Mwanza city. First, due to the steepness of Mwanza's settlements, the gradient of the sewer has been increased from 10 to 30 per cent. Second, due to the presence of rock outcrops, most of the pipes are run above ground rather than being buried.

Three hilly areas have been selected as pilot where alternative non-conventional simplified sewerage systems are installed. These areas are in the wards of Nyamanoro (Kilimahewa A & B hamlets), Mbugani (Unguja hamlet), and Igogo ward (Kwimba hamlet). (See map 1).

Compared with conventional sewerage systems (wastewater connections from discharge points to a centralised wastewater treatment facility), simplified sewerage makes use of septic tanks and soakaway pits. This will add cost to investment as well as operation and maintenance due to frequent sludge removal. In the three pilot areas, houses will be connected to main sewer lines, which are either existing or to be installed under the Immediate Investment Plan.

The simplified sewerage system, starting from a household toilet, will consist of an Asian slab toilet connected to a P-trap which feeds into a household connection chamber, into which would also flow the household grey water. Then, water feeds into a 100mm u-PVC above-ground laterals linking the household connection chambers to inspection and collection chambers. Individual laterals can be connected to one another using "y-pieces" before terminating at a collection chamber. The 110mm High Density Polyethylene Pipes, above-ground simplified sewers connect various inspection and collection chambers, and finally a terminal inspection and collection chamber connected to the main sewer.

In short, it is the connection of the simplified sewerage systems in the pilot areas of Kilimahewa, Kwimba and Unguja informal settlements to main conventional sewer systems (Mott MacDonald and MWAUWASA, 2017).

1.3 Significance of the Informal Settlements Assessment

The assessment comes at a time when Mwanza City Council is embarking on implementation of the Mwanza City Master Plan. As such, it is expected to give a clear indication of the current situation of the city's informal settlements. This would then inform a citywide strategic plan on spatial land-use planning and development control.

It is strategically important because it will inform the following:

- Development levels and living conditions in informal settlements and develop related urban future programmes and tailor-made investments on which City Council should focus in terms of water, sanitation and environment (short, medium and long term).

- Urban planning processes such as approvals of large-scale urban (re)development projects, reblocking, urban renewal programmes of the city, city-resilient programmes and, most importantly, indicate areas where interventions are most needed.

- The basis for evidence-based policymaking. This will enable local government to allocate the most-needed resources to places at which they will have the greatest impact.

- The city's informal settlements upgrading programme initiatives and, most importantly, the work of the Housing and Social Services Department of Mwanza City Council to formalise land markets, clarify property rights and institute effective urban planning that allows for integrated land development. Importantly, it will form the basis for allocating resources and frameworks for the protection, revitalisation and management of different city units and service sectors.

The highest priority is to make early and coordinated infrastructure services investments that allow for interlinkages among housing, infrastructure, commercial and industrial development in Mwanza city. This can be achieved by adapting people-centred spatial planning approaches such as the Green Cities Development concept and People-oriented City Planning.

1.4 Scope and Focus

The baseline survey mainly targeted Mwanza city's informal settlements where the simplified sewer system pilot is being implemented. The system is going to serve three quarters of the city characterized by a lack of basic urban services such as water, sanitation and roads whilst the occupiers do not have security of tenure and live in overcrowded conditions. The survey questionnaire was administered in the pilot areas: Kilimahewa, in Nyamanoro ward; Unguja in Mbughani ward; and Kwimba in Igogo ward (see map 1).

The survey mainly focused on soliciting detailed information regarding living conditions and levels of development in the informal settlements. In order to attain this, a questionnaire was administered and guided by carefully determined variables.

To determine living conditions the following variables were used:

- **Infrastructure** - access to basic services: water, sewerage disposal, toilet type, access roads, public transport, electricity, street lights, waste collection and housing.
- **Tenure status** - homeownership, security of tenure and rental houses.
- **Neighbourhood and location** - safety and house location in relation to the hill slope and services.
- **House and dwelling structure and characteristics** - permanent walls, number of rooms in the structure, material used for walls and roofing.

Likewise, to determine the level of development, a four-dimensional set of variables were selected as follows:

- **Living conditions** - feeling safe, structure ownership viz-à-viz rental, permanent structure and the number of rooms in each structure and dwelling.
- **Education** - access to education facilities.
- **Employment** - working or not, whether engaged in full time, part-time, self-employed.
- **Monetary poverty** - household expenses for different elements.

Accordingly, the survey aimed to derive detailed water, sanitation, and environmental information, and actual structure and composition of the informal settlements through administering a questionnaire. Information regarding household sociodemographic characteristics; household economic, dwelling and structure characteristic; access to urban basic services; and the priorities of Mwanza city's informal settlements was gathered in the framework of participatory community mapping, which entailed carrying out parallel research activities. This was made up of mapping workshops for the youth and community members using geographic information system technologies, self-led house numbering and focus group discussions (refer to *Participatory Community Mapping and Community-led Self-enumerations in Mwanza Informal Settlements Report)*.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

02

Data Collection

The Mwanza informal settlements' baseline inventory aimed to produce reliable estimates of indicators related to access to urban basic services, which were not limited to water and sanitation and environmental concerns. The inventory also encompassed sociodemographic-economic profile, tenure status, levels of development, conditions of living, level of resilience to diseases and disasters, dwelling details, grants and subsidies, and community priorities.

2.1 SAMPLING OVERVIEW

This step involved a desk review of available statistics which were, in the main, regarding the number of households, average household size, annual population growth rate and the total population in Kilimahewa, Kwimba and Unguja hamlets. The data was drawn from the 2012 Census statistics as well as from hamlet leaders. Emphasis was given to the pilot project sites, where beneficiary and non-beneficiary households in the pilot simplified sewer scheme were interviewed through a semi-structured questionnaire.

Based on a desk review, a sample was drawn through the maximum variation sampling technique. This, also known as heterogeneous sampling, is a purposive technique used to capture a wide range of perspectives relating to the variable of study interest. Thus, it is a search for variation in perspectives, ranging from those conditions that are viewed as so homogenous as to be typical through to those that are more extreme in nature. By conditions, one means the units such as people, cases and organizations, events and pieces of data that are of interest to the researcher.

These units may exhibit a wide range of attributes, behaviours, experiences, incidents, qualities, situations and so forth. The basic principle behind maximum variation sampling is to gain greater insights into a phenomenon by looking at it from all angles. This can often help the researcher to identify common themes that are evident across the sample (Patton, 1990, 2002; Kuzel, 1999).

The 1,987 questionnaires were distributed to 3,564 households. It was anticipated that 60 per cent male-headed and 40 per cent female-headed households would be part of the study in the three project areas (see table 1). In the field, enumerators were requested to give preference to vulnerable groups (child-, youth-, female- and elderly-headed households).

TABLE 1: SAMPLED HOUSEHOLDS

Ward	Hamlet	Total # HHs/ Ward	Total # HHs/ Hamlet	Total # of Houses for SS connections	Sample Total	PERCENTAGE%
Nyamanoro	Kilimahewa	6526	1084	600	765	38.5%
Mbughani	UNGUJA	11,633	1508	90	657	38.5%
Igogo	KWIMBA	6010	972	87	565	38.5%
TOTAL	**3**	**24,169**	**3,564**	**777**	**1 987**	**100%**

This was done to ensure that the study captured crosscutting issues such as gender, elderly, youth and vulnerable groups.

A multi-stage sampling technique was used to select households where the pilot project is being implemented and then by unit (actual households) to administer the questionnaire. The sampling design took into consideration the differences within the three hamlets. Some hamlets had mixed residential classes (informal, slum, traditional housing and high density). In all pilot project areas, informal, slum and traditional housing were sampled. Mainly, this was because there were households which were more vulnerable to inappropriate sanitation, inadequate water supply and associated environmental challenges, especially in relation to location on the hill slope (see table 1).

Finally, proportionate probability sampling for each hamlet was used to select the households. A representative purposive sample was drawn to cover various dimensions of the population (structure details, access to urban basic services, tenure status, migration, grants and subsidies, disasters and death, hygiene, socioeconomic-demographic, gender and vulnerable groups).

2.2 FIELD PERIOD AND PRE-FIELD PREPARATION

The research lead consultant prepared a semi-structured questionnaire to guide interviewers during data collection. Mwanza informal settlements' baseline inventory questionnaire was subjected to rigorous testing prior to main data collection.

First, the questionnaire was shared among staff in the Water and Sanitation Unit at the Urban Basic Services Branch of UN-Habitat as well as with field staff for comments, amendments and incorporating suggested wording and flow changes. These were modelled into a collection of 180 questions. The questionnaire was then uploaded into the KoBo Toolbox, an open-source data collection application for challenging environments https://kobo.humanitarianresponse.info/forms//accounts/login/.

The questions were made accessible to UN-Habitat's data collection lead team. In addition to the questionnaires, maps were developed to draw the boundaries of Kilimahewa, Kwimba, and Unguja. These were prepared with a key map and at a scale that enabled the data surveyors to navigate the local landscape and draw the boundary of the informal settlements as it was at the time of the field survey.

The final questionnaire was translated from English to Swahili by UN-Habitat field staff based in Mwanza. The translated and English versions were pre-tested among data collectors for additional input. Finally, the data collection team of 40 youth volunteers and participants from Mwanza's informal settlements pre-tested the questionnaire, including the protocols for gaining cooperation through ward executive officers and hamlet leaders.

Changes to the questionnaire were captured for editing in the KoBo Toolbox. All changes were reviewed by the UN-Habitat research team and programmed into the toolbox server and data collection application. All updates made to the questionnaire were firstly updated in the server, then the old version was auto updated online.

Concurrently, staffing to a small-scale data collection team was done by UN-Habitat field workers, whereby 40 youth volunteers from Mwanza's informal settlements were selected and young women were strongly encouraged to participate. However, it was emphasised that volunteering to carry out the data collection survey was exclusively open to those who could read and understand English, as the questions were kept in the English version in the toolbox application. Experience with mobile data collection applications, face-to-face interviewing and the ability to gain cooperation and commitment to field data collection were all sought skills. Data collectors were grouped into three teams with 13 or 14 data collectors per team, each one with a team leader who acted as the supervisor.

Finally, one day of training was organized for all data collectors on how to use the toolbox mobile application to carry out field data collection surveys. The training was aimed at ensuring that collectors were familiar with the programmed web-based mobile application, whilst a detailed instruction of sampling was demonstrated in the training session. Collectors were also trained in gaining respondents' cooperation, reporting and ensuring quality control in the field, confidentiality, security and research ethics. After the training, collectors tested the questionnaire amongst themselves and determined it took an average of 50 minutes to complete.

The last half of the day was dedicated to testing the toolbox data collection mobile application in the field. The closest neighbourhood to the training venue was Kilimahewa, hence it was subsequently chosen for the field pilot test. A quick round of feedback was given to UN-Habitat lead staff; wording for some questions had to be changed to suit the respondents' understanding, and multiple-choice questions were chosen over those that were open-ended . Hence, most of the open-ended questions were reformulated following field-pre-testing feedback. As compared to the peer-to-peer pilot trial during training session, the average duration to complete the questionnaire was one hour against an initial 50 minutes.

2.3 METHODOLOGY

The Mwanza informal settlements baseline survey involved face-to-face interviews conducted in Swahili; however, the questions in the application (app) remained in English. A total of 40 youth volunteers (10 female and 30 male) were trained on data entry. The initial questionnaire for the informal settlements mapping had an extended iterative process between the research leads and field officers, which led to a number of changes in the questionnaire.

The questionnaire was divided into the 14 subtopics below:

1. Location and respondent details.
2. Household roster.
3. Tenure and migration.
4. Structure details.
5. Water, sanitation and energy.
6. Employment.
7. Transport and mobility.
8. Income and expenses.
9. Grants and subsidies.
10. Disasters and death.
11. Access to services.
12. Wastewater and simplified sewer.
13. Hygiene knowledge, attitudes, beliefs and practices.
14. Snapshot of the structure/house.

As mentioned above, the survey enumeration aimed at analysing living conditions and levels of development to inform urban development programmes

and policy formulation, and especially by various levels of governments in Tanzania, to make integrated interventions to deal with the identified challenges.

2.3.1
Data collection: KoBo Toolbox

The main data collection means used was KoBo Toolbox app, which was uploaded to data collectors' mobile devices. Data collection was done through four different but complementary methodologies:

Semi-structured interviews: These were administered to understand the level of development, living conditions, sociodemographic characteristics, and community priorities in informal settlements.

Observations: This involved obtrusive observation of the type of toilet, source of domestic drinking and water storage, house and dwelling structure details, noting the physical attributes of the dwellings and highlighting anything that stood out.

Photography: It was a requirement that every data entry include a minimum of three photographs. These were used to understand the structure details and to check the accuracy of responses.

Data collection for the baseline survey was undertaken in three parts to generate valid qualitative and quantitative data. This used the KoBo Toolbox, Google Maps and a printed questionnaire form. The toolbox was used to administer the questionnaire, capture the Global Positioning System location of the houses, take pictures and record observations. Google Maps were used primarily to draw boundaries of Kilimahewa, Kwimba, and Unguja. The questionnaire printed form was used as a backup in Swahili to ensure that data collectors could refer to the Swahili version for standard questionnaire interviewing.

The survey was guided by structured questionnaires, which were mainly used to answer questions regarding living conditions and levels of developments in the informal settlements. The toolbox is used mainly by aid workers

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

in humanitarian situations and by researchers in developing countries. (UN OCHA, 2015). The system uses the Android platform (phones or tablets). Once data was collected on the phone, it was submitted to a web server where a system administrator at UN-Habitat's Nairobi office could track progress and carry out quality control. The system works as illustrated on figure 1A.

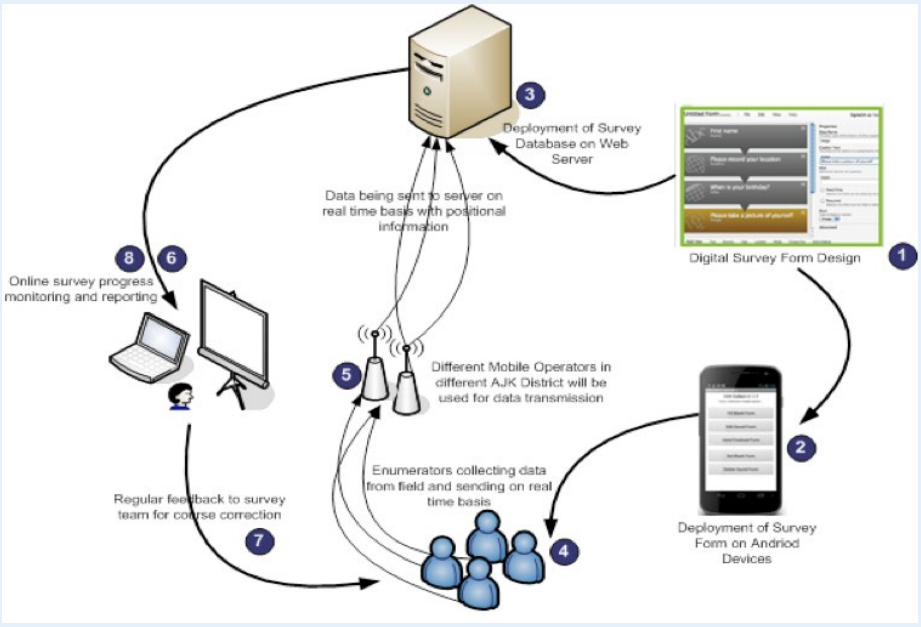
2.3.2 KoBo Collect Web Page with Questionnaires

Figure 1A illustrates the functionality of the toolbox. The KoboCollect application was downloaded and installed on the surveyors' smart phones, which could also be accessed in locations when data was offline or outside the range of a mobile data network. After the digitized questionnaire was uploaded on the server, the surveyors downloaded them into their Android mobile phones and other devices. Once the forms were filled, they were uploaded to the server where a system administrator checked them for consistency, monitored trends, advised on quality and downloaded the data for cleaning and further analysis.

2.3.3 Data Cleaning

Collected data was cleaned at various stages before analysis. Cleaning involved deleting multiple entries made for some households, deleting errors and misleading answers. Of a total 1,987 data entries, about 1,500 had errors under question No. 2 "Household Roster".

FIG 1A: KOBO COLLECT DATA COLLECTION SYSTEM



To minimize the distortion of findings, the section on Householder Roster was deleted. It was agreed that the national statistics on household size, number of families per structure, level of education, population growth be used, especially from the 2012 Census Report. The reason for the errors was mainly associated with the length of the section as it covered demographic information, which was cumbersome. It was agreed that in all future surveys, demographic information would contain fewer questions overall but which would be more specific.

2.3.4 Geographic Information Systems (GIS) Spatial Data Collection

Geographic data was defined and mapped before any spatial analysis could be done. This process involved tracing the shapes of the surveyed household dwellings and settlements by the research team directly onto the browser-based Google Maps web application. The Google Maps data was exported as a shape file and then imported into ArcGIS for spatial data analysis.

Additionally, Global Positioning System (GPS)-coordinated data logged by the KoBo Toolbox data surveyors was also exported into the ArcGIS software for spatial data analysis.

The exported Google Map data showing the shapes of the surveyed household dwellings and settlements was merged

with the GPS coordinates data logged by the KoBo Toolbox data surveyors. Then, the resulting spatial data and GIS output from the two merged data sources were analysed as shown in Section 2.3.5 Data Analysis.

2.3.5 Spatial Data Analysis

A spatial and statistical analysis was done using ArcGIS, KoBo analyser, Google Spreadsheet and Statistical Package for the Social Sciences (SPSS), respectively. These were accompanied by a comprehensive photographic analysis. Data analysis was divided into two broad categories:

- Levels of development (access to urban basic services, education and income).
- Living conditions (infrastructure access, tenure status, neighbourhood and location safety, and house dwelling characteristics).

The results of the spatial analysis are maps that are extrapolated in the analysis as shown in maps 1-24. These maps mainly show the spatial analysis in terms of access to urban basic services and living conditions.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

2.4 DURATION

A desk plan for administering the questionnaire was calculated to take five days. Pre-testing of the questionnaire prior to field work suggested that if 1,600 questionnaires were to be administered by 40 enumerators at a daily rate of 10 questionnaires per person, then it would mean a total 400 questionnaire interviews were to be submitted daily.

The increased time for fieldwork was due to field challenges such as interviewer drop out and time spent on follow up, actual interview time exceeding that anticipated for some of the data surveyors, and other difficulties of data collection was due to exhaustion from walking up and down the steep terrain.

Technical challenges included those of software, such as incompatibility of the KoBo Toolbox app with the older or cheaper smartphones commonly found in the market in least-developed countries. There were also general compatibility problems with using open-sourced, free applications available only on limited smartphone software platforms. Hardware challenges included the insufficient memory of some phones and wear and tear of those older.

Consequently, the actual total number of days taken was 10, mainly due to the fieldwork challenges stated above.

