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DETAILED DIAGNOSTIC STUDIES REPORT - Main Document -

Diagnostic and Pre-Feasibility Studies for Resilient Urban
Development and Service Delivery in Lilongwe

Ref. No. MW-LWSP- 64916-CS-QCBS
October 2020 (Version No.2)



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Abstract

The purpose of the Diagnostic and Pre-Feasibility Studies for Resilient Urban Development and Service Delivery is to assess future urban service provision scenarios and propose prioritized interventions in improving municipal services in Lilongwe City. The key issues include infrastructure investments, drainage, solid waste management and urban public transport. This report documents the current situation, as well as analyses the previous undertakings and studies on a strategic level in the city of Lilongwe exploring the main issues and challenges in relation to urban growth and service delivery. The report includes an assessment of medium and long-term growth scenarios, and an estimation of the backlog in delivering basic urban services and infrastructure investments. This report also analyses the institutional structures of the city, with a special focus on its mandate on service delivery and offers an evaluation of the financial capacity of the City of Lilongwe.



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EXECUTIVE SUMMARY

Introduction

This Detailed Diagnostic Studies Report represents the third milestone report submitted by the joint venture HS International /ALMA Consult for the “Consultancy Services for Diagnostic and Pre-Feasibility Studies for Resilient Urban Development and Service Delivery in Lilongwe City” under Procurement Reference No. MW-LWSP- 64916-CS-QCBS. The services contract was signed on August 2019 and the commencement date of the services was on the 2nd of September 2019.

The report documents the current situation and analyses the previous undertakings, strategies and studies in the city of Lilongwe in relation to urban growth, environmental sector, economic interventions and sustainable development. The report also identifies the main intervention areas that support sustainable growth and development as well as provide sound and improved service provision and delivery. Additionally, the report identifies the key policy issues which imply an action-oriented plan for decision making by the Lilongwe City Council (LCC).

For purposes of this study, and in order to convey a clear description of Lilongwe City’s challenges and proposed initiatives to create a resilient city, Lilongwe City was divided into seven (7) zones. These zones are: South East Area, South West Area, Central East Area, Central West Area, North West Area, North East Area and North Area.

Considering the need for a strategic vision for the city to reach its potential in the region as the capital city of Malawi, the layers and crucial sectors of the city are analyzed. The diagnostic studies report therefore, identifies a hierarchy and prioritization of the strategies to create sustainable development for a prosperous economy to realize better quality of life for its residents.

This version of the Detailed Diagnostic Studies Report was prepared based on the services contract, and the comments received from Lilongwe City Council on the first version of the Detailed Diagnostic Report through a virtual meeting held on 04 September 2020 as well as an active meeting on 14 September 2020. Serving as the second deliverable after the Draft Diagnostic Studies Report which was approved by LCC with written feedback received on 20 August 2020 and virtual meeting on 09 July 2020.

Diagnosis of Urban Growth

Lilongwe City grows at 3.8% per annum which is a result of high natural increase and rural urban migration. As many of migrants fail to get jobs in the city their housing needs are also affected. Consequently, most of the physical growth of Lilongwe City is informal. Informal city growth has not been in tandem with the originally planned multi centered four-sector city as the urban hubs have not been developed as expected. For example, encroachment onto planned green areas by industry and poor connectivity between the hubs is noticeable. The development of interconnection and alternative modes of transport would create potential for attraction of investment and tourism, among other aspects.

Other prominent challenges include uneven population, density, housing developments without the city’s planning approval and without following the city’s development plans, growth outside the city borders, degradation of water resources, and poor solid and liquid waste management. This situation significantly affects the city’s vision of resilient urban development and service delivery. The shortcomings and failure of implementation of planned development is mostly due to financial limitations, annihilated by weak institutional framework within the Lilongwe City Council and poor coordination with stakeholders.

A very critical aspect within this study is the environmental protection particularly due to the severity of its effects and difficulties to reverse the damage. There is a present need to create guidelines and institutional regulations aiming to preserve and protect the green areas. Lilongwe City Council (LCC) plays a vital role in the protection of the environment by sourcing funds to acquire necessary resources and working with communities as well as supporting public and private projects all with the aim of improving the environment of the city.

Furthermore, Lilongwe's housing sector proved to be an uneven variety of living conditions. According to UN Habitat (2011) about 76% of the city's population lived in informal and unplanned settlements on just about 12% of the city's land area. This situation arose from the difficulties citizens face to acquire land for housing, slow housing delivery and urbanization pressure due to weak urban planning and development control systems. This is exacerbated by the high rental rates and poor coordination of services.

Despite its socio-economic challenges and underdevelopment of certain sectors such as tourism and ICT, Lilongwe city has huge potential in agriculture and agro-business. The City is surrounded by districts growing a variety of food and cash crops, supported by a number of service providers involved in the agriculture sector including agro-processing. Within the city itself, nearly all vacant land is used for urban farming.

In order to build a resilient and inclusive city, there is a need for coordinated and concerted efforts amongst the different stakeholders within Lilongwe City. This would enable the stakeholders to be aware of the development plans of the Council and act as a conduit for lobbying policy shifts or changes.

Diagnosis of Service Delivery

When it comes to service delivery, there is an obvious lack of proper distribution of services which leads to further economic and environmental problems, jeopardizing the sustainability and resilience of urban development in Lilongwe City.

A vital component of urban development and service delivery is urban hydrology and drainage. The current situation is linked to the environmental and catchment degradation and climate change phenomenon in Lilongwe and its surroundings. Subsequently, the impact of environmental and catchment degradation and associated climate change vulnerability have direct impact on the urban hydrology and drainage. Disaster risks have become commonplace and expose Lilongwe City to floods and drought hazards, accompanied by infrastructure damage among other risks. This requires the restoration of dambos and greenery along rivers, protection of riverbanks, properties and infrastructure along rivers and streams, and improvement of storm drains, and drainage networks.

Another vital aspect in service delivery is transport and transportation. Currently road transport is the main mode of transport. However, though some new roads are under construction, many roads in the city are in poor condition which hinders efficient connectivity of city residents. There is also weak public transport regulation which results in inefficiencies in provision of public transport and heavy congestion in the city thus jeopardizing road safety. This proves the dire need for improving the road network, proposing alternative modes of transport and improving public transport delivery.

The poor road network not only hinders communication and movement of the city's inhabitants, but most importantly makes it extremely difficult to provide services such as water and sanitation services, garbage collection, and limits accessibility to electricity and service delivery, leading to unequal distribution of infrastructural services. The infrastructural services challenges in Lilongwe City also include water distribution and coverage, and waste management in both liquid and solid forms. Waste disposal in particular is considered a major issue in Lilongwe City, as the disposal coverage doesn't exceed 30% of the total waste in the city. There are obvious gaps to be filled in the short, medium and long-term plans.

There is unequal distribution in public facilities such as health, education, and security services. These are distributed unequally in regards to residential density variations across the city. The facilities are clustered in the areas of low-density and there is a clear lack of service provision in the high density and informal settlements areas. This uneven distribution of public facilities decreases social inclusion in the city and promotes segregation, an issue that threatens the resilience of the city. Rapid population and informal settlements growth and urbanization are putting a strain on the city's services deliveries and, thereby, inhibiting health and natural hazards containment, limiting the needed revenue collection and the exploitation of the city's potential as a catalyst for the city and county's economic growth.

Diagnosis of Institutional and Financial Framework

In this section of the Diagnostic Report, an analysis of Lilongwe City Council was conducted by looking at its governance and financial framework in addition to its service delivery. It was evident that certain key challenges on the financial level as well as the institutional have negatively impacted management and development. This results in the inability to supervise, control and monitor construction works in the city, urban growth in designated green areas or planned roads, and insufficient service delivery including the accumulation of solid waste.

Lilongwe City relies heavily on its own revenue sources for operations and service delivery and marginalized use of ceded revenue, and government grants. However, the revenue resource base is insignificant due to the difficulties to register city rate payees as well as most informal settlement residents who form the majority of the City, and yet do not pay city rates.

Key challenges include limited capacity to generate revenue, difficulty in achieving financial self-sufficiency, and failure to replace and buy additional assets. This results in little or no resources for service delivery improvements supporting the insufficient distribution of services and its poor quality. Proposed interventions to enhance the capacity of Lilongwe city in collecting more revenue includes revision of the local government act, expanding revenue base, improving ICT infrastructure for optimal revenue collection and diversifying income sources. Despite certain aspects against development such as the lack of financial capability of Lilongwe City Council and its revenue collecting approach, there are present strengths and potentials. Proven by LCC's awareness and ambition to enhance Lilongwe, which as the capital city enables attraction and investment, this is in addition to existing interest and support of different NGOs and existing options for revenue collection.

Strategic Framework and Priority Interventions

In order to reach a planning approach for Lilongwe City which promotes resilient and sustainable development, and fulfils the vision of the city, main strategies are proposed aiming at enhancing the socio-economic, ecological, institutional and spatial attributes of the city. These strategies interlink in many ways. The main goal is to address the previously analyzed challenges in a synergized way into tailor-made, need-oriented strategies. This is split under urban regeneration strategies and institutional strategies, both set with the aim of seizing the potentials and assets in the city on one layer, and catering for risk mitigation and potential of resilience in the city on another.

With the strategies in place and defined layers of intervention which include transportation and connectivity, economic development, distribution of residents and activities and provision of services, natural features and utilities a preferred scenario of development is presented. This scenario focuses on the economic growth and connectivity on one hand and considers the morphological and environmental growth of the city on the other. As it strengthens the resulted five designated hubs and highlights connectivity as one of its main aspects, by connecting the varied nodes development corridors are created, guiding the prioritization of investment projects. This consists of immediate projects, short- and medium-term projects, and long-term projects, varying between investment, infrastructure, capacity building, and policy and reform projects.

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ABBREVIATIONS

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Abbreviations

AC	Asbestos Cement
ADL	Airport Development Limited
AIMS	Agribusiness Investment for Market Stimulation
ANRP	Annual National Road Program
CBD	Central Business District
CBO	Community Based Organization
CCDC	Capital City Development Corporation
CCoDE	Centre for Community Organization and Development
CDM	Clean Development Mechanisms
CDS	City Development Strategy
CO ₂	Carbon Dioxide
CONGOMA	Council for Non-Governmental Organizations in Malawi
COVID 19	Corona-virus Disease
DFID	Department for International Development
DFI	Development Financial Institution
DHRMD	Department of Human Resource Management and Development
DRTSS	Department of Road Traffic and Safety Services
EDF	Export Development Fund
EIB	European Investment Bank
ESCOM	Electricity Supply Corporation of Malawi
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GIZ	German Corporation for International Cooperation
GoM	Government of Malawi
Ha	Hectares
HFHM	Habitat for Humanity Malawi
HOFACOL	Horticulture Farmers Cooperative of Lilongwe
ICLEI	International Council for Local Environmental Initiatives
ICT	Information and Communication Technology
ID	Institutional Development
IEE	Initial Environmental Examination
IHS3	Third Integrated Household Survey
IHS4	Fourth Integrated Household Survey
IPCC	Intergovernmental Panel on Climate Change
IT	Information Technology
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
JIT	Japanese Tobacco International
KIA	Kamuzu International Airport
KPAs	Key Priority Areas
LAB	Local Action for Biodiversity
LASCOM	Local Government Services Commission
LCC	Lilongwe City Council
LCDS	Less Developed Countries
LDF	Local Development Fund

LGDP	Local Government Development Project
LIA	Low Income Area
LIDS	Lilongwe Integrated Development Strategy
LUANAR	Lilongwe University of Agriculture and Natural Resources
LWB	Lilongwe Water Board
LWREP	Lilongwe Water Resources Efficiency Program
LWSP	Lilongwe Water and Sanitation Project
MACRA	Malawi Communication and Regulatory Authority
MDD	Maximum Day Demand
MDGs	Millennium Development Goals
MEGS	Malawi Economic Growth Strategy
MGDS	Malawi Growth and Development Strategy
MHC	Malawi Housing Corporation
MHPF	Malawi Homeless People's Federation
MICF	Malawi Innovation Challenge Fund
MITC	Malawi Investment and Trade Centre
MLGRD	Ministry of Local Government and Rural Development
MLHUD	Ministry of Lands Housing and Urban Development
MTL	Malawi Telecommunications
NAPA	National Adaptation Program of Action
NBS	New Building Society
NEAP	The National Environmental Action Plan
NGO	Non- Governmental Organizations
NLGFC	National Local Government Finance Committee
NRW	Non-Revenue Water
NSO	National Statistical Office
OVG	Other Vulnerable Groups
OZS	Outline Zoning Scheme
PAPs	Project Affected Persons
PES	Payment for Ecosystem Services
PHD	Peak Hourly Demand
PPP	Public-Private Partnership
REDD+.	Reducing Emissions from Deforestation and Forest Degradation
RFA	Roads Fund Administration
SADC	South African Development Community
SEA	Strategic Environmental Assessment
SMEs	Small and Medium-sized Enterprises
STP	Sewage Treatment Plants
SWSD	Solid Waste Disposal Site
TA	Technical Assistance
THA	Traditional Housing Areas
TNM	Telecom Network Malawi
UAF	Universal Access Fund
UCLGA	United Cities and Local Governments/ Africa
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
USDA	United States Department of Agriculture
WHO	World Health Organization
WVEC	Water, Waste and Environment Consultants

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PART ONE: SIGNIFICANCE OF THE STUDY

1. Background and Context of the Report

The Detailed Diagnostic Report highlights the problems, challenges and opportunities the city of Lilongwe faces in attaining resilient urban development and service delivery. Therefore, presenting the current situation, analysing previous plans and studies, identifying what has been implemented, what has not, and why. It also identifies, reviews and analyses the current problems, challenges and opportunities in the city, by building upon previous undertakings and studies conducted in Lilongwe City on a strategic level. This is in relation to the need to achieve and sustain resilient and sustainable urban growth, environmental sector amenities, economic advancement, infrastructure development and service delivery.

2. Significance of Diagnostic Studies Report: Challenges and Risks

For a preliminary understanding of the urban resilience challenges, it is important to note that Lilongwe is the largest city in Malawi. Lilongwe continues to witness high urbanization rates, mainly due to the relocation of all government head offices from Zomba and Blantyre to Lilongwe as of 2005. It has also been evident that an increasing percentage of the rural population migrate to the capital city in search of better livelihoods.

Within the natural attribute, Lilongwe, Likuni and Lingadzi Rivers as well as several tributaries of Lilongwe River are equally important to the major roads that serve Lilongwe City. Lilongwe City is where much of the urban growth and consequent demand for better services is evident. The city is growing at a rate of 4.3% over the period of 2008 - 2018, serving as the second fastest city in growth after Mzuzu (5.4% growth rate). Its growth has strongly been driven by its status as the capital city. The current population is expected to grow to 1.5 million by 2021, and to double its current size by 2043. Along with this rapid growth, the city is experiencing a rapid rise of informal settlements. About 76% of the city's population lives in informal settlements and or substandard housing, with 25% having no access to potable water. This hasty growth in population and informal settlements is putting a strain on the city's services and, thereby, limiting the exploitation of the city's potential as a catalyst for economic growth.

The city of Lilongwe faces social economic challenges similar to the rest of the country, however exacerbated to a more severe level with high population densities, settlement expansion in areas outside planned city limits and unemployment. Poverty levels are excessive with an estimated unemployment rate of 16.1%. Furthermore, the city's current spatial configuration and development pressure points are located in areas which are difficult and costly to service. Particularly in informal settlements, which often lack proper planned and graded roads and properly designated service areas such as trading centres, clinics, schools, electricity grid, water supply network, etc.

Lilongwe City relies heavily on its own revenue sources in operations and service delivery. However, the revenue resource base is small and the city rates are considerably defaulted. Capital expenditure is negligible, despite a huge backlog in improving infrastructure and management services and where capital expenditure occurs, financing is from the city's operational revenue. The capital fund from central government is limited and funds from the local government is contributed per person within Lilongwe just under 900 MK (equivalent to 1.23 USD) per year, which is extremely low given the development backlog of the city. Therefore, the city faces constant challenges of delivering basic services for the growing urban population. This includes water, sanitation, flood risk, solid waste management, transportation, electricity, and environmental protection.

3. Approach and Methods

The above context of the study shows the challenges and opportunities which serve as base points in order to seek urban resilient and service delivery development. The Consultant team conducted the diagnostic studies in an integrated, multi-disciplinary manner to incorporate crucial layers of the city.

3.1 Approach

Realizing the importance of real participatory approach, the consultants addressed the client, the official institutions and the local community as main stakeholders which eventually lead to tailor made strategies. One of the main objectives in this regard was to fully understand the local setting, and work closely with the Lilongwe City Council to understand the needed drivers for development. In this regard, the approach of the consultants was to allocate time and effort to properly distinguish the realities of the city and associated urban areas and in return be able to utilize their capacities in promoting new infrastructure, along with residential and business areas which will serve as a point of attraction for both the local community and investors. This methodology of work took an integrated planning approach, maximizing the profit in winning proper investments in the city and creating a platform of inter correlation of leisure and business in an environmentally friendly atmosphere.

As the first stage of the work, the consultants built an understanding of the nature of the study, its mission, objectives and the working conditions that will be faced during the course of the study. It was an intensive and multiple task stage that required an interchange of thoughts and information between the consultant's team members and representatives of the client and other related authorities or bodies. The first part of the services covered the analysis and background as well as the bulk of data collection and investigation to identify any gaps and missing information and accordingly, the need assessment components of the project. Data collection covered fields of employment and labour, industry, housing and settlements, transportation, services and public amenities, environment, infrastructure and many others.

Hence, this stage laid the foundation for strategic solutions and land use potentials, by establishing its analytical data base, physical, socio-economic and institutional framework, identifying key participating agencies, as well as key issues and problems of the city and elaboration on planning parameters and development of the city accordingly. The work also included the identification and review of previous strategies and planning studies required for the project which were necessary to formulate the study's program.

Moreover, the analysis of the different layers was based on different planning scales, in order to understand the different strategies and intervention in relation to each other, and to ensure a multitude reflection of the different parameters on each other. This approach aimed to synergize the different synthesis to reach a holistic strategic framework envisioning a more sustainable and resilient development.

A proactive approach in regard and due to COVID 19 pandemic has also been integrated in this urban resilience study. Various levels of the study were investigated to cater for disease outbreaks and other crisis migrations.

3.2 Methods of Diagnosis

Desk Research and Literature Review

The first stage of data collection and study was conducting desk research and analysis of existing and previous studies and strategies. This was carried out by;

- Diagnostic collection and review of secondary and primary data from stakeholders and official bodies.
- Revision and analysis of previous studies and projects.
- Combination of data and creation of base maps for the different layers.
- Definition of the crucial sectors affecting resilience in the city.

GIS Based Analysis

Provision of GIS database was the first output of this stage. The analytical maps and collection of data was completed through GIS systems, which were done through setting up, updating and managing a Geographic Information System (GIS) which is consistent throughout the entire study. This technical line of information within all the results of the study enables LCC to further develop and utilize GIS maps. Therefore, this document will also serve as a reference point for future studies.

Consultation Research Through Participatory Approaches

Participatory approaches were chosen to validate and raise the visions and aspirations of the different stakeholders. This incorporated different tools on qualitative or quantitative levels:

1. Site visits
2. Focus group discussions
3. Local community meetings
4. Stakeholders meetings and consultations
5. Stakeholders workshops
6. Socio-economic surveys



(1-1) Training Session of Enumerators.
(Source: HS, Alma, 2020)

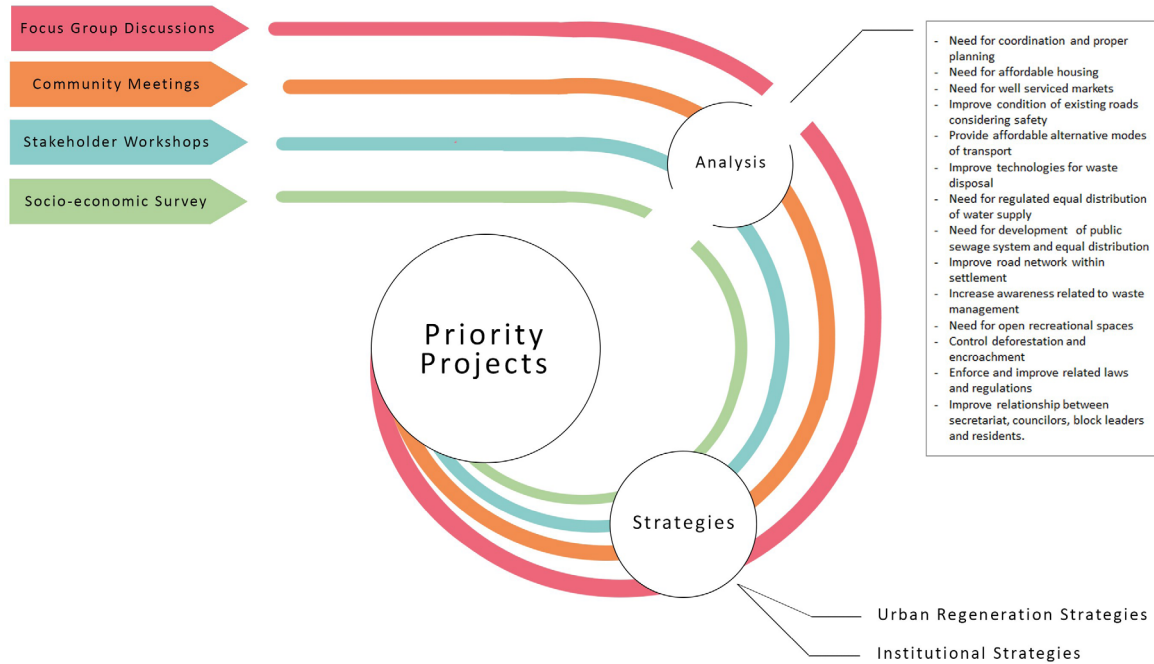


(1-2) Conducting Socio-economis Survey.
(Source: HS, Alma, 2020)

Refer to annex 4 “Participatory Approach and Data Collection Checklist Reports” for further details in regards to the data collection process upon which the investigation took place.

Analysis and Synthesis of Data

The third stage of this method was the analysis of collected data through multiple instruments such as; analysis of the strengths and weaknesses, overlaying the interconnections between the layers, and overlaying the main issues on a spatial layer. The main attributes of the analysis were; SWOT analysis of different sectors, overlaying sectoral maps to raise synergies and triangulated findings, and identifying correspondent set of goals, objectives and needs of the local community. Figure (1-3) illustrates the tools of participatory approach towards these goals.



(1-3) Tools and Results of Participatory Approach, (Source: HS, Alma, 2019)

Findings and Overlaying Strategic Development

The fourth stage was the identification of the strategic approaches for a resilient development in the city. Following this, development scenarios were tested to seek the preferred option for a better development which is linked to the needs of the city and its community. This stage was divided into the following;

- Overlaying the analysis to result in risks and assets of Lilongwe City
- Positioning Lilongwe through its assets, potentials, and vision of the development
- Formulating a strategic framework towards needed development which in return will enhance city resilience
- Building scenarios of development aligned with the vision
- Prioritizing areas of intervention and investment projects

PART TWO: ANALYSIS OF LILONGWE URBAN DEVELOPMENT

1. Diagnosis of Urban Growth

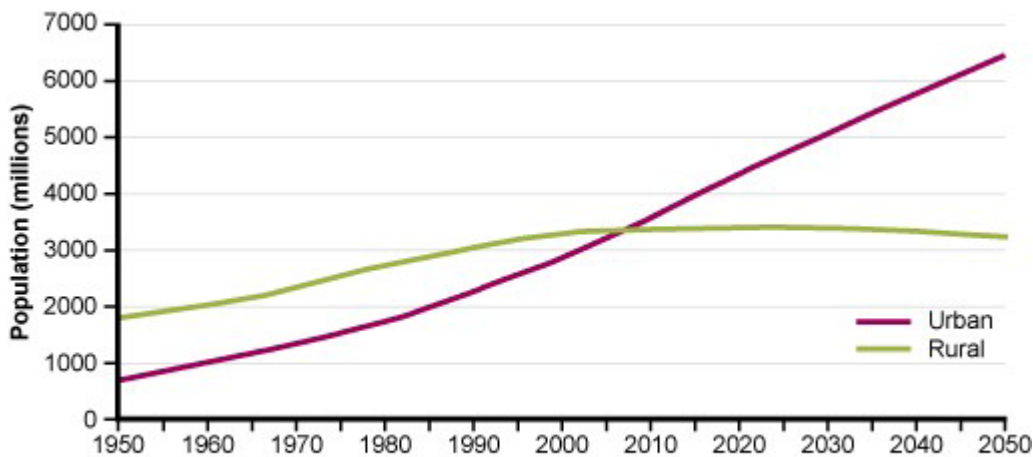
The following section analyses the history, status, and prospects of urban development in Lilongwe city through the lens of urban growth, addressing growth trends, critical environmental aspects, housing and informal settlements, as well as community and economic development. Each is thoroughly explained within the context, analysed in relation to previous studies, and identified for their challenges and potential. In return, allowing for a better understanding for future interventions and proposals.

1.1 Urban and Spatial Growth of Lilongwe

The following subsection addresses the urban and spatial growth of Lilongwe, from the broad urbanization trends of the world to the growth trends in Lilongwe City and included zones. Each aspect is analysed in light of existing situation and previous studies to identify its strengths and challenges to be considered in the final proposal.

1.1.1 Global Urbanisation Trends

Studies have shown a global shift of the population towards urban areas. According to UNDESA (2014) in 1960, the global urban population was only 34%, however this has gradually grown over the years to 54% in 2014. Estimates show that by 2050 the proportion of the global population living in urban areas would reach 70% (UNDESA, 2018) which is equivalent to roughly 7 billion people living in urban areas. Figure 2-1 compares the global population in both urban and rural areas between 1950 and 2050.