2.5 CHALLENGES AND ADJUSTMENTS

In carrying out this task, the UN-Habitat team encountered the following difficulties unforeseen during the planning period:

- Drop outs of enumerators, especially in the Kwimba and Kilimahewa neighbourhoods due to fatigue, broken phones, low payment, among other reasons.
- Overlapping of events, which delayed the kickstart of subsequent events.
- Incompatibility of old Android phone operating systems with the KoBo Toolbox app.
- Slow data collectors could not meet the daily target of 10 questionnaires because they were too long.
- Lack of required materials to carry out the mapping and enumeration events due to lack of specified materials from suppliers.
- Enumerator errors in using KoBo Toolbox app.
- Malfunctioning of the KoBo Toolbox app due to network problems.
- Slow or unavailable Internet connections delayed data capturing.

Due to the aforementioned challenges, several adjustments had to be made.

The following solutions were employed:

Dropouts: Estimation of field duration was based on events that could not be accurately predicted. Accordingly, UN-Habitat-lead research staff suggested data collectors from the Unguja neighborhood consider assisting Kwimba enumerators.

Overlapping of events: Realising that running parallel events had become inevitable, the research staff divided into two teams. One team supervised field data collection, whilst the other carried out community mapping workshops and trainings. This enabled all the planned events to be covered within the agreed 30-day timeframe.

Incompatibility of old Android phones with KoBo Toolbox app: The challenge of incompatibility of this app with the old system of Android phones was realised during the app's installation. It took longer to install the app on an old Android version compared to those that were new. However, in some instances, those with old versions of Android able to install the app were slow during data entry. This resulted in inefficiency in data collection and shortfalls on daily targets. In order to correct this, data collectors were asked to use Android 7.0 and 6.0 versions.

Incompatibility issues were greater because participants were requested to bring their own devices. Given the greater variety of operating systems on the market than the standard Android/ Apple operating systems, this resulted in hardware incompatibility challenges.

These challenges are associated with scaling or decentralising the method of using free access apps such as the KoBo Toolbox for data collection. Lack of global downloadable open source software such as the KoBo Toolbox is a key barrier to decentralising the data collection process.

Slow data collectors: Initially planned to take place over four or five days, the data collection survey took 10. This was mainly due to the realisation that some data collectors were slow to meet the daily target of 10 questionnaires per person. Lessons learnt were that, if one is inexperienced in mobile data collection, it would take more time to complete the process. In the end, group dynamics proved that there was solidarity amongst the teams of data collectors, as they agreed to add more days outside the initial plan.

Lack of required materials: UN-Habitat development work emphasises empowering locals during project implementation. However, this was not ideal as delays were encountered in the delivering of house numbering plates. Such delays meant rescheduling

events, which subsequently led to miscoordination of house numbering and the baseline survey. This is because numbering was supposed to precede the baseline survey so that the numbering details could be captured during the survey.

To ensure that the total information needed was captured, community mapping workshops and house numbering were carried out as independent events. However, the results were harmonised through separate documented reports to have comprehensive information as was intended. As materials such as translucent paper were not available in Mwanza city tracing paper was used for mapping workshops and served the same purpose.

Enumerator errors: UN-Habitat's data plan included a high level of validation, extensive data review and data cleaning. Householder roster proved to be difficult for data collectors to fill in; hence, it was not reported in detail because of the errors. To minimize enumerator data entry error, most questions were of closed multiple-choice format; skip patterns were used and identification of each enumeration area was captured. UN-Habitat data analysts carried out extensive data cleaning to revise all data submitted to the server. Contextual information such as date, GPS location and name of enumerator was used to correct errors.

Malfunctioning of KoBo Toolbox app: This toolbox is an offline-based app that allows users to upload data without Internet access. However, since this survey used interviewers' personal phones it proved that, even though the specifications of the type of phone to be used were the basis for selection of volunteer interviewers, personal phones had other deficiencies which the owners did not state and which made the app perform ineffectively. This resulted in a slow rate of data collection, necessitating an extension of the field work period. In future, it would be prudent to have extra phones on standby as substitutes for those that perform poorly.

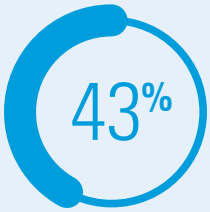
Slow or unavailable Internet connections delayed data capturing: Due to the location of some enumeration areas, access to mobile data services was spotty. To mitigate this problem, data collectors were organized to ensure that they met at a central point with a strong Internet signal for at least every three hours during data collection, and they could then submit their completed questionnaires through mobile data Internet services.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

03

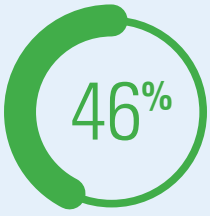
Location and Household Socio-Demographic Characteristics

This chapter presents household demographic characterization according to location in Mwanza's informal areas. The population characteristics under study were closely examined using variables which included household size and composition, and the demographic divide. Other characteristic considered were the average of various factors including household size, number of people per structure, number of families and households per structure, total number of respondents per neighbourhood, and relationship of respondent to household head. In closing, this chapter seeks to determine the demographic composition of Mwanza's informal settlements.



KWIMBA & UNGUJA
PERCENTAGE OF LANDLORD/STRUCTURE OWNER RESPONDENTS

KILIMAHEWA
PERCENTAGE OF STRUCTURE OWNER RESPONDENTS



MWANZA CITY
PERCENTAGE OF LANDLORD/STRUCTURE OWNER RESPONDENTS

3.1 LOCATION

Table 1 shows the sample in terms of absolute number of respondents in Kilimahewa, Kwimba, and Unguja. Generally, the sample size is representative in that it is proportionally distributed according to the total population per neighbourhood whereby in Unguja 38.5 per cent of the total were interviewed, Kwimba 33 per cent, and 28.4 per cent for Kilimahewa.

There is, however, a variation on the absolute numbers of expected connections to the simplified sewerage system and the actual in all three pilot locations. This could be explained in that the estimated numbers of connections were based only on the counted connections during the project planning phase. However, it was agreed that, during construction works, the contractor would join all possible connections, which means the number is likely to increase once the implementation phase is completed.

3.2 RESPONDENTS DETAILS

Carrying out baseline surveys in an informal setting requires detailed analysis of relationships because they are intertwined. Table 2 indicates that most of the respondents were

TABLE 1A: TOTAL NUMBER OF RESPONDENTS

Total Number of Respondents/ Neighbourhood	Expected Simplified Sewer Pilot connections	Actual Simplified Sewer Pilot connections	Total No. HHs/ Ward	Total No. HHs/ Hamlet	Sample Size	Percent
Unguja	90	406	11,633	1,508	765	38.50
KWIMBA	87	373	6,010	972	657	33.06
KILIMAHEWA	600	312	6,526	1,084	565	28.43
TOTAL	77	1,091	24,169	3,564	1,987	100

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

household heads (50.1 per cent) followed by spouses of household heads (22.5 per cent), children of household head (11.7 per cent), partners of household head (5.6 per cent), relative permanently staying with the family (5.3 per cent), neighbour (4 per cent), and undefined relationships classified as "other," which had the fewest respondents (0.5 per cent).

Overall, there is no noticeable variation in terms of the actual respondents in Kilimahewa, Kwimba, and Unguja. Most respondents were the household head or spouse of household head (72.6 per cent).

3.3 RESPONDENT VIS-À-VIS STRUCTURE OWNERSHIP

Table 3 summarizes the co-relationship between the respondent and structure ownership. For Kwimba and Unguja, 43 per cent of the respondents were landlords (owners of the structure). Above half, (52 per cent) of the respondents were structure owners in Kilimahewa, whereas in Mwanza city it was 45.6 per cent.

TABLE 2: RESPONDENTS' DETAILS

Respondent Details	Unguja	%	Kwimba	%	Kilimahewa	%	TOTAL FREQ.	%
Household head	373	49	362	55.0	261	46	996	50.13
Spouse of household head	171	22	132	20.1	145	26	448	22.55
Child of household head	95	12	67	10.2	71	13	233	11.73
Partner of household head (such as not married but living together)	35	5	27	4.1	49	9	111	5.59
Relative of household head	52	7	31	4.7	24	4	107	5.39
Neighbour	28	4	38	5.8	15	3	81	4.08
Other	10	1	1	0.2	0	0	11	0.55
Total	764	100	658	100	565	100	1,987	100

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

TABLE 3: RESPONDENTS' RELATIONSHIP TO STRUCTURE OWNERSHIP

Respondent vs Structure Ownership	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Structure owner(landlord)	329	43	284	43	293	51.9	906	45.60%
Tenant (renting from the owner)	221	29	255	39	192	34.0	668	33.62%
Relative of the owner	180	24	76	12	77	13.6	333	16.76%
Neighbour	25	3	26	4	3	0.5	54	2.72%
Sub-tenant (renting from tenant)	6	1	16	2	0	0.0	22	1.11%
Other	3	0	1	0	0	0.0	4	0.20%
Total	764	100	658	100	565	100	1 987	100%

At city level, 33.6 per cent were tenants renting from structure owners, and a further 16.8 per cent were relatives of the structure owners. Few of the respondents reported that they were neighbours of a structure and homeowner (2.7 per cent) and 1.1 per cent were sub-tenants (renting from tenant). This demonstrates the proportion of homeownership at city level in Mwanza's informal settlements was quite high with an average of 46 per cent compared with other countries in the region, such as Kenya where 91 per cent of slum dwellers were renting (World Bank, 2016).

3.4 HOUSEHOLD SIZE AND COMPOSITION

The national average household size in Tanzania was 4.8, whilst for Mwanza city it was 5.7 (Census, 2012). Accordingly, the city's informal settlements' average household size was far higher than that of Mwanza Region, wherein each household averaged 9.2 members (see table 4).

Furthermore, it is quite clear that the overall household size did not vary substantially from the proportion of all the three neighbourhoods combined, except for Kwimba which had 11.6 members per household. Whereas Kilimahewa had an average household size of 7.9, Unguja had 8.2. However, table 4 shows a significant statistical variation between Mwanza city at large and its informal settlements, with a difference of 3.5. This variation is because in formal and non-poor households, the household size tends to be smaller compared with those of poor and informal settlements. Therefore, at city level the average household size tends to be lower and even closer to the national average with only a variance of 0.8.

This implies that Mwanza's informal settlements are not an exception to slum derivations of adequate living space commonly characterised by overcrowding. According to Tanzania National Bureau of Statistics and Mwanza City Council (2016) in the socioeconomic profile of Mwanza city, population density increased from 945 persons per sq. km in 2002 to 1,420 persons per sq. km in 2012. The city, besides being the most populous city in Tanzania, also has the highest population density against national average of 39 people per km2, excluding the Dar es Salaam Region. The high population density aggravates the already serious pressure on other basic human needs such as land and food security.

3.5 NUMBER OF FAMILIES PER STRUCTURE

This section analyses the number of families living in a single housing unit. Overall, most of Mwanza's informal settlement residents stay as a household of one family per housing unit. However, the number of families per structure registered the highest category difference statistically amongst the three neighbourhoods. The percentages vary from 9 to 16, which is significant. The number of households

TABLE 4: AVERAGE HOUSEHOLD SIZE

Name of Settlement	Total # of households numbered	Total number of Families	Average# of families per house/Structure	Total Number of Persons	Average # of persons per house/structure
Kilimahewa	912	2,157	2.3	7,284	7.9
KWIMBA	439	1,669	3.8	5,101	11.6
UNGUJA	992	2,685	2.7	8,168	8.2
TOTAL	2,343	6,511	2.9	20,553	9.2

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

TABLE 5: NUMBER OF FAMILIES

No. of families/house	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
One family	454	59.4	321	48.8	429	75.9	1,204	60.59%
Two families	156	20.4	101	15.3	72	12.7	329	16.56%
Four and above families	64	8.4	135	20.5	28	5.0	227	11.42%
Three families	90	11.8	101	15.3	36	6.4	227	11.42%
Total	764	100%	658	100%	565	100%	1 987	100%

leaving as a single family per housing unit in Unguja was 59 per cent, in Kwimba 49 per cent and 76 per cent in Kilimahewa. At city level, 61 per cent of families in Mwanza lived as a solo family per housing unit. The number of shared housing unit seems to be significantly higher as about 17 per cent indicated that two families shared a single housing unit, 11 per cent said three families shared a single housing unit, whilst another 11 per cent reported four families and above sharing one housing unit.

On average, currently about 39 per cent, (206,637) of the Mwanza's informal settlement population of 529,839 live in shared housing units. On average there are three families per structure (see table 4), whilst the average number of persons living in one housing unit is nine. Accordingly, this suggests that Mwanza's informal settlements, like any other slum, are overcrowded and lack sufficient living area.

04

Tenure and Migration

This section examines the state of the housing market in Mwanza's informal settlements in terms of ownership, housing typologies, land and security of tenure, eviction, rental patterns, migration patterns and duration of stay.

4.1 HOUSE TYPOLOGY

Housing condition and type is a key non-income indicator of poverty levels of households. Classification of this condition is based on durability and quality of the houses in terms of building materials used for the main elements of houses, namely, roof, walls and floor. The availability of social amenities in or around the house, such as water supply, toilet facilities, and ownership of assets, among other indicators, is also considered in this classification.

Table 6 summarizes different types of houses in Mwanza's informal areas. On average, 59 per cent stayed in a formal structure, which is mainly permanent single detached houses. Formal and quality adjusted housing (permanent walls, roof and floor) is never

TABLE 6: HOUSING TYPOLOGIES

Housing typologies	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Formal Structure or House	545	71.3	390	59.3	242	42.8	1,177	59.24%
Informal house (NOT IN BACKYARD)	172	22.5	160	24.3	146	25.8	478	24.06%
Backyard House or Structure	33	4.3	29	4.4	128	22.7	190	9.56%
Sharing House	7	0.9	72	10.9	46	8.1	125	6.29%
Traditional dwelling/hut/ made of traditional materials	7	0.9	7	1.1	3	0.5	17	0.86%
shack	0	0	0	0	0	0	0	0%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100%**

unanimously linked to informal and slum settlements. However, Mwanza has shown a unique face to the shape of slums, which are usually identified with shacks, semi-permanent building materials (scrap and waste materials) such as cardboard boxes, plastics, metal iron sheets, wood, and trash that are hazardous to the environment. This is not the case in Mwanza as none of the informal settlement area had shacks. Informal houses comprised 24 per cent of the total, backyard houses were 10 per cent, shared and or semi-detached houses only 6 per cent whilst traditional houses were just 0.9 per cent.

Such a landscape in terms of housing typology spectrum could suggest that people living in the informal settlements of Mwanza are not necessarily poor, as they could afford building materials even if they are faced with land development constraints and tenure choices.

4.2 LANDOWNERSHIP

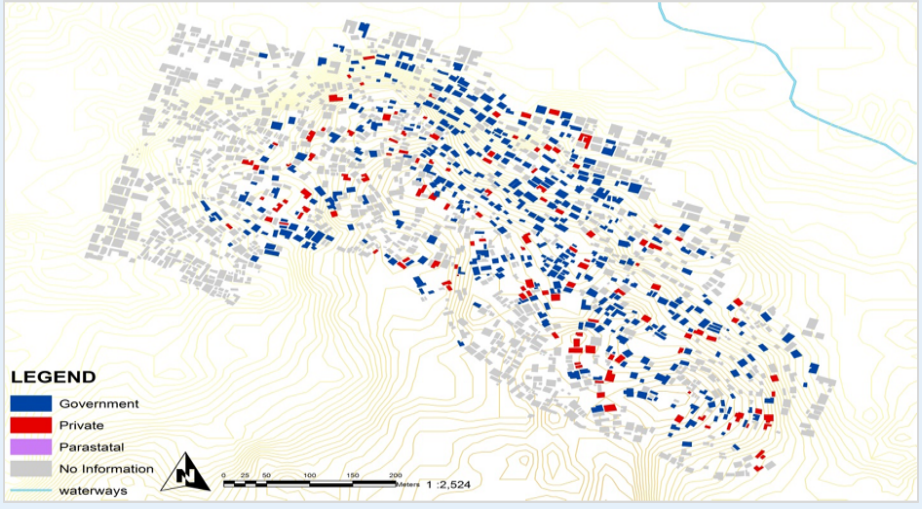
Much of the land in Mwanza's informal settlements is owned privately but illegal (66 per cent). The majority of land occupiers do not own the land on which their housing structure is built. The Government was reported to be the second-largest owner of land in Mwanza's informal settlements, with a total of 30 per cent. An insignificant number of individuals (3 per cent) owned land, whilst local government institutions were reported to be the smallest owners (0.2 per cent). See table 7.

Maps 1, 2 and 3 show the share of landownership across the physical landscape of Kilimahewa, Kwimba, and Unguja. They show that ownership across the neighbourhoods is predominately private, with a few patches which indicate Government-owned land.

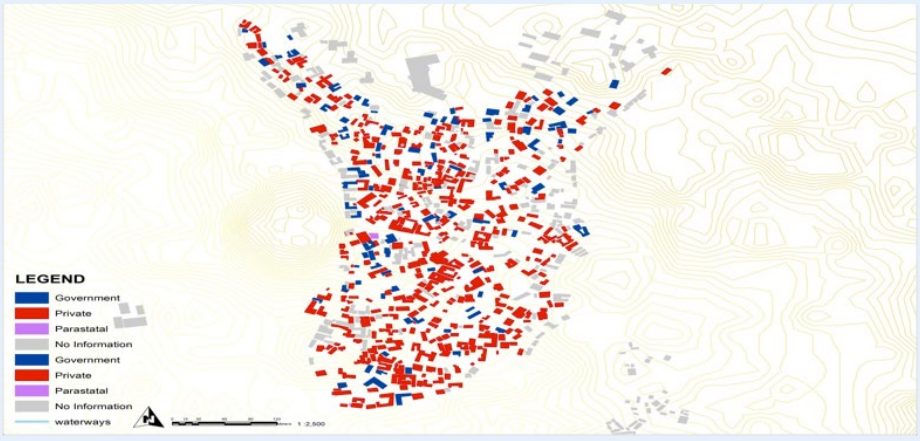
TABLE 7: LAND OWNERSHIP

Land Ownership	Freq.	%
Private land owner	1,305	65.68
Government	584	29.39
I own the land	51	2.57
I don't know	43	2.16
Parastatal (such as Min. of Nat. Housing, Mwanza City Council)	4	0.20
Total	**1,987**	**100**

MAP1: KILIMAHEWA LAND OWNERSHIP



MAP2: KWIMBA LAND OWNERSHIP



MAP3: UNGUJA LAND OWNERSHIP

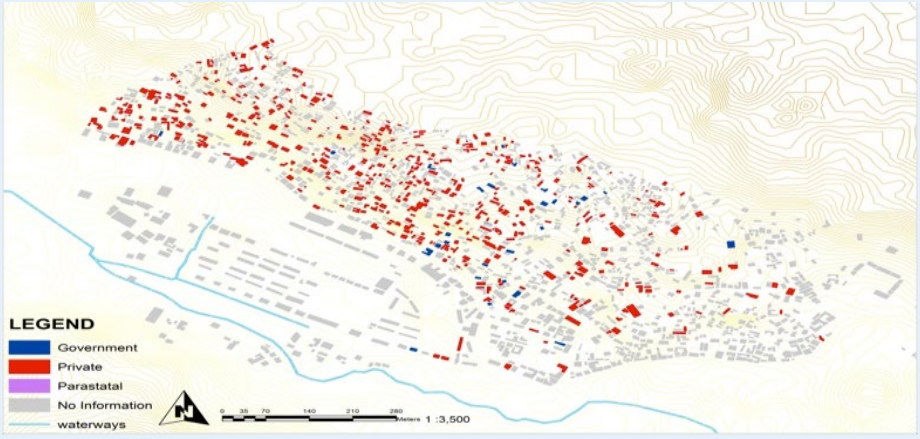


TABLE 8: SECURITY OF TENURE

Security of Tenure	Frequency	Percentage
No	1,679	84.50
Yes	308	15.50
Total	**1,987**	**100**

4.3 SECURITY OF TENURE

Table 8 shows the status of tenure security in Mwanza informal settlements. The issue of tenure security is one of the deprivations of any slum settlements the world over (UN-Habitat, 2016). The findings as shown in table 8 indicates that the majority did not have title deeds for the land they occupy (85 per cent). Only a handful (16 per cent) had a deed. Those who had them were mostly found on the foothill where land is almost flat and close to service provision infrastructure. This suggests that Mwanza City Council should improve security of tenure in informal settlements through policy and programmes. Such programmes include slum upgrading, whilst national urban policies are a crucial tool to managing urban development.