(2-1) Urban and rural population of the world, 1950–2050. (Source: UNDESA, 2014)

The majority of the urban population will be in major cities of populous nations such as China, India and Nigeria, accounting for about 35% of the urban population growth (UNDESA, 2018). However, disparities are noted among the regions. South America, North America, Europe and Asia have urbanisation levels above 50% while Africa has a low level of urbanisation at 43%. Nonetheless, the growth rates in African cities are quite high which suggests high potential for urbanisation. Specifically, African cities have annual growth rates of over 4% compared to the global rate of 2%. Sub-Saharan Africa (SSA) is the fastest urbanizing region with its urban population expected to double by 2050 (Saghir and Santoro, 2018).

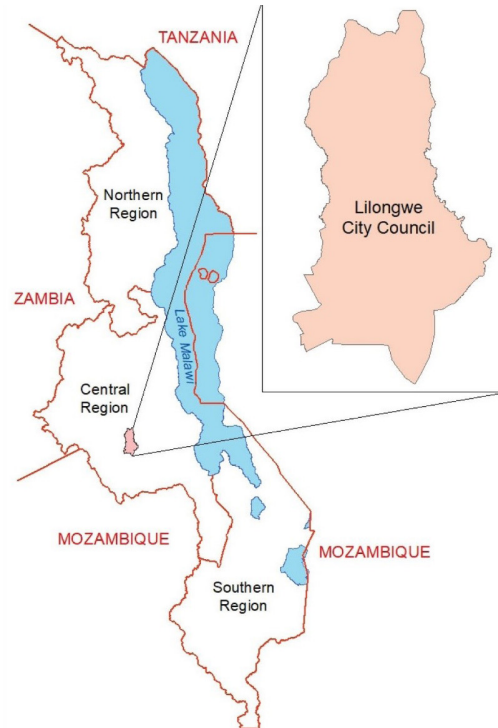
Urban areas with high urban population rates are also recorded in the SADC sub-region ranging from about 2% per year in Zimbabwe to 3.8% per year in Mozambique. However, it is noted that most of the urban growth in these countries is due to unplanned urbanization (Saghir and Santoro, 2018).

Conclusion: The importance of studying the urban growth, as the world population shifts from rural to urban areas. Specifically, with high growth rates in African cities which is mostly due to unplanned urbanization.

1.1.2 Regional and Urban Setting of Lilongwe

Lilongwe city is located in the central region of Malawi, which is surrounded by Tanzania, Mozambique, and Zambia as shown in figure (2-2) - annex 2, map1. Within Malawi itself, Lilongwe is located at almost equidistance from Blantyre in the south (330 km), Mzuzu the north (360 km), Salima to the east (100 km), and Mchinji to the west (100 km).

Since the 2008 Census, Lilongwe has grown to become the largest city in Malawi with a population of about 989, 318. This status has been achieved 40 years after the city was declared the national capital in 1975. The status of city with the largest population has been retained despite a slight decline in its growth from 4.3% in 2008 to 3.8% per year in 2018 (NSO, 2019). Nonetheless the city's population had doubled in just 20 years from 437,090 in 1998 to 989, 318 in 2018.



(2-2) Lilongwe Location Source: (HS, Alma, 2019)

The city's growth has strongly been driven by its status as the national capital, where almost all central government head offices are now located. Lilongwe also serves as the regional headquarters for the central region as well as the district headquarters for rural Lilongwe. At the same time, Lilongwe serves as the major centre of trade for nearby urban centres such as Dowa, Mponela, Madisi, Mchinji, Nathenje. These among others rely on the city's economic assets. Some estimates by Lilongwe City Council show that the city's day time population may reach up to 1.0 million people.

The current population is expected to grow to 1.5 million by 2021, and to double its current size by 2043. Along with this rapid growth, Lilongwe city is experiencing a rapid rise of informal settlements. About 76% of the city's population lives in informal settlements. This rapid population and informal settlements growth in addition to the daily influx of people from satellite urban centres, puts a strain on the city's services and thereby limiting the city's potential as a catalyst for economic growth.

Conclusion: Lilongwe is crucial to the development of Malawi as it serves as the national capital, and major centre of trade of the country. This is shown by the rapid growth of its population. However, this growth is mainly informal and therefore serving as a strain on its services.

The base maps referred to annex 2, map number 2 and 3 showcase both Lilongwe's natural and built features which include; topography, rivers, landmarks, and transportation networks among others. Within Lilongwe's administrative borders and beyond, encompassing rural Lilongwe as well.

1.1.3 Urban Growth Trends

Until recently, the Malawi Government viewed urbanisation as too rapid and hence detrimental to national development. This was understandable as agriculture accounted for 80% of GDP which was dominated by tobacco as the main foreign exchange earner (UN Habitat, 2010). Consequently, national development was largely rural biased (Kalipeni, 1998; Manda, 2013). However, a recent World Bank report (2016, p.2) found that Malawi's urbanization rate was in fact slower than other countries at a comparable level of urbanization in Sub-Saharan Africa.' Thus, the share of national population that resides in urban areas has not grown as fast despite the high urban growth rate.

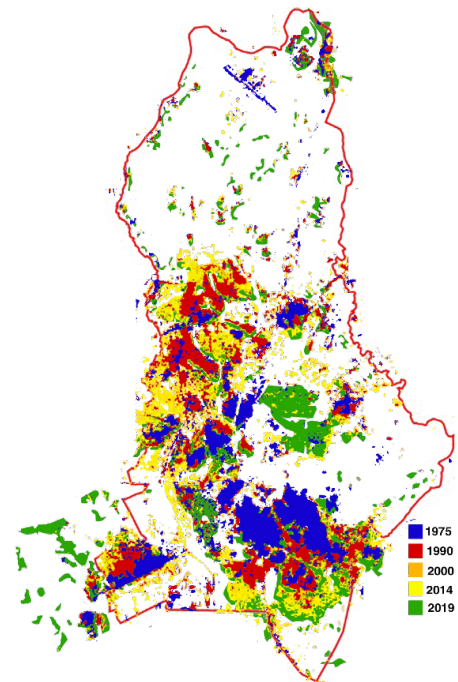
Confirming the World Bank assertion (2016), the urban areas which include small towns and district centres some of which are gazetted as town planning areas accounted for only about 16% of national population in 2018. Most of the urban population was in the four major cities of Blantyre, Lilongwe, Mzuzu and Zomba which accounted for 12% of the national urban population. Small towns, district and rural centres that accounted for 4% of the urban population (Manda, 2013). Owing to a focus on rural development as the vehicle for national development and a decentralized urbanisation strategy adopted in 1987 the levels of urbanisation have not been significant. The national urban population increased from about 850,000 in 1987 to 1.4 million in 1998 then to 2.0 million in 2008 and finally to 2.8 million in 2018.

Conclusion: Urban Growth rates in Malawi are quite high when compared with the national population, but are considered lower in comparison to other countries in Sub-Saharan Africa

The concentration of urban population in Lilongwe, Blantyre, Mzuzu and Zomba has serious implications in the planning and development of these cities. Refer to annex 3, table 1 "Malawi Population Growth 1966-2018" for detailed numbers.

Lilongwe City for its part shows high potential for planned growth. The urban density in Lilongwe is far lower than the urban density in the other three major cities in Malawi as only about 30% of the land area is currently developed. Figure (2-3) portrays the urban densities as of different geographical locations within Lilongwe.

Conclusion: The majority of the urban population within Malawi is concentrated in four major cities. Lilongwe has the highest population. Density is low but much higher in the southern part of the city.



(2-3): Lilongwe Growth Map. Source: (Developed from Earth Observatory, NASA)

1.1.4 Spatial Growth Patterns

In 1965, the national parliament took a decision to declare Lilongwe as the Capital City of Malawi, which required the establishment of a “New Town”. This decision initiated the need for massive and proper planning, leading to the development of a Master Plan in 1968, and the Lilongwe Outline Zoning Scheme in 1969. On the 1st of January 1975, Lilongwe was formally declared as the capital city of Malawi.

A key feature of the original plan of the city was its subdivision into 58 planning areas, as shown in the area sector map referring to annex 2 map number 6. This was meant for easy management and development purposes. Some of the areas (i.e. area 58) are only proposed to be incorporated into the city boundaries.

The national government updated the plan to take into account the extensive development, which had occurred during this period. This plan proposed a linear, multi centered urban form using the garden city approach. The main idea was to overcome the congestion in the “Old Town”. Lilongwe was therefore, planned as a four-sector city; the Lumbadzi, Kanengo, Old Town, and City Center Sectors. These sectors would be self-contained with their own commercial areas. The 1986 Lilongwe Outline Zoning Scheme was introduced to deal with issues and developments that had occurred in previous decades.

Each of the four sectors was expected to be self-contained with specialized services. The Lumbadzi Sector would concentrate on supporting the International Airport. The Kanengo Sector would support the main industrial area of the city. The Old Town sector was expected to sustain and consolidate the existing colonial and regional centre, while also supporting the surrounding districts and rural areas. Finally, the City Centre encompassed both the capital hill and main commercial centers, which would support the nation at large.

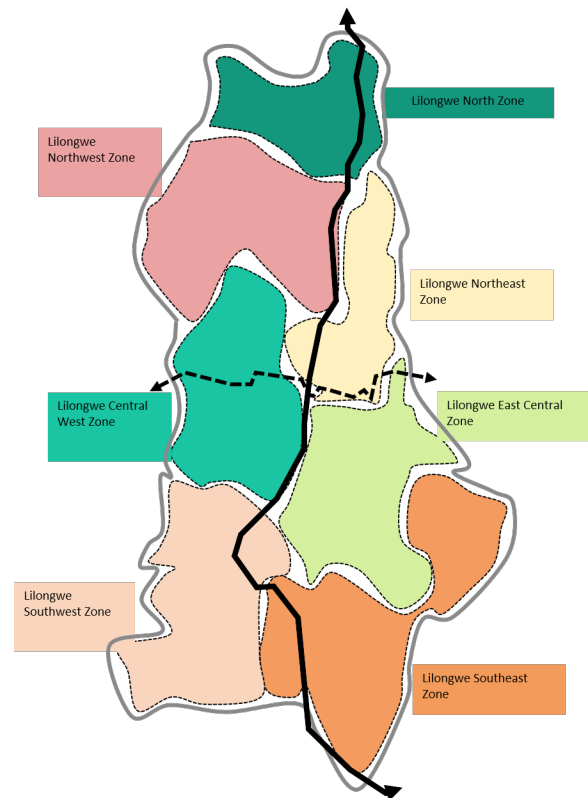
In understanding the setting of Lilongwe city and its locations, it is important to note that Lilongwe, Likuni and Lingadzi Rivers along with main roads of M1 running north-south, Lilongwe- Mchinji, Salima roads and the railway line running east west through the central part of Lilongwe, together serve as natural dividers of the different city zones. These are major geographical features and trademarks of the city along with the characteristics of urbanization in each major area. The Consultants used these geographical features and trademarks to identify and propose major zones that can be used in identifying, describing and analysing the challenges, problems and opportunities in planning resilient urban development and service delivery throughout Lilongwe City and its satellite urban and semi-urban developments at its periphery.

During the inception phase, the Consultant examined and reviewed the mentioned geographical features, landmarks, existing land use, and urban development including; the distribution of unplanned and planned traditional/ informal settlements, as well as planned high, medium and low density housing areas, commercial, industrial and parkland areas. This is in addition to the associated requirements for planning a resilient urban development and service delivery. This resulted in the proposal of the seven sector zoning.

To allow for a better preparation and understanding of the diagnosis of the challenges, problems and opportunities for planning resilient urban development and service delivery in the Lilongwe City, the consultant spatially divided the city into seven zones which followed the current natural growth pattern that is diverted from the original conceptualization of the four sectors. The proposed seven sectors include; South East, South West, East Central, West Central, Northeast, Northwest, and North as shown in figure (2-4) below.

Refer to annex 5 for detailed information in regards to each of the mentioned zones

- The Southwest Zone includes all land west of the Lilongwe River, from its confluence with the Lingadzi River and south of Lingadzi River within the designated Lilongwe City. It's built up areas include Airwing, Mtandile Area 47, 6, 15, 9, 55, old town, Njewa, Chinsapo, Chitedze, NRC, Likuni, and Chigwirizano
- The **Southeast Zone** includes the area east of the Lilongwe River, south of the northern border of Kawale, Chilinde and the area south of the traditional housing area in Area 44/2
- The **East Central Zone** includes land between the northern boundaries of Lilongwe to the Southeast and Southwest, along the Lingadzi River to M1 Lingadzi River Bridge then along M1 road to M1 Rail Bridge then along the railway line all the way to the end of the city boundary. With built up areas including; Area 43, 10, 12, 44.
- The **West Central Zone** includes land the west of M1 between Lingadzi River and Kanengo-Area 25 - Chitedze road.
- The **Northeast Zone** includes the area east of M1 between the railway line and the airport up to Salima road.



(2-4) Lilongwe City Seven Zones,
Source: (HS, Alma, 2019)

- The **Northwest Zone** includes the area west of M1 between the Kanenngo - Area 25 - Chitedzeroad and south of the road from Chitukula which joins M1 road near Lilongwe water Board tanks near the Airport.
- The **North Zone** includes the areas north of the airport - Salima Road and the area north of the International Airport itself.

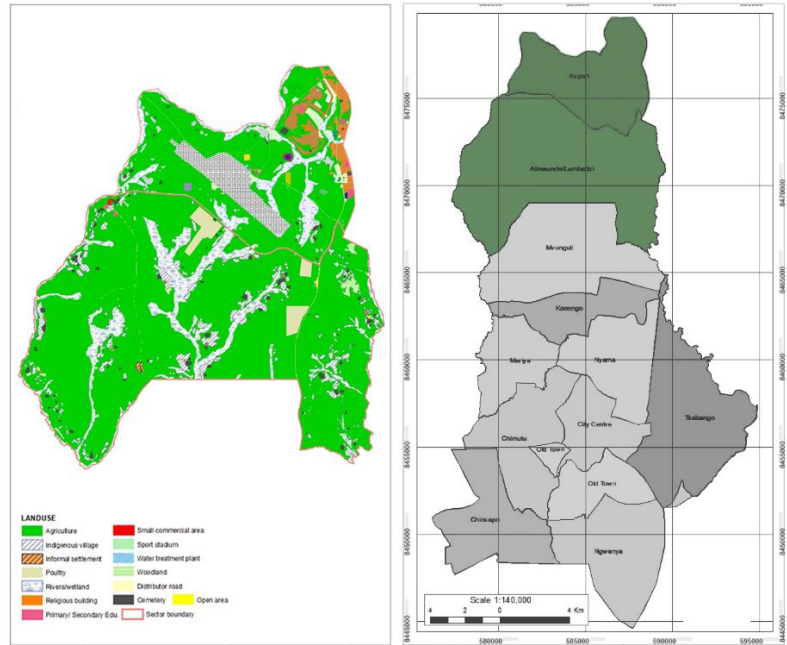
Conclusion: Lilongwe was originally planned as a linear, multi centered four-sector city, each of the four sectors was expected to be self-contained with specialized services, however based on features, challenges and problems within different parts of Lilongwe, seven sectors were proposed.

1.1.5 Land Use and Development

An analysis of the land use development and existing situation shows that Lilongwe has largely grown according the original four zones as follow;

Lumbadzi and Airport Sector

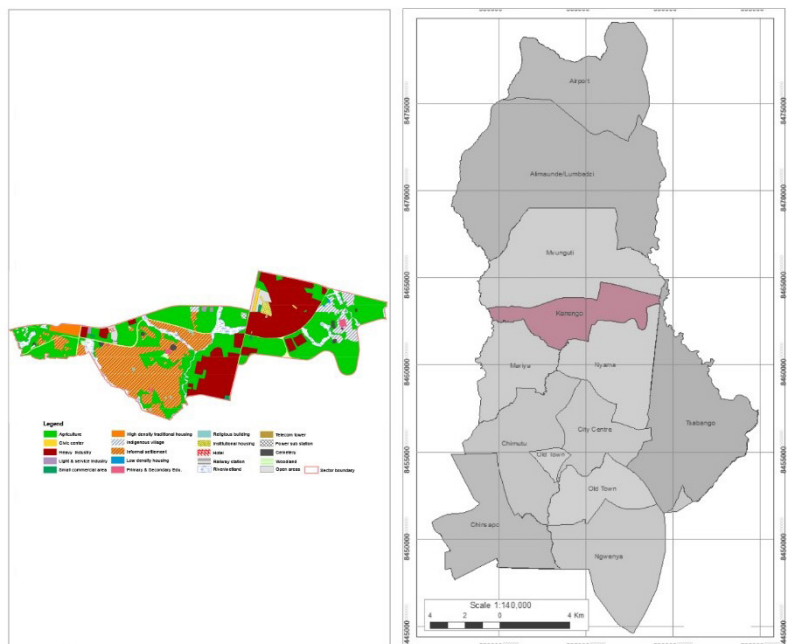
The Lumbadzi and Airport Sector have not grown as fast as expected and the general trend of growth has been informal growth of commercial activities around the Lumbadzi Trading Centre. The informal growth of Lumbadzi Trading Centre may be linked to lack of investment in commercial activities, at the time the Lumbadzi Housing Estate and the airport were developed. As the residential population needed commercial services, the growth of an informal commercial area was inevitable Figure (2-5) shows the location of the sector in addition to its existing land use.



(2-5) Lumbadzi and Airport Sector Land Use. Source: (HS, Alma, 2020)

Kanengo Sector

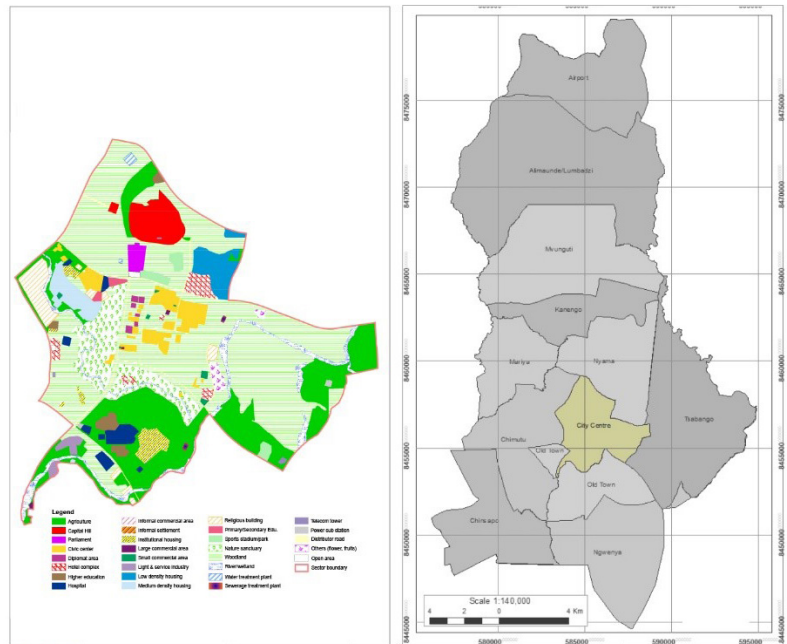
The Kanengo Sector includes the Malawi Institute of Management, Daeyong Hospital and University, as well as a housing area largely self-built by individual households in Area 25, which in return is serviced by the Kanengo Industrial area. The main challenge in the Kanengo sector is inadequate consideration for high income residential housing. As such, there is traffic congestion along the Kanengo- City Centre stretch of the M1 Road, as workers travel to and from their offices and residential areas mainly in Area 10 and 12. Figure (2-6) shows the location of the sector in addition to its existing land use.



(2-6) Kanengo Sector Land use. Source: (HS, Alma, 2020)

City Centre Sector

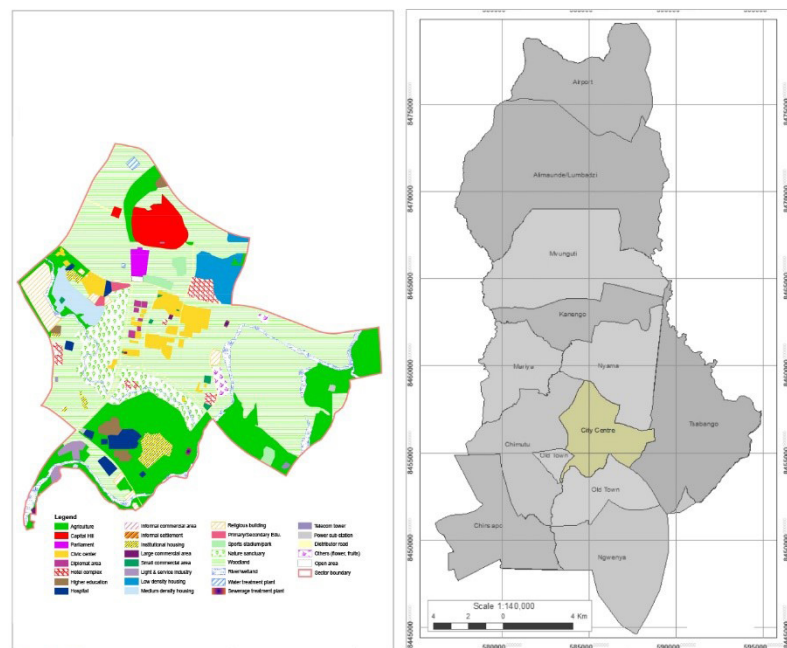
The city Centre Sector has witnessed most of the high-class development both at Capital Hill and City Centre. With recent developments including the Parliament, hotels, and shopping Centres. These developments are supported by high class residential areas in Area 10,11, and 12. As well as low income areas in Kawale, among others. Figure (2-7) shows the location of the sector in addition to its existing land use.



(2-7) City Center Land Use. Source: (HS, Alma, 2020)

Old Town Sector

The Old Town Sector is the most vibrant sector. Noting however that other than the commercial areas, most of the growth in this Sector has been informal. Moreover, the growth of the residential areas has been outside the city boundary towards the south. This is due to the lack of challenges of accessing land within the city border and building height advocacy and enforcement. This situation has resulted in pressure to provide service to those settled outside the city. It is important to note that the original expectation for Lilongwe City was to grow northwards towards the Lumbadzi Sector, however there were no incentives in the Kanengo and Lumbadzi Sectors to attract such growth. Figure (2-8) shows the location of the sector in addition to its existing land use.



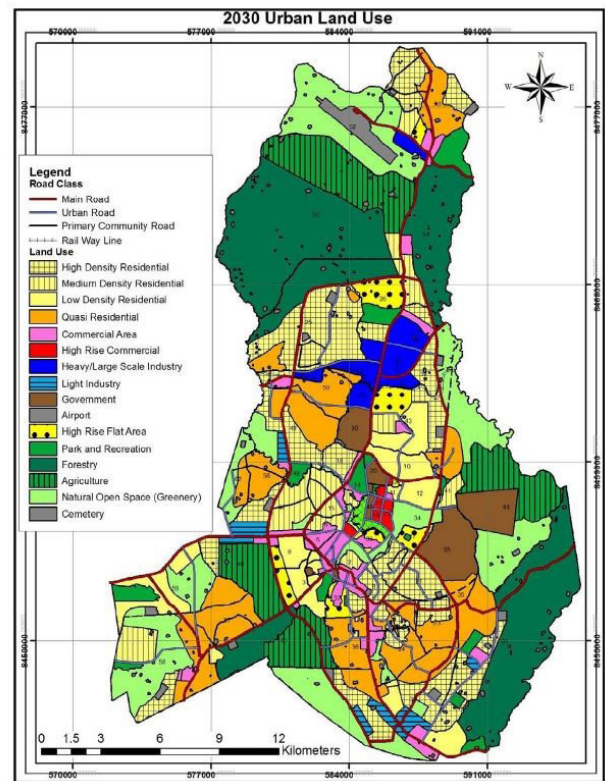
(2-8) Old Town Land Use. Source: (HS, Alma, 2020)

For an overview of all the sectors and their relation one another, please refer to annex 2, map number 9 “Existing Land use“.

1.1.6 Previous Plans and Studies

The Study of the Urban Development Plan for Lilongwe City

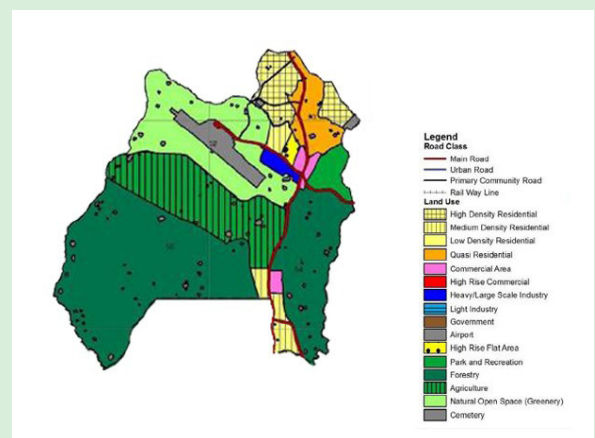
The most recent plans for Lilongwe are the Master Plan (2010) and Urban Structure Plan (2010) which were supported by JICA. The Master plan identified several issues that affected the growth of Lilongwe and in return proposed a development strategy that focused on seven key items: Firstly was the need to concentrate development in the Old Town and City Centre to promote “efficient land use”. Second, was the establishment of industrial areas in the Kanengo industrial area and along the western bypass which had just been constructed. Third, was promotion of business activities at the City centre and establishment of a commercial centre including shopping malls adjacent to the International Airport. Fourthly, was improvement of living conditions in THA and unplanned settlements presumably among others through upgrading projects. The fifth was improvement of the overall urban environment. The sixth and seventh included, strengthening of public administration in addition to the development of transportation infrastructure and urban facilities necessary for economic growth. The seven points were illustrated in the land use Plan for 2030, figure (2-9)



(2-9) Land Use 2030 Source: (JICA, 2010)

However, ten years have since elapsed and not much of the proposals have been implemented. Although the upgrading of transport networks (roads and airport) have begun, and a few business activities have sprouted at the city centre including hotels and convention centre, no shopping malls have been built near the airport. Instead, a mall has been built in the residential areas of Area 47.