TABLE 9: HOUSE OWNERSHIP

House Ownership	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Yes,I am a tenant	421	55.1	374	56.8	286	50.6	1,081	54.40%
No, I am not a tenant	343	44.9	284	43.2	279	49.4	906	45.60%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100%**

4.4 HOMEOWNERSHIP VIS-À-VIS RENTAL

The homeownership to rental ratio in Mwanza's informal settlements was almost equal. Residents of these areas were mainly tenants (54 per cent) whilst 46 per cent were reported to be structure owners (see table 9). This indicates that there was no wider variation statistically in terms of ownership and rentals.

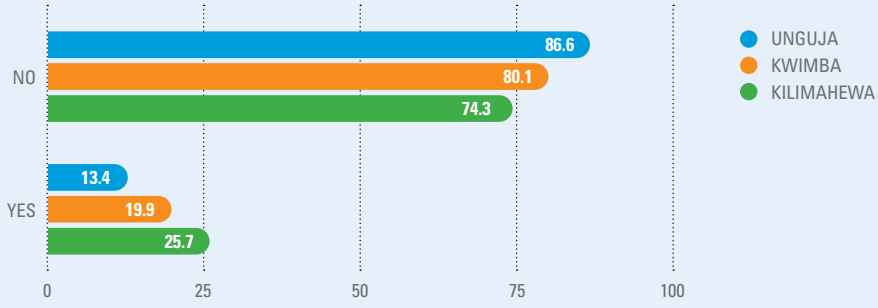
This being the case, it shows that there is an opportunity to increase homeownership in Mwanza as slum dwellers are equally homeowners. This is not the case in countries such as Kenya where house rental is a common phenomenon even in formal and planned areas. According to the World Bank (2016), on average 83 per cent of Kenya's urban citizens rented housing. The situation is even more pronounced in slums where 91 per cent rented the structure in which they lived. In formal areas, the situation was similar; 83 per cent were on rental schemes.

The Mwanza City Council should investigate different housing provision options for low-income households. These options include slum upgrading, public housing, provision of serviced sites for "build it yourself", self-help housing cooperatives and compact development high-rise apartments, among other possibilities. The likelihood of informal settlers owning homes in Mwanza city is high considering that 46 per cent own the structures and houses in which they live.

4.5 EVICTION THREATS

Figure 2 shows the occurrence of eviction threats in informal settlements because, whenever a settlement is identified as a slum and effectively called illegal, governments are usually instrumental in issuing displacement orders. Unexpectedly, and unlike many other slums around the world, Mwanza's informal settlements' eviction threats are low. Only 19 per cent reported that they faced such threats. This could be largely due

FIGURE 2: EVICTION



to the City Council investment in informal settlements by providing basic services (water and sanitation), which is the first step any government takes towards regularisation and upgrading informal settlements. Atkins (2012), stated that there was an ongoing project to formalise the informal areas, by surveying them and issuing land titles. Of a total 49,000 informal dwellings, 12,000 had been surveyed and formalized]. The project target was 15,000.

It is uncertain how many of the remaining 34,000 plots are suitable for land titles, but plots which are congested will be offered strata title where resettlement is denied. The City Council plans to develop satellite cities and build apartments following a compact city model and, where unavoidable, a resettlement management framework can be applied (Atkins, 2012).

TABLE 10: EVICTION THREAT TIMELINE

Eviction Threats Timeline	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
In the past week	81	79.4	111	84.7	83	57.2	275	13.84%
In the past month	8	7.8	11	8.4	39	26.9	58	2.92%
Don't know	9	8.8	5	3.8	17	11.7	31	1.56%
In the past 6 months	2	2.0	2	1.5	5	3.4	9	0.45%
More than 1 year ago	2	2.0	2	1.5	0	0.0	4	0.20%
In the past 12 months	0	0.0	0	0.0	1	0.7	1	0.05%
Total	**102**	**100**	**131**	**100**	**145**	**100**	**378**	**100%**

NOTE: 378 OUT OF 1,987 RESPONDENTS ANSWERED THIS QUESTION (1,609 WERE WITHOUT DATA, MEANING ONLY 378 OF THE HOUSEHOLD HAD A THREAT OF EVICTION IN THE PAST)

TABLE 11: ACTORS OF EVICTION

Actors for Eviction	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Private land owner	69	67.6	60	45.8	86	59.3	215	10.82%
Local municipality (government)	2	2.0	47	35.9	8	5.5	57	2.87%
Don't know	6	5.9	8	6.1	34	23.4	48	2.42%
Neighbours	19	18.6	15	11.5	5	3.4	39	1.96%
Other	4	3.9	0	0.0	9	6.2	13	0.65%
Landlord (structure owner)	2	2.0	1	0.8	3	2.1	6	0.30%
Total	**102**	**100**	**131**	**100**	**145**	**100**	**378**	**100%**

4.6 TIMELINE EVICTION THREATS

Of the residents of Mwanza's informal settlements who stated that they had received threats of evictions, about 14 per cent reported that it occurred a week before the survey, 3 per cent said a month before, and 2 per cent reported that they could not remember when such threats were made (see table 10). However, there is a need to identify the persons making such threats because these could be due to bad tenant-landlord relations.

It should be noted that only 378 respondents answered this question, hence rendering the findings misguided and unrepresentative, therefore unreliable for generalisation.

4.7 RESPONSIBLE ACTORS FOR EVICTIONS

For Mwanza, stated evictors consisted of private landowner (11 per cent), local government (3 per cent), unknown (2 per cent), neighbours (2 per cent), structure owner (0.3 per cent) whilst 1 per cent was "other evictors" (see table 11). The results indicate that most eviction threats emanated from private landowners.

> "a cluster of ex-villagers on the city outskirts or in hidden pockets of the core, where they struggle to establish a new life and integrate themselves socially and economically. Their goal is to build communities, to save and invest and create new economies, and often to move out, creating new room for the next wave of migrants." (Saunders D, 2010)

4.8 PERIOD OF STAY IN INFORMAL SETTLEMENTS

In terms of duration of stay in Mwanza's informal settlements, table 12 indicates that the majority have stayed for 1 to 5 years (59 per cent), 5 to 10 years (10 per cent), 10 years and above (16 per cent). Just 15 per cent indicated that they had been staying in unplanned settlements since birth (see table 12).

In such a context, slums and unplanned settlements should be seen as an "arrival city". Therefore, it is crucial for governments to take the lead in creating inclusive, safe, resilient and sustainable cities by recognizing the opportunity within arrival cities. By providing citizenship, a chance to own property, education, transport links and good security in cities such as Sao Paulo in Brazil and Parla in Spain, local and national governments have succeeded in-migrants (Saunders D, 2010).

TABLE 12: PERIOD OF STAY IN INFORMAL SETTLEMENTS

Period of stay in informal areas	Frequency	Percentage
1-2 years	469	23.60
2-5 years	445	22.40
10 and more	323	16.26
Living here since birth	296	14.90
Less than 1 year	263	13.24
5-10 years	191	9.61
Total	**1,987**	**100**

TABLE 13: PREVIOUS TOWN/SETTLEMENT AREA

Previous Town/Settlement area	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Mwanza	337	49.9	333	58.8	255	52.8	925	46.55%
lived here all my life	76	11.3	105	18.6	164	34.0	345	17.36%
Mara	100	14.8	30	5.3	9	1.9	139	7.00%
Kagera	46	6.8	12	2.1	30	6.2	88	4.43%
Other Regions	42	6.2	20	3.5	10	2.1	72	3.62%
Shinyanga	21	3.1	23	4.1	5	1.0	49	2.47%
Geita	20	3.0	14	2.5	5	1.0	39	1.96%
Tabora	15	2.2	12	2.1	0	0.0	27	1.36%
Arusha	13	1.9	7	1.2	2	0.4	22	1.11%
Simuyu	5	0.7	9	1.6	2	0.4	16	0.81%
Outside Tanzania	0	0.0	1	0.2	1	0.2	2	0.10%
Total	**675**	**100**	**566**	**100**	**483**	**100**	**1 987**	**100**

The growth of informal areas in Mwanza is the result of several conditions which are exclusively a factor of internal rural-urban migration that have coincided to create demand on housing in the city.

4.9 PREVIOUS TOWN, SETTLEMENT AREA

Table 13 gives a summary of former settlement areas and towns where current informal settlers lived prior to remaining in Mwanza. Most residents of Mwanza's informal settlements stated that they were living in the region prior to settling in the city (47 per cent). A handful mentioned that they had lived in the informal settlements all their life (17 per cent). Notably, the amount of international migration was insignificant (0.1 per cent).

Even though Mwanza is the second largest city in Tanzania, the majority (55 per cent) of residents are unemployed (Mwanza City Socioeconomic Profile, 2016). In terms of economically productive areas, most employed people work in the service sector, while those who are self-employed are involved in petty trade, tilling land and fishing activities. This clearly validates that for cities to develop economically as they grow in size they must connect to the world. Investment in African cities' infrastructure, industrial and commercial structures have not kept pace with the concentration of people, nor have investments in affordable formal housing. The potential for coordinated investments in infrastructure, residential, and commercial structures is great, which will enhance agglomeration economies and connect people with jobs (World Bank, 2017).

4.10 HOUSE RENTAL

The homeownership ratio to rentals is balanced in Mwanza's informal settlements. Many persons occupying these areas are tenants (58 per cent) - see fig 3. This is an opportunity for the City Council to better plan the settlements as informal settlers have the financial resources to construct their own structures. One option for the city government is to avail a spectrum of housing options based on different income categories.

4.11 MONTHLY RENTS PAYMENT

Table 14 shows monthly rental payments in the informal settlements. There is variation on rental payment in terms of the actual value of house rental in these settlements. Mostly, the value is an effect of the city (proximity); distance to public services, availability of urban basic services such as water and sanitation services, number of rooms, and access to public institutions.

FIGURE 3: HOUSE RENTING

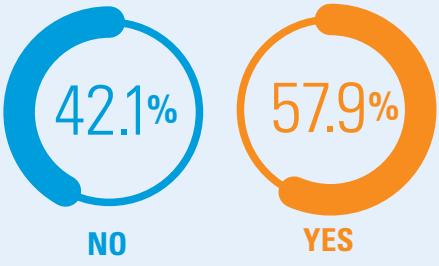


TABLE 14: HOUSING MONTHLY RENTAL PAYMENTS

Rental payments/monthly	Freq.	Percentage
TSH0 – TSH20 000	581	29.24
TSH 20 001 – TSH 25 000	280	14.09
TSH 25 001 – TSH 30 000	152	7.65
TSH 30 001 – TSH 35 000	81	4.08
More than TSH 40 000	31	1.56
TSH 35 001 – TSH 40 000	26	1.31
Total	**1,151**	**100**

*1USD = TSH2 200

05

Structure Details: House, Dwelling Structure Characteristics

This chapter presents detailed description of the house characterisation in terms of the main use of the house, other uses of the house (commercial or otherwise), materials used for roofing and for walls. The actual observation of the structure was done through photography as a way of checking housing quality.

5.1 MAIN USE OF THE HOUSE

In order to deduce service provision in informal settlements, uses of the house had to be established. Table 15 indicates that most houses were used only as a residence (94 per cent). Much of the remaining mixed use consists of food kiosks and sweet (candy) shops. On average, there are limited commercial enterprises, public institutions and social places. This gap needs to be filled through a combination of local and international public and private investment because by 2050 some 70 per cent of the world's population will be living in cities (UN-Habitat, 2016).

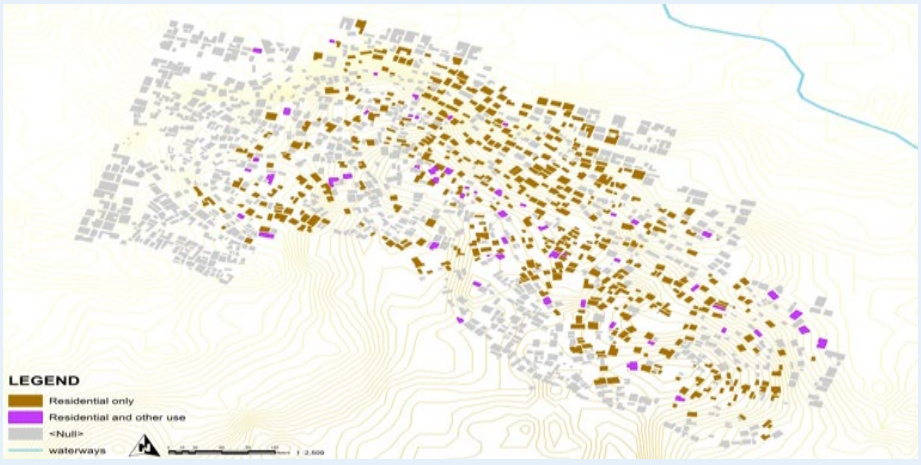
In Africa, two thirds of the projected total population of 2.5 billion will require urban services by 2063. Such urban basic services are in short supply and non-existing in some cities. Key development challenges that cities face include affordable housing, attractive real estate for new investors at competitive rates, jobs, transport within and between cities, health services, reliable supplies of clean water and electricity, sanitation, reduction of noise and other pollution, quality and affordable education, adequate recreation facilities, food security, telecommunications, and climate change mitigation and adaptation (UN-Habitat, 2016).

According to the United Nations Conference on Trade and Development (UNCTAD, 2017), the current annual investment gap in meeting investment needs in key Strategic Development Goals' sectors by 2030 in developing countries alone is USD 2.5 trillion. This calls for exploring new avenues of financing sustainable urban development at city level is aimed at pro-poor approaches as many of the new urban citizens are living there as a result of urbanisation. The trend is rural-urban migration and this class of migrants need to be integrated into

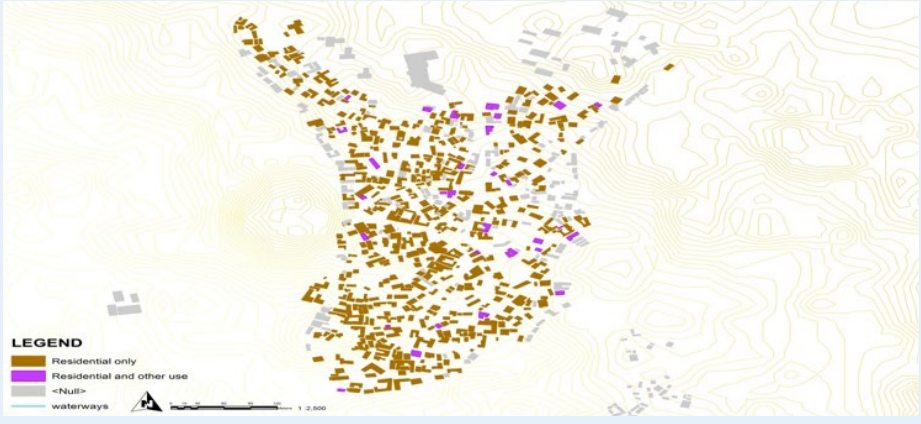
TABLE 15: MAIN USE OF THE HOUSE

Main use of the House	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Residential ONLY	739	96.7	619	94.1	515	91.2	1,873	94.26%
Residential and OTHER USE	25	3.3	39	5.9	50	8.8	114	5.74%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1,987**	**100%**

MAP 4: KILIMAHEWA MAIN USE OF THE HOUSE



MAP 5: KWIMBA MAIN USE OF THE HOUSE



MAP 6: UNGUJA MAIN USE OF THE HOUSE

the urban economy through intentional urban development strategies that aim at inclusive and resilient cities of the future.

5.2 OTHER USES OF THE HOUSE

To have a clear picture of the informal residential neighbourhood, respondents were asked to give other uses for their house. In most instances, informal settlements are known to be self-contained and self-sufficient. Walking is the most common form of transport and home-to-workplace proximity close. So, it is not surprising that Mwanza's informal settlements represent some kind of convenience that every settler in such areas looks to as a "near home environment". This setting results in community social solidarity and safe neighbourhoods.]

Mwanza's informal settlements have proved that social and public institutions (urban basic services), by way of thriving, can provide a range of public services. Accordingly, the other uses of these settlements are mainly commercial and focused on services. Small corner shops and other businesses (including kiosks, shop, ice cream, charcoal, butchery and chicken business) comprise 58 per cent, grocery and sweet shops 28 per cent, pre-school (6 per cent), aftercare (4 per cent), places of worship (3 per cent), and bottle stores and bars (1.3 per cent).

TABLE 16: OTHER USES OF THE HOUSE

Other Uses of the House	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Other business	8	32	21	53.8	21	42	87	57.6%
Grocery Shop/Tuck-shop	9	36	9	23.1	25	50	43	28.4%
Pre-school	4	16	3	7.7	2	4	9	5.96%
Aftercare	3	12	3	7.7	0	0	6	3.9%
Church/Places of Worship	1	4	1	2.6	2	4	4	2.64%
Bottle-store/Bar	0	0	2	5.1	0	0	2	1.30%
Total	**25**	**100**	**39**	**100**	**50**	**100**	**114**	**100%**

114 OUT OF 1,987 RESPONDENTS ANSWERED THIS QUESTION (1,873 WERE WITHOUT DATA).

5.3 ROOFING MATERIAL

Mwanza's informal settlements are mostly constructed of permanent roofing materials such as corrugated iron, zinc or asbestos (53 per cent), cement or concrete (36 per cent), as well as stone and brick (34 per cent). Few houses are made of temporal material such as cardboard, grass and thatch, plastic or wood (21 per cent). A few houses are constructed of mud (10 per cent).

On average, 89 per cent of the houses in the informal areas are made of permanent roofing materials. Considering the general material used in many informal settlements around the globe (scrap and temporal), unexpectedly, the house structure tends to be predominately permanent.