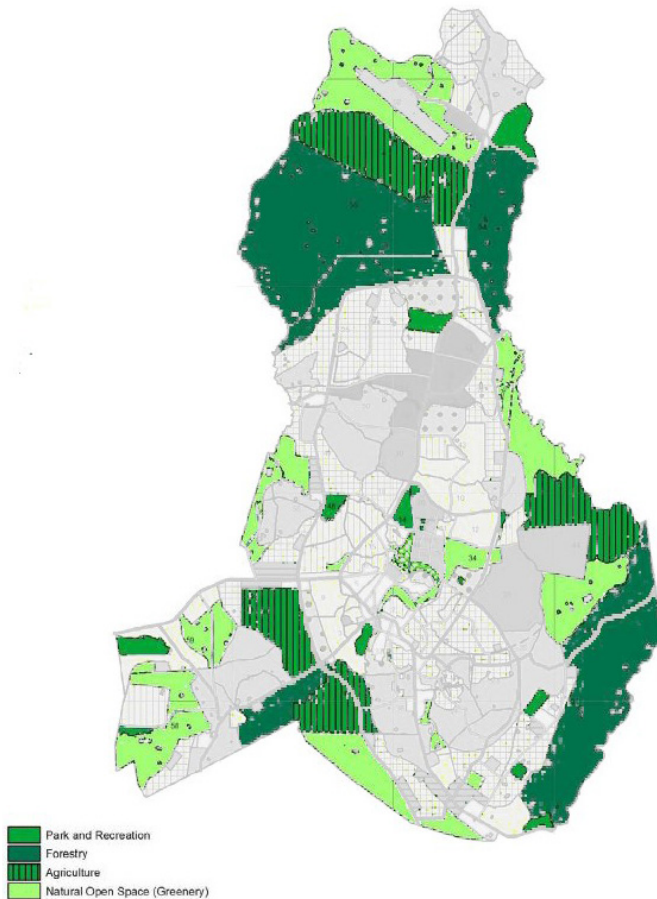
Conclusion: Certain shortcomings in the implementation of the master plan have become visible, as certain hubs have not been developed or implemented as expected. An example of this can be seen in figure (2-10), which shows the proposed Land Use for the Lumbadzi Sector according to the master plan (JICA, 2010) where heavy/ large scale industry has been proposed. This also includes the proposed shopping malls near the airport that have not been built. The land proposed for afforestation in the Lumbadzi Sector to promote green environment has been allocated to other uses. These aspects are taken into consideration in the final proposals of this study.



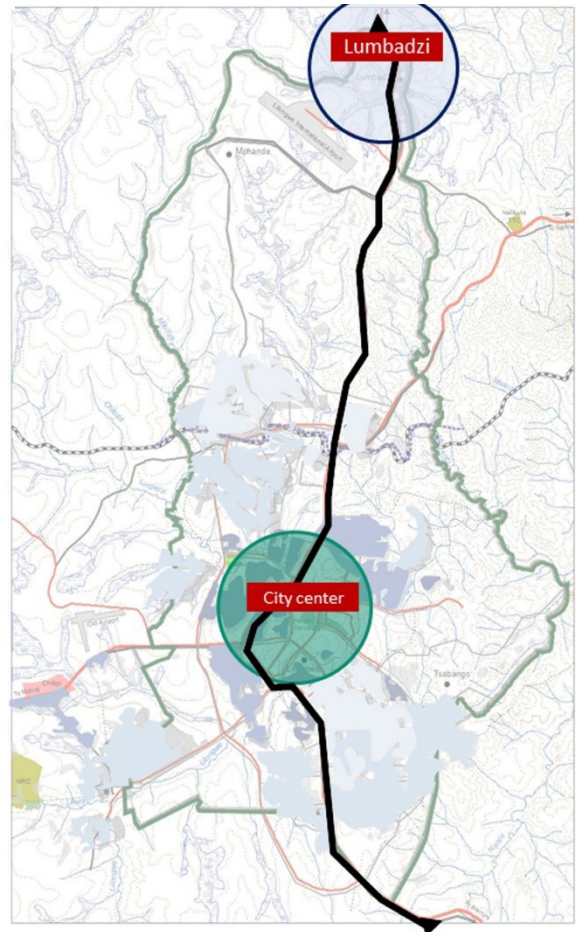
(2-10) Land Use 2030 - Lumbadzi Source: (JICA, 2010)

Conclusion: Against the objective of efficient land utilization, through densification and intensification in all four sectors, large parcels of land promoting green environment continue to be encroached on and allocated for other projects many of which are developed horizontally rather than vertically. Figure (2-11) shows the designated green areas

Such practices contradict the objective of efficient use of urban infrastructure and reducing the cost of development. Finally, no consideration was made for feasibility of passenger railway transport connecting Lumbadzi to the city centre and old town sectors.



(2-11) Designated greenery in 2030 Land Use.
Source (JICA 2010)



(2-12) Transportation connection between Lumbadzi and city center. Source (HS;Alma 2020)r

Conclusion: Connectivity is a weakness point. This is due to congestion, single-lane roads, poor physical status, and minimal variety in transportation modes.

Conclusion: As shown in figure (2-12) the M1 road mainly used by vehicles serves as the only means of transportation connecting both Lumbadzi and the City Centre, this causes traffic congestion and critical accidents. Proving the dire need for additional means of transportation in future plans in order to avoid traffic and co-actively plan for de-congestion. This is shown in the 2010 master plan, but has not yet been implemented. The need for additional transport means evaluated and will be proposed in the final outcome of this study.

The main reasons for failure to implement the master plan are related to limitations of funding particularly because the plan was not linked to council budgeting- a key issues that the Institutional Development Strategy (IDS) had intended to correct. A specific issue that is often skipped is the legal context within which the Master Plan was prepared. Specifically, the urban planning legal framework in Malawi recognized the preparation of urban structure plans while the JICA funded project produced the urban master plan. This conceptual confusion led to the preparation of a separate yet very short, document in 2013, which to date, unfortunately, remains in draft form. It is possible to ascribe some of the failures to implement the Lilongwe City Master Plan to such legal issues, and hence it is possible to suggest that to a large extent the projects implemented based on the master plan are ad hoc.

Institutional Development Strategy (IDS)

One of the major development strategies which have been implemented in Lilongwe City since the 1980s is Institutional Development Strategy (IDS) related to organizational restructuring and strengthening (McGill, 1996). The IDS was a 3-pronged agenda which aimed to transform the city by focusing on city management, financing and planning. The main argument put forward was that the city can effectively function if the management, planning and financing are integrated in policy, planning and implementation. However, although institutionally several changes had been made such as creation of linkages between finance and planning departments, changes in national government and consequent shifts in policies, these could not be pursued to fruition. Consequently, leading to a recurrence of the same challenges that the city had been facing all along. A further study was conducted in March 2020, the situation and institutional analysis by Daniel Kobb. This study has further revealed potential of institutional and financial development and brought into discussion the key parameters upon which the LCC can promote its position and raise its financial revenue and therewith invest in better implementation and service delivery.

City Development Strategy (CDS)

The second development strategy is the City Development Strategy (CDS) which was prepared in 2010. The CDS described the long-term strategic direction and, through long term visioning and goal setting, prioritized issues that would accelerate growth, reduce poverty, build sustainable settlements and empower communities within the framework of the Millennium Development Goals (MDGs). The CDS was organized around five key themes: governance, shelter and land; infrastructure and environment; community development; and lastly economic development. It included a five-year implementation plan with a proposal of major projects, and monitoring and evaluation guidelines. By the incorporation of MDG targets the CDS ensured a pro-poor orientation. The CDS was supported by Cities Alliance through Lilongwe City's membership of United Cities and Local Governments/ Africa (UCLGA) under the 'City Futures' programme. While the CDS is still under implementation, other than the office of CDS manager, its successes are difficult to point out and appear to have largely been swamped into routine activities as those of other departments of the city.

Malawi Growth and Development Strategy (MGDS)

The Malawi Growth and Development Strategy (MGDS) is the overarching operational medium-term strategy for Malawi designed to attain the nation's Vision 2020. The main thrust of the MGDS is to create wealth through sustainable economic growth and infrastructure development as a means of achieving poverty reduction. This is expected to transform the country from being a predominantly importing and consuming economy to a predominantly producing and exporting economy. The MGDS represents a policy shift from social consumption to sustainable economic growth and infrastructure development. The MGDS identifies five broad thematic areas in which progress must be made if the overall strategy is to be successful. These thematic components of the MGDS are: sustainable economic growth, social protection, social development, infrastructure development, and improved governance. The idea is that the strategy should maintain a focus on accelerated and sustainable growth while also outlining steps to ensure social development, good governance and environmental sustainability. Progress in all of these areas will increase prosperity, reduce poverty and assist in the achievement of Millennium Development Goals (MDGs)

Conclusion: Major projects and interventions in Lilongwe were facing financial limitations that prevented their implementation. Institutional framework in Lilongwe City Council had a major contribution to limiting a proper dealing with those interventions..

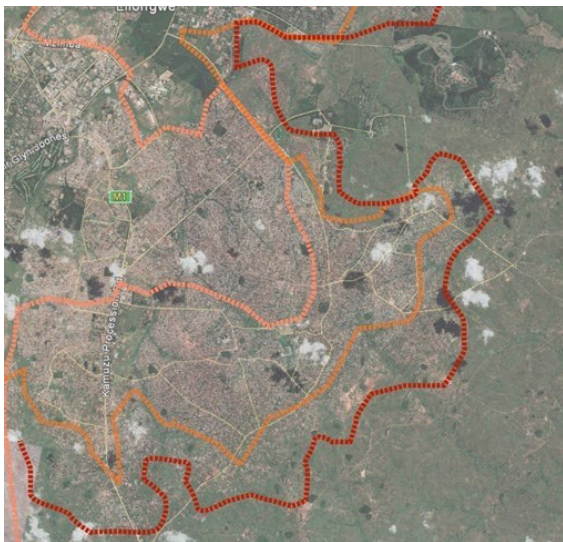
1.1.7 Analysis of Urban and Spatial Growth

Growth of Lilongwe City has been influenced by the informality in settlements rather than a regulated growth pattern in well served areas.

One of the main attributes that have affected Lilongwe City's growth was the four sectors that were originally planned, upon which the city grew in multiple direction. The plan adopted the garden city concept. However, the consequent natural growth did not emerge as anticipated. The Lumbadzi Sector has not grown as fast as expected and the general trend of growth has been informal, particularly with regard to the commercial activities around the Lumbadzi Trading Centre. Additionally, the Kanengo sector faced the challenge of inadequate consideration for high income residential housing. The City Centre Sector has witnessed most of the high-class development. Such developments are supported by high class residential areas.

Conclusion: Lilongwe lacks the necessary financial resources to implement significant development plans and provide the required basic infrastructure and urban services needed for economic development to take place.

One of the main issues that have been traced in Lilongwe is urban sprawl. The city is expanding through informal settlements beyond its administrative boundaries. There has been no sufficient approach to counter the demographic growth in informal settlements. In Lilongwe, the expansion is emerging on the southern part, where the largest population density occurs, as seen in figure (2-13).



(2-13) Expansion in the south east of Lilongwe from 2000 to 2018, Source: (HS, Alma, 2019)



(2-14) The difference between the city center and high-density areas around it, Source: (HS, Alma, 2019)

Another planning issue that Lilongwe is facing is the distribution of the population in different areas of the city. Whereas the well served city centre population is continuously growing, it is noted that its population growth rate is declining. Due to a lack of building height advocacy and challenges to access land by the majority of the residents, the residential areas grew beyond the city boundary towards the south, where the city is facing the highest population density. Yet, the well served areas in the middle of the city are have low density, as seen in figure (2-14).

SWOT Analysis

Strength

- A new master plan was approved in 2010.
- Several strategies regarding the urban development of Lilongwe city have been conducted:
- Including the City Development strategies (CDS), the Integrated Urban Strategy and the Institutional Development Strategy (IDS)
- Lilongwe was planned as a four-sector city; each sector was expected to be self-contained with specialized services.
- The City Centre Sector has witnessed most of the high- class development, these developments are supported by high-income residential areas
- Two major development strategies have been implemented in Lilongwe City since the 1980s.

Weakness

- Low density housing areas where population has decreased, resulted in scattered population density.
- Rapid growth of informal settlements
- Most of the growth in the Old Town Sector has been informal.
- The growth of the residential areas exceeded city boundaries towards the south
- The Lumbadzi Sector has not grown as fast as expected, and the general trend of its growth has been informal growth of commercial activities.

Opportunity

- Over two-thirds of the land area is undeveloped hence can be focus of planned development
- A balanced distribution of areas could elaborate the creation of a solid inclusive development scheme.
- The city centre is developing with a specific character, which can be utilized to attract investment and tourism
- The concept of four hubs can be highlighted to create an interconnected image for each sector

Threat

- The unequal distribution of densities in the city is creating a large strain on the city's resources, and can lead to increased inequality
- The absence of balanced growth in the northern sector could cause unbalance in the wholesome vision of the city.
- The external sprawl, especially in the south serves as a high risk of unplanned urbanization

1.1.8 Conclusion

A full understanding of Lilongwe city and its urban growth patterns is offered through an analysis of global urbanization which shows the world population shifting to urban areas. This trend implies there is need for urban focused policy making and development strategies. With a special focus on Lilongwe City, as it plays a crucial role in the development of Malawi, considering it serves as its national capital and major centre of trade. Despite trivial growth rates in Malawi in comparison to other countries within the region, Lilongwe is showing a rapid growth in its population, however this growth is informal, and is in return adding a growing burden on the city's services.

The urban history of Lilongwe is further examined. The City was originally planned as a linear, multi centered four-sector city with each sector expected to be self-contained with specialized services. It is possible that the sectors were too large to monitor plan implementation and to show case visible development projects. For the purpose of this study, a seven-sector city was proposed based on key features and challenges and problems. Each of the sectors or zones were analysed focusing on key challenges including the occurrence of housing developments without the city's approval, and growth outside city borders both of which effect the city's resilient urban development and service delivery in return. It is anticipated that smaller sectors can support the detailed understanding and analysis and easy monitoring of development projects.

Specifically, analysis of previous projects and studies reveal shortcomings in implementation of the urban layout plans. This includes urban hubs not being developed as expected, as well as encroachment onto planned green areas by other industry and housing sectors. Connectivity between sectors was also weak. In addition, no modal transport split was seriously considered. The shortcomings and lack of implementation is mostly due to financial limitations, consequently limiting the implementation of significant development plans that provide the required basic infrastructure and urban services needed for economic development to take place. The weak institutional framework was contributory to challenges.

As shown Lilongwe faces challenges such as rapid growth of informal settlements and uneven population density. Lilongwe also offers areas of growth and potential in aspects such as an interconnection of the hubs, vacant land available and its ability to attract investment and tourism, among other aspects. All these opportunities are taken into detailed consideration in the final proposal of this study.

In accordance with the COVID 19 pandemic, the urban debate in the study has faced the challenge whether low density areas should be prevailing in the city to reduce chances for diseases outbreaks or compact development that caters for more sustainable development. The study proposal has discussed the issue from an integrated perspective. However, compact development with proper allocation and inclusion of the societies show better chances for development in the city. To address the COVID pandemic, there is need for capacitating the CDS unit to be responsible for additional roles of mitigation and control as well as sensitization.

1.2 Critical Environmental Aspects

This sub-section discusses the environmental aspects of Lilongwe City, its environmental challenges, and an analysis of the previous studies and projects, seeking discrepancies and gaps in implementation.

1.2.1 Environmental Challenges:

In relation to previous studies, the environmental challenges in the city of Lilongwe were listed as four main aspects which include: deforestation, degradation of water resources, liquid waste and solid waste. Further discussed as follows;

Deforestation

In the city of Lilongwe, the commercial, residential, and infrastructure development, are induced by the services and necessities needed as demanded by the population growth, poverty and urbanization. This, in return, has led to clearing of land and forests to create space for development, leading to destruction of forests and related natural resources within the City, and in return disturbing the functionality of the ecosystem and its biodiversity (City of Lilongwe Biodiversity Report 2013). It is unfortunate that the surrounding areas, including the catchments of rivers and streams passing through the city, are also heavily deforested and intensely cultivated to the point of environmental degradation. Furthermore, some of the surrounding gardens, open spaces, woodlands and plantations are illegally and deliberately set on fire during the dry season; with the aim of hunting mice for food. These fires often get out of control and burn large areas of vegetation, thereby exacerbating environmental and catchment degradation. (City of Lilongwe Biodiversity Report 2013).

As noted in the consultation meetings, Lilongwe City Council has been providing tree seedlings to the communities of Mgoni and Mtandire during the rainy season, in order to replant trees in open spaces and along the rivers in an effort to help restore the ecosystem. However, most open areas in Lilongwe City are cultivated and used by residents to grow maize, with no proper soil and water conservation practices. In Kauma, it was noted that due to scarcity of land (open land being used for maize growing), the seedlings were planted along the riverbanks, however are destroyed by the livestock, thus defying the purpose. In Mtandire, similar negligence was present as the seedlings are delivered at the end of the rainy season. Hence, they wither and die due to insufficient water. This explains why most riverine zones have no trees and greenery throughout the city, with an exception of low and medium density areas.

Conclusion: This calls for management guidelines to guide afforestation and conservation of greenery in the city of Lilongwe.

Water Resources Degradation

The environmental and catchment degradation has led to water resources degradation, serving as the second most critical environmental problem, following deforestation (The Government of Malawi (GoM, 2002). The runoff in streams and rivers are ridden with sediment, silt as well as suspended and dissolved solids throughout the rainy season. The settlements, uncollected refuse (especially from market activities), septic tanks and riverbank cultivation (prominent along the rivers, including the Lingadzi and Lilongwe Rivers) contribute to water pollution, siltation and overall environmental degradation in the City. Chemical fertilizers play a role as they increase the phosphorus and nitrate loadings of the water bodies (Sanitation Planning for the City of Lilongwe Low Income Areas, 2013).

The water resources degradation has led to rivers and streams drying at an earlier rate, in comparison to times prior to deforestation. This is in addition to unpleasant scenery as the rivers and streams are littered with plastics, rags and other objects in the river beds and banks. This pollution has resulted in Lilongwe Water Board spending more money treating water.

Liquid Waste

The Lilongwe City Council faces the challenge of retaining a limited number of sewage treatment plants, as it currently only has four functioning sewage plants out of an existing total of eight. The sewage plants in use are located at Kauma, Lumbazi, Kanengo and Area 46 (Cold Storage Company Ltd.). The other four sewage plants are located in Areas 6,13,18 and adjacent to the Hospital. The latter have been decommissioned and encroached upon. This is further discussed in section 2.4.2 of the report under “Urban Services and infrastructure” and a list of all the sewage treatment works is provided in annex 3, table 19.

Another challenge is the lack of supervision by the City Council and insufficient monitoring of the wastewater before it is discharged into the Lilongwe River as noted by the Kauma Sewage Treatment Plant (Performance Audit Report on Waste Management by the City Councils, 2014). This poses a threat of water pollution to Lilongwe River, supported by the limited number of transportation means by the City Council that serve the sewage operations.

Certain habits also play a role in the liquid waste challenges, as people defecating in bushes contaminate surface water through run off. This is triggered by inadequate toilets in public places, as an increase in human settlements means an increased need for sanitation facilities and waste disposal for the population (Chindah et al., 2004). In order to improve sanitation in Lilongwe City the LCC has constructed 57 public paying toilets in different areas of the city. However, only 37 of them are operational, partially due to a percentage of private operators abandoning the toilets, and the dilapidation of some toilets as well as encroachment (Lilongwe City Council 2018-2019 Detailed Asset List report). Therefore, proper and adequate disposal of both solid and liquid waste serve as a vital hygiene and sanitation behaviour, as it prevents pollution and spread of diseases. However, such behaviour will only succeed where safe collection, treatment and disposal of waste; along with adequate and appropriate infrastructure and facilities are in place and are supported by hygiene education and awareness.

It is important to note that the City Council provides cleansing services of sewage sludge collection from septic tanks at a fee within Lilongwe City. Nonetheless, the City only has two vehicles allocated for cleaning services, which are currently both non-runners.

Solid Waste

In recent years, significant population and economic growth in Malawi has led to a sharp increase in the generation of wastes and in particular, non-biodegradable waste such as plastics and glass. This is in addition to hazardous and construction waste from building and road construction sites being disposed haphazardly, particularly in areas which remain undeveloped or in open spaces.

The major challenges of solid waste lie in the collection service, as it is insufficient and irregular in both urban areas and markets of Lilongwe City, and completely unavailable in the informal settlements of the City. Most households and markets, especially in the informal settlements of Lilongwe City, dispose their waste in open spaces, on river- banks and along roadsides. During 2010/2011 Lilongwe City Council was only able to collect 22% of all the solid waste (refuse) in the City (Performance Audit Report on Waste Management by the City Councils, 2014).

The complication in collecting solid waste is partially due to the limited number of solid waste transfer stations, as only four are available; these are located in Areas 13, 24, 15 and Masitha in Kawale. Noting that there is no waste segregation before waste is collected. This is in addition to the non-strategic placement of skips for temporary storage of communal waste which are not frequently emptied, therefore result in overfilling and spillage.

Furthermore, the LCC officially has three designated sites for solid waste disposal (Chitipi landfill site, Area 38 landfill site and Area 27 Tobacco Industrial site), however only one is in use. Initially Area 27's Tobacco Industrial site was designated for waste produced by the manufacturing companies around the Kanengo area, and Chitipi along with Area 38 were meant for market and household waste. However, the Chitipi landfill site is not in operation, as it was encroached upon. Hence, only Area 38's landfill site is used, nonetheless it is inadequate and poses a threat to the water quality.

1.2.2 Previous Projects and Studies

The Study of the Urban Development Plan for Lilongwe in the Republic of Malawi

The Urban Development Master Plan developed the urban plan, land use plan and infrastructure/utility plan (for urban transportation, urban environment utilities) in cooperation with the Lilongwe City Council (LCC). The Master Plan identifies the following environmental issues in Lilongwe City;

- The growing demand for residential lands accompanied by the increase in urban population in the City.
- Risk of environmental degradation caused by the lack of policy for preservation of natural environment in the centre of the City.
- Poor living environment in traditional housing areas (THA) and unplanned settlements.
- Expansion of unplanned settlements.
- Insufficient level of urban utilities (water supply, wastewater treatment and solid waste management).

The concepts of environmental development recommended in the plan are as follows:

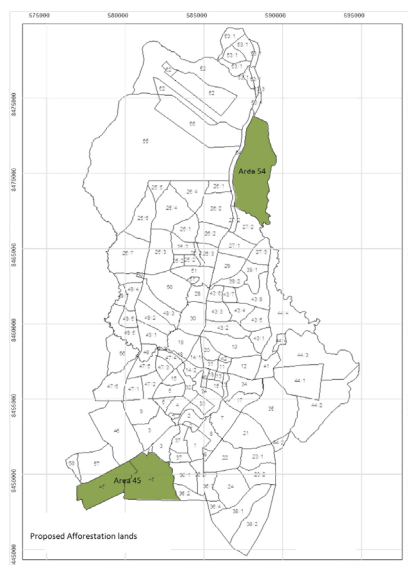
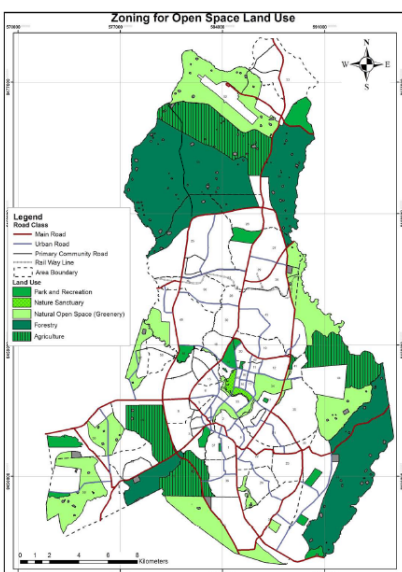
- Green space shall be positively reserved
- Current reserved areas shall be continuously maintained in compliance with the laws.

Conclusion: Part of the institutional regulations should preserve and protect green areas.

- Afforestation shall be carried out especially in the designated afforestation areas. Such areas will be reserved and will not be subjected to any development.
- Parks shall be designated in the land use plan and will be developed in accordance with the Lilongwe City master plan. As shown in figure (2-15).

Conclusion: Some of these areas are encroached by the industrial or built up areas, this calls for further investigation in line with the other adjacent areas.

The Second Draft of the Urban Utilities and Environment, 2014 recommended the existing reserved areas (i.e. the Lilongwe Nature Sanctuary and National Herbarium and Botanic Gardens) in Lilongwe City serve to protect the ecological systems and biodiversity. The protection of existing forest and afforestation –figure (2-16) should be carried out by the following measures; Tree planting along rivers, hillsides, homesteads, wood-lots, orchards and field boundaries; Natural woodland management, Agro-forestry and Protection of indigenous tree species. Additionally, the parks, designated in the urban planning, should also be developed and maintained in order to improve the green, recreation and relaxation areas in the city. Moreover, buffer zones for rivers and streams, including dambos, should be protected



Left: (2-15) Zoning for open space/ Greenery. Source: JICA 2010

Right: (2-16) Proposed Afforestation Areas, Source: JICA (City of Lilongwe Biodiversity Report 2013

City of Lilongwe Biodiversity Report – 2013

The Biodiversity Report for Lilongwe City, 2013 is part of a set of biodiversity reports produced by participant cities (Lilongwe City being one of them), of the Local Action for Biodiversity (LAB) Project. It represents a critical starting point: a status quo assessment of biodiversity and its management in each LAB city. Each biodiversity report covers four key themes of Ecology, Governance, Integration and Participation. The LAB process follows the following five steps:

- ii. Development of a biodiversity report that documents the current state of biodiversity and its management within each city.
- iii. Ensuring long-term commitment by city leadership to sustainable biodiversity management through LAB cities formally signing a local government biodiversity declaration.
- iv. Development of a 10-year biodiversity plan and framework that includes commitments to biodiversity implementation plans and integration within broader city plans
- v. LAB cities' formal acceptance of their 10-year biodiversity action plans and frameworks
- vi. Implementation of five new biodiversity interventions by the end of the three- year project

Conclusion: Consultations with the relevant authorities of Lilongwe City council have revealed that steps 1 and 2 have already been finalized and Step 3 is at an advanced stage.