TABLE 17: CONSTRUCTION MATERIAL (ROOF)

Roofing Material	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Corrugated iron/zinc/asbestos sheet	365	24.2	396	37.6	290	35.5	1,051	52.89%
Cement block/concrete	358	23.7	176	16.7	176	21.5	710	35.73%
Stone/brick	338	22.4	191	18.1	151	18.5	680	34.22%
Wood	212	14.1	155	14.7	137	16.7	504	25.36%
Mud	116	7.7	75	7.1	8	1.0	199	10.02%
Cardboard	48	3.2	19	1.8	11	1.3	78	3.93%
Plastic	36	2.4	30	2.8	4	0.5	70	3.52%
Other	17	1.1	2	0.2	31	3.8	50	2.52%
Thatch/Grass	7	0.5	3	0.3	10	1.2	20	1.01%
Tile	11	0.7	6	0.6	0	0.0	17	0.86%
Total	1 508	100	1053	100	818	100	1 987	100%
Total	**675**	**100**	**566**	**100**	**483**	**100**	**1 987**	**100**

5.4 WALL MATERIAL

Material used to construct the walls of dwellings is another notable feature concerning the quality of construction and, at the same time, a measure of a household's poverty status. Evidence from the City Council indicates that there was a remarkable rise in the use of modern wall materials in 2012 compared to 2002. In 2012, 41.5 per cent of households in Mwanza City built their walls with cement bricks, followed by sundried bricks (34.8 per cent) and 19 per cent of dwelling-built walls with baked bricks. Only a tiny percentage of households used traditional materials such as mud and poles to build their walls while timber and iron together with grass accounted for 0.1 per cent each. (Mwanza City Socioeconomic profile, 2016).

Compared to the whole city, there is a slight difference in terms of roofing materials. Mwanza informal settlements are mostly constructed of permanent wall materials such as cement block/ concrete (74 per cent) and brick (44 per cent). Very few houses are made of temporal material such as cardboard, grass/thatch, plastic, wood (35 per cent) and mud (24 per cent). A few houses constructed of roof tiles were observed (2 per cent).

TABLE 18: CONSTRUCTION MATERIAL (WALL)

Roof Material	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Cement block/concrete	537	34.7	424	36.5	508	51.8	1,469	73.93%
Brick	460	29.7	258	22.2	156	51.8	874	43.99%
Mud	238	15.4	224	19.3	24	51.8	486	24.46%
Wood	131	8.5	109	9.4	125	51.8	365	18.37%
Corrugated iron/zinc/asbestos sheet	110	7.1	44	3.8	103	51.8	257	12.93%
Other	33	2.1	25	2.2	36	51.8	94	4.73%
Plastic	11	0.7	27	2.3	6	51.8	44	2.21%
Cardboard	9	0.6	24	2.1	3	51.8	36	1.81%
Thatch/Grass	5	0.3	14	1.2	16	51.8	35	1.76%
Tile	15	1.0	13	1.1	3	51.8	31	1.56%
Total	**1549**	**100**	**1162**	**100**	**980**	**100**	**1 987**	**100**

06

Basic Social Infrastructure details (Water, Sanitation and Energy)

This chapter outlines findings on households' access to basic infrastructure services, social services and quality of life services. In this study, only nominal access (existence) was examined. Effective access (works and is used) and quality of access (always available) were not examined.

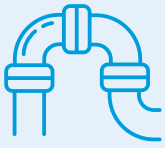
The dimensions to measure access to urban basic services include sources of water, distance to these sources, safe drinking water sources, existing types of toilets, distance to the toilet, and access to electricity.

6.1 WATER SOURCES FOR HOUSEHOLDS

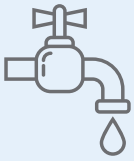
Access to safe and clean domestic water sources is always a major challenge and a deprivation to slum dwellers anywhere. This is also the case in Mwanza's informal settlements especially when considering the inaccessibility of the areas due to steep hills and large granite rock boulders. A large number of residents in these areas obtained domestic water from communal taps (30 per cent). However, neighbours, water vendors and household taps made up much of water supplies (45 per cent). Patches of households that still access water from unsafe sources such as lakes, illegal connections, shallow wells, streams and stagnant pools were also witnessed (4 per cent). Only a few houses had water taps (6 per cent).

In comparison to city-level coverage, access to water largely varies according to location type as well as quality of service. There is a spatial variation in terms of "nominal access" to water. According to the Mwanza City Socioeconomic Profile (2016), piped water was the main source of drinking water in the city (71.3 per cent). This was followed by public taps (18.7 per cent), protected shallow wells (3.5 per cent), and unprotected shallow wells (2.5 per cent). However, there was a small proportion of households which used boreholes, springs, and other sources such as surface water and rainwater harvesting.

SOURCES OF DRINKING WATER IN MWANZA CITY



71.3%
piped water



18.7%
public taps

3.5%
protect shallow wells

2.5%
unprotected shallow wells

TABLE 19: SOURCES OF WATER

Sources of Water	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Communal tap	315	41.2	227	34.5	53	9.4	595	29.94%
Water tanker	65	8.5	5	0.8	267	47.3	337	16.96%
Neighbor	125	16.4	139	21.1	25	4.4	289	14.54%
Water vendor	154	20.2	48	7.3	85	15.0	287	14.44%
Tap in your yard (front/back)	57	7.5	143	21.7	76	13.5	276	13.89%
Tap inside your house	16	2.1	68	10.3	26	4.6	110	5.54%
Illegal water connection	6	0.8	0	0.0	22	3.9	28	1.41%
Lake/River/stream	6	0.8	11	1.7	3	0.5	20	1.01%
Shallow well	13	1.7	3	0.5	0	0.0	16	0.81%
Dam/pool/stagnant water	5	0.7	7	1.1	1	0.2	13	0.65%
Borehole	2	0.3	5	0.8	2	0.4	9	0.45%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100%**

TABLE 20: WATER SUPPLY INTERRUPTIONS

Interruption in Water Supply	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Yes	470	61.5	333	50.6	295	52.2	1,098	55.26%
No	294	38.5	325	49.4	270	47.8	889	44.74%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100%**

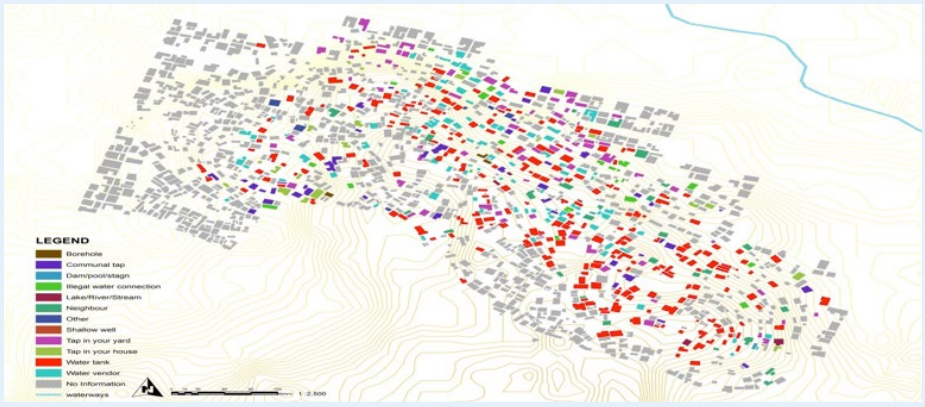
TABLE 21: LENGTH OF WATER SUPPLY INTERRUPTION

Length of Interruption	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
1 day	231	49.1	141	42.3	89	49.1	461	23.20%
Less than 1 day	76	16.2	81	24.3	98	16.2	255	12.83%
2 days	86	18.3	50	15.0	95	18.3	231	11.63%
More than 3 days	41	8.7	29	8.7	10	8.7	80	4.03%
3 days	36	7.7	32	9.6	3	7.7	71	3.57%
Total	**470**	**100**	**333**	**100**	**295**	**100**	**1 098**	**100%**

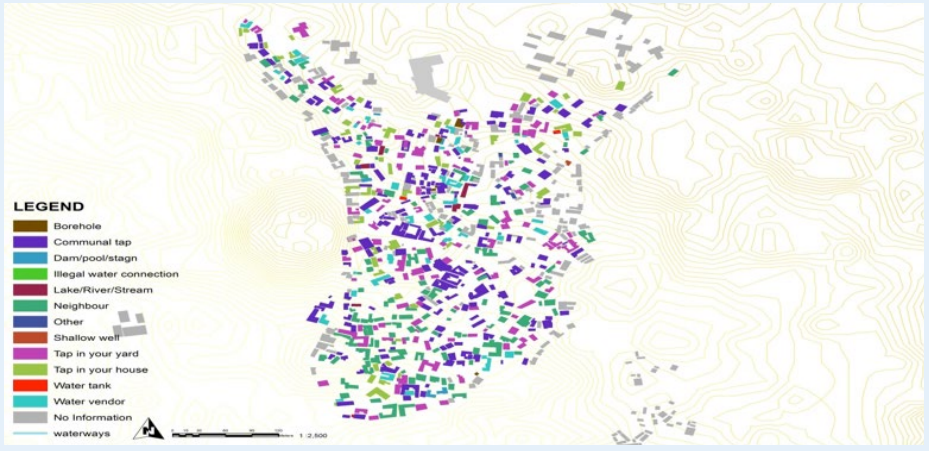
6.2 INTERRUPTION IN WATER SUPPLY (QUALITY ADJUSTED)

Even though there was high access to water services due to the use of mixed water sources, more than half (55 per cent) of the respondents reported that there were usually water supply interruptions resulting in shortages. However, the remainder reported that they did not experience interruptions in supply. This could be explained by the existence of optional water sources, hence mixed-use options were in constant supply.

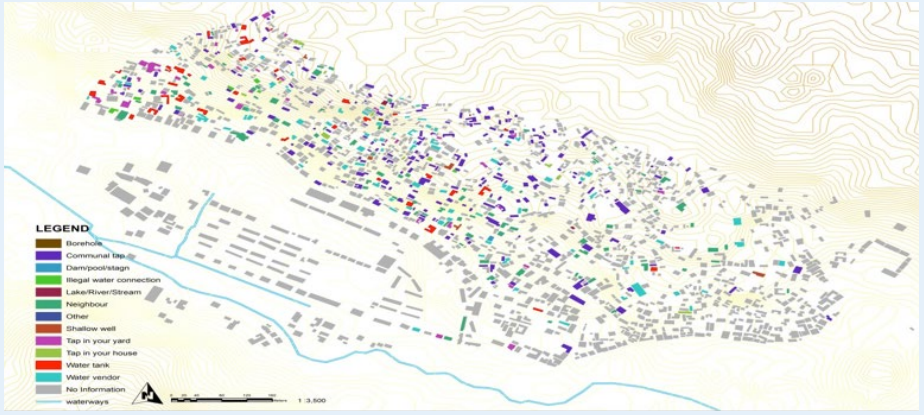
MAP 7: KILIMAHEWA - SOURCES OF WATER



MAP 8: KWIMBA-SOURCES OF WATER



MAP 9: UNGUJA-SOURCES OF WATER



6.3 LENGTH OF WATER INTERRUPTION

There was no variance in terms of water interruptions across all Mwanza's informal settlements. Interruptions usually occurred for one or two days (48 per cent). Interruptions for three days were only experienced by 4 per cent and for more days than that by 4 per cent. The main reason for such interruptions was that the common sources of water supply were unreliable and unimproved, hence unsafe methods of water supply were more prevalent.

6.4 DISTANCES TO WATER SOURCE

The maximum distance from any household to the nearest water point was 500 metres. According to the Tanzanian indicators on access to water, the average distance to any water source was 400 metres. The following factors indicate basic consideration in water source selection: availability, proximity and sustainability, namely sufficient quantity of water; whether treatment is needed and its feasibility, including the existence of any social, political or legal factors concerning the source.

In Mwanza's informal settlements, proximity to water supply sources was exceptionally good in that (76 per cent) walked for less than 200 metres to reach them and (14 per cent) had water taps inside the house. Those who stated that the nearest water supply source was 500m away were 6 per cent, while 2 per cent mentioned it was 1 km away. Only 1 per cent reported that the nearest water source was farther than 1 km (see table 22).

6.5 PERCEPTIONS OF SAFE DRINKING WATER

The indicator assesses the proportion of households storing drinking water in a way that protects its quality and prevents contamination, including those that obtain water from improved drinking water sources. The 2012 Population and Housing Census shows that access of safe drinking water in Mwanza Region was high (85.6 per cent). In contrast to the city-level perception of safe drinking water, there was no real differences in perception and reality (86 per cent as perception vs. 82 per cent from 2012 Census).

Furthermore, this study recommends that scientific tests be carried out regularly at the source and at the end-user level. This is because water contamination is usually at the source, during transport and at the end-user levels. These scientific checks should examine the chemical and biological contamination as this assessment was based on the physical characteristics of water only.

TABLE 22: DISTANCE TO WATER SOURCE

Distance to Water Source	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Less than 200m (less than 15minutes walk)	604	79.1	439	66.7	482	85.3	1,525	76.75%
Tap is in my house	79	10.3	130	19.8	62	11.0	271	13.64%
Between 200m and 500m (15 to 40 minutes' walk)	72	9.4	39	5.9	16	2.8	127	6.39%
Between 500m and 1km (40mins to 1 & half hours walk)	7	0.9	29	4.4	4	0.7	40	2.01%
More than 1 km (more than 1 & half hours walk)	2	0.3	21	3.2	1	0.2	24	1.21%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100%**

TABLE 23: SAFE DRINKING WATER

Safe Drinking water	Unguja	Kwimba	Kilimahewa	%	%	%	FREQ.	%
Yes	539	545	538	70.5	82.8	95.2	1,622	81.63%
No	225	113	27	29.5	17.2	4.8	365	18.37%
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1, 987**	**100%**

6.6 WILLINGNESS TO PAY FOR WATER AND SANITATION SERVICES

The baseline survey study also revealed a high willingness to pay for water and sanitation services at household level. In all the three informal neighbourhoods, 85 per cent households indicated willingness to pay. Willingness to pay for service charges is calculated by taking 5 per cent of the total expenses or income. The majority (35 per cent) indicated that they paid USD 1-2 (TSHs 2,000-5,000 monthly for water services.

These results, therefore, indicate that the majority can afford to pay for water and sanitation services. The high level of willingness to for these services in the informal areas implies that expansion of such services is possible. This would also ensure operation and maintenance of the water and sanitation utilities and, hence, sustainability of public services. It is, however, crucial to check the affordability of public services. This is determined by using the affordability index as a percentage of the household income that is spent on water.

6.7 TYPES OF TOILETS

Table 25 validates that the number of households using pour flush toilet equated to half the population in slum areas. It should be noted that the toilets were not connected to the formal sewer. This is a typical situation in all of Mwanza's informal settlements as they lie on hilly terrain, making it difficult to provide basic services.

However, many households still use traditional pit latrines (38 per cent). About 11 per cent use them with septic tanks. Pour flush with and without pit

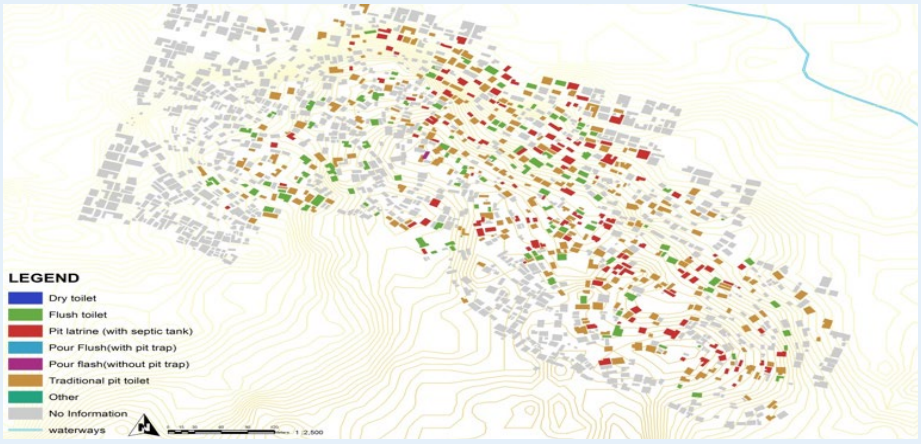
TABLE 24: WILLINGNESS TO PAY

Willingness to pay	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Yes	669	87.6	563	85.6	453	80.2	1,685	84.80%
No	46	6.0	53	8.1	105	18.6	204	10.27%
Connected to water & sewerage system	49	6.4	42	6.4	7	1.2	98	4.93%
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1,987**	**100%**

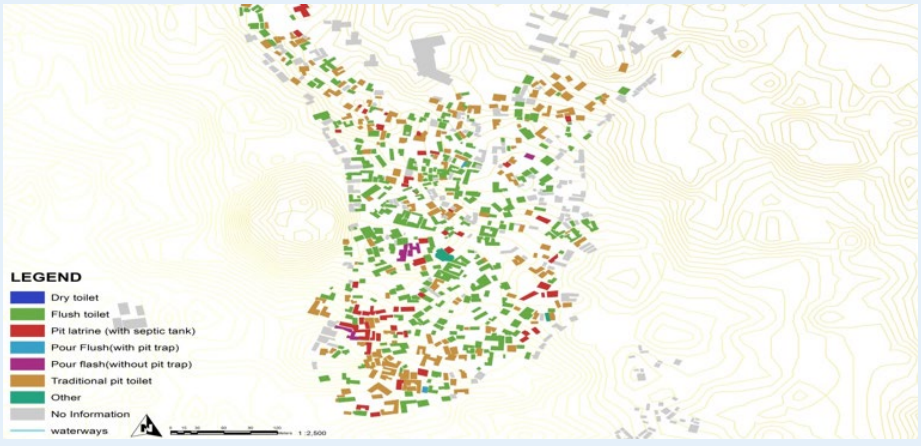
TABLE 25: TYPES OF TOILETS

Types of Toilets	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Pour flush (with pit trap)	502	65.7	359	54.6	139	24.6	1,000	50.33
Traditional pit toilet(without P-Trap)	228	29.8	230	35.0	291	51.5	749	37.70
Pit latrine (with septic tank)	31	4.1	60	9.1	134	23.7	225	11.32
Flush toilet	0	0.0	5	0.8	1	0.2	6	0.30
Other	1	0.1	2	0.3	0	0.0	3	0.15
Pour Flush(without pit trap)	0	0.0	2	0.3	0	0.0	2	0.10
Dry toilet (e.g. eco san, sky loo)	1	0.1	0	0.0	0	0.0	1	0.05
Bush	1	0.1	0	0.0	0	0.0	1	0.05
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100**

MAP 10: TYPES OF TOILETS IN KILIMAHEWA



MAP 11: TYPES OF TOILETS IN KWIMBA



MAP 12: TYPES OF TOILETS IN UNGUJA

traps are still in use in some households while bush, sky toilets, flying toilets and dry toilets are also still being used by less than 1 per cent of the households. These results indicate a huge potential for implementation of waterborne non-conventional sewerage systems in the city's informal settlements as waterborne toilets are most common.

6.8 HOUSEHOLDS WITH A TOILET INDOORS

Access to basic urban services in informal settlements the world over is always a daunting factor, and Mwanza's are not an exception. Although 66 per cent of the total slum population indicated that they had toilets in the house, the common type of facility in use was still at the bottom of the sanitation ladder. Again, most households still used shared sanitation facilities as about 33 per cent indicated that they did not have toilets indoors. Typically, households without a toilet indoors share one with other households.