Lilongwe Water and Sanitation Project (LWSP)

The objective of the Lilongwe Water and Sanitation Project (LWSP) is to increase access to improved water services as well as safely managed sanitation services in Lilongwe City. There are four components to this project. The first component includes water distribution network rehabilitation as well as expansion and Non-Revenue Water (NRW) reduction. The second component is priority sanitation improvement which will finance various investments to increase access to safely managed household and public sanitation services in Lilongwe. These investments include: rehabilitation and expansion of the sewerage network (107 km); installation of 5,000 new sewer connections; rehabilitation and upgrading of the existing Kauma sewage treatment plant; support the construction of 8,000 improved sanitation facilities targeting the poor and vulnerable households; sanitation marketing campaigns; and construction of improved sanitation facilities in 10 markets and 10 schools. The third component will finance the technical assistance (TA) activities designed to support the preparation and supervision of all infrastructure investments planned under the project. The fourth component will enhance the capacity of LWB's and LCC to deliver improved water services and safely manage sanitation services respectively.

Environmental and Social Management Framework for Lilongwe Water and Sanitation Project (LWSP) 2017

This includes sewerage network rehabilitation/expansion: in addition to the above mentioned activities. Serving as the second component of the LWSP as described in the Environmental and Social Management Framework (ESMF) and includes proposals for expansion of sewer network within the vicinity of an existing trunk sewer. The identified priority sewer expansion areas include Area 3, 6, 12, 18, 30, 47 and 48. Specific instruments will be prepared during project implementation following the provisions of the ESMF.

In regards to the rehabilitation and upgrading of the existing Kauma sewage treatment plant; the nature and scope of rehabilitation works is unknown at this stage, however it is expected to include the following:

- Construction of additional facilitative and maturation ponds
- Installation of a perimeter fence around the treatment plant
- Flow measurement equipment installation
- Treatment expansion and rehabilitation, including embankments, tertiary, treatment and effluent disposal facilities
- Baffle installation; and site office rehabilitation/construction

1.2.3 Identification and Assessment of Gaps in Implementation of Previous Projects

Previous projects have raised major aspects in sanitation and provision and delivery of services. Nonetheless, Kauma sewage treatment plant and the support in the construction of 8,000 improved sanitation facilities targeting the poor and vulnerable households were seen as most crucial immediate needs for development in the sector. This was cross-checked through investigations and workshops with the local community that revealed different aspects coinciding with the gaps represented in annex 3, table 2 “Gaps and Shortcomings of Previous Projects”.

Such investigations raised aspects such as cutting of trees and encroachment by developers. The community also emphasized the poor water quality, low water pressure, frequent dry taps, unjustified water bills, and delays in water connection among many other aspects

1.2.4 Conclusion

Within this section a thorough analysis of the main environmental challenges has been conducted through the lens of previous projects and studies, based on which the following conclusions have formulated;

- There is a present need to create guidelines for the management of the afforestation process and its undertakings.
- Part of the institutional regulations should aim to preserve and protect the green areas
- Lilongwe City Council should source funds to acquire the necessary resources for its operations. For example, waste collection vehicles and equipment; as well as waste compression vehicle at its waste disposal site in area 38.
- Lilongwe City Council should devise or review and implement legislation on domestic trade effluent tariffs and collect appropriate fees to support some of the City’s operations. Enforcement of regulations and collection of fees must be given utmost priority.
- The City Council should work with the communities and support the establishment of committees to be responsible for promotion of clean and healthy environments through transformation of people’s attitudes.
- Lilongwe City Council should support both private and public projects related to the improvement of the environment in the city. For example, the Council should support projects implemented by the Lilongwe Wildlife Centre on protection of animals and natural resources. The Council can also support projects like the Masamba Gardens which mainly focuses on permaculture and protecting the Lilongwe River banks in Lilongwe Old Town.
- The City should work on formalizing private sector participation in both liquid and solid waste management. For example, preparing relevant legislation and promoting private companies which are currently providing or willing to provide solid and liquid waste management services.

1.3: Housing and informal settlements

The following section analytically discusses the housing and informal settlements by assessing previous projects and allocating their shortcomings and gaps of implementation. This is carried out through an in-depth understanding of the existing situation in the housing development, followed by a diagnosis of the housing sector.

1.3.1 Assessment of Previous Projects and Studies

Studies on housing and informal settlements in Lilongwe City have not yet come out with detailed data which represent a true reflection of the housing sector in the City of Lilongwe. Most studies in Lilongwe City have addressed other sectors of the economy and urban development. In the case of housing, focus has been on slums and shelters that have been proposed under the Lilongwe City urban profile. As of 2009, a nationwide participatory slum upgrading study was carried out. However the study was very general and did not result in specific programmes or projects being initiated in Lilongwe City. Nonetheless, previous projects that have been undertaken in Lilongwe City include those by the following;

- i. Capital City Development Corporation (CCDC)
- ii. Malawi Housing Corporation (MHC)
- iii. World Bank Project
- iv. Habitat for Humanity
- v. GM Property Investments - Kanengo North-gate development
- vi. Mchenga Fund under The Centre for Community Organisation and Development (CCoDE) and Malawi Homeless People's Federation (MHPF)

An overview of the projects which these players have implemented and their current status is explored in detail under “Key Players in the Housing Sector” section 1.3.3 – Existing situation on housing development.

1.3.2 Gaps and Bottlenecks

According to the 2018 Population and Housing Census, there were 249,694 households recorded within the city's total population of 976,488. Out of these households, 99,757 (39.96%) units were owner or family occupied, 135,240 (54.16%) units were rented, 7,605 (3.05%) units were institutional, and 7,092 (2.83%) units served as other types of occupancy.

Housing is a basic requirement for all citizens and the level of housing development also determines the socio-economic development of the people. Regrettably, very few of the projects mentioned above remain in progress. Some of the stakeholders who were in the forefront in the provision of housing have either scaled down their operations, or shifted their emphasis, and/or are no longer involved where housing and specifically affordable types are most needed.

The high proportion of rented housing units indicates that housing provision is a critical factor. About 76% of the population in the city live in informal settlements. On the same vein and according to the 2018 Census, 503,707 (51.58%) of the total population live in rented houses.

Conclusion: Such housing situation analysis shows that there are challenges which need attention. These include housing delivery systems, affordability, access to land, infrastructure and basic urban services, environment, sanitation, community development, economic development and governance

1.3.3 Existing Situation on Housing Development

Access to Land

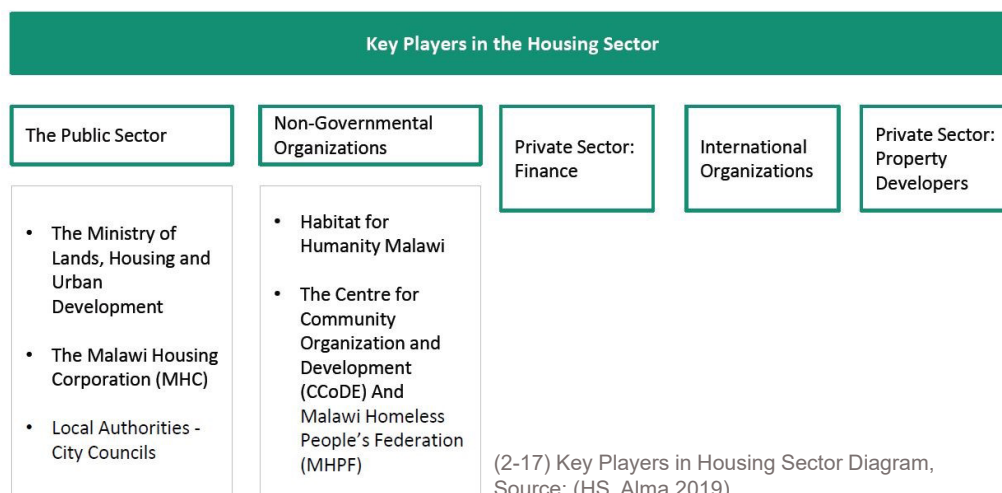
Land availability and its accessibility in urban areas is pivotal to housing development. Access to land for housing in the City of Lilongwe is dependent on the legal framework of land governance and land related laws. There is no unified specific point for the acquisition of land. Rather, there are many landlords in the city and these include the Ministry of Lands, Housing and Urban Development, Lilongwe City Council, Malawi Housing Corporation (MHC), Airport Development Limited (ADL), Press Corporation as well as private individuals and companies, all of which have large freehold or leasehold rights to land. Although all land within the city is supposed to be public or leasehold, there are still pockets of land construed as “customary land”, especially in informal settlements or areas that have been recently included as a result of the extension of the city boundary. In these areas, local leaders (chiefs) play a role in the allocation of land. The ideal and responsive situation is that all urban land within the Lilongwe City boundaries should be administered by the LCC. This would ensure that the implementation and updating of urban plans are adhered to. The Council would be responsible for the supply of land for all housing categories and for strengthening the collaboration with service providers in the delivery of basic urban services.

During consultations with informal settlement residents, it was noted that some lands were sold without proper planning and provision of roads. This has resulted in uncoordinated development. Another problem that was stated is lack of security of tenure in informal settlements; while in other places access to land has become a challenge for people, due to an increase in price, in relation to high demand. These problems require strategic solutions and land use development in light of the diagnosis of the challenges

Conclusion: There should be one unified official housing source (the City of Lilongwe) to control access to land and to enforce strict rules for its attainment

Key Players in the Housing Sector

Housing affects almost all aspects in the lives of human beings. Accordingly, there are many key actors in the housing sector. These include; the public sector, non - governmental organisations, private property developers and international organisations, as shown in figure (2-17).



In this section of the prognostic study the above mentioned key players are reviewed individually in order to outline their role in the delivery of housing. It is important to note that by providing effective coordination among the construction industry, public agencies, government, private sector and developers, housing policy can be effectively implemented

I. The Public Sector

The Ministry of Lands, Housing and Urban Development

The Ministry of Lands, Housing and Urban Development is “mandated to provide land, housing and urban development services to the general public, stakeholders and other parties seeking services; to ensure that physical developments take place in an orderly and sustainable manner” (Ministry’s Mandate). In its quest to effectively deliver these services, the Ministry has three roles in housing: (i) development of national housing and urban development policies; (ii) infrastructure development on public land; and (iii) direct housing delivery for government departments such as health, education, police and the army. In the area of developing policies, the Ministry has formulated a National Housing Policy, which received Government approval in April, 2019. The policy seeks to create enabling legal, institutional and strategic framework for better delivery of adequate, quality and affordable housing to meet the current and future demands. In addition, focus has been placed at provision of land for housing, housing finance, basic infrastructure and services, informal settlement upgrading, construction industry, community participation, property development and management; and the related cross cutting issues.

The Ministry has over time continued to be responsible for the following:

- i) formulating programmes, projects, and standards for housing and building,
- ii) building and maintaining all government buildings,
- iii) providing effective coordination among the construction industry, public agencies, and government to ensure that the housing policy is effectively implemented,
- iv) seeking funding for housing programmes in liaison with the Ministry of Finance,
- v) ensuring the government’s commitment to housing development so that it forms a significant part of the National Development Programmes,
- vi) initiating research in the field of building materials and methods in order to reduce building costs
- vii) improving the database for the housing policy by collecting and analysing socio- economic information pertaining to housing organizing, and
- viii) supervising training programmes designed to improve skills in the building industry at all levels, to ensure that there is no shortage of skilled workers.

Despite its overarching responsibilities nationwide, except for the building and maintenance of government buildings, the Ministry is weak in the provision of urban housing with equal importance in rural areas.

The Malawi Housing Corporation (MHC)

The Malawi Housing Corporation (MHC), which was established in 1964 under the Malawi Housing Act, was originally responsible for the development, construction and management of housing estates in Malawi, for both high and low income households. Their activities dominated the formal sector provision for decades and it is a major landowner. However, it is no longer a major housing provider in cities. MHC was expected to construct houses and provide serviced land that could be used by private developers to build their own houses. Initially, MHC provided for low income households through Traditional Housing Areas (THAs) and developed conventional housing schemes for the medium and high income groups. Yet, it faces a number of challenges including inadequate finance, high building cost and people squatting on its land. In 1992, MHC relinquished its responsibility over the development and administration of THAs to Local Governments and only remained with building of conventional housing in low, medium and high density areas. In Lilongwe City, the MHC and Henan Guoji Development Limited have recently constructed 120 houses for rental purposes. The uptake of these houses has been slow since only about 60% of the units are occupied.

Local Authorities - City Councils

Under the Local Government Act (No. 42 of 1998), many functions previously performed by central government were delegated to local authorities including many housing supply functions. The Councils are responsible for the administration of Traditional Housing Areas (THAs) which were formerly under MHC.

Lilongwe City Council has 4,258.291 hectares of land within the city boundaries upon which it is responsible for the housing supply and other public services. Out of this land only 30,543 plots are planned, demarcated and developed. The rest comprise of unplanned but developed settlements in Areas 22 sector 7 (near SOS), Area 23 sector 2 (Don Bosco Campus), Area 25 sector 1 (behind TTC), Area 27 sector 3 (Adjacent Chatata), Area 36 sector 2 (St John's Campus), Area 39 sector 1 (Chatata), and Area 53 sectors 2 and 3 (Lumbadzi). In effect these comprise part of the informal settlements in the city. Most of these settlements that are unplanned are indigenous villages which need compensation for the Council to fully access the land, to plan and demarcate the plots in accordance with the planning standards applicable for the areas.

The council has a backlog of over 19,000 applications for housing plots but because of the inadequacy of land availability under its control for housing, the council stopped processing and allocating plots for housing in 2018. The Lilongwe Urban Structure Plan has however overall provided adequate land use zoning for housing up to 2030.

II. Non-Governmental Organizations

Habitat for Humanity Malawi

Habitat for Humanity Malawi (HFHM) is a non – profit Christian organization affiliated to Habitat for Humanity International with its head office in Atlanta, USA. HFHM was established in 1986 and is registered with the Non-Governmental Organisation (NGO) Board and the Council for Non-Governmental Organisations of Malawi (CONGOMA). Habitat for Humanity Malawi has been one of the major providers of low cost dwellings in Malawi. Since 1986, HFHM has helped build over 7,000 houses in urban and rural areas. The method used for housing was that HFHM acquired land for housing development from the government or City Council who have also to demarcate the plots and layout access roads. A recipient of a plot is issued with building materials such as cement and iron sheets on loan, which are to be paid back in cash within 8 years, pegged to the price of cement and iron sheet, when each payment is made. Within the City, HFHM provided loans to individuals for the development of decent housing in area 50 under the scheme.

Since 2009 HFHM has shifted its policy and is no longer providing loans as a microfinancing institution on housing. Its emphasis is currently at building homes for Orphans and other Vulnerable Groups (OVG). Since then, slightly more than 400 homes have been completed in Mulanje, Salima, Blantyre, Mzuzu, Lilongwe (rural) and Madisi. Within Lilongwe city, HFHM has only been involved in WASH activities, with Kauma informal settlement, where assistance has been provided on grant basis to 28 OVG families. Currently HFHM is also involved in disaster support programmes and providing advocacy towards the provision of decent and durable houses.

The Centre for Community Organization and Development (CCoDE) and Malawi Homeless People's Federation (MHPF)

The Centre for Community Organisation and Development (CCoDE) and Malawi Homeless People's Federation (MHPF) work in alliance on housing development. CCoDE is a registered NGO since 2003 and together with MHPF has mobilized people living in poor urban communities across the country and the bulk of the people who are living in both informal settlements and Traditional Housing areas where most are renting houses. The two institutions forge to fulfil their objectives to provide housing, water, sanitation, employment opportunities and other initiatives. Since 2003, under the Mchenga Fund, more than 1,100 dwellings have been built in Blantyre, Lilongwe and Mzuzu cities, supported by CCoDE, Malawi Homeless People's Federation. According to the Malawi Housing Sector Profile

(2009), each dwelling costs around USD 580 or MKW 646,000 at today's price with a repayment period of eight years. The beneficiaries themselves, mostly by women, do the construction of the houses through what is internationally known as 'sweat equity'. The beneficiaries make their own sun-dried adobe bricks from the soil on their sites. Construction is through the use of earth mortar and rendered in lime plaster or cement. Roof structures and mostly round poles are treated with termite poison and covered in corrugated iron sheets.

III. Private Sector: Finance

The New Building Society (NBS)

The New Building Society (NBS) was the only institution offering mortgages in Malawi until the financial liberalization in 1989. After this, the NBS found it increasingly difficult to compete with institutions offering a full range of financial services. Thus, in 2003, the NBS became a bank, and has been listed on the Malawi Stock Exchange since 2007. The New Building Society remains one of the leading mortgage lenders in the country, despite the number of its loans being quite small. There are a number of other banks now involved in the financing of housing developments in a small way.

IV. Private Sector: Property Developers

A number of private sector institutions are currently involved in the housing sector, but only for the middle and upper income groups. With a price range of MWK 20-40 million, they would only be affordable to 1 per cent of the population. For example, Press Properties is a division of Press Corporation, involved in building housing for sale and rental at the very top of the Malawian market. GM Properties commenced promoting the Kanengo Northgate development that intended to provide 1,000 medium-density dwellings but the project has stalled.

V. International Organizations

The World Bank Interventions

As early as 1983, the World Bank started supporting Malawi in housing sector developments. The Bank launched its First Urban Project whose main objectives were:-

- i. to develop a wide range of housing options in the country through improved technology
- ii. to provide houses for low-income households which was one way of phasing out subsidies on the existing housing stock of the public sector
- iii. to assist the Government in establishing a self-sustaining housing programme and
- iv. to introduce innovative housing supply systems using local materials.

Based on the existing strategies in housing development, the following conclusions have been made;

- More supervision is needed in regards to urban housing.
- Shortcomings in the execution of certain housing schemes are partially due to inadequate financing, high building cost, and squatters. Retrospectively, alternative building methods and materials should be considered, as well as the enforcement of regulations in regard to land squatting.
- Most of the land designated for housing is not accessible due to lack of provision of basic urban services on the one hand and compensation on the other.

The project funding was channelled through the MHC. The World Bank also provided a loan under the Local Government Development Project (LGDP) to the City Council of Blantyre to develop high density housing areas and support the housing sector through Site and Services Schemes. The project was not successfully implemented because aspects of gentrification crept in where the anticipated beneficiaries ended up selling their Site and Service Plots.

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- Most of the land designated for housing is not accessible due to lack of provision of basic urban services on the one hand and compensation on the other..

Settlement Patterns

The settlement patterns of Lilongwe City follow the historical development of the city. During the colonial rule, the social-spatial division of the city was evident, as the 1955 urban plan was based on race. This mainly consisted of the division into three zones as follows; area 3 was designated for the Europeans, area 2 for the Indians, and Falls and Phwetekere were designated for the Natives. After independence and declaration of Lilongwe as the new Capital City in 1975, the influx of population in urban areas led to the city expansion outside the previously racially developed old town.

Subsequently, the zoning of the new urban structure plan led to the disappearance of the residential segregation set by the colonial regime. Instead, a new form of division occurred, as settlements were segregated based on social spatial factors driven by income and centres of economic growth.

By 1986, the city was well established and its future growth was assured. A large part of the road network had been built and there were water supply and electricity networks. Urban development was taking place in all the four sectors of the City. The Old Town sector was nearly fully developed; the Capital Hill sector was about half way through development; and the Kanengo and Lumbadzi sectors were about one quarter developed. However, after 1993 and based on the results of the current land use studies by JICA in 2010, actual urbanization has not resulted in even and independent growth of the four sector areas. The city's growth has been concentrated in two big economic centres: - the Old Town and the City Centre. The current urban expansion axis is now extending to the south, southeast, southwest and west, since most residential areas are closely linked to the economic centres. With reference to the future urban structure of Lilongwe City, the cluster shape development was adopted as an alternative to urban spatial development. This growth is premised on the position that in recent years, the cluster shape development has become more popular among urban planners in the world due to its suitable pattern for delineation of area on the selective development purpose and prevention of endless and indiscriminate extension of conurbation.

Formal Settlements

Formal settlements or planned residential settlements of high income (also known as low density) and middle income (medium density) level groups were deliberately located closer to the Capital Hill. Such areas include; area 10, 11, 12, 14, and 18. Formal settlements for low income level groups (also known as Traditional Housing Areas-THA) are located in areas such as, Kawale, Mchesi, Biwi, Chilinde, Area 22, 23, 25, 36 and 49.

Informal Settlements

Informal settlements are neighbourhoods principally occupied by low income groups. They have established themselves in areas that were not zoned for residential purposes in the Zoning Plan. These informal settlements seem to have been established as a result of being near centres of economic value, such as employment opportunities found in its vicinity. In some instances, people found accessing land to build shelter to be much simpler and easier than in formal settlements.

There are more than 20 informal settlements in Lilongwe City. These include Kauma, Mgoni A and B, Senti, Mtandire, Mtsiliza, Chinsapo 1 and 2, Area 36 (St John's campus west), Chatata, Area 53 sector 2 and 3 (Lumbadzi), Chipasula/Kaliyeka, Area 23 (Chiuzira), Area 24 (Ngwenya, and Katondo), and Area 25 (behind TTC - Kuliyani). Other areas include those that were originally villages in peri-urban areas and have only recently been included due to city boundary extension.

The LCC has little authority over development in informal settlements. Each household decides how to erect their infrastructure and local chiefs play a major role in overseeing land transfers. It is this aspect that continues to be a substantial governance issue in regards to the city council's prospects of effective resilient service delivery. This setup, which continues to exist today, has aggravated challenges in the informal settlements, which account for 76% of the urban population. Common challenges include uncoordinated urban planning, land management, and development control. This has resulted in outcomes which included unreliable service delivery and water supply shortages representing the lack of planning; poor as well as inadequate sanitation facilities; waste management challenges; poor housing infrastructure; diseases resulting from poor human habitats, insufficient financial resources on both household and municipal level, and finally low participation of the slum population in decision making, amongst others.

Currently, Lilongwe City has 26 low income areas (LIAs), where approximately 412,000 people reside with no or inadequate access to water. The LIAs are divided into traditional housing areas and squatter settlements. The traditional housing areas officially adhere to certain minimum standards such as access roads, pit latrines, and water and sanitation (communal water kiosk within 250 metres radius). The criterion of one house per plot for these areas has, however, not been enforced. Currently, on average five houses occupy a plot, leading to rapid degradation of these areas.

The squatter settlements and unplanned settlements have been built without any basic urban services such as roads, schools, play grounds, health facilities, water and sanitation. Houses are built without regard to plot or access orientation. Despite these shortfalls, these settlements are a growing attraction due to their lower housing/rent prices, lack of regulation and law enforcement, and offer an alternative to the increasingly congested traditional housing areas. (Rusca and Schwartz, 2012).

Housing Conditions

Housing conditions in the City of Lilongwe are characterized by the category of residential area. In formal settlements (low, medium and high density residential areas) all dwellings are, on an average, built of permanent material. Most houses in these areas are two- to three- roomed dwellings. According to the 2018 Malawi Population and Housing Census, 65% of the people in the city live in permanent houses.

In the informal settlements however, most dwellings are built of temporary materials which may include traditional means and pervading technology. This includes using adobe bricks made on the site, blue gum poles, thatched roofing and thin gauge iron roofing. These dwellings are built and/or occupied by the majority poor households in the city, and are mostly 20 to 30 square meters in overall area.

The quality of housing in the low and medium density housing areas is overall acceptable. However, there is a high number of very poor quality houses in the high density and informal settlements. The population densities in areas such as the Old Town and Ngwenya, in the southern area of the City, are 75 persons/ha and 50 persons/ha, respectively. This is far higher than the average population density of 17 persons/ha for the entire City. Ngwenya is strategically located in terms of accessibility to the Old Town, where plenty of job opportunities are available. Hence, the urban population has increased in the southern area of the City. On the other hand, the northern area (Alimaunde/Lumbadzi), excluding the commercial zones is sparsely populated, with an average population density of around 10 persons/ha.

Conclusion: This is contrary to self-contained four sector planning scheme which was traced back to the 1986 As the actual urbanization is not self-contained, it has rather expanded towards the southern area of the City.

The population is growing in the unplanned settlements, and decreasing in statutory housing areas. This growth is attributed to the expansion of non-statutory housing areas (unplanned settlements) that are present in Chinsapo, Ngwenya and Kanengo. The expansion of unplanned settlements is also observed in the northern area around Alimaunde, Lumbadzi and Mvunguti. On the other hand, there are statutory housing areas which are facing a decrease in population. These include areas such as Chimutu (Areas 3 and 9) and Nyama (Areas 10 and 12), which belong to the low density residential zone where plot size per house is extensive.

Conclusion: Formal residential areas are not large enough to accommodate the increase in urban population.

Overcrowding is common in the informal settlements. An example of this is in Mchesi, where extreme overcrowding has been reported, with 55 households sharing a single toilet (Manda, M.A.Z; 2009). According to the community leaders in the city, virtually all households have access to potable water and improved sanitation. However, the potable water is often not within the plot, but rather through communal water kiosks that may be hundreds of meters away. Furthermore, water quality from the tap is poor, as a result of old piping, in addition to general low water pressure. Most settlements only achieve 50% coverage with water sources including individual wells.

Participatory Approaches to Identify Local Housing Aspirations and Needs

According to the community consultations, irregular housing development was revealed, contributing to poor provision of services such as water pipelines, roads, and the high density of housing. This, in return, affects the construction of sanitary facilities. In regards to housing condition, it has been noted that the majority of houses are prone to disasters, commonly from floods. Furthermore, the community said that they have not benefited from social housing programmes such as the Descent and Affordable Housing Supply Programme (DAHSIP).