TABLE 26: HOUSEHOLDS WITH TOILET INSIDE THE HOUSE

Households with toilet in the house	Frequency	Percentage
Yes	1,323	66.58
No	664	33.42
Total	**1,987**	**100**

TABLE 27: SAFETY VIZ-A-VIZ USE OF TOILETS AT NIGHT

Safety viz-a-viz use of toilets at night	Frequency	Percentage
Yes	1,548	77.91
No	439	22.09
Total	**1,987**	**100**

6.9 SAFETY WHEN USING THE TOILET AT NIGHT

Considering that almost a third of the total population in Mwanza's informal settlements use shared toilets, it was prudent to check further on the safety of their use at night. Typically, in an informal settlement, the shared toilet system proved to be safe for use at night as 78 per cent indicated they felt secure. Those who felt unsafe were usually women, children, young girls and the elderly.

6.10 DISTANCE BETWEEN THE HOUSES SHARED TOILET FACILITIES

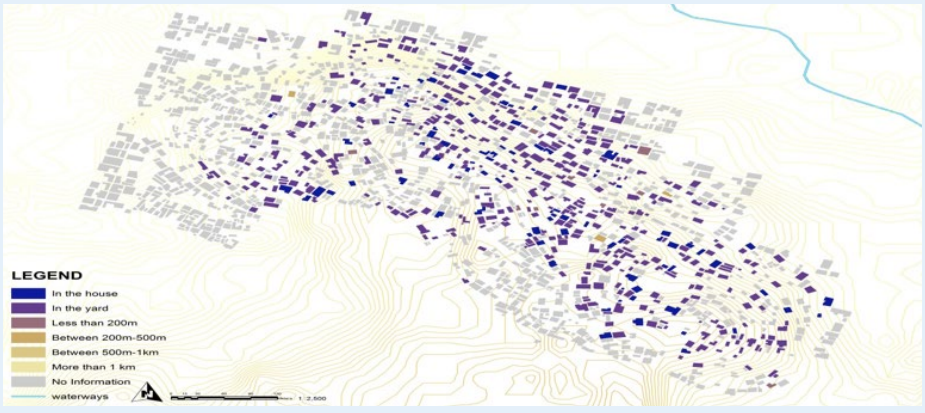
This indicator assesses the proportion of households with close access (no more than 50m from their dwelling) to an improved sanitation facility, an essential precondition for the prevention of open defecation. The maximum distance of 50m is based on Sphere's Excreta disposal Standard 2: Appropriate and adequate toilet facilities.

To ascertain access to improved sanitation, the determinant is that only households with a latrine less than 50m from their dwelling and using an improved sanitation facility meet this categorization. The survey further asked questions regarding the distance between the house and the toilet used by the household. Across all informal

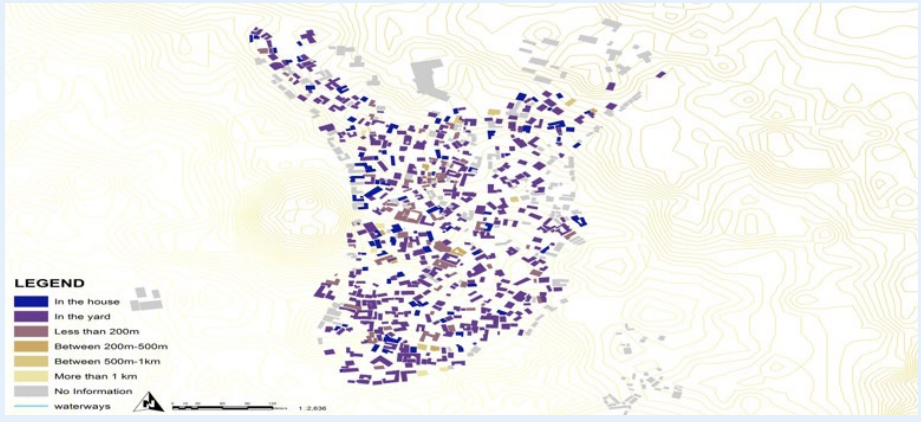
TABLE 28: DISTANCE BETWEEN THE HOUSES TOILET FACILITIES

Distance between the house shared toilet facilities	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
In the yard of this house	460	60.2	470	71.4	464	82.1	1,394	70.16
Less than 200m (less than 5minutes walk)	235	30.8	73	11.1	10	1.8	318	16.00
In the house	60	7.9	96	14.6	89	15.8	245	12.33
Between 200m and 500m(5 to 10 minutes walk)	9	1.2	7	1.1	2	0.4	18	0.91
More than 1 km (more than 15 minutes walk)	0	0.0	7	1.1	0	0.0	7	0.35
Between 500m and 1km (10 to 15 minutes walk)	0	0.0	5	0.8	0	0.0	5	0.25
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100**

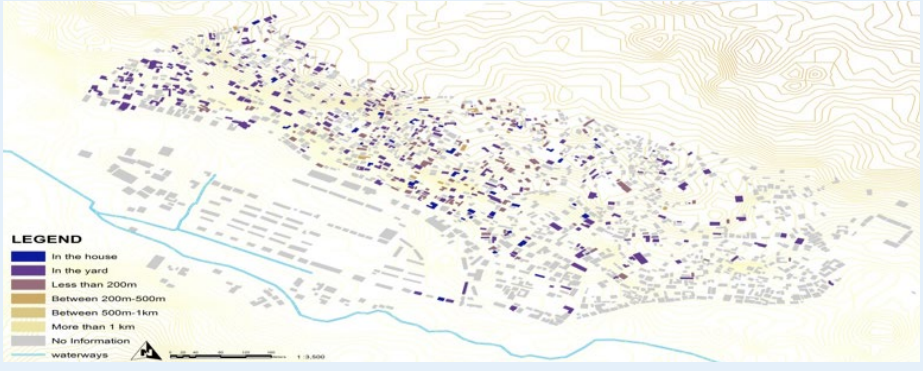
MAP 13: DISTANCE BETWEEN THE HOUSE AND TOILET FACILITY-KILIMAHEWA



MAP 14: DISTANCE BETWEEN THE HOUSE AND TOILET FACILITY - KWIMBA



MAP 15: DISTANCE BETWEEN THE HOUSE AND TOILET FACILITY-UNGUJA



settlements, only 12 per cent had toilets in the house (see table 28). A significant number had a toilet on the premises in which they lived (70 per cent), which is a good indicator of "access". However, most toilets were unimproved and inappropriate sanitation facilities.

6.11 ENERGY SOURCE FOR LIGHTING

Use of electricity was common (55 per cent of the entire population) in the surveyed informal areas. There were a wide range of other sources of energy used for lighting: candles (15 per cent), paraffin (11 per cent), solar (5 per cent) and wood (2 per cent). Coal and gas were used by less than 1 per cent. Few households reported that they did not have an alternative source of energy for lighting (11 per cent). The reasons for not having any source of energy for lighting were related to household poverty.

TABLE 29: SOURCES OF ENERGY FOR LIGHTING

Source of energy for lighting	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Electricity	338	44.2	359	54.6	393	69.6	1,090	54.86
Candles	94	12.3	94	14.3	105	18.6	293	14.75
None	160	20.9	60	9.1	1	0.2	221	11.12
Paraffin	87	11.4	84	12.8	48	8.5	219	11.02
Solar	59	7.7	40	6.1	9	1.6	108	5.44
Wood	18	2.4	11	1.7	4	0.7	33	1.66
Coal	6	0.8	6	0.9	4	0.7	16	0.81
Gas	2	0.3	2	0.3	1	0.2	5	0.25
Other	0	0.0	2	0.3	0	0.0	2	0.10
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1,987**	**100**

TABLE 30: SOURCES OF ENERGY FOR COOKING

Source of energy for cooking	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Charcoal	487	63.7	370	56.2	416	73.6	1,273	64.07
Fire wood	100	13.1	142	21.6	63	11.2	305	15.35
None	97	12.7	75	11.4	1	0.2	173	8.71
Electricity	17	2.2	35	5.3	40	7.1	92	4.63
Gas	36	4.7	22	3.3	24	4.2	82	4.13
Paraffin	13	1.7	4	0.6	9	1.6	26	1.31
Candles	4	0.5	7	1.1	10	1.8	21	1.06
Solar	6	0.8	2	0.3	0	0.0	8	0.40
Other	3	0.4	1	0.2	2	0.4	6	0.30
Animal dung	1	0.1	0	0.0	0	0.0	1	0.05
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1,987**	**100**

6.12 SOURCE OF ENERGY FOR COOKING

In all neighbourhoods surveyed the main source of energy for cooking was charcoal, which was used by 64 per cent of the total population. A significant number used firewood (15 per cent) for cooking, whilst 5 per cent used electricity and 4 per cent used gas. This scenario is a clear indication that most households in the city's informal settlements are susceptible to indoor pollution because clean sources of energy are not commonly used. Since a large proportion still used charcoal for cooking, the city government should consider awareness creation regarding indoor pollution and strategise measures to reduce the problem.

In conclusion, this section has presented an analysis of minimal access to urban basic services which include water, sanitation and energy. The analysis gives evidence that access to services in Mwanza's informal settlements was below minimum levels. This calls for Tanzania's national and local governments, as well as responsible utilities, to put in more investment that considers the urban poor and be guided by pro-poor approaches to urban development. This will result in sustainable, inclusive, equitable, safe, resilient, connected and livable cities.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

07

Employment and Mobility

Sustainable mobility is travel through integrated, socially inclusive and environmentally friendly transport options, including and integrating walking, cycling and wheeling. By enabling citizens and organizations to access goods, services and information in a sustainable manner, Eco Mobility (which represents sustainable modes of transport) support citizens' quality of life, increase travel choices and promote social cohesion. Sustainable transport modes also save time, money and energy. Once there is a more efficient way to commute, this creates synergies—especially economic growth—through connectivity as this links people to opportunities outside their locality. Improving the economic and social dividends from urbanisation will be critical as better developed cities could transform Africa's economies (Makhtar Diop, World Bank Vice President for Africa).

This section explores the economic base of Mwanza's informal settlements as well as their modes of transport. The section seeks to answer questions such as the number of people employed formally and informally, travel time to work, cost of transport, transport modes and travel time.

7.1 FULL-TIME EMPLOYEES IN THE HOUSEHOLD

Table 31 examines the absolute numbers of people in full-time employment in Mwanza's informal settlements. A large proportion of the economically active population indicated that they were not employed full time (72 per cent), and 24 per cent of households had at least one family member employed on a full-time basis (see table 31). These statistics indicate that the majority were either self-employed or were homemakers.

TABLE 31: FULL TIME-EMPLOYEES PER HOUSEHOLD

Full time-employees per household	Freq.	%
One-person full timer	224	23.9
Two people full timers	34	3.6
Three people full timers	4	0.4
Four people full timers	4	0.4
Five people full timers	1	0.2
None	671	71.5
Total	**338**	**100**

7.2 PART-TIME EMPLOYEES PER HOUSEHOLD

Table 32 represents statistics about part-time employees in the informal settlements. Most residents were not part-time workers (76.4 per cent) but, at the same time, only 23 per cent said they had at least one family member employed part time. These statistics clearly demonstrates that most of the economically active population were essentially unemployed.

TABLE 32: PART-TIME EMPLOYEES PER HOUSEHOLD

Number of part-time employees per household	Freq.	%
One	227	23.4
Two	2	0.2
Three	0	-
Four	0	-
Five	0	-
None	739	76.4
Total	**968**	**100**

7.3 SELF-EMPLOYED HOUSEHOLD MEMBERS

Table 33 summarizes findings on the self-employed. More than half (56 per cent) indicated that at least one person on the household was self-employed whilst 10 per cent indicated that two household members fell into this category. At the same time, almost a third (32 per cent) indicated that none of the family members was self-employed. Although a large number of residents were self-employed, the actual numbers of the unemployed was quite high.

TABLE 33: SELF-EMPLOYED HOUSEHOLD MEMBERS

Number of self-employed household members	Freq.	%
One	1102	55.5
Two	205	10.3
Three	25	1.3
Four	7	0.4
Five	2	0.1
None	638	32.1
Total	**1 987**	**100**

Table 33 shows that the unemployment rate for current economic activities performed by city residents was slightly higher when compared with the 5.4 per cent at city level (Mwanza City Council; Socioeconomic Profile, 2016). Small variations were also observed on the employment status of self-employed informal residents and those persons who were not engaged in part-time and full-time employment. This means that there was no significant difference of involvement in economic activities according to the type of employment.

As a result, there was a small difference of unemployment levels among the different typologies of employment categories within Mwanza city's informal residents as revealed by the survey findings.

7.4 TRAVEL TIME TO WORK

The objective of this part of the report is to investigate travel time variability and reliability in relation to informal settlements dwellers and work places. Most of the respondents (73 per cent) indicated that it took them less than 30 minutes to get to their workplace while about a quarter (24 per cent) stated that it took about 30

TABLE 34: TRAVEL TIME TO WORK

Travel time to work	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Less than 30 minutes	543	71.1	489	74.3	415	73.5	1,447	72.82
Half an hour to 1 hour	212	27.7	141	21.4	128	22.7	481	24.21
More than 1 hour but less than 2 hours	3	0.4	13	2.0	18	3.2	34	1.71
More than 3 hours	6	0.8	3	0.5	4	0.7	13	0.65
2 hours to 3 hours	0	0.0	12	1.8	0	0.0	12	0.60
Total	**764**	**100**	**658**	**100**	**565**		**1 ,987**	**100**

minutes to an hour. An insignificant number mentioned that it took 1 to 2 hours to get to work (1.8 per cent). The results indicate that there was no significant difference in terms of travel time to work among different suburbs surveyed (see table 34).

7.5 MODES OF TRANSPORT

Physical accessibility was a major problem in Mwanza's informal settlements. As mentioned elsewhere in this report, this was due to the city's topography. To access public transport, most of the slum population walked downhill to the nearest bus station to get the minibus taxis known as Dala Dala (58 per cent), whilst quite a high number usually walked (28 per cent). Few, however, used motorbikes, car sharing, bicycles or taxis (8 per cent).

Note: The modal split is not a true reflection of the actual situation and daily life of people living in the hills surrounding Mwanza. Public transport is only accessible at the main road at the foot of the hills. The everyday life of most Mwanza residents in informal settlements entails walking on dangerous and unpaved footpaths up and down hills.

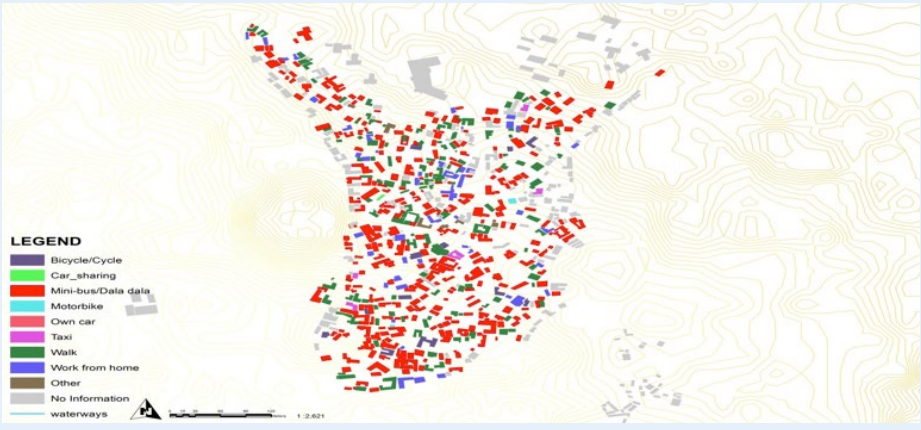
In conclusion, even though the use of public transport was quite high in the city's informal settlements, access to such services was still low. This is because the council had not yet reached the informal settlements in terms of service provision, and 75 per cent of Mwanza city residents lived in the surrounding hills where there was a great need for physical and social transformation. The hills are

TABLE 35: MODAL SPLIT

Modal Spilt	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
Mini-bus/Dala Dala	403	52.7	400	60.8	343	60.7	1,146	57.67
Walk	293	38.4	150	22.8	118	20.9	561	28.23
Work from home	30	3.9	73	11.1	21	3.7	124	6.24
Other	15	2.0	7	1.1	28	5.0	50	2.52
Car sharing	1	0.1	1	0.2	41	7.3	43	2.16
Bicycle/Cycle	9	1.2	19	2.9	3	0.5	31	1.56
Motorbike	6	0.8	3	0.5	7	1.2	16	0.81
Own car	6	0.8	1	0.2	2	0.4	9	0.45
Taxi	1	0.1	4	0.6	2	0.4	7	-
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1,987**	**100**

MAP 16: MODAL SPLIT - KILIMAHEWA

MAP 17: MODAL SPLIT - KWIMBA



MAP 18: MODAL SPLIT - UNGUJA

inaccessible by the conventional modes of transport (minibus, cars, bicycle and so on) because of lack of infrastructure for such modes. Residents who live in the hills are dropped off at the main road at the foothills and they walk up to their homes, mostly on unimproved and winding footpaths. Other forms and modes of transport such as cable cars and outdoor escalators are an option for the city's informal settlements.

At the same time, there is a dire need for improving the quality of life and living conditions in these settlements. There is a huge potential to make Mwanza city a model for sustainable urban development through considering urban renewal programmes targeting the poorest neighbourhoods as part of the transformation. Practically, there is need for social inclusion through urban planning and national urban policies as well as devising new ways of financing urban development.

08

Households' Economic Profile

This section explores the economic base in three informal neighbourhoods of Mwanza, Tanzania. It seeks to answer questions regarding monthly household income and monthly household expenses for food, electricity, water, rentals, transport, clothing, school fees, cellphone, charcoal and miscellaneous expenses. To solicit such information, an open-ended questionnaire was administered to residents of informal settlements seeking answers to research questions regarding income and expenditure.

8.1 HOUSEHOLD INCOME

Table 36 presents the landscape of the income levels of residents of the city's informal settlements. As expected, poor households, especially in informal settlements, had low incomes. A total 403 respondents indicated not having a household income (20%). At the same time, the majority falls within the range of USD 90 (TSh 1-200,000). This scenario indicates that only 24 per cent of the city's active population are employed formally (see table 31).

This should be scrutinised and verified further because it is always difficult to establish income levels as well as the employment status of people living in informal settlements as they are always expecting external help, hence the information given regarding these variables is always distorted. Only 22

TABLE 36: HOUSEHOLD INCOME

Household Income	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
No income	137	18	103	16	163	29	403	20.28
TSH1 - TSH 80,000	142	19	160	24	31	5	333	16.76
TSH 100,001 - TSH 150,000	128	17	96	15	94	17	318	16.00
TSH 80,001 - TSH 100,000	96	13	98	15	47	8	241	12.13
TSH 150,001 - TSH 200,000	102	13	79	12	57	10	238	11.98
TSH 200,001 - TSH 250,000	62	8	44	7	37	7	143	7.20
TSH 250,001 - TSH 300,000	54	7	39	6	42	7	135	6.79
TSH 300,001 - TSH 350,000	19	2	18	3	29	5	66	3.32
TSH 350,001 - TSH 400,000	10	1	13	2	25	4	48	2.42
TSH 450,001 - TSH 500,000	7	1	2	0	18	3	27	1.36
TSH 400,001 - TSH 450,000	4	1	5	1	12	2	21	1.06
More than TSH 500,000	3	0	1	0	10	2	14	0.70
Total	**764**	**100**	**658**	**100**	**565**	**100**	**1,987**	**100**

per cent indicated that they had income levels of between USD 90 and 223 (TSh 200,000 and 500,000)

8.2 HOUSEHOLD MONTHLY EXPENSES FOR FOOD

Table 37 shows monthly household expenditure on food. Compared to the income levels, Mwanza's informal settlements' households spend more on food than their actual monthly earnings. About a quarter indicated that they spent between USD 45 and 90 (TSh 100,000 and 200,000) monthly on food.