(2-18) Images from Focus Group Discussion with the Housing Sector: (HS, Alma 2020)

According to the social-economic and demographic surveys, it was evident that certain peripheral areas such as Areas 44,56,50,57,25 from urban centres have the most temporary housing, which indicates and validates the opportunity to social inclusion and bringing people and integrates into the closer areas to infrastructure. Some areas have worse environmental and least healthy spaces within their houses and therefore, they could have more tendency to move and settle in a better place. See Annex Four (4.5.2, pages 148,149,151)

Housing Construction Costs

The building materials used for construction are locally available in Malawi. These include: sand, quarry stone, cement, lime, gypsum, burnt bricks, green (adobe) bricks, timber, grass, soil, concrete tiles, concrete blocks, and stabilized soil blocks. The local clay is reputed to be particularly good for adobe and brick making.

Sun-dried bricks and timber or blue gum poles are common informal sector building materials, and are extensively used as a walling material in Traditional Housing Areas (THAs), informal settlements and villages. Sun dried bricks tend to be manufactured on or near the construction site, and are often made by the owner. Such bricks are set in mud mortar and may be plastered with a combination of mud and lime for added durability. Timber is used for roofing trusses, wall plates, lintels, doors, door and window frames, and other construction items. The informal sector utilizes blue gum-poles or similar material for roof timbers and roughly cut sections for manufacturing doors and windows and their frames.

1.3.4 Diagnosis of the Housing Sector

The housing sector is one of the main crucial issues in the city, as it is the basic need of urbanization. Policies on urban planning and land management are seen as primary indicators of the success and development of the city. The city urban structure plan has provided adequate land for housing development. Hence, there is high potential for housing sector development. The sector is however facing lack of interest from the private sector and NGOs in supporting its future development.

It is recommended that the supply of land for housing should be entirely administered and managed by the LCC, if the delivery of housing and provision of the associated basic urban services is to be accomplished. This would require a new Functional Review of the LCC. The functional review of the LCC would among other things re-examine the roles and functions of the LCC in terms of its responsiveness to resilient and sustainable service delivery in the city.

As mentioned above, the housing conditions in the city vary from good to bad, depending on their location within the city. The formal middle and upper class areas are well developed, whereas the lower income areas, especially the informal areas, face serious challenges.

In another perspective, common challenges in the housing sector include: unreliable water supply, poor sanitation, waste management challenges, poor housing infrastructure, diseases resulting from poor human habitats, low participation of the slum population in decision making, and finally poor and lack of coordinated urban planning, land management and development control.

The quality of the housing units varies from high-income to low-income areas. This includes the quality of the building itself, quality of the utilities within the building, and the regulatory buffer areas in between the residential units. This can be seen in a comparison between the typical single-story houses in the middle- and upper-class areas, and the temporary units with poor sanitation as well as the units within informal settlements

SWOT Analysis

Strength

- Lilongwe Urban Structure Plan has adequate land for housing development.
- In certain cases, accessing land to build shelter is much simpler and easier in informal than in formal settlements.
- The quality of housing in the low and medium density housing areas is good

Weakness

- Limited studies on housing and informal settlements in Lilongwe city.
- Housing challenges are in dire need of attention. These include housing delivery systems, affordability, access to land, infrastructure and basic urban services, environment, sanitation, community development, economic development and governance.
- Pockets of land are construed as “customary land”, despite all land within the city supposedly being public or in the form of leaseholds
- High segregation within the housing distribution
- More than 20 informal settlements are present in Lilongwe City.
- LCC has little authority over development of informal settlements

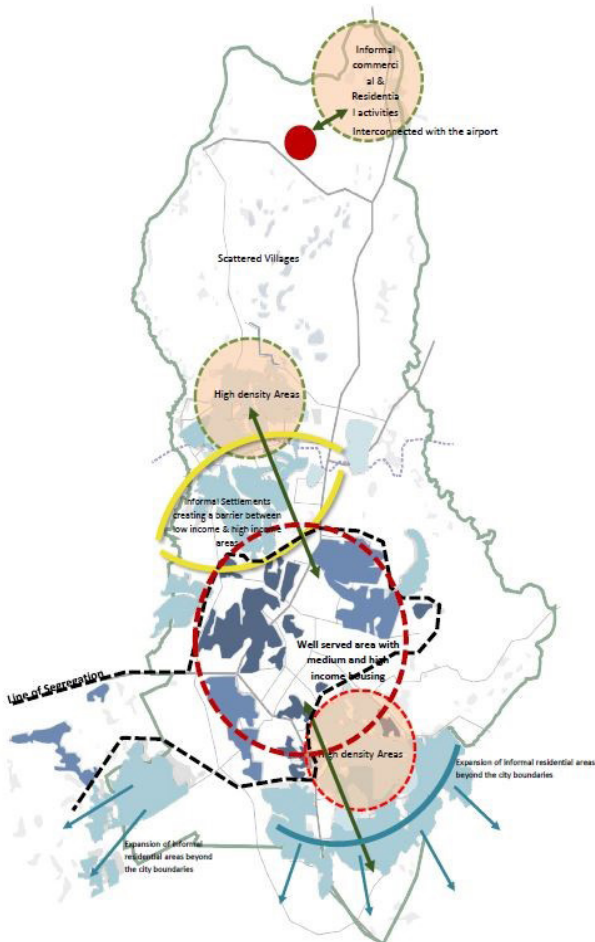
- High number of very poor quality houses in high density and informal settlement areas
- Common overcrowding within informal settlements.
- Poor water quality in informal areas as a result of old piping, as well as low water pressure.
- The housing stock within the city is generally regarded as of poor quality.
- Common challenges include unreliable water supply due to erratic power supply; poor sanitation as well as inadequate sanitation facilities to cater for the whole population; waste management challenges; poor housing infrastructure; diseases resulting from poor human habitats, lack of enough sources of finances at household as well as municipal level; and low participation of the slum population in decision making amongst others.

Opportunity

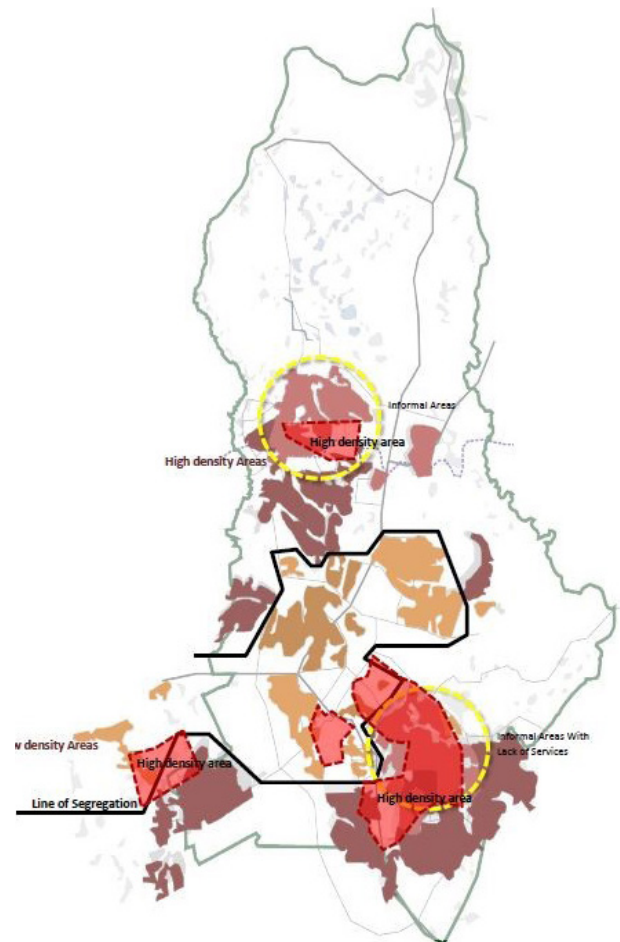
- Suitable residential structure in the city could enhance the living conditions for its residents
- Well maintained and functional upper and middle class areas can create a pathway towards enhancement of low-income areas

Threat

- High intensity of informal settlements and their growth are creating a huge threat on the housing sector
- Absence of community follow up and studies on the housing sector, resulting in the acceleration of informality and associated negative attributes
- Provision of services in low income areas is essential in avoiding the degradation of their conditions, which could otherwise result in high concentration areas with minimum services provided
- Uneven distribution in the city between over and under- crowding is creating hardships in ensuring services and availability of activities



(2-19) Housing Development Analysis Conclusion Map. Source: HS. Alma 2019



(2-20) Housing Analytical Map. Source: HS. Alma 2019

1.3.5 Conclusion

There are a number of key challenges within the housing sector. The most important include the following:

- About 76% of the city's population live in informal and unplanned settlements.
- The housing stock within the city is generally regarded as poor quality.
- The rate of housing delivery is slow and does not address the backlog and or responds to the urbanization pressures.
- The percentage of people living in rented houses is very high.
- Housing rentals tend to be high, thereby reducing access to the urban poor.
- The lack of housing has resulted in high room occupancy rates, contributing to poor living conditions, including lack of disease control and other related social problems.
- Poor and lack of coordinated urban planning, land management and development control systems.
- Inadequate availability of finances for compensation for land for housing; as a result Lilongwe City struggles to offer plots for housing developments, especially for the low and medium income population despite the urban structure plan making appropriate landuse zones.
- Most private property developers or landlords rely on upfront development charges for the construction of new housing estates.
- The coordination of the implementation of water and sanitation services, electricity reticulation and road construction is poor, leading to partially developed housing estates.
- Capacity building for City Planning Department/ Directorate in order to cope with housing sector demands for resilient service delivery as per the key challenges.

1.4 Community and Economic Development

The Community and Economic Development section analysis the socio-economic profile of Lilongwe City, business and market trends, investments, socio economic risk assessment and management as well as partnership and collaboration. The section also provides recommendations based on the analysis of the bottlenecks and successes. Data gathered from literature review and consultative meetings and interviews have been used.

1.4.1 Socio-economic Profile

Social Groups in Lilongwe

Migration

Migration is the movement of people from one location to another within in the aims of establishing a new residence whether permanent or semi-permanent. In Malawi, 10% of the population moved from one area to another in the last 5 years (IHS4) of which 20% of the migrants were in urban areas, while 7% in were in rural areas (IHS4).

Based on statistics, more incidences of migration happened in male-headed household (10%) compared to female headed households (7%), as well as households whose heads were aged between 15 and 24 years or 25 and 34 years. Moreover, migration was higher in households whose heads were never married than the widowed. This was also the case in households whose head had higher educational attainment levels (IHS4). In terms of location, Mzuzu City had the highest proportion of migrants, whilst Zomba City had the lowest. Details in regards to levels of migration in the four main cities of Malawi is provided in annex 3, table 3 “Migration in the four main cities”.

Of particular interest, 29% of the migrants moved from rural to urban areas, while the majority of the migrants (53.7%) moved from rural to rural areas of which 52% did so due to family reasons while 9% migrated to start a business or work. With 8% migrating from one urban area to the other for work or business (IHS4). In terms of gender, 44% of males migrated due to the relocation of their parents / family while 2% did so due to schooling. On the other hand, 48% of females migrated for marriage, 1% for schooling and at least 37% due to family reasons (IHS4).

There are a number of reasons why people migrate from rural to urban areas, and the most common one is the search for economic opportunities. This is exacerbated by the fact that Malawi has done very little to reduce extreme poverty levels in rural areas where the majority of the Malawian population live (World Bank’s, Malawi Systematic Country Diagnostic 2018). For further details and percentages for different reasons of migration, refer to annex 3, table 4 “Migration Patterns according to background characteristics”

As part of the Malawi Growth and Development Strategy, which highlights the Malawi Government’s efforts in fostering rural development as a strategy to address rural to urban migration, the Government of Malawi is championing rural growth centres as alternative destinations for rural- urban migration. Thus, the Government adopted an integrated rural development strategy in order to raise per capita income, creating decent and sufficient rural jobs and viable entrepreneurship opportunities with the aim of broadening the tax base in order to raise more finance for improving the welfare of the population. The rural electrification programme was rolled out to improve energy access and unleash the potential of rural areas in terms of health, tourism, agriculture and mining.

According to a recent Human Development Report (2019), 52.6% of the population is multidimensionality poor. This is in terms of three dimensions; health, education and standard of living; whilst 28.5% is vulnerable to multidimensional poverty.

High Income

These are areas where population density is low and housing quality is improved. A good percentage of the residents in these areas have higher disposal income and have the capacity to access private health services, education and security services. Residents in these high-income earning areas have higher education levels and some occupy higher positions in government, private and developmental sectors; whilst others are successful business persons. Note that, there is a concentration of service delivery to these areas including waste management services.

Low Income

Almost half of the residential land is in low income areas of Lilongwe City, where 76% of the population lives (UN-Habitat 2011). The population living in low income areas faces a number of challenges such as: living in substandard and inadequate housing, absence of tenure security and lack of access to public services. Housing in low-income areas has spread as far as fragile and high-risk areas such as wetlands, river banks and steep slopes (MGDS III).

Sanitation in these areas is a major problem and due to lack of space, pit latrines, kitchens and bathrooms are closely located to one other. Most of the residents in these low-income areas rely on firewood or charcoal as their main source of energy. Management of waste is yet another challenge faced in the low income areas. The growth of slums is propelled by rural to urban migration, which has resulted in further exacerbation of the already existing social economic challenges.

The aforementioned challenges in low income areas were evident during the consultative meetings that were held in Mgoni, Kauma and Mtandire, to mention a few.

Work Force in Lilongwe

In regards to employment in Lilongwe, statistics have shown that the tertiary sector is the largest industry (78%), followed by the primary sector (13%) and secondary sector (9%). A high percentage of employment in the tertiary sector is attributed to many employed workers in the retail/ wholesale fields. The secondary sector in Lilongwe includes firms which produce relatively low technology and domestic market-oriented goods, such as food/beverage and rubber/plastic products for home consumption, in addition to furniture, falling into the category of light industry. This is in contrast to firms in Blantyre which specialize in relatively high value-added industry such as textiles, chemicals/ chemical products, rubber/ plastic products, metal products, and machinery equipment.

The tertiary sector (services) in Lilongwe is supported by a large supermarket and a commercial mall accommodating the growing demand for imported goods, in addition to the development of the banking sector, tourism-related industries (e.g. hotels, lodges and transportation), public transportation services (mini buses) and trucking industries. Furthermore, international delivery (trucking) services is an important aspect since Lilongwe is surrounded by potential agronomic areas where tobacco and other cash crops (coffee, cotton and ground-nuts) are produced, as well as its strategic location as a centre to redistribute products to the South African Development Community (SADC) regional markets.

A) Main Professions in Lilongwe

The total workforce in Malawi is estimated to be slightly above 5.5 million which represents an employment rate of 79.6 %. The employment rate is higher amongst males at 86% compared to females which is at 74%. The majority of employed persons are in agriculture, forestry and fishing (64%) (Annual Economic Report, 2018).

There are two main employment sectors in the Malawi, the informal and formal sectors. The formal employment sector is marginal and comprise of both public and private sectors. Out of the 79.6% employment rate, 11% represent the formal employment sector and the remaining 89% represents the informal employment sector (Annual Economic Report 2018).

While the informal sector is a source of livelihood for the majority of the people, the sector is not regulated by labour and or employment laws. Due to the absence of such laws, the informal sector is characterized by the absence of social security benefits, and sick leaves, as well as non-compliance to the pension act which is currently mandatory. Despite the low wages, the informal employment sector has grown mainly due to the low capacity by the formal economy to create jobs amongst other reasons.

Conclusion: A boost in the economy is vital to create formal employment opportunities, which should be advocated as a replacement to informal employment.

In Lilongwe City, the civil service is a source of employment to 27% of the city's workforce whilst the private sector employs about 40% of the workforce and only 24% are self-employed. Poverty levels in Lilongwe City are very high at 25% and the ultra-poor constitute 9% of the city's population (Malawi Lilongwe Urban Profile: UN- HABITAT, 2011).

B) Wages

The minimum wage in Malawi is very low and is below the international poverty line of 1,9\$/day. It is even low in comparison to its adjacent country of Mozambique, a country that was involved in civil war. The low wages perpetuate poverty as workers are not able to meet their daily needs.

In an attempt to improve the welfare of the poor, the Government of Malawi raised the minimum wage during the 2019/2020 National Budget Session to 35,000 MK per month (47.94S\$ per month). This amount offers the advantage of remaining under the tax-free bracket according to Pay as You Earn (PAYE).

According to the Malawi Labour Force Survey of 2013, earnings in Malawi are skewed. People with higher education earn proportionally more than those with minimal education. Additionally, males have higher earnings compared to females. Moreover, workers in rural areas are likely to receive far less compared to workers in urban areas, as they earn less than two third of the median earning of their counterparts in urban areas. This further supports the rural to urban migration.

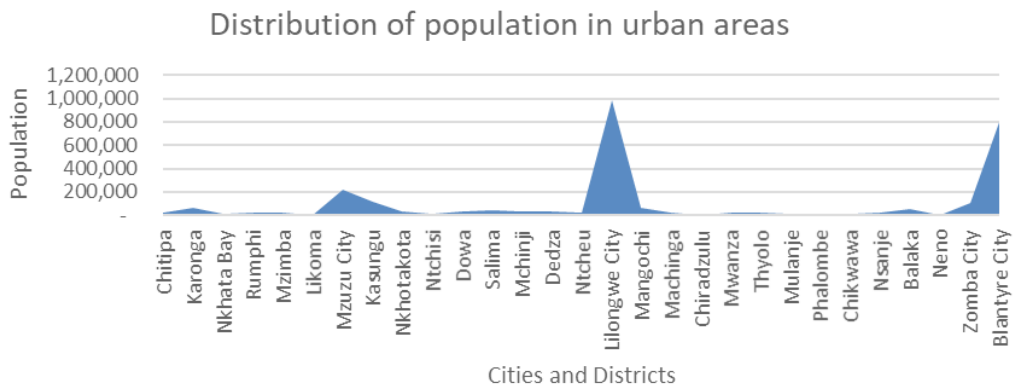
Membership to trade unions in Malawi is stunted due to lack of knowledge by the general population. As a result, this affects the ability of workers to negotiate or bargain for better wages. In Malawi, only 6 % of persons in wage employment are members of the trade unions while 4% are members of the employee associations.

C) Workplaces

Outline zoning schemes and land use influence the nature and types of jobs available with in a particular zone. For a more detailed employment distribution patterns in Lilongwe refer to annex 3, table 5 "Workplaces in Lilongwe City".

The retail and wholesale sectors are growing due to imported goods for sale. Lately, there has been a growth in the number of malls in Lilongwe, with more still being constructed. Notable malls that have been recently constructed include the Gate Way Mall and the City Mall. Additionally, there are a number of large shops such as Game, Shoprite, Peoples Trading or Metro and SANA in the old town of Lilongwe.

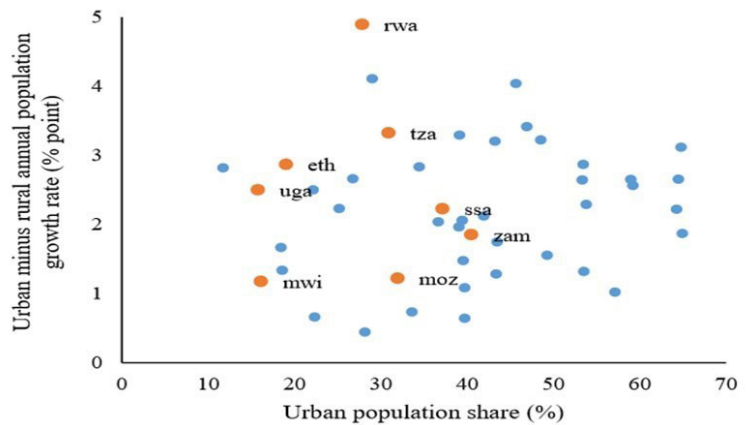
The population growth in major cities and towns is driving urbanization, which if not carefully managed could result into the urbanization of poverty in Malawi. The population census of 2018 showed that 16% of the population resides in urban areas, including cities and towns. The four main cities in Malawi are Blantyre, Lilongwe, Zomba and Mzuzu in which 12% of the total urban population reside, while 4% is in the other urban areas.



(2-21): Distribution of population in urban areas, Source: Own calculation and data from Malawi Population and Housing Census 2018

While urban population has increased from 850,000 in 1987 to 1.4million in 1998 and to 2.0 in 2008 then finally to 2.8million in 2018; the increase as a proportion of the total population has been marginal from 14% in 1998 to 15.3% in 2008 and to 16% in 2018. This offers an opportunity for Malawi to come up with good and comprehensive plans to anchor the development of resilient and competitive cities, Lilongwe City in particular. Figure (2-21) shows population distribution in urban areas of Malawi.

According to the World Bank 2016, Malawi’s urbanization rate has been marginal compared to other Sub Saharan African countries, especially agrarian ones such as Rwanda (RWA), Ethiopia (ETH) Uganda (UGA) Tanzania (TZA), Zambia (ZAM) and Mozambique (MOZ). Figure (2-22) shows the urbanization rates of these countries and how they compare to that of Malawi as a whole. This slow urbanization of Malawi (MWI) should be looked at as an opportunity to city planners as higher urbanization rates may cause unwarranted economic problems.



(2-22): Urbanization rates in Sub Saharan Africa, Source: World Bank, Malawi Urbanization Review Report 2016

D) Demographic and Employment Trends in Lilongwe

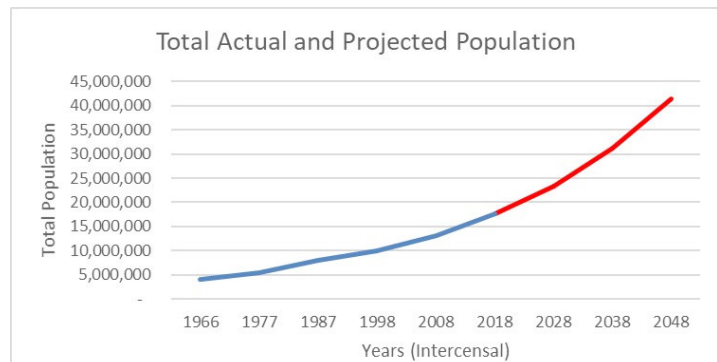
Poverty Analysis in Lilongwe (Gaps and Bottlenecks in Service Delivery)

- a) Service provision vs. growth in population (service provision to include market facilities, financial services, transport services, security, educational and vocational training, etc.)

A study by Action-aid Malawi in 2014 on urban poor settlements in Lilongwe established that poor settlements in the city were growing, and its residents face a myriad of challenges. The study found that 57.5% of the respondents indicated they face challenges in accessing public services, while 28% indicated they face economic challenges. Furthermore, the survey also established that 80% of the respondents indicated they face challenges in accessing health services, whilst 70% and 50% indicated that they face challenges in accessing finance and employment opportunities respectively. Access to water was found to be problematic to 50% of the respondents despite the fact that Lilongwe Water Board’s operations were present in 85% of the settlements.

Malawi is a landlocked, densely populated and low-income country. The per capita GDP of the country was estimated to be 381 USD as of 2015, with over 50.7% of the Malawian population below the poverty line (below 1\$ per day) (MGDSIII). While this is the case, Malawi’s population continues to grow rapidly.

The 2018 Malawi Population and Housing Census estimates the population at 17,563,749, from the population of 13,077,160 of the 2008 census. The change in total population represents a population growth rate of 2.9%. Assuming that the growth rate will remain constant, the Malawi population is expected to grow to 31 million by 2038, as depicted in figure (2-23).



(2-23): Total actual and projected population Source: (Malawi Population and Housing Census 2018)

b) Institutional and Financial Capacity of the Council

Lilongwe City Council lacks the institutional capacity to deliver on its mandate. This was evident during the consultative meetings. Some of the factors demonstration the lack of capacity are:

1. Operating business without following its own strategic plan.

During consultations with the Director of Planning, it was noted that the City Council does not have a strategic plan to provide direction or guidance on how to operate businesses. Failure to have such a strategic plan is a huge bottleneck, as the city is not able to identify areas of strategic focus. This makes it difficult for the Council to champion the development of the city and use the document to communicate the development plans of the city to other key stakeholders.

2. Inability to diversify its income stream

Lilongwe City Council's main revenue stream is property rates which constitutes over 90% of the city's total revenue. Unfortunately, all the revenue generated from property rates is used to meet remuneration of staff and other operational or administrative costs. Other revenue streams include licensing fees, scrutiny fees, parking fees and plan application fees. The city is not able to maximise revenue from these other streams as it does not have good infrastructures e.g. parking spaces and markets.

3. Failure to maximum revenue collection from available avenues

Though property rates are the main sources of revenue for the city, it was noted during consultation meetings that the city has not been able to chase and recover money from debtors. This had led to the city being owed close to 9billion MK.

4. Failure to supervise and monitor development taking place in the city

It is now difficult to relocate residents in the unplanned areas, as they would demand compensation. Construction of roads and water piping have become difficult, as buildings have been erected in places where roads and water pipes were supposed to pass. These unplanned settlements have also compromised the capacity of the city's resilience to climate change impact.

5. Lack of staffing at the council

The council does not have adequate personnel to carry out most of the activities. For example, the Department of Engineering has only one person who is involved, amongst others, with coordination of other project activities. In some departments, it is not under-staffing but rather the lack of relevant skills in personnel.

6. Provision of Security lights in the streets of Lilongwe City

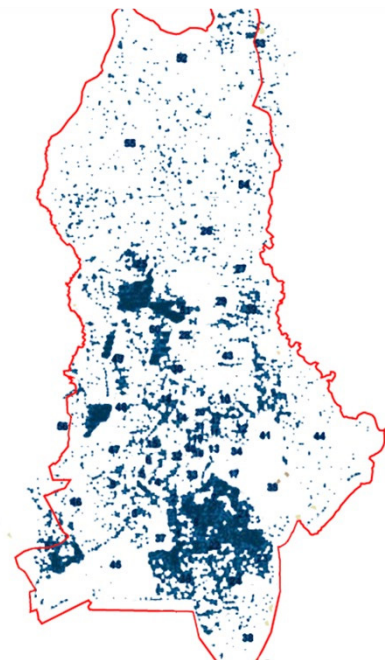
There are a number of streets within Lilongwe City that do not have street lights. Some streets have poles for street lights, however these have not been functional for a long period of time and there is no clear estimate of when they will be repaired.

Poverty Analysis in Lilongwe

Poverty in Malawi remains widespread at 51.5% nationwide as of 2017, an increase from 50.4% in 2010. Poverty is more widespread in rural areas at 56.6%, this is largely due to food insecurity. (African Economic Outlook, 2019).

Rapid urbanization and inadequate employment opportunities have resulted in high poverty rates in the urban areas, which currently stand at 25% of the city population, with 9% being ultra-poor. Poverty is exacerbated by a steady growth in the prices of basic goods and lack of access to basic urban services. Acquiring loans for economic development is hard for the poor due to high interest rates, and their participation in city development is minimal. About 43% of household’s income is spent on food (UN-Habitat, 2011). The distribution of such high levels of poverty demonstrated by poverty pockets is shown in figure (2-24).

During community consultations, security related complaints arose, it was revealed that one of the major challenges is the lack of street lights in some settlements, resulting in night-time security challenges. This is in addition to certain areas lacking police stations.



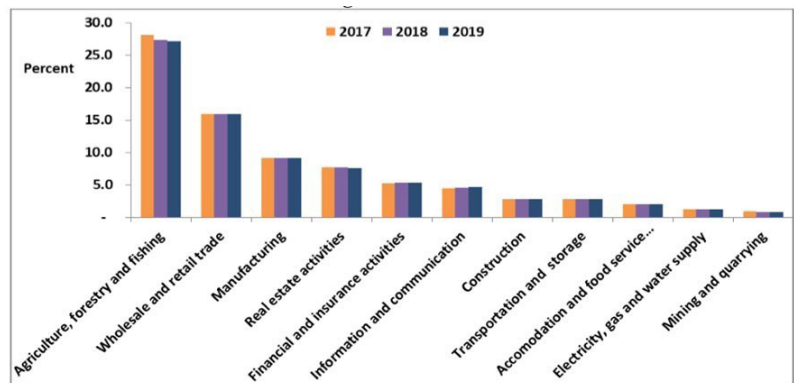
(2-24) : Poverty pockets in Lilongwe
Source: (Rusca and Schwartz, 2012)

1.4.2 Business and Market Trend Analysis

Business and Market Trend Analysis

The agricultural, forestry and fishery sectors have continued to be the main contributor to the country’s Gross Domestic Product. This is followed by wholesale and retailing, manufacturing, real estate, finance and insurance activities, information and communication, construction and others as shown in figure (2-25)

The over dependency on the agricultural sector for the country’s economy is a huge risk, as any shock in the sector affects the resilience of the whole economy. Therefore, there is a need to diversify economic anchors of the country, Lilongwe City in particular in order to build a resilient city.



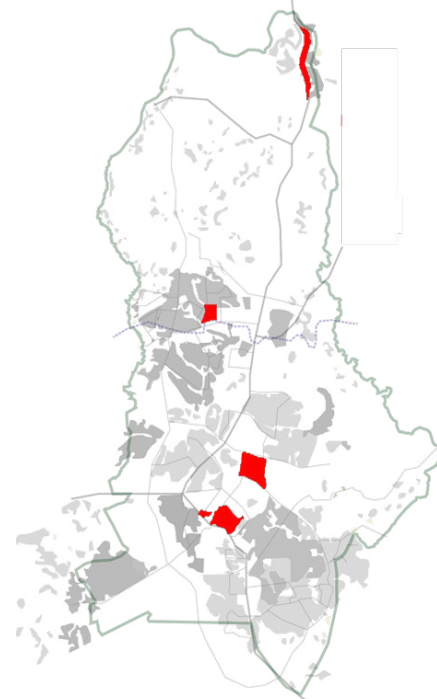
Source: National Statistical Office, Reserve Bank, Ministry of Finance and Ministry of Economic Planning and Development

(2-25) : Sectoral contributions to Gross Domestic Product.
Source National statistics office

Retail

There is an increase in retail businesses in Lilongwe City. Some of the retail businesses involved offering mobile money services, banking, food, groceries, electronics, and inputs. Most of the retail businesses thrive on selling already manufactured products which are mostly imported.

Enterprises involved in wholesale, retail trade, accommodation and food services constitute 72% of non-agriculture enterprises, while only 16% are involved in manufacturing. Other retail businesses include transportation, communication, construction, real estate and mining (IHS4). The distribution of existing commercial land use is shown in figure (2-26).

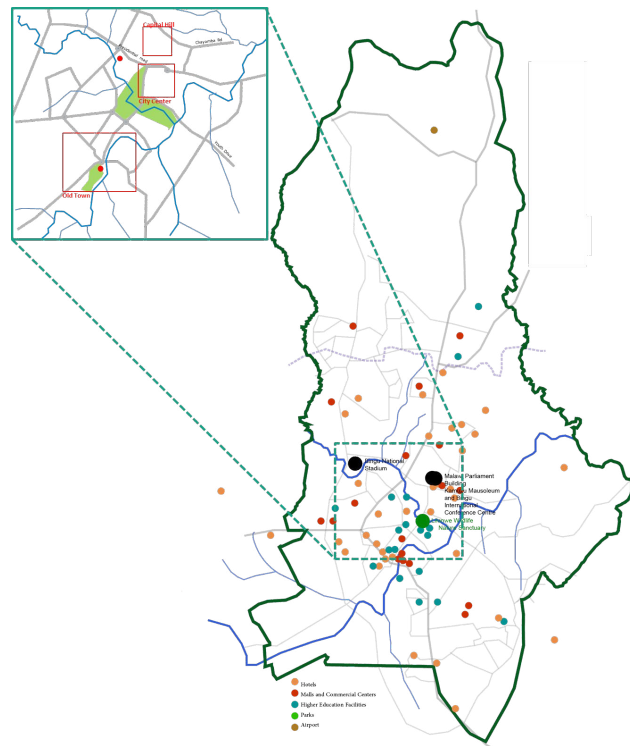


(2-26): Map of existing commercial land uses.
Source: HS, Alma 2020 - Data Source: LCC 2020

Tourism

Tourism is an underdeveloped sector in Lilongwe City. Considering that Lilongwe City is the central point to the country by international tourists, there is a need to further develop a sustainable tourism sector within Lilongwe City. The potential of the country's tourism sector towards economic growth cannot be overemphasized.

The tourism sector contributed a mere 7% to the country's GDP and 6.2% of total employment in 2016. The tourism industry is labour intensive; as such it has huge potential to solve the current problems of youth unemployment as well as provide women empowerment. Tourism is capable of providing growth, which is resilient to climate or weather variability, contrary to agricultural commodities which are susceptible to price volatility. The tourism sector has an extensive multiplier effect as it is linked to a number of sectors such as the supply of agriculture and aquaculture products; and services such as carpentry, plumbing, repairs, taxis/ transportation and sale of curios and other goods to tourists (MGDS III). Existing tourism attractions are shown in figure (2-27).



(2-27) : Map of Tourism Attractions,
Source: HS,Alma 2020 - Data Source: LCC 2020

The main challenge in regards to Malawi's tourism sector is the limited diversification. It currently lacks in being a multi-experience destination to tourists.

Lilongwe City is not spared from the problem of having limited tourist attractions. The city grew without paying attention to issues of tourism. Furthermore, the railway and bus transport systems which are supposed to efficiently serve the tourists are far from being efficient.

The main type of tourism is business tourism, which is related to the recently constructed Bingu International Stadium, Parliament Building, Kamuzu Mausoleum and Bingu International Conference Centre. Currently there are few recreational facilities in Lilongwe which include:

1. Lilongwe Wildlife Centre
2. Nature Sanctuary
3. Botanical Garden

The Lilongwe River offers significant opportunities for tourism in the city. A feasibility study could be carried out in regards to the construction of a dam for sporting activities as well as more places like the Nature Sanctuary along the river. However, in order for this to be meaningful, there is the need to clean the river, protect it from pollution and address its current degradation challenges.

In order to grow a vibrant and resilient tourism sector, there is need for targeted investment in infrastructure such as roads, capacity building, security, energy, telecommunication (especially internet), establishment of recreational facilities within Lilongwe City and improvement of conservation and management of cultural heritage resources.

Previously, there were four forest reserves around Lilongwe City namely: Dzalanyama, Bunda, Nalikule and Namilomba. However, Namilomba Forest Reserve was cleared to pave way for further expansion of the city centre. Part of Nalikule and Dzalanyama Forest reserves have also been depleted.

The main reasons for forest degradation are:

- i. Unemployment
- ii. Food shortages
- iii. Production of charcoal and fuel as a source of energy due to power black
- iv. Increase in urbanization which is putting pressure on natural resources as a source of fuel wood for production of burnt bricks for construction
- v. Farming especially tobacco where fuel-wood which is used for curing tobacco
- vi. Development or construction for example part of Nalikule Forest was cleared for construction of a college

The department of forestry plans to increase the number of guards, engage more with communities, establish and rehabilitate camp-sites, and enforce related laws, as some of the strategies to address the problem. Furthermore, the department will work with communities to establish village forest areas through the Village Natural Resources Management Committee, and is encouraging communities to plant more trees.

There is a present need to package tourism services properly. For example, the need to develop the tourism sector in Lilongwe City based on existing assets e.g. Bingu Stadium and Bingu International Conference Centre. Lilongwe City Council could also consider developing township tourism based on comparative advantage of the townships e.g. Mchesi has the potential to show case skills of Malawian entrepreneurs involved in carpentry work. Lilongwe City's shortcomings (such as lack of a museum) offer a great opportunity for growth; and this is a potential investment area. Additionally, Lilongwe City is completely dead at night and this spotlights the need to improve security and offer night life as a tourism package.

Agriculture

Agriculture is the main economic stay of the country and contributes to 28.3% of the country’s GDP (Annual Economic Report 2018). Moreover, agriculture is the source of livelihood to over 80% of the population as it generates over 80% of the country’s national export earnings.

The trade deficit for Malawi has continuously widened since 2007, as the country’s imports are approximately double its exports (International Trade Centre, 2018). The gap is expected to grow even further in the coming years due to anti-smoking campaigns of tobacco, considering that tobacco largely dominates Malawi’s exports. Tobacco contributes to about 40% of the country’s total exports and this calls the need to diversify the agricultural sector as well as the export base of the country. The trade deficit is further worsened by the over production of tobacco which in return has contributed to the decrease in prices offered at the auction floors.

The government of Malawi has been encouraging the consumption of local products through the “Buy Malawi” Campaign Strategy, in order to reduce the volume of imports and consequently the current account deficit (Annual Economic Report 2018). According to the International Trade Centre, the trade balance for Malawi increased from 573.9million MK in 2014 to 1,327.6million MK in 2018 as shown in figure (2-28).



(2-28) : Trade Balance between 2014 and 2018 for Malawi. Source: International Trade Centre (ITC)

The trade deficit exists despite the fact that Malawi has signed a number of trade agreements with other countries to facilitate trade. Malawi has bilateral trade agreements with Botswana, Zimbabwe, South Africa (non-reciprocal) and Mozambique while at regional level, Malawi is a member of the Southern Africa Development Community (SADC) and Common Market for Eastern and Southern Africa (COMESA). At the multilateral level, Malawi is a member of the World Trade Organisation (WTO), Africa Caribbean and Pacific Group of States and the European Union (ACP-EU) Cooperation Agreement. Through the African Growth and Opportunity Act (AGOA), Malawi has enhanced market access to the United States of America which it is failing to take advantage of.

Malawi has new opportunities for exports both by exploring exports for non-traditional products and through product diversification of traditional products. Non traditional products include animal products and plastics while traditional products include sugar, tea, oilseeds, wood and vegetable products, pulses and other cereals (ITC, 2018). Malawi has Mozambique and Zimbabwe as the market potential for chicken eggs and poultry, while Kenya, India, Italy, Belgium, Spain and Germany are potential markets for fresh and dried macadamia nuts.

Lilongwe City offers huge opportunities for increasing the export base of the country. A number of agro-processing activities, poultry production and packaging of agricultural products are taking place within Lilongwe City. Additionally, the City is surrounded by districts that produce some of the identified crops with export potential which includes ground-nuts and soya which are grown in Mchinji, Dowa, Salima, Dedza and Lilongwe in addition to sugar- cane which is grown in Salima. As shown in figure (2-29).



(2-29) : Exports crops grown in surrounding districts to Lilongwe City. Source: Consultant map.

Lilongwe City acts as a reliable market for crops and animals brought in from its surrounding districts, due to the presence of agro processors and a working-class population that rely on buying food for consumption in Lilongwe City. Agricultural produce from the surrounding districts and areas within Lilongwe rural is used as raw material by agro-processors and manufacturers in Lilongwe City. This contributes to the creation of decent and sustainable employment opportunities. The availability of decent jobs within Lilongwe City stimulates labour migration from rural areas, as they work in higher productive sectors such as in value addition, transport, financial and ICT sectors.

The migration of people from rural to urban areas creates a shortage of the labour force in rural areas, resulting in high demand for labour as well as low production in the rural areas. Consequently this results in an increase in prices of agricultural commodities and wages. The increase in commodity prices and wages will later attract investment and migration of people between rural areas as well as from urban areas, thereby igniting development in both rural and urban areas (World Bank 2016) Lilongwe City can therefore act as a catalyst of development for other areas.

There are a number of agricultural activities that are taking place in the country with financial and technical support from the Government of Malawi and its development partners such as the World Bank, the International Fund for Agriculture Development Fund (IFAD), DFID, European Union and GIZ who are financially supporting different interventions in the agricultural sector in Malawi.

An example of some of the flagship agricultural projects Lilongwe City Council could take advantage of, in order to enhance agriculture and agribusinesses within the city include the Malawi Agriculture Commercialization project. With the World Bank as the donor, the project aims to increase the commercialization of selected farms and agribusiness products for domestic and export markets for the period between 2017 - 2022. Another project is the Commercial Agriculture for Smallholders and Agribusiness (CASA) funded by the DFID which seeks to change the way investors, donors and government view and invest in agribusiness that work with smallholder supply chains.

Urban agriculture within Lilongwe City is carried out for both subsistence and commercial reasons. Poor and female headed households mainly practice urban agriculture for food security and have smaller plots for farming. The main challenge is that plots of land owned by the resource poor households are widely dispersed hence difficult to support such enterprises (Mkwambisi, 2017).

Some of the commercial agribusiness enterprises within Lilongwe City are Katete Dairy Farm, Central Poultry and Sun-seed Oil Ltd. There are also small to medium agribusiness enterprises within Lilongwe City in the horticulture sector such as Thanthwe Farms, Hortnet and Tithokoze Farms. Other agribusiness enterprises are Multi Seed Company, Honey Products, Ziweto Enterprises and Perisha Agro dealers. A main advantage in regards to agriculture in Lilongwe City is its direct link to both local and regional markets through air and land.

For further information on the varied produce and location within Lilongwe, please refer to annex 2, map 7 "Vegetation Map".

Manufacturing

The manufacturing sector in Malawi is extremely limited and the country relies on already manufactured goods, which results in the country being a net importer of goods. The country's current account balance improved to a deficit of 853.7 billion MK in 2018 from a deficit of 1,165 MK in 2017. The improvement was largely attributed to sugar and pulses exports as much as it was a deficit (RBM, 2018).

There have been a number of initiatives to attract investors into the country. The Government of Malawi established the Malawi Investment and Trade Centre (MITC) whose mandate is to promote and facilitate investment in the country. The government along with its development partners have been supporting the growth of the oilseed sector through a number of interventions to promote exports.

Export Development Fund and the Malawi Innovation Challenge Fund (MICF) are some of the many initiatives currently in place. The Export Development Fund (EDF) is a development financial institution (DFI) whose major objective is to increase the productive potential of the country through provision of finance, equity participation, or credit guarantees, and advisory services for the set-up, expansion and modernization of viable enterprises in the medium and large-scale enterprises sector. EDF mainly focuses on export, import substitution, agricultural diversification, and utilization of locally available raw materials. On the other hand, the Malawi Innovation and Challenge Fund provides matching grants to enterprises, it has a number of funding windows such as; manufacturing and logistics, agribusiness, finance, irrigation and agriculture to which enterprises can apply for funding.

Major manufacturing or agro processing companies are in the tobacco industry in Kanengo e.g. Alliance One International, Japanese Tobacco International (JIT) and Limbe Leaf. Other large-scale companies involved in agro processing are CP Feed, Sun-seed Oil and Mount Meru. CP Feeds is involved in commercial production of poultry feed mainly for its farms, while Sun-seed oil and Mount Meru processes edible cooking oil from soya and sunflower. They are also based in Kanengo on the way to the Kamuzu International Airport. There are also small-scale enterprises that are involved in manufacturing and processing of agricultural products within Lilongwe. Some of them do the processing at their back yards due to lack of capital to buy land.

ICT

ICT is a booming industry that is driving change and competitiveness of industries. It is a catalyst for the growth of other industries. Malawi Communication and Regulatory Authority (MACRA) was established to regulate and monitor the provision of communication services and to ensure as far as it is practicable, reliable and affordable communication services throughout Malawi. MACRA draws its mandate from the Communication Act of 2016. The Government has also formulated the National Access to Information Policy though it has taken time to gazette it.

In 2013 the Malawi Government formulated the National ICT Policy, which aims at developing the ICT sector by promoting the development and use of ICT in all sectors, in addition to enhancing universal access to ICT services to achieve widespread socio-economic development. The ICT policy covers the Information Technology (IT), Telecommunications, Broadcasting and Postal Services specifically aimed at enhancing the provision of ICT services to rural areas and vulnerable groups, promoting and attracting investment in priority ICT areas, planning the national development and utilization of ICT, and formulation of an appropriate regulatory framework aimed at safeguarding fundamental human rights, protecting privacy, promoting electronic services and competition in the ICT sector.

MGDS III recognized ICT as an enabler for poverty reduction and wealth creation as it is critical for enhancing the economic competitiveness of the country. The high cost and poor access to ICT infrastructure remain a major threat to accelerated ICT development. There is a need to improve access to information and communication services by developing robust ICT broadband infrastructure services, enhancing ICT skilled labour force in both public and private sector institutions and improving the efficiency in postal services.

Malawi has four mobile phone operators namely Airtel Malawi, Telekom Networks Malawi (TNM), Malawi Telecommunication Limited (MTL) and Access Communications Ltd (ACL). Airtel and Telekom Networks Malawi (TNM) are the two notable mobile service providers in the country. Airtel has the majority of individual subscribers (55.9%) while Telekom Networks Malawi (TNM) has 43.7% of individual subscribers.

Mobile phones are used in a number of ways including but not limited to managing disaster and diseases, monitoring field activities/surveys, transfer of funds, offering agricultural extension, marketing and management. In Malawi, 46% of households own mobile phones of which 85% are in the urban areas. More male headed households (50%) own mobile phones compared to 35% of the female headed households. In terms of location, 58% of households in the north own a mobile phone compared to 46 and 42% in the Southern and Central Regions respectively (NSO 2014). Despite the impressive statistics above, only 30% of individuals are capable to access internet as it is deemed expensive by most Malawians.

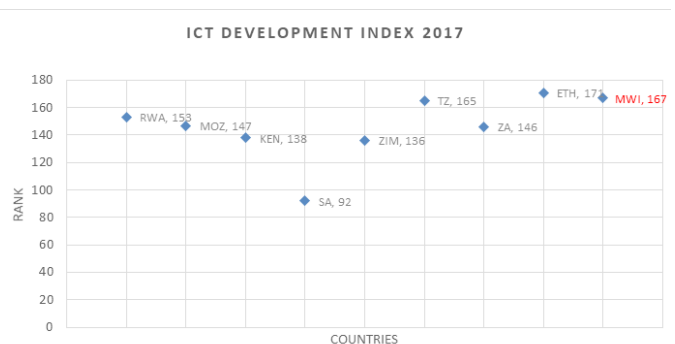
There are a number of Small and Medium Enterprises (SMEs) within Lilongwe City that are involved in provision of ICT services in terms of repairs and maintenance, capacity building and marketing and selling of ICT products. Some of the SMEs are Mhub; a techno hub which trains youth to code, as well as Skyband and Techno brain to mention a few. While there is growth in the sector, little is done to manage ICT waste and this is an area Lilongwe City Council may need to garner more support.

The ICT Association of Malawi is an umbrella body of all IT professionals in Malawi, whose mission is to offer ICT leadership by catalysing policy changes and supporting related developments, aimed at enabling Malawians to participate effectively in modern technology based global economy, benefiting the nation and its partners. Further detailed information in regards to percentage of users of different ICT services and equipment, in correlation to location, is provided in annex 3, table 8 “Individual Access to ICT Equipment and Services”

The importance of ICT in enhancing business competitiveness cannot be overemphasized. Over 85% of hotels in Malawi use ICT as a strategy to attain global competitiveness, however the level, extent and sophistication of ICT strategy varies amongst hotels (Kaitano,2017).

Businesses use ICT for booking and inquiries, supplier and customer relationship management, events and promotional campaigns, budgeting, human resource management, marketing, order and online payment, point of sale, vehicle tracking and inventory management. However, there are equally a number of barriers to ICT exploitation in Malawi, which include but not limited to high cost of ICT infrastructure, unreliable power, poor network, lack of in house expertise, technological resistance within organisations, and high initial capital costs (Kaitano, 2017). Furthermore, ICT can be used to report crime, water and sewer leakages and control traffic congestions; and even automate irrigation, entertainment and security at home.

The United Nations International Telecommunication Union publishes the ICT Development Index for measuring the information society. The index considers, amongst other indicators skills, use and access to ICT. The Index is used as a benchmarking tool by countries in terms of ICT development. Malawi is ranked number 167 according to the ICT Development Index of 2017 as shown in figure (2-30). Malawi has a long way to go in achieving universal access to ICT in comparison to its neighbouring countries in the SADC and COMESA regions.



(2-30) :ICT Development Index. Source: Data collected from International Telecommunication Union, 2017

Emerging ICT Trends

Advancement in the digital footprint has continued to take place and through the Internet of Things (IoT), ICT will not only be used for connecting people, organisations and information resources but also connect objects equipped with digital information as well as sensing, processing and communication capabilities. Through Internet of Things, large amounts of data can be generated and utilized to achieve efficient gains in production and distribution of goods and services improving human life. However, this will require advanced and appropriate ICT infrastructure, services, skills and improved fibre connectivity or reliable fixed and mobile broadband connectivity. The advent of cloud and other architecture is lowering the entry barriers to scalable computing resources as they lower the required fixed cost of ICT infrastructure. Policy makers and regulators are therefore called upon to create enabling conditions for facilitating entrepreneurial experiments and innovations to act as a catalyst for the development of a vibrant ICT sector.

Construction

The National Construction Industry Council in Malawi was established through an Act of Parliament in 1996 (Cap 53:05 of the Laws of Malawi) to regulate, promote and develop the construction industry. It achieves this mandate partially by facilitating access to resources for development by Malawian firms, acting as a conduit for facilitating proper development issues, research and promoting the use of competitive local materials.

The construction sector contributed about 3% to the GDP, which represented a growth of 4.5% in 2018. This was higher than the 4.4% in 2017. The growth was partially attributed to the government of Malawi increasing funding for construction works, such as the dual carriageways in Lilongwe and Blantyre (Africa Housing Finance Yearbook, 2019).

The importance of the construction sector in Malawi continues to increase as the country continues to invest in infrastructure development (roads, sanitation and buildings etc.). The construction sector trailed agriculture in terms of creation of employment for households, as the sector created employment for 143,016 households (NSO 2018).

Lilongwe City is experiencing unprecedented growth in terms of infrastructure development, and the demand for land for development has continued to grow. There is a growing percentage of the population that is looking for decent housing and estimates show the country needs 21,000 new housing units per year for the next 10 years. The demand for housing in all sectors of the property market (commercial, residential and office) outweighs the supply, mainly in Lilongwe and Blantyre (Africa Housing and Finance Yearbook, 2019).

The construction industry offers employment especially to semi and unskilled labourers to build and rehabilitate roads, houses, offices, recreational facilities, malls, markets, health facilities and schools in the city. Some of the notable construction projects that have recently taken place in Lilongwe City include but not limited to western by pass road, office blocks in area 13 adjacent to National Bank of Malawi, the dual carriage way from Sunbird Capital Hotel roundabout on the presidential way to area 49 or Bingu Stadium. These projects have face lifted Lilongwe City.

A study by Finscope revealed that the largest turnover by the business sector was from wholesale and retail which contributed 74% of the total turnover while the rest of the sectors contributed a turnover of less than 10%. The least contribution was from the construction sector at 0.5% with a total turnover of (71,549,734) However, in terms of contribution per enterprise from each sector, the tourism sector had the highest turnover, trailed by manufacturing, construction and community and household activities. The construction sector's contribution per enterprise was higher than most sectors with an average of 24,335\$ and median of 8,219\$. The high contribution per enterprise in the construction sector was attributed to the large size of the enterprises in the sector (Finscope 2019). For further details, refer to annex 3, table 16 "Sectors Contribution to turnover"

From the consultative meetings held with different stakeholders, it was evident that there is plenty of land in Lilongwe City. However, the main problem is the limited planning and monitoring of construction projects by Lilongwe City Council, to ensure efficient use of land and structures being constructed to meet international building standards. Therefore, there is need to ensure the structures are being developed in line with the developmental goals, aspirations and vision of Lilongwe City Council, to make Lilongwe City a resilient and globally competitive city.

Due to the increase in demand for prime land for development, associated cases of corruption in the manner of land acquisition have been reported. As the price of land has increased due to speculation and the margin demanded by middle men, construction projects are mostly of high value, and therefore more prone to corruption. The Construction Sector Transparency Initiative (CoST); a global initiative working with different stakeholders in Malawi such as the government, industry and civil society in order to enhance disclosure, validation and interpretation of data from infrastructure projects aims to improve transparency and accountability in the public infrastructure procurement. Irregularities in procurement of contracts, lack of expertise or capacity in drafting of contracts by the procuring entities, lack of capacity by Malawian owned construction firms, incomplete designs by consultants, additional works and price escalations are some of the challenges that affect the construction industry, resulting into cost overruns (CoST 2019).