As expected, poor households tend to spend more than they actually earn. This is because respondents' perceptions about their income and expenditure can be unreliable. Estimates vary depending on seasonal variation in economic activities, type of assets owned, households' cash flow, in-kind payments, and remittances. Most households in Mwanza's informal settlements fall in the higher expenditure categories as shown in table 37.

8.3 HOUSEHOLD MONTHLY EXPENSES FOR ELECTRICITY

Table 38 shows households' expenses for electricity. It is clear that little income is spent on this commodity as 58 per cent indicated that they did not have expenses. A quarter of the households stated that they paid USD 2.25 to 4.50 (TSh 5,000 to10,000) monthly, and 11 per cent use USD 1.13 to 2.25 (TSh 2,000 to 5,000) of their income for electricity bills. It should be noted that, though the majority (58 per cent) indicated that they did not have to pay for electricity, about 55 per cent said they used electricity in their homes. This imbalance could be due either to illegal connections, the use of alternative energy sources, or both.

TABLE 37: HOUSEHOLD MONTHLY EXPENSES FOR FOOD

Household monthly expenses for Food	Frequency	Percentage
up to 10,000	73	3.67
10,000 - 20,000	79	3.98
20,000 - 30,000	49	2.47
30,000 - 40,000	33	1.66
40,000 - 50,000	130	6.54
50,000 - 60,000	98	4.93
60,000 - 70,000	74	3.72
70,000 - 80,000	49	2.47
80,000 - 100,000	219	11.02
100,000 - 200,000	415	20.89
200,000 - 500,000	74	3.72
500,000+	5	0.25
None	231	11.63
No information	458	23.05
Total	**1,987**	**100**

TABLE 38: HOUSEHOLD MONTHLY EXPENSES FOR ELECTRICITY

Household monthly expenses for Electricity	Frequency	Percentage
up to 2,000	6	0.3
2,000 - 5,000	215	10.8
5,000 - 10,000	440	22.1
10,000 - 20,000	137	6.9
20,000 - 50,000	38	1.9
50,000 - 100,000	6	0.3
100,000+	3	0.2
None	1,142	57.5
Total	**1,987**	**100**

8.4 HOUSEHOLD MONTHLY EXPENSES FOR WATER

Having adequate and safe drinking water in informal settlements is a major problem in most emerging countries. Residents of such settlements rely on unimproved water sources such as vendor-provided water, carts carrying small tanks or drums, bottled water (if the secondary source used by the household for cooking and personal hygiene is unimproved), tanker truck or surface water, and other improved sources of water such as in relatively affluent homes.

TABLE 39: HOUSEHOLD MONTHLY EXPENSES FOR WATER

Household monthly expenses for water	Frequency	Percentage (%)
up to 2,000	490	25
2,000-5,000	703	35
5,000-10,000	184	9
10,000-20,000	78	4
20,000-50,000	43	2
50,000-100,000	12	1
100,000+	3	0
None	474	24
Total	**1,987**	**100**

8.5 HOUSEHOLD MONTHLY EXPENSES FOR RENT

Mwanza's informal settlements have a high number of homeowners (46 per cent). This could explain why only 13 per cent paid a monthly rental of USD 4.50 to 9 (TSh 10,000 to 20,000), while 72 per cent indicated that they did not have rental expenses. Only 1.5 per cent indicated paying between USD 22 and 44 (TSh 55,000and 110,000) monthly. The rest pays less than USD 1 up to USD 4.4 (TSh 2,500 to 10,000) per month.

8.6 HOUSEHOLD MONTHLY EXPENSES FOR TRANSPORT

The cost of public services for the poor is always high. In Mwanza's informal settlements, the greatest number of households (26 per cent) fell in the higher category of expenses between USD 9 and 22.50 (TSh 20,000 and 50,000). A total 63 per cent indicated that they did not have transport expenditure (see table 41). This is explained by the proximity to the city centre and places of work, as opposed those who stay in the city's surrounding hills.

8.7 HOUSEHOLD MONTHLY EXPENSES FOR CLOTHING

As is usually the case in informal settlements around the world, about 83 per cent of the respondents in Mwansa informal settlements indicated that their households never had expenses for clothing. Only 9 per cent indicated USD9 to 22.50 (TSh 20,000–50,000) per month as expense for clothing. This could be explained by the fact that many of the households use barter as a form of trade.

TABLE 40: HOUSEHOLD MONTHLY EXPENSES FOR RENT

Household monthly expenses for rent	Frequency	Percentage (%)
up to 2,000	11	0.6
2,000-5,000	12	0.6
5,000-10,000	68	3.4
10,000-20,000	265	13.3
20,000-50,000	159	8
50,000-100,000	18	0.9
100,000+	11	0.6
None	1443	72.6
Total	**1 987**	**100**

TABLE 41: HOUSEHOLD MONTHLY EXPENSES FOR TRANSPORT

Household monthly expenses for transport	Frequency	Percentage (%)
up to 2,000	12	0.6
2,000-5,000	33	1.7
5,000-10,000	48	2.4
10,000-20,000	79	4
20,000-50,000	525	26.4
50,000-100,000	39	2
100,000+	8	0.4
None	1243	62.6
Total	**1,987**	**100**

TABLE 42: HOUSEHOLD MONTHLY EXPENSES FOR TRANSPORT

Household monthly expenses for clothing	Frequency	Percentage (%)
up to 2,000	6	0.3
2,000-5,000	18	0.9
5,000-10,000	43	2.2
10,000-20,000	63	3.2
20,000-50,000	175	8.8
50,000-100,000	29	1.5
100,000+	8	0.4
None	1,645	82.8
Total	**1 987**	**100**

8.8 HOUSEHOLD MONTHLY EXPENSES FOR EDUCATION FEES

Education is a basic right of every Tanzanian child of school going age (7 to13). To render this possible, the Government introduced universal primary education in 1974, making such education compulsory and setting out to make enrolment increase possible.

Table 43 is represents household expense for education. A large proportion (89 per cent) did not pay school fees. This is because primary education is free in Tanzania. However, further research is needed to establish how much is spent on secondary and tertiary education.

8.9 HOUSEHOLD MONTHLY EXPENSES FOR CELLPHONE

Mobile phone penetration in Tanzania cities is remarkable. In all the informal neighbourhoods surveyed, at least one family or household member owns a mobile phone. Even though 56 per cent of the households indicted zero expenses in terms of cellphone usage, those which account for their cellphone expenses was in the low expense range of USD 2.25 to 2.24 and USD 2.24 to 4.50 (TSh 2,000 to 5,000 and 5,000 to 10,000).

8.10 HOUSEHOLD MONTHLY EXPENSES FOR FIREWOOD, CHARCOAL

Household expenses in terms of energy use are mostly unavoidable in an urban setting. Table 45 shows household expenses for charcoal and firewood. An average of 36 per cent of households tended to fall in the higher

TABLE 43: HOUSEHOLD MONTHLY EXPENSES FOR EDUCATION FEES

Household monthly expenses for education fees	Frequency	Percentage (%)
up to 2,000	7	0.4
2,000-5,000	22	1.1
5,000-10,000	28	1.4
10,000-20,000	48	2.4
20,000-50,000	62	3.1
50,000-100,000	26	1.3
100,000+	24	1.2
None	1,770	89.1
Total	**1,987**	**100**

TABLE 44: HOUSEHOLD MONTHLY EXPENSES FOR CELLPHONES

Household monthly expenses for cellphone	Frequency	Percentage (%)
up to 2,000	49	2.5
2,000-5,000	267	13.4
5,000-10,000	232	11.7
10,000-20,000	199	10
20,000-50,000	96	4.8
50,000-100,000	11	0.6
100,000+	16	0.8
None	1,117	56.2
Total	**1,987**	**100**

TABLE 45: HOUSEHOLD MONTHLY EXPENSES FOR FIREWOOD/CHARCOAL

Household monthly expenses for firewood/ charcoal	Frequency	Percentage (%)
up to 2,000	87	4.4
2,000-5,000	10	0.5
5,000-10,000	56	2.8
10,000-20,000	206	10.4
20,000-50,000	715	36
50,000-100,000	38	1.9
100,000+	8	0.4
None	894	45
Total	**1,987**	**100**

expense category of (USD 9 to 22.50) (TSh 20,000 to 50,000. A significant number (45 per cent) of the households indicated not having expenses related to charcoal and firewood. This could be explained in view of the informal neighbourhoods in forested areas, which is likely attracting illegal logging.

In conclusion, the LVWATSAN project aims to make hygienic faecal sludge management services accessible and affordable to the urban poor through interventions that make the sanitation sector more sustainable, competitive and dynamic. The main reason for considering income and expenditure is to make an assessment of affordability of urban basic services. When affordability is determined using the affordability index as a percentage of the household income that is spent on water, it was found that on average, 35 per cent of the households surveyed spent an average of between USD 0.9 and 2.25 (TSh 2,000 and 5,000) on water per month. This displays that urban basic services are affordable to residents of Mwanza's informal settlements as the amount indicated is more than 5 per cent of the indicated household incomes.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

09

Grants and Subsidies, Disasters and Risks

Related to employment and household expenses is the issue of social welfare grants: different Government grants that are received in the informal settlements. This section investigates the social welfare support from the Government and mainly focuses on social welfare services. At the same time, disasters and risks experienced in the informal areas are discussed.

9.1 HOUSING SUBSIDY

In the households surveyed, 94 per cent indicated that they had never received a housing subsidy from the Council. Considering this, the Mwanza City Councilshould study other cooperative financing options for housing; community-based, workplace-based and self-help options; those of limited objective, mutual ownership, multi-mortgage, and other options.

TABLE 46: HOUSING SUBSIDY FROM THE GOVERNMENT

Housing Subsidy	Frequency	Percentage (%)
No	1,871	94.16%
Yes	116	5.84%
Total	**1 987**	**100**

Devising strategies to provide affordable and adequate housing for all must remain one of the top priorities for national governments, especially in Africa with its 881 million people. The study found out that 94 per cent of the households were neither on a housing waiting list nor housing subsidy. Only 6 per cent were reported to be on the housing waiting list. This predicament is typical of slum areas the world over.

9.2 GOVERNMENT GRANTS

Government social welfare support is not available in Tanzania. A total 1,932 out of 1,987 (97 per cent) respondents indicated not having received any Government grants. Senior citizens made up the biggest percentage of grants received (2 per cent). The disabled accounted for 0.7 per cent, and people receiving child support were 0.4 per cent of the enumerated households. The lowest percentages were shared among social relief and other minor types of grants with less than 1 per cent when added up.

TABLE 47: TYPOLOGIES OF GRANTS FROM THE GOVERNMENT

Types of grants received from the Government	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	(%)
None	752	97.5	615	91.2	565	98.9	1,932	97.23
Old age pension	12	1.6	33	4.9	1	0.2	46	2.32
Disability grant	3	0.4	10	1.5	2	0.4	15	0.75
Child support grant	96	13	98	15	47	8	241	12.13
(linked to a child)	2	0.3	7	1.0	0	0.0	9	0.45
Social relief	1	0.1	1	0.1	3	0.5	5	0.25
Foster care grant	1	0.1	3	0.4	0	0.0	4	0.20
Grant in aid	0	0.0	3	0.4	0	0.0	3	0.15
Care dependency grant	**0**	**0.0**	**2**	**0.3**	**0**	**0.0**	**2**	**0.10**
TOTAL	**771**	**100**	**674**	**100**	**571**	**100**	**1 987**	**100**

TABLE 48: DISASTERS AND RISKS

Disasters and Risks	Frequency	Percentage (%)
None	1,939	97.58
Fire	31	1.56
Flooding	15	0.75
Eviction	3	0.15
Community violence	3	0.15
Total	**1 987**	**100**

9.3 DISASTERS AND RISKS

Like any other slum in the world, informal settlements are vulnerable to different disasters and risks. Throughout its existence, Mwanza settlement has not experienced any disasters and risks such as fires and community violence, except the risk of cholera and typhoid during rainy seasons. The most dominant risk is of cholera outbreaks, which has come to be an annual rainy season occurrence in the community.

From all the surveyed families, 98 per cent had never experienced any disasters (see table 48). In this situation, there is clearly a great need for cholera awareness raising and advocacy, including preparation and adapting mitigation measures, since outbreaks are a perennial occurrence.

While giving social welfare support is one characteristic of many informal settlements worldwide, Mwanza has proved that this conception is not universally applicable. The concept of grants and subsidies has not been a priority for the city's urban poor . This can be related to fact that the people who have settled in its informal settlements are not necessarily poor as most of them live in permanent structures (74 per cent); at the same time the city's unemployment rate stood at 4.8 per cent (Mwanza City Socioeconomic Profile, 2016).

10

Access to Urban Basic Services

This section focuses on households' access to urban basic infrastructure services such as streetlights, solid waste management and health services. One of the purposes of this study was to conduct an inventory of the basic infrastructure services from a gender perspective, especially with regards to women and girls, and to evaluate if the context in which girls and women live–exclusively in the home– is suitable for their needs and conducive to those of women: privacy, hygiene and safety.

This chapter analyses the existence of facilities needed as basic infrastructure in one type of environment mostly frequented by households, especially girls and women at home.

10.1 LIMITED INFRASTRUCTURE IN INFORMAL SETTLEMENTS: NO STREETLIGHTS

There is not much attention given to provision of public services in Mwanza's informal settlements, regardless of being the home of 75 per cent of its residents. According to the respondents, regardless of the location 94 per cent indicated not having streetlights. It should be noted that public lighting is one of the parameters of safety among others (Openness, Visibility, Crowd, Security, Walkpath, Availability of Public Transport, Gender Diversity and Feeling, Safetipin, 2016). These results are a clear indication that improving public lighting will have an impact on improving living conditions and physical safety.

TABLE 49: PRESENCE OF STREET LIGHTS

Have street lights	Unguja	%	Kwimba	%	Kilimahewa	%	FREQ.	%
No	744	97.4	567	86.2	550	97.3	1,861	93.66
Yes	16	2.1	89	13.5	12	2.1	117	5.89
Yes – but not working	4	0.5	2	0.3	3	0.5	9	0.45
TOTAL	**764**	**100**	**658**	**100**	**565**	**100**	**1 987**	**100**

10.2 NONEXISTENCE OF SOLID WASTE MANAGEMENT SYSTEM

Solid waste management entails a number of people living in settlements with a functional solid waste management system or removal services. Functionality is a part of settlements being reasonably clean and free of uncollected waste; the waste being removed from the settlement at least twice per week and the absence of any major risk of solid waste in the target area polluting or causing other harm to the environment. In general, the solid waste management indicator assesses the proportion of households who dispose of their waste in a way that does not threaten their or other households' health arising from, for example, the breeding of flies and rodents or the polluting of water sources.

Management of waste is one typical challenge in informal settlements. Taking the sample as a whole, less than half of the informal settlement households had access to formal waste collection services from the municipality (39 per cent). Table 50 indicates that 48 per cent used unsustainable ways of waste disposal, which include dumping and throwing. However, there is some effort to manage waste through community waste collectors (15 per cent), individual waste pickers (7 per cent) as well as private organizations, which contribute 4 per cent to the total waste management cycle.

Given such a case there is a need for total sanitation management in Mwanza as some of the facets (solid waste and faecal management) have been totally ignored. This will enhance the quality of life and living conditions in informal settlements.

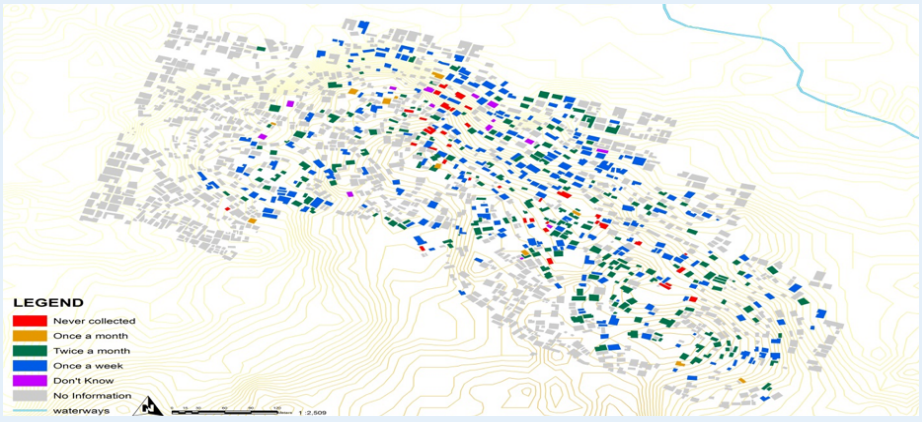
TABLE 50: ACTORS RESPONSIBLE FOR SOLID WASTE MANAGEMENT

Actors responsible for solid waste management	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
Municipality	247	113	409	32.3	17.2	72.4	769	38.70
Community	178	108	29	23.3	16.4	5.1	315	15.85
Garbage is not collected	100	154	22	13.1	23.4	3.9	276	13.89
Thrown in common garbage dump	72	181	6	9.4	27.5	1.1	259	13.03
Individuals (paid instantly)	69	39	33	9.0	5.9	5.8	141	7.10
Don't know	74	58	7	9.7	8.8	1.2	139	7.00
Private Contractor or institution or NGO	23	5	56	3.0	0.8	9.9	84	4.23
Other	1	0	3	0.1	0.0	0.5	4	0.20
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

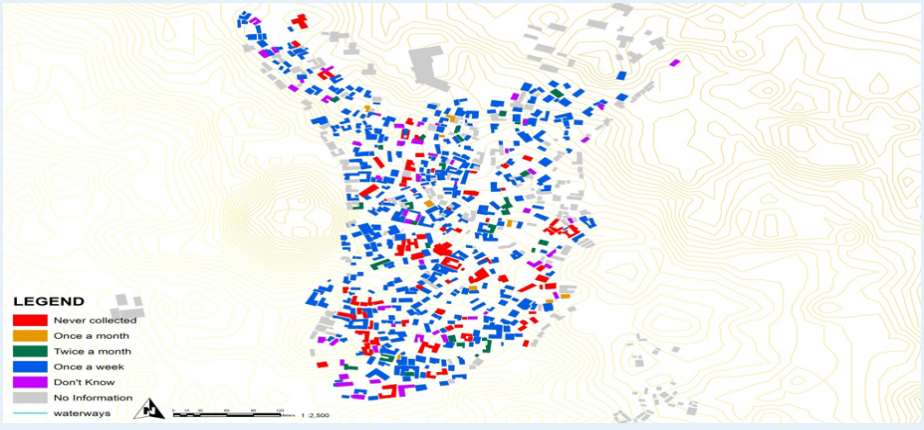
TABLE 51: FREQUENCY OF SOLID WASTE COLLECTION

Frequency of waste collection	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
Once a week	553	465	278	72.4	70.7	49.2	1,296	65.22
Twice a month	46	31	226	6.0	4.7	40.0	303	15.25
Never collected	92	96	34	12.0	14.6	6.0	222	11.17
Don't know	61	59	14	8.0	9.0	2.5	134	6.74
Once a month	12	7	13	1.6	1.1	2.3	32	1.61
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

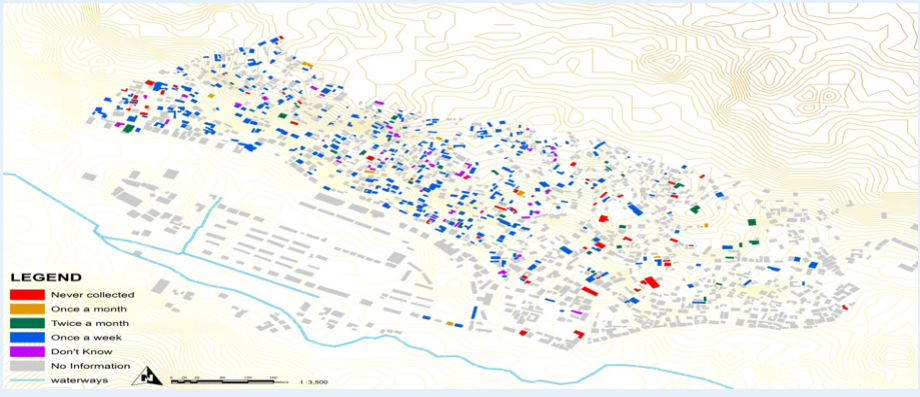
MAP 22: FREQUENCY OF WASTE COLLECTION - KILIMAHEWA



MAP 23: FREQUENCY OF WASTE COLLECTION – KWIMBA



MAP 24: FREQUENCY OF WASTE COLLECTION- UNGUJA



10.3 FREQUENCY OF SOLID WASTE COLLECTION

Functioning solid waste management entails that waste is removed from the settlement at least twice per week. It is noted that solid waste is mainly collected once weekly, which is a good indicator of a functioning collection system. However, observations prove that, even though waste was collected regularly, most of the households did not use the service as solid waste was usually dumped and burnt. In such circumstances, awareness raising is highly recommended as an intervention to create responsiveness and receptiveness on the effects of improper waste management.