During the community consultations, the community expressed the lack of proper markets in certain settlements. The existing markets only provide the most basic community needs and lack basic sanitary facilities and proper infrastructure. Another issue was the illegal transformation of designated markets into residential settlements. All these calls for proper planning and institutional strategies.

1.4.3 Investment in Lilongwe

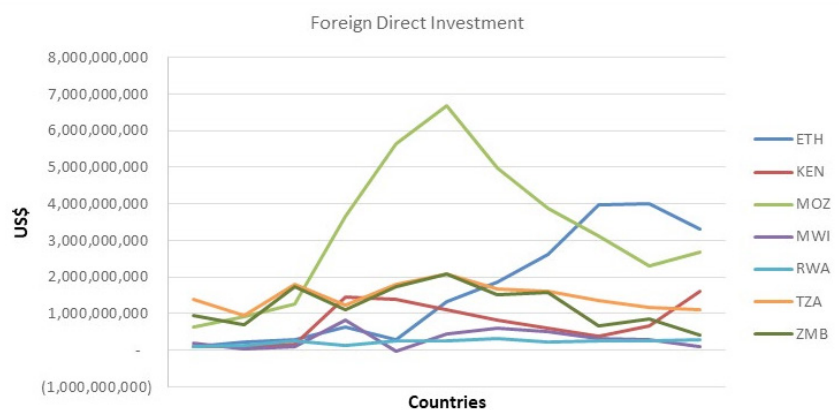
Investment opportunities in Lilongwe

The Malawi Government established the Malawi Investment and Trade Centre (MITC) as a conduit for facilitating trade and investment in Malawi. MITC identifies and promotes investment projects for both local and foreign investment. The Malawi Government has been working on the business regulatory framework to improve the business environment with the aim of attracting foreign investment. The Government has organized and participated in a number of investment summits with the aim to marketing Malawi as the best investment destination for investors. The World Bank ranks Malawi 109 out of 190 countries in terms of ease of doing business.

The second Malawi Growth and Development Strategy (MGDS II) was formulated specifically as a strategy for creating an enabling environment for both domestic and foreign investment. A number of reforms and bills such as Export Processing Zones (Amendment), Business Licensing, Insolvency Bill, Business Registration and Personal Property Security bills have been tabled in parliament, with the aim of easing the transaction costs of operating business in Malawi. Despite the several attempts, the country still continues to face challenges in increasing foreign direct investment.

Figure 2-31 shows the foreign direct investment trend in Malawi (MWI), Kenya (KEN), Ethiopia (ETH), Rwanda (RWA), Tanzania (TZA), Mozambique (MOZ) and Zambia (ZMB).

Right: (2-31): Foreign Direct Investment in Malawi and its regional and neighboring countries Source: own calculation, World Bank Data



There are a number of challenges that affect investment in Malawi and Lilongwe in particular, which include but not limited to; unreliable power supply and shortages of foreign currency (Nsiku,2012). Other challenges include high transportation costs due to Malawi's landlocked position which constitute more than 30% of the total import and export bill, lack of skilled and semi-skilled labour, corruption and high borrowing costs.

Unlike many other cities in the world, Lilongwe City is not yet fully developed as such. It therefore offers huge investment opportunities for investors and it has a number of advantages for investment, such a:

- i. The City is centrally located between the Northern and Southern regions of Malawi.
- ii. The City is connected to Mozambique, Zambia and Tanzania through road network.
- iii. Its population continues to grow which offers opportunities for market growth.
- iv. It is near the Government of Malawi Headquarters as such it is easier to seek help from top government officials.
- v. It has the largest airport in Malawi, hence the city is the first entry point to the country for tourists and investors.
- vi. It has one of the best international conference centres and stadium for holding events in Malawi..
- vii. There is plenty of land, and the City can be expanded to give more land to investors.
- viii. There is support from both international aid agencies and commercial banks to support the Government of Malawi.
- ix. Most sectors of the economy are not developed. As such there are enormous investment opportunities in tourism, urban agriculture, culture, music, finance, transport, education, health, energy, whole sale and retail etc.
- x. The head office for Malawi Investment and Trade Centre (MITC) is in Lilongwe.

Lilongwe City has continued to attract investors despite the slow pace of investment. Currently, there are new investment projects for Lilongwe City in tourism and solar energy generation valued at 234million USD which have the potential to create over 1,041 new jobs. For detailed information of these projects refer to annex 3, table 9 "Earmarked New Investment Projects in Lilongwe City"

Participatory approaches to identifying local aspirations and needs

Differentiated approaches and tools have been inducted to investigate investment demands and aspirations of the resident's investment prioritization, resulting in the following;

- i. Facilitation of investment in the energy sector in order to reduce intermittent power supply, and subsequently stimulate investment in Lilongwe City
- ii. Provision of street lights
- iii. Construction of health centres in local areas to reduce the travel distance patients have to travel in order to access health services either at Area 18 or State House Clinics.
- iv. Construction of modern primary and secondary schools to avoid congestion in current schools as well as minimize the distance students have to travel to access education
- v. Each area should have a market and police station to enhance security
- vi. Encourage public private partnerships in waste collection, disposal and management.
- vii. Establishment of recreational areas and parks in designated areas
- viii. Improve road infrastructure and network. Roads should have footpaths for pedestrians and cyclists.
- ix. Implement house connections to the existing sewers and build more sewage systems; as currently, most houses are not connected to sewage system and rely on septic tanks. The situation is even more dire in unplanned settlements where makeshift toilets are built.
- x. Improve access to finance in order for businesses to grow and expand
- xi. Facilitate capacity building of entrepreneurs to facilitate the creation of sustainable and resilient enterprises within Lilongwe City.

The figures below (2 -32, 33, 34, 35) are pictures taken during such meetings held at Mgone, Mtandire, and area 43, with community members as well as CCICOD.



(2-32): Consultative Meeting with local communities at Mgona, Source: (HS, Alma, 2019)



(2-33) Summary of consultative meeting held at Mlandire, Source: (HS, Alma, 2019)



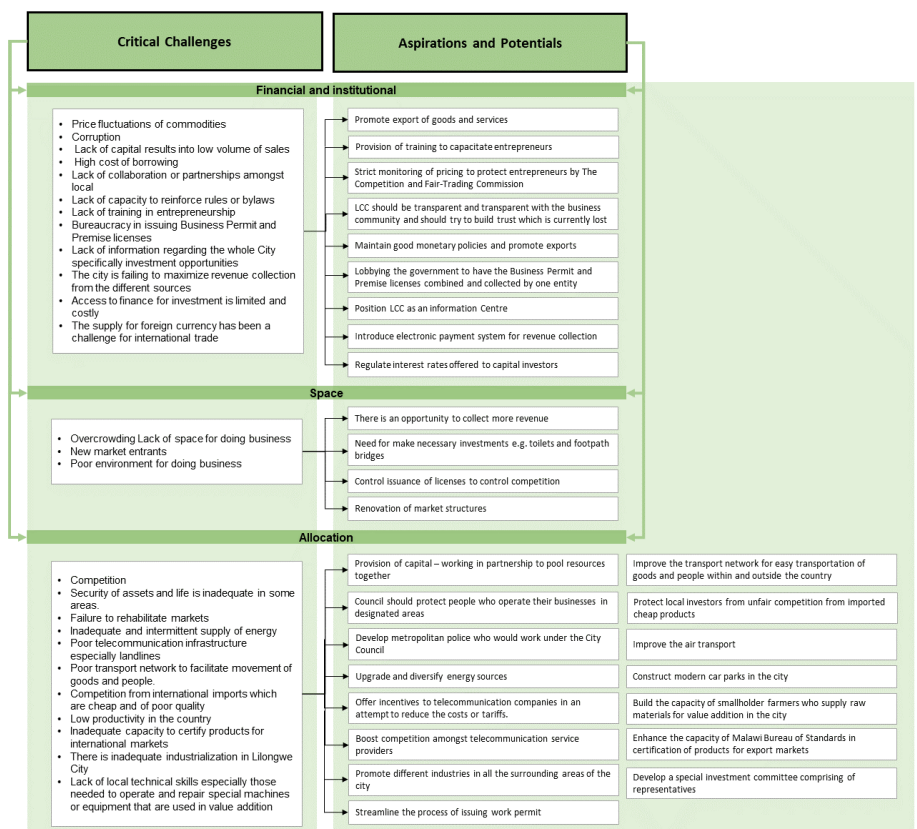
(2-34) Consultative meeting with CCICOD Source: (HS, Alma, 2019)



(2-35) Meeting with communities from Nyama Ward in area 43. Source: (HS, Alma, 2019)

Focus group discussions with the business community including large, medium, and small businesses along with the socio-economic survey and local community engagement were conducted. These have revealed another level of needs and aspirations that concluded in critical challenges and potential for economic development in the city as shown in figure (2-36) below.

The unequitable provision of markets between the formal and informal settlements further emphasized the needs demonstrated below.



(2-36) Results from Focus Group Discussion with the Business Community, Source: (HS, Alma, 2020)

It was made evident from the social-economic and demographic survey (Annex 4.5) that certain areas such as: 57, 56, 44 and 55 are not only suffering from bad living environmental conditions but also on economic levels. These areas have no business frameworks to neither sustain their income nor enjoy the regular income. This indicates the need to establish proper informal or formal businesses adjacent to and around these areas. This emphasizes the outcomes of establishing new markets to the west bypass, establishing agro-business on the eastern development corridor and constructing infrastructural network overlapping such areas to ensure accessibility and development. See annex 4 section 4.5.2 pages (158, 163)

1.4.4 Partnership and Collaboration

Partnerships and collaboration are essential in creating sustainable solutions and improving efficiency and buy in. They are also helpful for advocating certain issues to relevant stakeholders. During the consultative meetings, it was clearly noted that there is a lack of partnerships and collaboration with key stakeholders through which the Lilongwe City Council could further advance its development plans.

The lack of partnerships or collaboration was evident in land management within Lilongwe City where there are several organisations with the mandate to allocate land for development. An example of such organisations include; the Ministry of Lands, Housing and Urban Development, Malawi Investment and Trade Centre, Malawi Housing Corporation and Lilongwe City Council. Despite the fact that certain officials from Lilongwe City Council are also members of sub committees in other government departments, little do the other key stakeholders know about the development plans of Lilongwe City and the direction the city is taking.

Furthermore, it was noted that in some areas, there are certain contradictory policy guidelines. For example, the Public Health Act mandated Lilongwe City Council to be responsible for the sanitation of the City while the Water Act empowers the Lilongwe Water Works Board as the responsible institution.

1.4.5 Areas of Economic Potential

Tourism:

The economic opportunities in Lilongwe City vary from natural to man-made attributes such as tourism, industry and so on. There are many initiatives and attractions being developed or thought of in order to attract larger investments to the city. This attribute is highlighted by Lilongwe City's status as the capital city and as a regional intersection between cities, countries and main touristic destinations.

The tourism sector could be incorporated in three main attributes; investment tourism, entertainment tourism, and eco-tourism. These three types could be interconnected and offer many economic opportunities for tourism in Lilongwe City, which can be further developed as shown in the figure (2-37) "Tourism Analytical Map".

Agriculture:

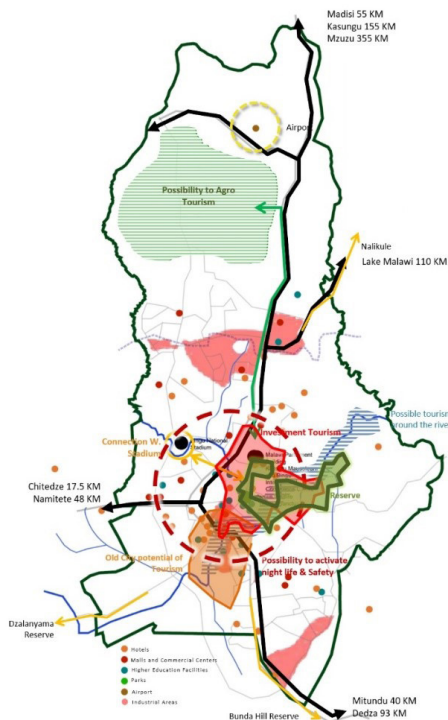
Currently the main attribute of Lilongwe City is agriculture and farming, as land in the city is extremely suitable for agricultural usage. Other than the regulated lands for agriculture usage, unregulated farming is also taking place in order to provide further economic revenue for the locals.

The agriculture sector includes crops, livestock and agro-processing. Crops are distributed between the outskirts of Lilongwe, which include but not limited to soy beans, groundnut, sunflower, horticulture, poultry, dairy, and beef production. Poultry, beef, oil seed and tobacco processing are done on a commercial basis.

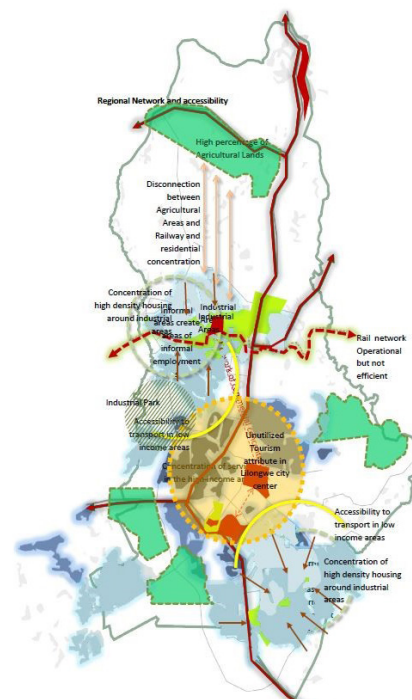
Industry:

Another important economic strength of the city's economy is the industrial sector. Two main industrial hubs are located in Lilongwe City, along with an industrial park. The industrial sector is rich in variety, from agro-industry such as tobacco, to plastic factories along with other types of industries and manufacturers. This can be enhanced through strong regional connections in the city. Other economic potential in Lilongwe City, vary from office employment to development projects due to its rich natural and human resources.

Based on the above analysis, a holistic analytical map has been drafted accordingly, (see figure 2-38 below).



(2-37) Tourism sector analytical map
Source: HS, Alma 2019



(2-38) Socio Economy analysis conclusion map.
Source: HS, Alma 2019

SWOT Analysis

Strength

- A concentration of service delivery in high-income areas
- Large number of service providers within Lilongwe City.
- A high percentage of employment in the tertiary sector is attributed to many employed workers in the retail/wholesale areas.
- Regional and local delivery (trucking) services is highlighted since Lilongwe City is surrounded by potential agronomic areas
- Lilongwe City airport is used by people from the neighboring countries
- Informal employment sector is showing substantial growth
- Retail and wholesale fields are growing due to imported goods
- An increase in the number of malls in Lilongwe City, with more are yet to be constructed
- The construction industry continues to offer employment opportunities especially to semi and unskilled labour
- ICT is a booming industry
- Lilongwe City is the main destination in the country by international tourists, and has great potential in the tourism sector.
- There have been a number of initiatives to attract investors into the country.

Weakness

- High levels of migration from rural to urban areas.
- Approximately half the residential land is in low income areas, where 76% of the population lives
- Housing in the low-income areas has spread as far as fragile and high-risk areas
- Sanitation in low-income areas is a major problem
- Traditional Housing Areas (formal low-income housing settlements) are not being extended even though they serve as the main formal provisions of low-income households. This is due to landlords holding onto land.
- Poverty levels in Lilongwe City are very high at 25% with the ultra-poor constituting 9% of the city's population
- The minimum wage in Malawi is very low as it is below the international poverty line of 1.9\$. Additionally people with higher education earn proportionally more than those with minimal education.
- Memberships to trade unions are very low
- Tourism is an underdeveloped sector in Lilongwe City
- The manufacturing sector in Malawi is extremely limited, and with the country heavily relying on already manufactured goods which makes it a net importer of goods.
- High costs and poor access to reliable transport
-

Opportunity

- Utilize the existing potential in high- and middle- income areas to benefit the city as a whole
- Utilize the international delivery and regional connections in order to benefit the city and create a productive network of activities
- Utilize the informal activity through careful methods as an essential economic attribute in the city
- Enhance the already growing markets such as real-estate and agriculture and reconnect attributes for financial benefit
- Define the work force skills and powers and tailor the development of economic activity accordingly
- Define tourism potential and highlight them in the city
- Include the NGOs and agencies in the development process as they have already defined and showed interest in the area

Threat

- The dynamic social mobility creates additional stress on the city, due to unpredicted growth
- The threats of informality and related conditions is one of the highest threats in Lilongwe City, as more than half of the population lives in such conditions.
- The expansion of low income housing on unsuitable areas like steep slopes and wet lands
- The lack of regulation in informal businesses serves as a threat to the sustainability and well being of workers in that field
- The distribution of wages and related segregation creates a threat on the social sustainability and economic ability for people of low educational and social class
- The growth pattern creates a high threat to the accessibility of infrastructure due to financial reasons.
- The threat of having underutilized economic resources is creating a fragile base for economic growth in the city
- High segregation and uneven distribution of services and activities creates a very fragmented social and economic structure

1.4.6 Conclusion

Various problems and needs emerged from the research as follows;

- Lilongwe City has huge potential for agriculture as it is surrounded by districts growing a variety of food and cash crops. Additionally, there are a number of service providers and other value chain players that are involved in the agriculture sector including agro-processors. Wholesale, retailing, agriculture and food services are the leading business sectors and continue to offer employment opportunities for the residents of Lilongwe City.
- The tourism sector remains underdeveloped. However, there is need to support the sector due to its untapped potential to stimulate economic growth of the city due to its multiplier effect. The tourism sector of the city should be developed to a level where it attracts local as well as international tourists. Access to finance still remains an issue to residents and businesses within Lilongwe City due to high cost of borrowing as well as the limited number of services centres and ATM's in certain parts of Lilongwe City.
- The construction sector is also booming within Lilongwe City as a number of large buildings for shopping malls and schools are either being built or at the planning stage. Construction offers employment opportunities to residents of Lilongwe City, in return improving their per capita income and livelihoods.
- No country has developed without businesses and Lilongwe has a large number of businesses including real estate, transport, food services etc. However, the main problem with most business is their informality in operations. There is need to support the professionalization/ formalisation of these businesses. The formalisation of businesses is advantageous as it will help Lilongwe City to map the locations of such enterprises and provide them with the needed support.
- While there have been some significant investments to improve the transport, ICT and energy infrastructures, there is still more to be done. The road networks are substandard, internet connectivity is poor and slow and energy supply is intermittent, which scares off potential investors.
- Socio-economic risks vary in impact and likelihood of occurrence, based on which, certain mitigation strategies are drafted. These risks are as follow: (i) threat to public health, (ii) increase in road accidents, (iii) deforestation of areas in the city, (iv) bars in locations which cause noise, drug abuse, littering as well as other problems, (v) poor construction infrastructure, (vi) flooding of rivers and streams, (vii) conflict between residents and the LCC, and finally (viii) drug abuse which triggers bad behaviour and vandalism. For a detailed analysis of the mitigation strategies to the identified socio-economic risks. Refer to annex 3, table 10” Socio-Economic Risks in Lilongwe”
- Migration of people to urban areas for economic reasons and decent social life will continue to be a problem until sufficient opportunities are created in rural areas. However, migration should not be considered as a completely negative aspect, as it is a source of labour for companies in urban areas. Migration contributes to population growth in the cities, which consequently results into growth of informal settlements. The increase in population exerts pressure on the already limited capacity of Lilongwe City to deliver services such as sanitation to its residents, and is thereby contributing to the increase in urban poverty and insecurity.

In order to build a resilient and inclusive city, there is need for coordinated and concerted efforts amongst the different stakeholders within Lilongwe City. Development potential resulting from the participatory approaches incorporate technical and financial assistance to ensure qualified expertise and operational budget, supporting on-going dialogue with authorities, formalizing the relationship through an MoU among others, and rehabilitating the existing infrastructure to enhance revenue generation capacity. This would enable the stakeholders to be aware of the development plans of the Council and act as a conduit for lobbying policy shifts or changes.

2. Service Delivery

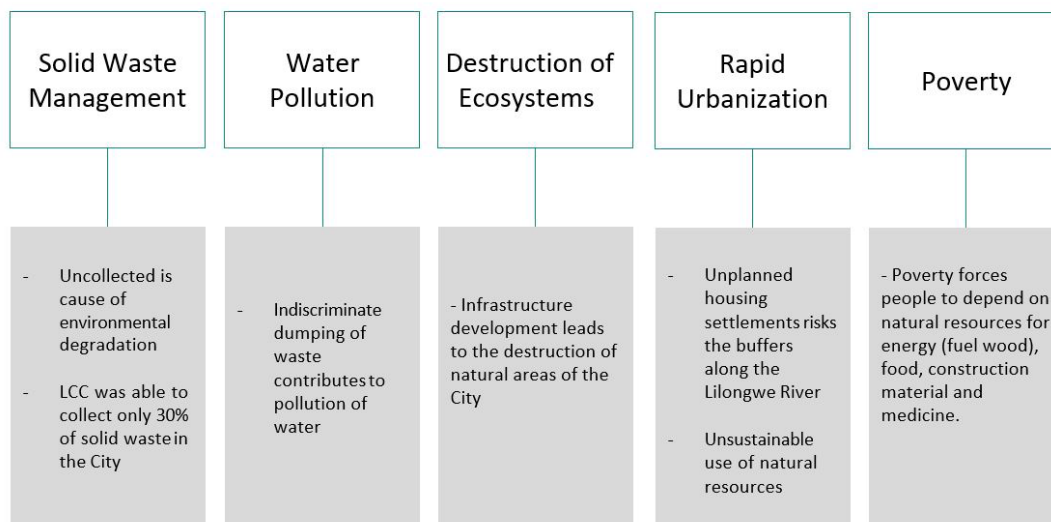
The following section analyses the history, status, and prospects of urban development in Lilongwe City through the lens of service delivery. Addressing environmental and urban services, urban hydrology and drainage, transport and transportation, urban services and infrastructure, public facilities, as well as solid and liquid waste. Each of which are thoroughly explained within the context, analysed in relation to previous studies, and identified for their challenges and potential. In return, allowing for a better understanding for future interventions and proposals.

2.1 Environmental and Urban Services

This sub section analyses environmental and urban services, by first reflecting the environmental challenges discussed in the first section, onto the urban services. This is followed by an impact analysis that covers water pollution, climate change, rapid urbanization, and the link between land and water resources degradation and climate change. Furthermore, the constraints in discussing such environmental and climate change challenges is explored. This section is concluded with an analysis of the environmental status and linkages.

2.1.1 Management of Environmental Challenges

A summary of the environmental challenges reflected on the urban services in Lilongwe are shown in the following diagram (2-39).



(2-39) Environment Challenges Diagram.
Source: HS, Alma 2019

Solid Waste Management

Solid waste management challenges include:

- i. Urbanisation which increases waste production.
- ii. Indifferent public attitude towards waste management.
- iii. Inadequate capacity and inappropriate location of the landfill site.
- iv. Inadequate resources (such as equipment and vehicles); and inadequate capacity for waste collection by Lilongwe City Council. The City Council has seven refuse compactors out of which two are non-runners; and four skip carriers out of which two are also non-runners.

Water Pollution

- i. Lack of capacity for Lilongwe City Council and National Water Resources Authority to enforce legislation on water pollution control
- ii. Poverty has made many city residents not able to afford good sanitation facilities and services, which has been exacerbated by lack of public awareness on health impacts of poor sanitation

Destruction of Ecosystems

The challenges associated with destruction of ecosystems include:

- i. Increase in population growth (leading to unsustainable use of natural resources).
- ii. Loss of river buffer zone and greenery in the city

Population growth and high densities in Lilongwe City has increased pressure on and accelerated natural resources destruction, which has led to land occupation and degradation, forests clearing, as well as increased demand for water and social services. Residents of Lilongwe City like those in Chinsapo area, have maize gardens and cultivate as far as the banks of the Lilongwe River, and upstream up to where Lilongwe Water Board (LWB) abstracts raw water for its water treatment plants. Even worse, , some residents are also engaged in sand mining in the Lilongwe and Likuni Rivers and some streams. There are also quarry stone mining in some parts of the city (e.g. at Kamuzu Institute for Sports, Area 17; African Bible College, Area 47; near MIM, Area 26; Ngwenya in Area 24 and other areas). The sand quarrying blocks water flow and increases scouring and erosion along the rivers and their banks. This in combination with the deforestation and catchment degradation mentioned above has led to changes of river morphology and destruction of wetlands, dambos and greenery along the river.

The rapid growth and high increase in population of Lilongwe has also resulted into an increase in liquid and solid waste generation. The challenges of waste management in the city has resulted in lack of appropriate facilities, services, infrastructure and awareness on appropriate methods to control pollution. Consequently waste disposal and removal is done indiscriminately.

Rapid Urbanization and Unsustainable Use of Natural Resources

Rapid urbanization in Lilongwe City has had challenges which include:

- i. Unsatisfied and increased demand for shelter and housing.
- ii. Unplanned housing settlements where planning has extensively lagged behind the demand.
- iii. Land clearing and settlements has led to degradation.
- iv. High unemployment rates within the City that has exacerbated urban poverty.
- v. Vandalism and theft fuelled by huge gap between the rich and poor residents of the city.

Land in Lilongwe City is provided for construction of public structures including offices, markets, residential housing and parks and recreation areas (biodiversity conservation i.e. parks, gardens etc.). Since the capital city of Malawi moved from Zomba to Lilongwe, the population increased rapidly demanding many developments as migration to the City continued. (Lilongwe Urban Profile 2011) The agriculture and forestry areas were planned and earmarked mostly in the fringe parts of the City (Chinsapo Zone and Tsabango Zone) in the Lilongwe South West and East and Lilongwe North East (Alimaunde Zone) and Lilongwe North West (Lumbadzi Zone) in the northern part (JICA 2010). However, the Chinsapo forest reserve was de-gazetted in 2006 or thereabout and plots were being allocated for housing at the time of writing this report. The northern forests were never gazetted as forest reserves and are mainly settled by villagers who mainly farm maize.