10.4 MEDICAL SERVICES

Sustainable Development Goal 3 aims to ensure healthy lives and promote well-being for all people of all ages. Contrary to the target of affordability, most households used public hospitals for medical services across two out of the three Mwanza neighbourhoods that were surveyed: Kilimahewa had 99 per cent and for Unguja 72 per cent. This is mainly linked to affordability of public versus private hospitals. In Unguja, less than half the population used public hospitals for medical services (48 per cent) while 44 per cent used community clinics. This is due to the proximity to services, largely determined by

TABLE 51: AVAILABLE MEDICAL SERVICES

Available Medical Services	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
Public hospital	546	315	558	71.5	47.9	98.8	1,419	71.41
Community Clinic (in settlement)	161	288	0	21.1	43.8	0.0	449	22.60
Community Clinic (outside of settlement)	31	42	0	4.1	6.4	0.0	73	3.67
Private doctor	18	8	3	2.4	1.2	0.5	29	1.46
Mobile clinic	2	3	2	0.3	0.5	0.4	7	0.35
Traditional Healer	3	2	1	0.4	0.3	0.2	6	0.30
Other	3	0	1	0.4	0.0	0.2	4	0.20
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

distance and physical location of service infrastructure. However, other indicators include affordability, time, availability and administration of such services.

There is a severe lack of urban basic services in Mwanza's informal settlements measured against "minimal access." The absence of a functional solid waste management system was evident by the presence of haphazardly dumped waste. Furthermore, there was a lack of service providers–often small and medium enterprises–for the recycling and disposal of domestic waste. Also, streetlights were non-existent in informal settlements making the area unsafe at night.

The study found water, sanitation and hygiene (WASH) infrastructure in houses but these were not always functioning, and even when so were far from meeting the minimum standards. What is more apparent is that most toilets used in households were not sanitised and were instead unclean and unimproved. In short, they did not meet standards for WASH facilities, particularly in respect to containment and emptying; security; cleanliness; privacy; regulation and control, among others. The consequence is that these toilets are not conducive to female needs such as privacy and good menstrual hygiene.

11

Wastewater and Simplified Sewer

This chapter focuses on wastewater management and looks into the total number of simplified sewer connections in Mwanza's informal settlements. A composite of questions seeking to answer inquiries regarding the amount of water used per day in each household, domestic water uses and disposal of grey and black waters was assessed. The research results indicate a high level of improper wastewater management in Mwanza.

11.1 HOUSEHOLDS TO BE CONNECTED TO THE SIMPLIFIED SEWERAGE SYSTEM

This study made an inquiry on the actual statistics of the population and absolute number of households to benefit from the pilot connections of the non-conventional simplified sewerage systems.

Lake Victoria Water and Sanitation project (LVWATSAN-Mwanza) has a pilot scheme to provide improved non-conventional sanitation technologies in Mwanza's informal settlements. The pilot will result in the installation of decentralised simplified sewerage system. The system entails that 10 houses are connected to one septic tank which will drain into the main sewer pipeline in the informal settlements and which, in turn, is connected to the existing city sanitation infrastructure.

More than half of the informal settlement population (55 per cent) testified that their houses would be connected to the simplified sewerage system, whilst 36 per cent reported that theirs would not. Only 9 per cent were not aware whether or not their houses would be connected. However, since this is a pilot undertaking, the contractor has leeway to connect other households which were not initially selected for the project but have perfect conditions for connection.

TABLE 52: NUMBER OF CONNECTIONS TO SIMPLIFIED SEWER

Number of connections to Simplified Sewer	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
Yes	406	373	312	53.1	56.7	55.2	1,091	54.91
No	259	221	238	33.9	33.6	42.1	718	36.13
Don't Know	99	64	15	13.0	9.7	2.7	178	8.96
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

11.2 AVERAGE DAILY AMOUNT OF WATER USED PER HOUSEHOLD

The quantities of water needed for domestic use are context based and may vary according to the climate, the sanitation facilities available, people's habits, their religious and cultural practices, the food they cook, the clothes they wear, and so on. Water consumption generally increases the nearer the water source is to the dwelling.

The aim into the inquiry into these issues was to assess the percentage of households with at least 15 litres of safe water for drinking, cooking and personal hygiene per person per day. The indicator assesses the proportion of households whose members collect a sufficient quantity of safe water for meeting their needs. (The amount of 15 litres is based on the Sphere Standards).

Table 53 shows that 38 per cent of the households used an average of 100 litres per day. A good number indicated that household daily needs accounted for 1,000 litres (19 per cent), whilst a further 18 per cent indicated that that 200 litres of water was required. Due to the presence of a wide range of water sources, most household had access to water.

TABLE 53: DAILY AMOUNT OF WATER USED PER HOUSEHOLD

Daily amount of water used per household	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
100 litres (half a drum or less)	244	259	255	31.9	39.4	45.1	758	38.15
1,000 litres (5 drums)	213	135	25	27.9	20.5	4.4	373	18.77
200 litres (1 drum or less)	87	100	175	11.4	15.2	31.0	362	18.22
400 litres (2 drums or less)	74	67	46	9.7	10.2	8.1	187	9.41
600 litres (3 Drums or less)	86	56	39	11.3	8.5	6.9	181	9.11
800 litres (4 Drums or less)	60	41	25	7.9	6.2	4.4	126	6.34
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

11.3 AVERAGE WATER USED DAILY BY ONE PERSON

Sustainable Development Goal 6, Target 6.1.1 aims at increasing the proportion of a population using safely managed drinking water services. According to the World Health Organization (WHO), between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met and that few health concerns arise. Most of the people categorized as lacking access to clean water use about five litres a day, which is one tenth of the average daily amount used in rich countries to flush toilets (UNDP; 2006, Human Development Report 2006. Beyond Scarcity: Power, poverty and the global water crisis).

A large number of people (41 per cent) in Mwanza's informal settlements used less than half the daily requirements

TABLE 54: AMOUNT OF WATER USED DAILY PER PERSON

Daily water usage	Frequency	Percentage
20 litres or less	805	40.51
50 litres (2 and half 20-litre buckets)	586	29.49
100 litres (5: 20-litre buckets)	402	20.23
200 litres (10: 20-litre buckets)	194	9.76
Total	**1,987**	**100**

of water per person (20 litres) per day. Only 29 per cent indicated that their daily needs accounted for 50 litres of water, whilst 20 per cent had access to 100 litres per day. Only 10 per cent had access to 200 litres per day per person. However, the 10 per cent who used at least 200 litres a day could be small-scale businesses in informal settlement areas. These findings indicate that, even though there is a wide range of sources of water that is accessible in Mwanza's informal settlements, a large number still lack the resource to meet their basic needs.

11.4 AMOUNT OF WATER USED DAILY FOR WASHING DISHES PER HOUSEHOLD

The minimum standard for domestic water use (average used for drinking, cooking and personal hygiene) in any household is at least 15 litres per person per day. Many households in informal settlements used 10 a day for washing dishes (40 per cent). This indicates that most households lacked enough water for domestic use, given that the average household size is nine persons. This means that each person used one litre per day for cleaning the dishes, which is insufficient; 28 per cent of the households used 20 litres; 15 per cent use 40 litres, and 11 per cent used five litres.

Looking from a policy perspective, Mwanza City Council and MWAUWASA need to consider the human right to water because the amount available for domestic purposes is still below the minimum standards.

TABLE 55: WATER USE PER DAY PER FAMILY FOR CLEANING DISHES

Water use per day per family for cleaning dishes	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
10 litres (Half a 20-litre bucket)	310	269	210	40.6	40.9	37.2	789	39.71
20 litres	164	249	145	21.5	37.8	25.7	558	28.08
40 litres	131	91	72	17.1	13.8	12.7	294	14.80
5 litres	78	40	96	10.2	6.1	17.0	214	10.77
2 litres or less	81	9	42	10.6	1.4	7.4	132	6.64
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

TABLE 56: WATER USE PER DAY PER PERSON FOR BATHING

Water use per day per person for Bathing	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
10 litres (Half of a 20-litre bucket)	484	435	303	63.4	66.1	53.6	1,222	61.50
20 litres	145	198	154	19.0	30.1	27.3	497	25.01
5 litres	135	25	108	17.7	3.8	19.1	268	13.49
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

11.5 WATER USE PER DAY PER FAMILY FOR BATHING

The minimum amount of water required for basic hygiene practices per person per day is six litres, which is broadly determined by social and cultural norms. It is evident that most people had enough water for bathing, as 62 per cent indicated that they used 10 litres per day (see table 56) while a quarter used 20 litres a day (25 per cent). This could be explained by the availability of a wide range of water sources to meet different household needs.

11.6 WATER USE PER DAY PER FAMILY FOR HOUSEHOLD CLEANING

Household sizes in Mwanza are generally high, averaging nine persons. However, water use for household cleaning was low, as 32 per cent of the households specified that 20 litres was used per day while 20 per cent stated that they used 40 litres. Another 19 per cent used 10 litres, whilst 18 per cent reported that they used 60 per day. As stated earlier, the city government of Mwanza, and MWAUWASA as a water and sanitation authority, should seriously consider water provision as a human right.

TABLE 57: WATER USE PER DAY PER PERSON FOR HOUSEHOLD CLEANING

Water use per day per family for household cleaning	Frequency	Percentage
20 litres (1: 20-litre bucket)	632	31.81
40 litres	394	19.83
10 litres	385	19.38
60 litres	351	17.66
2 litres	117	5.89
5 litres	108	5.44
Total	**1,987**	**100**

11.7 NUISANCES FROM IMPROPER GREY AND BLACK WATER DISPOSAL

The respondents were asked about the nuisances and risks associated with improper disposal of wastewater. Almost half identified health risks (49 per cent) and bad smells (42 per cent). A few respondents indicated that wastewater flows into their house.

TABLE 58: NUISANCES/RISKS FROM IMPROPER GREY AND BLACK WATER DISPOSAL

Nuisances from improper grey and black water disposal	Freq.	%
Health risks	969	48.77
Bad smell	829	41.72
Grey and black waters flow towards my house	183	9.21
Other	6	0.30
Total	**1,987**	**100**

11.8 DISPOSAL OF WASTEWATER

Goal 6, Indicator 6.3.1 aims to increase the proportion of wastewater that is safely treated before disposal. Part of this survey entailed examining the practices of wastewater disposal. More than half of the population living in the informal settlements disposed of wastewater in the toilet (53 per cent). At the same time, 15 per cent said that their disposal practices entailed pouring out wastewater in open spaces around the house. Another 15 per cent used a combination of toilet, veld, yard, streets, whilst a further 15 per cent used their yards.

Mwanza City Government should declare wastewater management a crucial part of city sustainability and act accordingly. Lake Victoria is the biggest freshwater body in Africa. Freshwater is the single most important natural resource on the planet, and it is finite and increasingly scarce. If wastewater is managed properly, it increases a city's livability and attracts people and businesses to locate there, boosting economic performance and social and environmental sustainability. There is great need to reduce, through safe disposal, the quantity and pollution load of wastewater that Mwanza city produces.

Public health depends on access to safe water and sanitation. Polluting Lake Victoria and its environment with untreated wastewater puts lives at risk, especially in the poorest informal communities. Mwanza City Government needs to reduce and safely dispose of wastewater to take better care of the lake and protect the health of its most vulnerable residents.

It is crucial to note that health and productivity of cities depends on access to safe water and sanitation. With increased political will and funding to improve wastewater management, cities will reduce environmental pollution and reap the benefits of exploiting this overlooked resource.

> The study found that wastewater management in Mwanza informal settlements is non-existing. What is more vivid is the fact that this results in pollution and makes the population susceptible to outbreaks of diseases. The consequences of which, are mostly felt by the vulnerable groups - women, children, the elderly and the physically disabled.

TABLE 59: WASTEWATER DISPOSAL

Disposal of Wastewaters	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
Toilet	421	260	363	55.1	39.5	64.2	1,044	52.54
Open spaces around (streets, outside own yard and so on)	132	147	19	17.3	22.3	3.4	298	15.00
Combination of toilet, veld, yard and streets	28	125	139	3.7	19.0	24.6	292	14.70
Yard	168	84	37	22.0	12.8	6.5	289	14.54
Pit	8	31	1	1.0	4.7	0.2	40	2.01
Veld	7	11	6	0.9	1.7	1.1	24	1.21
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

12

Hygiene Knowledge, Attitude, Beliefs and Practices

In line with one of the objectives of the study, this chapter sets out hygiene knowledge, practices, beliefs attitudes and behaviour related to menstrual hygiene. These practices enable an analysis of the causes of health problems linked to poor knowledge of hygiene management. This chapter looks at the extent to which informal settlers in Mwanza are adequately informed about hygiene management. A composite of indicators has been designed to assess households who have a good knowledge of hygiene management.

Although awareness often does not lead to action, it still is an important step towards behaviour change. This indicator, therefore, assesses whether people are aware of hygiene management.

12.1 PARTICIPATION IN EDUCATIONAL CAMPAIGNS ON WATER, SANITATION AND HYGIENE

Respondents were asked to specify whether they had participated in any WASH campaigns. A total 62 per cent of the total population said they had participated in a WASH-related campaign (see table 60). Apart from Kilimahewa, which recorded 62 per cent as the total population which had participated in WASH campaigns, the converse is true for Kwimba and Unguja whereby only 33 per cent and 21 per cent had participated. This means that some neighbourhoods require more attention than others within the same locality.

TABLE 60: PARTICIPATION IN WASH CAMPAIGNS

Participation in WASH campaigns	Unguja	Kwimba	Kilimahewa	Unguja (%)	Kwimba (%)	KILIMAHEWA (%)	FREQ.	%
No	595	439	217	77.9	66.7	38.4	1,251	62.96
Yes	169	219	348	22.1	33.3	61.6	736	37.04
Total	**764**	**658**	**565**	**100**	**100**	**100**	**1,987**	**100**

12.2 HANDWASHING PRACTICES

Handwashing at critical points is usually used as a measure for hygiene. In Mwanza's informal settlements most people (70 per cent) said they washed their hands after using the toilet; before and after meals (60 per cent); before cooking (50 per cent), and before feeding a child (33 per cent) – see table 61. This shows that most of the people are aware of the critical times where handwashing cannot be skipped. However, reporting on handwashing is prone to so-called "social desirability bias:" people overestimate their positive and underestimate their negative practices.

Although people usually overreport their handwashing practices, they also sometimes forget to mention the occasions on which they usually wash their hands. This indicator, therefore, mainly assess behaviour to check whether Mwanza's informal dwellers were aware of the critical times to wash their hands. The study found that the critical times were known, however interventions should focus on personal behaviour other than imparting knowledge.

12.3 REASONS FOR SKIPPING HANDWASHING

Handwashing practice depends on households' access to water. Since such access is often prone to many variations, the data required for this indicator was similarly prone to many differences. In Mwanza's informal settlements the main reason for skipping handwashing is that people forget, together with the lack of clean water supplies. Since handwashing is largely determined by availability of water, it is crucial to consider this parameter when carrying out awareness-raising activities.

TABLE 61: HANDWASHING PRACTICES

Hand Washing Practices	Frequency	Percentage
After using the toilet	1,385	69.70
Before and after meals	1,199	60.34
Before cooking	985	49.57
At prayer times	777	39.10
Before feeding a child	665	33.47
After holding dirty substances	515	25.92
After changing baby diapers	453	22.80
After touching greasy and oily substances	403	20.28
After cleaning (home, dishes, laundry or hair combing	301	15.15
After using public transportation	294	14.80
After returning from the farm/garden	274	13.79
After touching the sick people	230	11.58
Other	50	2.52
Total	**1,987**	**100**

12.4 REASONS FOR HANDWASHING WITH SOAP

Washing hands with soap is the most effective way for preventing life-threatening diarrhoeal diseases. This indicator, therefore, measures whether people (report to) wash their hands with soap or ash every time and not only at important moments. Two main reasons were given for washing hands with soap: to avoid spread of diseases (56 per cent), and for hygiene and personal cleanliness.

TABLE 63: REASONS FOR HAND WASHING WITH SOAP

Reasons for Hand Washing with Soap	Frequency	Percentage
Avoid spread of diseases	1,119	56.32
Hygiene and personal cleanliness	858	43.18
Other	10	0.50
Total	**1,987**	**100**

12.5 WAYS TO ENCOURAGE HANDWASHING IN THE HOME

Existing research shows that people with access to a handwashing station are more likely to wash their hands. This indicator, therefore, assesses the proportion of households with a functional station with soap and ash.

The majority of Mwanza's informal settlements indicated that they put soap beside a handwashing area (63 per cent), whilst 37 per cent stated that they remind children to use soap to wash their hands after using the toilet. Worldwide, these are the most common practices in the home.

TABLE 64: WAYS TO ENCOURAGE HAND WASHING IN THE HOME

Ways to encourage handwashing in the home	Frequency	Percentage
Put soap beside hand washing area	1,246	62.71
Remind children to use soap after using the toilet	726	36.54
Other	15	0.75
Total	**1,987**	**100**

TABLE 66: PUBLIC HEALTH RISKS CAUSED BY OPEN DEFECATION

Public Health Risks caused by Open Defecation	Frequency	Percentage
Cholera	1,113	56.01
Pollution (water, air, environmental or landscape)	312	15.70
Diarrhea	306	15.40
Don't know	151	7.60
Death of children	104	5.23
Other	1	0.05
Total	**1,987**	**100**

TABLE 67: DISPOSAL OF BABY FAECES

Disposal of Baby feces	Frequency	Percentage
Put/rinsed into toilet	768	38.65
Left in the open	466	23.45
Thrown in the garbage	411	20.68
Buried	279	14.04
Other	63	3.17
Total	**1,987**	**100**

12.6 FAECAL SLUDGE MANAGEMENT

The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. To be sustainable, a sanitation system must be economically viable, socially acceptable, technically and institutionally appropriate, as well as protecting the environment and natural resources.

Most sanitation systems have been designed with these aspects in mind but in practice they are failing far too often because some of the criteria are not met. In fact, there is probably no system which is absolutely sustainable. The concept of sustainability is more of a direction rather than a stage to reach. Nevertheless, it is crucial that sanitation systems are evaluated carefully regarding all dimensions of sustainability.

Since there is no one-for-all sanitation solution which fulfills the sustainability criteria in different circumstances to the same extent, this system evaluation will depend on the local framework and has to take into consideration existing environmental, technical, sociocultural and economic conditions. Taking into consideration the entire range of sustainability criteria, it is important to observe some basic principles when planning and implementing a sanitation system (UNICEF/WHO, 2017).

Mwanza's informal settlements mostly used unsustainable faecal sludge management systems: 57 per cent dug holes and buried the waste, 9 per cent discharged out of septic tanks during the rainy season on open grounds, and a frogman is used by 3 per cent. Other unsustainable means of disposal included discharge into open drains. Only an insignificant number is connected to conventional sewer systems (5 per cent). Another, 4 per cent reported that the City Council manages faecal sludge in their residences, whilst 19 per cent stated that they paid private individuals.

This scenario calls for the Mwanza City Government to consider prioritising investment in faecal sludge management in informal settlements as three quarters of the population lives in the surrounding hills with no connections to a conventional sewer system. This poses social, economic, environmental, and health risks to the city.

12.7 PUBLIC HEALTH RISKS CAUSED BY OPEN DEFECATION

Despite intense activities and great achievements in terms of reaching the Millennium Development Goal on safe drinking water and basic sanitation, there are still 2.4 billion people in the world who lack access to improved sanitation. Another 663 million people lack improved drinking water sources, and around 946 million people are still practicing open defecation. The number of deaths attributable to sanitation-related diseases is still on average around 2 million per year, of whom children under 5 years are the most affected group (UNICEF, WHO; 2015).

This indicator assesses the available knowledge regarding health effects that result from open defecation. There is an agreement by more than half of the population in informal settlements that cholera was the main risk (56 per cent), followed by pollution (16 per cent), diarrhoea (15 per cent), and death of children (5 per cent). The study found that knowledge on the effects of open defecation was significant.

12.8 DISPOSAL OF BABY FAECES

Even in households with access to latrines, children's faeces are often disposed of improperly and pose a threat to the health of children and adults. This indicator assesses the proportion of Mwanza's informal settlement population who dispose of children's faeces into an improved sanitation facility.

TABLE 63: WILLINGNESS TO CONNECT TO SIMPLIFIED SEWER SYSTEM

Willingness to connect to Simplified Sewer system	Frequency	Percentage
Yes	1,669	84.00
No	318	16.00
Total	**1,987**	**100**

Baby faeces was disposed of in the following ways: rinsed in a toilet (39 per cent), left in the open (23 per cent), thrown in the garbage (21 per cent), and buried (14 per cent). This calls for awareness raising on safe disposal of such matter.

12.9 WILLINGNESS TO CONNECT TO NON-CONVENTIONAL SIMPLIFIED SEWER SYSTEM

The Lake Victoria Water and Sanitation project operates a pilot scheme to provide improved non-conventional sanitation technologies (simplified sewer) in Mwanza's informal settlements. The majority indicated that they were willing to connect (84 per cent) to the system.

It can, therefore, be said that willingness to connect shall be determined by factors such as economic viability, social acceptability, technical and institutional appropriateness, as well as an ability to protect the environment and natural resources. Once these variables are fulfilled during the pilot phase a great demand for simplified sewers will be created.

12.10 MENSTRUATION HYGIENE MANAGEMENT

The indicator on menstruation hygiene management looked at the extent to which girls and women have access to appropriate menstruation materials. While the results certainly indicate that male and female respondents felt that barely half of the total population (54 per cent) had access to these materials, 33 per cent indicated that they did not, whilst 13 per cent were unaware about such materials.

These results show that women's and girls' menstruation and hygiene management issues were still not priorities in the home. Decision makers must intensify interventions for the promotion of good menstruation hygiene management while strengthening the upkeep and maintenance of existing sanitation infrastructure. Again, there is a need to intensify awareness-raising campaigns on menstruation hygiene management in informal areas.

This chapter has examined and analysed hygiene knowledge, attitudes, beliefs and practices in Mwanza's informal settlements. In terms of major findings, the level of access to and use of WASH facilities in informal settlements remains inadequate and insufficient. Those participating in the study have a basic understanding of the reasons for handwashing and the critical times at which to do so.

At the same time, faecal sludge management was a huge concern in Mwanza's informal settlements as more than three quarters of the population used unimproved and unsustainable ways of dispose of sludge. This has resulted in recurring of waterborne diseases such as cholera, which have become an annual and seasonal occurrence in Mwanza.

When improving an existing or designing a new sanitation system, Mwanza city must consider sustainability criteria related to aspects such as environment and natural resources, health and hygiene, finance and economy, technology and operation, and sociocultural and institutional aspects.

TABLE 69: WOMEN AND GIRLS HAVING APPROPRIATE MENSURATION MATERIALS

Women and girls having appropriate mensuration materials	Frequency	Percentage
Yes	1,074	54.05
No	655	32.96
Don't know	258	12.98
Total	**1,987**	**100**

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

13

Snapshot of the Structure, House

This section presents a portrait of the structure details in terms of number of rooms per structure, access to services, tenure security, location of the structure on the hill slope, and community priorities.

TABLE 70: NUMBER OF ROOMS PER STRUCTURE

No. of rooms per Structure	Frequency	Percentage
one room	696	35.03
two rooms	519	26.12
three rooms	410	20.63
four rooms	230	11.58
five and above rooms	132	6.64
Total	**1,987**	**100**

13.1 NUMBER OF ROOMS PER STRUCTURE

Households had a varied number of rooms per structure with a concentration of one to three. The interview results reported that 35 per cent lived in one-roomed structures, 26 per cent in two-roomed ones, and 21 per cent in three-roomed ones. A few households had four rooms (12 per cent), and only 7 per cent had five rooms and more. Considering that the average household size is nine, Mwanza's informal settlements' houses are overcrowded and people living there generally have inadequate living space.

TABLE 71: ACCESS TO SERVICES BY INDIVIDUAL HOUSEHOLDS

Access to Services by Individual Households	Frequency	Percentage
Minimum	903	45.45
Low	840	42.27
High	244	12.28
Total	**1,987**	**100**

13.2 ACCESS TO SERVICES BY INDIVIDUAL HOUSEHOLDS

As expected, the majority indicated minimum (45 per cent) and low (42 per cent) access to public and basic services. Only 12 per cent of the total population indicated a high level of access to basic services (see table 71).

In November 2002, the United Nations Committee on Economic, Social and Cultural Rights adopted its General Comment No. 15 on the right to water, stating: "The human right to water entitles everyone to sufficient, safe, acceptable, physically

TABLE 72: MWANZA INFORMAL SETTLEMENTS PRIORITIES

Mwanza Informal Settlements Priorities	Frequency	Percentage
Water	1,486	74.79
Sanitation	971	48.87
Roads	923	46.45
Wastewater management	763	38.40
Electricity	685	34.47
Community facilities (health centres, schools, shops, religious centres and so on.	626	31.50
Solid waste management	585	29.44
Housing	214	10.77
Land tenure	193	9.71
Other	17	0.86
Total	**1,987**	**100**

accessible and affordable water for personal and domestic uses." Universal access to sanitation is, "not only fundamental for human dignity and privacy, but is one of the principal mechanisms for protecting the quality" of water resources.

Furthermore, in April 2011, the Human Rights Council adopted, through Resolution 16/2, access to safe drinking water and sanitation as a human right: a right to life and to human dignity.

These international policy frameworks call for city authorities to put more investment into ensuring access to water and sanitation. It means the following:

- Access to safe water and basic sanitation is a legal entitlement, rather than a commodity or service provided on a charitable basis.
- Achieving basic and improved levels of access should be accelerated, especially to the urban poor
- The least served are better targeted and thus inequalities decrease.
- Communities and vulnerable groups must be empowered to take part in decision-making processes.

The means and mechanisms available in the United Nations human rights system can be used to monitor the progress of countries and cities in realising the right to water and sanitation to hold governments accountable whilst ensuring livable, inclusive and sustainable cities.

13.3 MWANZA'S INFORMAL SETTLEMENTS PRIORITIES

The Mwanza's informal settlements baseline survey sought to establish community priorities as a way of carrying out a needs assessment. The top three priorities were water (75 per cent), sanitation (49 per cent) and roads (46 per cent). It is important to note that all the slum deprivations were priorities for the informal settlements. Other significant priorities expressed in percentages include wastewater management (38), electricity (34), community facilities (32), solid waste management (30), housing (11), and land tenure (10).

This report explores the dynamics between urbanisation, informality, housing and access to infrastructure, and urban basic services. It suggests that provision of these services in most African small to medium cities should mainly focus directly on the poor and informal settlements, as this is where the need is most acute.
However, this is more difficult to attain in informal settlements because of a range of factors. These factors include lack of security of tenure, physical inaccessibility of the informal settlements, absence of legal frameworks governing informal settlements, weak institutions and information systems, strained human and financial resources, and non-existence of infrastructure services.

At the same time, failure to achieve water security and adequate sanitation is potentially more damaging in informal contexts, where residents are particularly vulnerable to the direct impacts of water insecurity and scarcity, and inadequate sanitation facilities and lurban basic services. Water insecurity and inadequate sanitation services can intensify perceptions that the Government is unwilling or unable to meet the needs of its citizens, thereby weakening the social contract between the Government and citizen groups. Such a situation is a destabilising force and risk multiplier to urbanisation process.

Fundamentally, in Mwanza city there is a huge deficit of housing, urban basic services and infrastructure. These deficiencies are worst in the areas where the majority of residents is concentrated.

The levels of development and living conditions in the city's informal settlements are at their lowest when measured against the level of access (nominal) to basic services. This condition calls for the city government to propose new ways of financing urbanisation. This means partnerships at local and global arenas are crucial to meeting the demands that are associated with the scale of urbanisation.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

14

Conclusions and Recommendations

14.1 CONCLUSIONS

This report frames the challenge of access to urban basic services in informal settlements. It draws on a growing body of evidence to explore the dynamics of city development as an effect of urbanisation, the living conditions and access to urban basic services in informal settlements and helps to articulate and inform Mwanza's city government on the conditions of the current state of living conditions, as well as informing future service infrastructure investments and priority areas.

The findings have presented a framework for diagnostics and decision-making on service infrastructure development. However, the evidence from the findings illustrate that there is a huge gap in terms of access to urban basic services, consequently lowering living conditions in the city at large.

The findings prove that informality is the dominant characteristic of urban spatial expansion in the city and developing countries in general (growth of slums). This scenario is mainly prominent in small- and medium-size cities (those with fewer than 1 million inhabitants), where 62 per cent of world's urban population live (UN-Habitat, 2016).

Slum deprivations are static and always obvious. Mwanza's informal settlements, just like any other, suffer the slum deprivations of water, sanitation, insufficient living area, security of tenure and poor structural quality of the dwellings. However, observation as well as results from the household baseline has shown that at least 74 per cent of the total slum population have permanent structure houses, which makes Mwanza slums an exception, and this presents a huge potential for homeownership.

In most cases, provision of urban basic services can be an integral part of the dynamics of sustainable and resilient city development. Therefore, these services should be carefully considered and appropriately prioritised in efforts to strengthen communities, economies and local governments in small and medium cities where challenges of rapid spatial expansion due to urbanisation are being felt now and will be in the future.

Evidence from Mwanza city in particular and other African cities in general suggests that carefully designed investments in the provision of urban basic services can contribute to ending urban poverty, can promote stability, and lead to an escape from inequality. In particular, investments that deliver basic services and preserve access to sustainable public services are needed for communities of the urban poor, peri-urban areas and informal areas. This is both as an urgent development priority and as a tangible demonstration of governments' ability and willingness to meet the needs of its citizens while,

at the same time, making cities and human settlements inclusive, safe, resilient and sustainable (Sustainable Development Goal 11).

In essence, as long as Mwanza lacks functioning land markets, national urban policies, regulations and early coordinated infrastructure investments, it will remain in the category of a local city: closed to regional and global markets, trapped into producing only locally traded goods and services, and limited in economic growth, thereby making the city uncompetitive and unattractive for commerce and trade (World Bank, 2017).

Fundamentally, by getting urban development right, cities can accelerate progress towards achieving the Sustainable Development Goals by creating jobs and offering better livelihoods; improving social inclusion; promoting the disengagement of living standards and economic development from environmental resource use; protecting local and regional ecosystems; alleviating urban and rural poverty; and drastically reducing pollution and greenhouse gas emissions. In doing this, cities become sustainable, resilient and competitive. They attract businesses; smart, innovative and creative people as well as related industries. This is what makes cities livable and sustainable (World Bank, 2017).

14.2 RECOMMENDATIONS

This study has outlined how Mwanza's residents live in terms of access to urban basic services and the levels of living conditions. Through carefully observing the current form and shape as well as the status of basic service provision and living conditions in the city's informal settlements, some recommendations may emerge to the local government authorities and Mwanza City Government:

Mwanza City Government should implement the following:

- Prioritise Mwanza's informal settlements' urban basic service needs on a descending scale: water, sanitation, access roads, wastewater management, solid waste management, and electricity. The city government should prioritise these when making development plans.

- Have as its first priority formalising landownership and security of tenure, clarify rights of access to basic services and institute effective urban planning that allows land management to be the basis of planned city development

- Have as its second priority making early and coordinated infrastructure investments that allow for interlinkages among housing, infrastructure development, commercial and industrial development. Mwanza City Government should consider an urban-nexus approach to city development focusing on human rights, development, inclusion, and access to basic services.

- Aim to provide public goods and services targeted at improving livability (livable human settlements), as three quarters of the city's population live in informal settlements.

- Increase the expanse of water, sanitation and hygiene infrastructure, whilst provision of urban basic services in informal settlements must ensure at least effective access for all.

- Strengthen the upkeep and maintenance of existing infrastructure and consider sustainability and resilience of the investments due to the terrain, which is hilly, steep and rocky and has limited spatial area for expansion.

- Intensify hygiene-awareness campaigns for people living in informal areas, where hygiene knowledge has been poor to moderate.

- Consider investment in multidimensional sanitation technologies and facilities that best suit the geographical location of its informal settlements as this is a dire need when compared to water access.

- Strengthen action research activities to inform political decision makers and practitioners in the field of urban basic services in pro-poor areas.

- Strengthen evidence-based advocacy to promote the integration of provision of urban basic services into public policies and national and local development strategies.

- Promote the use of community-based solid waste management through community groups, organizations and NGOs as this is a dire need in informal areas.

- Establish solid waste collection points as well as construct proper sanitary landfill covering the city jurisdiction to enhance effectiveness in solid waste management.

- Establish by-laws of solid waste management for informal areas which will govern collection, transport and disposal of solid waste, including collection fees and penalties for non-compliance.

- Learn from experimentation of diverse non-conventional sanitation solutions in informal areas to inform sustainable scale up options and policy frameworks.

- Protect and strengthen human rights in terms of accessing urban basic services by focusing on pro-poor approaches to service delivery.

- Provide practical solutions to water and sanitation challenges in informal settlements policymakers (Tanzania National Government and Mwanza City Government).

- There is a need by the policymakers (Tanzania National Government and Mwanza City Government) to correct the structural problems affecting Tanzanian cities in general. The Government needs to strengthen institutions that govern land market administration and coordinate urban and infrastructure planning. Fragmented physical development in cities limits productivity and livability.

- From an investment standpoint, Mwanza City leaders and policymakers need to focus on early, coordinated infrastructure investment. Without this, the city will remain local, closed to regional and global markets, trapped into producing only locally traded goods and services and limited in its economic expansion. The city needs to create an internationally competitive, tradable sector to stay open for business. For that to happen, city leaders must create a strong and new urban development path, and urgently.

- Integrated urban planning through national urban policies, rules and legislation, new financing modalities, and local implementation is an urgent need for the city.

- The city and national Government should intensify land regularisation and urban basic services investment interventions for the urban poor and informal areas.

SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

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SOURCE: 2012 CENSUS AND UN-HABITAT COMMUNITY MAPPING 2017

United Nations Human Settlements Programme (UN-Habitat)
UN-Habitat helps the urban poor by transforming cities into safer, healthier, greener places with better opportunities where everyone can live in with dignity. UN-Habitat works with organizations at every level, including all spheres of government, civil society and the private sector to help build, manage, plan and finance sustainable urban development. Our mission is to promote socially- and environmentally-friendly sustainable human settlements development and the achievement of adequate shelter for all. For more information, visit the UN-Habitat website www.unhabitat.org

Urban Basic Services Branch (UBSB)
The Urban Basic Services Branch provides policy and technical support to partner countries and local authorities in the areas of water, sanitation, waste management, mobility and energy. Emphasis is placed on equitable access to urban basic services, especially for the poor. It promotes the development of clean, energy-efficient, affordable and human-centred cities that can deliver better services to their citizens, while at the same time making the most effective use of natural resources and cutting down on fossil fuel reliance and energy consumption. For more information, visit the UN-Habitat website www.unhabitat.org

This publication contributes to the implementation of the following Sustainable Development Goals:

A better quality of life for all in an urbanizing world

This report provides a baseline inventory of the standard of living, housing and infrastructure services as well as access to urban basic services in Mwanza, Tanzania, focusing on informal settlements. It provides evidence-based guidance on how to improve access to urban basic services in informal settlements as an essential element to achieve healthy, livable and sustainable cities.

The challenges faced by informal settlers in terms of access to urban basic services do not necessarily differ from those faced by many cities in the developing world: lack of access to water, sanitation, unreliable transportation modes, unclean energy, lack of schools, lack of health facilities, unemployment, lack of public lighting, lack of green and public spaces, unhygienic living standards and water-borne diseases are the most common. About 924 million people in the world live in slums and certain patterns related to access to urban basic services emerge as a common element that creates context-based opportunities to meet these challenges.

The report investigates these common elements and analyses the linkage between housing and basic social infrastructure services as a factor largely determined by spatial location, level of development of a place and the associated impact on the living conditions of these variables on informal settlers. Formalising land tenure, clarification of rights to access to basic services, coordinated infrastructure and land use planning, innovative service provision technologies, research, advocacy and citizen engagement and intensified urban basic service infrastructure investment are presented as important conditions for change. Particular emphasis is put on the access to urban basic services as a determining factor to the state of living conditions.

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