The absence of forest reserves or forests, deforestation and clearing of land for village settlements and informal settlements has led to land, environmental and catchment degradation almost throughout the city. The destruction of natural resources including riverine buffer zones and dambos led by human activities has been very detrimental to Lilongwe's urban development and service delivery. Unfortunately, there are no plans to effectively control the land, environment and catchment degradation. Almost 80.2% of the population in the City use fuel wood in form of charcoal and firewood (Lilongwe Urban Development Master Plan, 2010). There is also a high demand for firewood for brick curing, as the city resident still use fired cured bricks. This shows the demand to harvest the little forests that exist and unless there is alternative to firewood fuel, it would be difficult to curb deforestation.

From consultations with the Lilongwe Wildlife Centre, it has been revealed that the areas adjacent to the Wildlife Centre in Area 33 (close to Central Hospital and Malawi College of Health Sciences) and the newly built structures close to Sana Cash and Carry containing Gmelina trees, have been cleared for expansion of the hospital and construction of commercial structures. This is in addition to the clearing of vegetation to allow for road development, as trees were cut down to pave way for the newly constructed road extending from the parliament roundabout to the Area 10, and in return affecting the botanical garden. The above activities have all contributed to land degradation in the City.

2.1.2 Land, Environment and Catchment Impact Analysis

Water Pollution

During the rainy season, waste and agricultural chemicals are flooded by water into Lilongwe River. These pollutants can affect human beings, animals and organisms that come into contact with the polluted water within Lilongwe City and beyond. Agricultural chemicals increase the growth of algae in water bodies which limits the amount of sunlight that can penetrate the water and is therefore indirectly affecting fish and other living organisms. With the increase in factories and population growth in Lilongwe City, waste generation is also expected to increase. This waste/ pollution has the potential to impact rivers, livelihoods and living organisms beyond Lilongwe City.

Climate change

Waste produces methane which is the second greenhouse gas. Increase in waste production and lack of proper waste management in Lilongwe City leads to increased methane gas production and emission into the atmosphere. Increase in deforestation has led to reduction in carbon sinks in the city. Climate change impacts affect Lilongwe City as well as areas beyond the City boundaries. The combination of deforestation with increased rainfall runoff and accelerated erosion/ siltation are contributing to land degradation and flooding on a large scale in Malawi. In addition, climate change contributes to reduced soil moisture (e.g., increased evaporation rates) which affects agriculture and food security. This is in addition to the increased droughts, which make forests more vulnerable to wildfires.

Rapid urbanization

As a growing city, Lilongwe demands the necessary utilities including urban water supply, sanitation and solid waste management. Rapid urbanisation leads to change in land use; consequently, leading to climate change in the long run. Vegetation, which is one of the important carbon sinks, is removed in search for land for settlements, agricultural and commercial purposes. In addition, urbanisation leads to pressure on marginal lands including river banks, swamps and wetlands

for cultivation. This increases river siltation and land degradation. Urbanisation also leads to an increase in waste generation in the city. The waste produces methane, which contributes to global warming and climate change.

Rapid urbanization is making the people of Lilongwe City more vulnerable to the impacts of climate change (drought, floods and change in rainfall patterns). Drought affects water quality, availability, treatment and processing. This is evident in Lilongwe City as there is water shortage in the months of October to December. In some areas, there is no running water for more than two days. Flooding also affects the water treatment processes due to increased sediment loadings in the raw water. Climate change also affects people's economic well-being. The 2017 and 2020 floods in Lilongwe City were disastrous as they displaced people, destroyed houses and affected businesses. Since population increase and urban sprawl are very rapid in Lilongwe City, there is a risk of losing the greenery of the City and degrading the urban environment completely. It is deemed essential to keep in mind the importance of preserving nature, forests as well as agriculture within the City. In this context, it is also important to pursue the compact land use policy by strengthening land use density particularly in the centrally located zones (JICA 2010).

Additionally, and based on focus group discussions it has been revealed that the construction of houses is not in compliance with the environmental requirements, and it is therefore proposed that the Malawi Housing Corporation should lead in the construction of environmental friendly buildings within the city.

Poverty and the Relation between Rural and Urban Lilongwe

Poverty rate in Lilongwe City is at 18%, while in Lilongwe rural it is at 47.9%. The high poverty levels in the rural areas leads to rapid urbanization in Lilongwe City. Additionally, increased poverty levels in the rural areas forces communities to engage in charcoal burning and firewood harvesting for sale. This is exacerbated by the increase in population growth in the City and the associated increase in demand for fuel-wood and charcoal. Dzalanyama Forest is encroached by communities for illegal charcoal burning and firewood harvesting for income and livelihood support. To prevent encroachment, Lilongwe Water Board is facilitating Community Based Natural Resources Management groups to promote sustainable utilization of natural resources including fish and wildlife. The Lilongwe Water Board is also promoting eco-tourism, mushroom production and bee keeping. The communities are also given fruit tree seedlings to plant in their homes as a source of income for the long term. Furthermore, flooding in Lilongwe City can also be linked to cultivation along river banks in the Lilongwe rural areas.

Land Degradation

Impacts of land degradation are evident in most parts of Lilongwe City.

During consultations with the Wildlife Centre, it was mentioned that cutting down of trees in the upper part of the forest in Area 33 (close to Central Hospital and Malawi College of Health Sciences) resulted into floods at the Wildlife Centre in 2017. Not only did the flooding in the area affect wildlife but also the plants as the soil pores were filled with water and could not provide sufficient oxygen to the trees. From consultations with communities in Kauma and Mtandire, brick moulding and removal of vegetation along riverbanks has resulted in siltation and widening of Khoche and Chipoka rivers in Kauma; and Lingadzi river in Mtandire, leading to frequent flooding, as of more recently at a yearly rate.

Link between Land Degradation and Climate Change

Land degradation contributes to climate change and vice versa. Removal of vegetative cover, especially trees, leads to reduction in carbon sink. As a result, carbon dioxide accumulates in the atmosphere causing global warming and climate change. In addition, removal of vegetation distorts the hydrological circle. This is evident in the changes in rainfall patterns, droughts and floods in Lilongwe City.

Currently, Lilongwe City has been experiencing hot climates in comparison to the past years. Rainfall patterns have changed and are unstable. Previously rainfall would begin in November, however it now begins as early as October such as in 2017, or as late as end of December or early January. In recent years, there have been droughts which have affected the provision of potable water and electricity in

the City. Floods have been observed from since 2015 in Lilongwe City due to heavy rainfalls. Siltation of rivers and construction along the rivers (e.g. in areas 49 and 18) and removal of vegetative cover have accelerated the impacts of the floods.

2.1.3 Constraints to Addressing Environmental Challenges

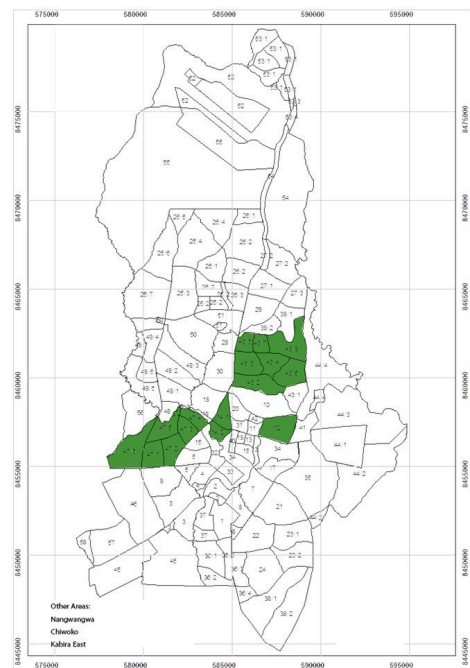
The following are the main constraints Lilongwe City is facing in addressing environmental challenges:

- i. Private owners and operators of sewage systems do not have appropriate skills and sufficient resources to manage the facilities effectively and efficiently.
- ii. The majority of the residents of Lilongwe City's informal settlements rely on pit latrines, which have no water seals, no ventilation and are unsanitary. Lilongwe City Council does not monitor these latrines.
- iii. Indiscriminate dumping of waste grossly contributes to pollution of water courses in the City.
- iv. The public has an indifferent and carefree attitude towards waste management
- v. The irregular and inadequate collection of solid waste clearly demonstrate lack of capacity by the City Council.
- vi. The Area 38 solid waste disposal site near the turn-off to Lilongwe University of Agriculture and Natural Resources (LUANAR) is not properly managed as a sanitary landfill site.
- vii. High maintenance costs are formidable challenges to the private institutions that pump sludge from septic tanks to the disposal sites. The designated sludge disposal site at Kauma STP requires improvement and proper management
- viii. Most of the water kiosks, markets and institutions in Lilongwe Low Income Areas (LIAs) have poor drainage, which contributes to poor sanitation.
- ix. The majority of the households in the LIAs are not willing to spend money on latrines. Constraints to owning a latrine include lack of finances and lack of land title.
- x. Most of the communities in LIAs have no access to the City Council services and as a result, they do not practice the desired hygiene behaviour.
- xi. High rates of rural to urban migration lead to crowding in informal settlements.
- xii. Very low poverty levels in the City's LIAs forces people to depend on unsustainable exploitation of natural resources.
- xiv. Lack of enforcement of regulations, to prohibit cultivation in protected areas

2.1.4 Ecosystem and Resource Management Adaptation

According to the Lilongwe Outline Zoning Scheme (OZS) of 1986, 23.5% or 7,990 hectares of the City's land area was reserved for agriculture and forestry. Furthermore, land specifically designated for tree planting was reserved at Area 54, Area 44 sectors 4 and 2; and Area 45 as seen in figure (2-40). However, these areas were not planted.

As of 2009, these areas were either being occupied by squatters or being subdivided for various uses. An example of such is Area 54, which was being parcelled out for schools, garages and other uses. In order to protect Area 54 from squatters, and preserve it as a source of fuel wood, Lilongwe City Council planted Gmelina trees on most of the land that was reserved for future use. The trees have contributed to both protection of the environment and supply of fuel wood to the City over the years, but later, the trees gave way to housing and other developments. For details regarding the total area planted in 2009 refer to annex 3, table 11 "Area of Gmelina Plantation in Lilongwe City in 2009".



(2-40) Conservation Areas Proposed by JICA in 2010. Source: (City of Lilongwe Biodiversity Report, 2013)

Lilongwe City Council designated three nurseries for growing flowers and seedlings of different types in Area 13; the main point where most landscaping operations are taking place, Area 17 (Kamuzu Barracks Nursery) and Area 43. Noting, Area 43 nursery was closed and is currently being encroached upon. These nurseries are controlled by the Parks and Wildlife department (Detailed report of Lilongwe City Council Fixed Assets and Undertaking Physical Verification of Properties, Location, Quantities and conditions 2018-2019).

The loss of forest cover due to demand of firewood, brick burning and clearing for housing and other uses leaves water catchment areas and river buffer zones bare, a situation that also affects water supply by Lilongwe Water Board.

In view of the declining forest cover, the Lilongwe City Parks Department initiated an afforestation and natural trees regeneration; and tree seedlings production project. From the City Council's two nurseries in areas 13 and 17 were designated. This is in addition to planting tree belts, wood lots as well as rehabilitating stream buffer zones. However, this project was not very successful due to financial challenges.

In 2010, the Japan International Cooperation Agency (JICA) assisted the Lilongwe City Council in preparing the Lilongwe Urban Master Plan 2030 that was adopted in 2011. Significant environmental considerations were taken into account in the development of the Master Plan. Note, the Master Plan was anticipated to guide development up to the year 2030.

In 2013, the International Council for Local Environmental Initiatives (ICLEI) and International Union for Conservation of Nature (IUCN) prepared the Biodiversity Report for Lilongwe City, in which the many challenges and complexities, including rapid urbanization were noted to include trees that were being cut down rapidly, rivers being polluted and land not being used effectively. The report also mentioned the City Council had intensified tree planting programmes, involving communities as well as school pupils, with the hope of instilling the spirit of ownership and reducing environmental degradation. The challenges the City was facing and continues to face, especially on biodiversity conservation needs collective participation of different stakeholders such as Government Departments, Non-Governmental Organizations (NGOs) and Statutory Corporations.

The report noted that Lilongwe City conserves two natural forests turned into protected areas (the nature sanctuary and botanic garden), rivers, streams and wetlands, which make a favourable environment for fauna and flora of the City. The activities proposed in the Biodiversity Report for Lilongwe City build upon the recommendations of the Lilongwe Urban Master Plan of 2030; and they take into considerations the plans that are underway to have a Biodiversity Management Plan for the City; as well as initiatives that the Lilongwe City Council is taking along with other stakeholders by involving communities and schools in tree planting and environmental education. It is believed that this will greatly reduce the threats to biodiversity.

The Biodiversity Report records the following Biodiversity Project and programme being implemented:

The Green and Clean Project: The primary goal of the project is to help alleviate poverty using forest resources, while generating sustainable livelihoods and protecting the environment through full community participation. **Some of the specific Project objectives are to:**

- i. Establish and promote community tree planting and conservation of urban forest resource.
- ii. Deliver capacity-building workshops on sustainable management of woodland, soil and water.
- iii. Rehabilitate eroded riverside areas
- iv. Encourage the protection of wetlands and water catchment sites.
- v. Enforce protection of new and existing urban forests sites.
- vi. Encourage community participation in Permaculture and sustainable Land use practices.
- vii. Promote community participation in cleaning up and maintaining local biodiversity sites.

The “Green and Clean” project, with an annual budget of 12, 545,080MK (83,080\$US), was planned for September 2010 to March 2011 and aimed to integrate community development with environmental protection. Organizations driving the project include Lilongwe Wildlife Centre, Department of Parks and Wildlife, Department of Forestry, Department of Energy and Lilongwe City Council. Activities include education and capacity building for the communities in raising tree seedlings and forestation, briquette making, planting of trees in riverbanks etc. Activities also include Dzalanyama Watershed Conservation and planting about 5 ha in the Lilongwe River catchment. **Achievements of the project and programme include:**

- Through the Green and Clean Project, 16 Hectares of community wood-lots were established; 9000 indigenous tree seedlings of different species were planted along river banks covering a land area of almost 30 hectares; 35 community patrons comprising men, women, teachers and students were trained in sustainable forestry and production of fuel briquettes. Four briquette presser machines and 9,000 fuel briquettes were distributed to 18 project advocate families across urban communities.
- The People who were trained and are now project advocates were drawn from ten communities currently working with the Lilongwe Wildlife Centre and are expected to train many others in their communities. The project concept was developed by community members themselves, which guaranteed community need for the project and their desire to make sure that it is sustained and the well-established partnership developed with other stakeholders will help the sustainability as it has government and academic support.

River line Rehabilitation and Greening of the City Programme:

The goals of the 16,364,390.00MK River Line Rehabilitation and greening of the City Programme is to rehabilitate river lines and open spaces in order for the streams and rivers to be protected from loss of water, soil erosion and water quality degradation. The programme also aims to maintain greening of the City and prevent dust and heavy winds affecting structures; thereby keeping the city look aesthetically pleasant whilst serving as a GHG sink. The programme aimed for implementation during the period December 2009 - 2014 and the activities included: sensitization to schools; local leaders; community development committees and the community; and later school pupils and community planting trees in schools’ plots, river-lines, open spaces, road verges and homesteads. The programme is spearheaded by the Department of Parks, Recreation and Environment of Lilongwe City. **Achievements of the project and programme include:**

- 250,000 tree seedlings were planted during 2010/2011 and 2011/2012 planting seasons by Schools, Communities and Lilongwe City Council in School plots, open spaces, along river banks and homesteads. Reduced rate of illegal tree cutting was realized from Environmental Education to Schools and Communities. Total amount of 690,000.00 MK was given out to Schools and Communities, as price money for Schools and Communities that did well in tree management during 2011 and 2012.

2.1.5 Environmental Status and Linkages

Considering Lilongwe’s rich natural heritage, its environmental status is very important in understanding the city’s growth and urbanization patterns. Due to the importance of this sector in the city, many NGOs and initiatives were interested in its development; the latest is the JICA plan which had a great interest in the environmental attribute, focusing on both the current reserved areas as well as afforestation areas in the city.

On the other hand, the environmental protection attribute in the city is facing major challenges caused by both urbanization and resources management, as the city is experiencing both industrial and residential growth. The growth is unplanned in many of the residential cases, growing towards natural areas rather than the urban alternative. Another attribute of the urbanization and growing pattern of the city is the sanitation and resources efficiency. The city is facing many challenges regarding poor sewage infrastructure and high dependence on pit latrines leading to pollution of underground water.

Other than urban growth, two main issues are noted in the city, which are deforestation, as it is considered the main environmental problem in Lilongwe, followed by water resources degradation. These two growing issues are creating a worrisome base for both the government and environmentalist, which is why many actions are being taken to deal with the situation such as temporary afforestation strategies.

The afforestation program was meant to deal with land degradation and part of the water resource attribute. The degradation mainly occurs on the river banks due to the characteristics of the soil near the water resources, along with distribution of natural resources in nearby urban areas. The afforestation is activated along the riverbanks, along the main roads such as the M1 highway and within specific plots with specific characteristics or environmental risk areas

As for the water resources, Lilongwe natural water is mainly its rivers, which are facing massive pollution threats due to waste disposal and unawareness, specifically near the market areas.

SWOT Analysis

Strength

- Existent plans and initiatives contributing to improving the environmental aspects in the city
- The new master plan by JICA had a great interest in the environmental aspects:
 - o Current reserved areas shall be reserved continuously in the future
 - o Afforestation areas shall be designated and categorized under the forestry land use
- Afforestation areas designated as a temporary measure to avoid encroachment along the roadway and other designated areas

Weakness

- The city is experiencing rapid industrial growth and this is making environmental conservation difficult task
- Deforestation is the main critical environmental problem
- Water resource degradation is the second most critical environmental problem
- Rapid urbanization using environmentally unsuitable materials.
- Poor sewage infrastructure and high dependence pit latrines leads to pollution of underground water.
- Infrastructure development leading to the destruction of natural areas
- Poverty forces people to depend on natural resources for energy

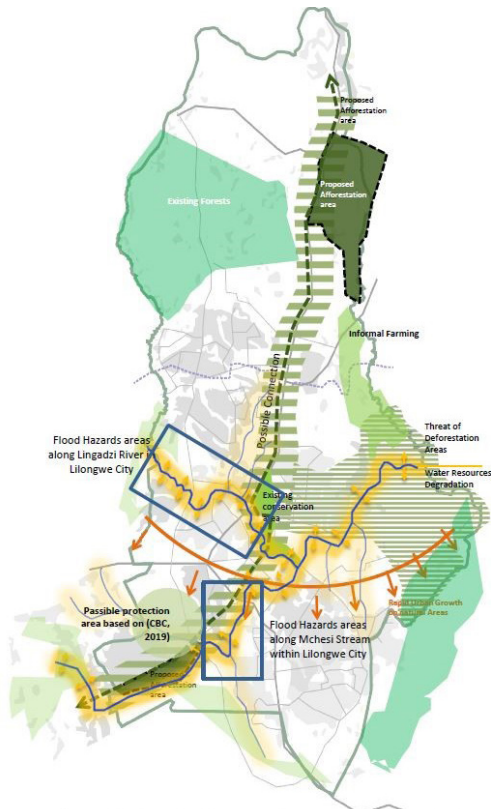
Opportunity

- Create a network of activities towards environmentally protected and rich areas
- Define and enable the areas around water resources as protected areas

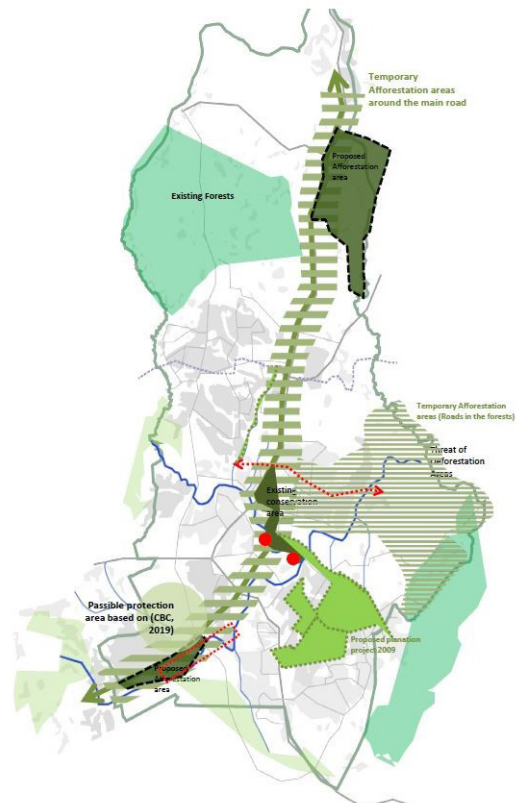
Threat

- Deforestation is a major threat on the natural resources of the city
- Degradation of water resources is very critical in the city
- Issues related to sewage and pit latrines play a role in increasing pollution in the city
- Disposal of waste near the rivers
- Destruction of natural areas in the city due to infrastructural services and growth

The following figures (2-41) and (2-42) are based on the analysis conducted in regards to discussed critical environmental aspects.



(2-41) Environmental linkages analysis conclusions map, Source: (HS, Alma, 2019)



(2-42) schematic Analysis of Afforestation Areas, Source: (HS, Alma, 2019)

2.1.6 Conclusion

The environmental aspect within this study is critical for the perpetuity of Malawi and Lilongwe, due to the severity of the effects and hardships in reversing the damages. Therefore, certain measure are needed in order to manage certain challenges within Lilongwe, this includes increasing awareness and providing adequate services and facilities, improving the efficiency of sanitation facilities, and creating regulations and community initiatives which advocate for the growth and preservation of green areas. With that being said many initiatives are actively working to improve the environmental status of Lilongwe through different projects.

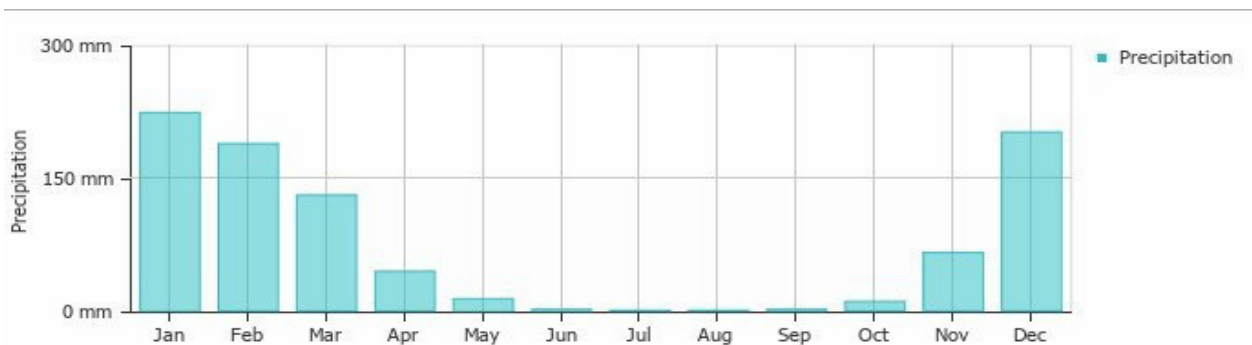
2.2 Urban Hydrology and Drainage

The following sub-section addresses urban hydrology and drainage as a vital component of urban development and service delivery. The current hydrology and drainage situation in Lilongwe and its surroundings is linked to the current environmental and catchment degradation and climate change phenomenon. Subsequently, the impact of environmental and catchment degradation and associated climate change vulnerability have direct impact on the urban hydrology and drainage.

The impact of Lilongwe urban hydrology and drainage, particularly under the influence of climate change and variability, is the growing disaster risks that expose Lilongwe City to growing flood and drought hazards. These waters related disaster are also accompanied by infrastructure damage and failure risks. This section diagnoses this as well as presents recommendations and proposals for dealing with adverse impacts of Lilongwe urban hydrology and drainage.

2.2.1 Urban Hydrology and Drainage Introduction

The hydrology of Lilongwe is influenced by the occurrence of rains, which start in October to November and end in April - May the following year. The annual rainfall in Lilongwe averages around 900 - 1000 mm. The distribution of annual rainfall is shown in figure (2-43). The figure shows that rainfall is heaviest in December, January and February. However, short intensity torrential rainstorms can occur from November to March and this short duration rainfall can cause havoc and floods. The short duration high intensity rainfall, is of particular interest as it triggers flash floods that cause damages to property and at times loss of lives. Literature indicates that meteorological data for Lilongwe shows relatively moderate rainfall intensities for short durations.



(2-43) Typical Monthly Rainfall for Lilongwe City Source: weather-and-climate.com

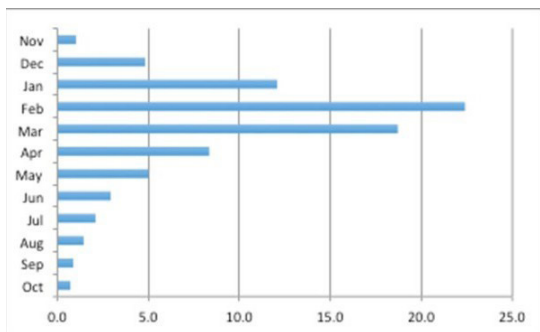
While short duration rainfall over Lilongwe City is quite variable, the typical short duration rainfall characteristics developed from one rainfall station should be representative. The rainfall record at Chitedze has long rainfall records and was adopted. The short duration rainfall characteristics, therefore, are of interest as they play a significant role in generating flash floods and drainage problems in cities. Shela (1992) carried out a short duration rainfall intensity analysis that proves it possible for Lilongwe City to get rainfall between maximum and minimum depth. Further detailing is provided in annex 3, table 12, which also shows "Maximum and minimum rainfall for 15, 30, 60 and 90 minutes and two hours".

The regional short duration rainfall intensity frequency curves for central region plateau were also developed in the 1992 study and rainfall depth for duration of 15, 30 and 60 minutes and 3, 6 and 24 hours for return periods of 2, 5, 10, 25, 50 and 100 years. This is beneficial in designing storm drains, side and mitre road drains and other drainage channels required to get rid of excess rainwater. It must be noted, the numbers presented should be lower than those expected with advent of climate change. Further details are provided in annex 3, table 13 "Rainfall depths of various frequencies and their duration".

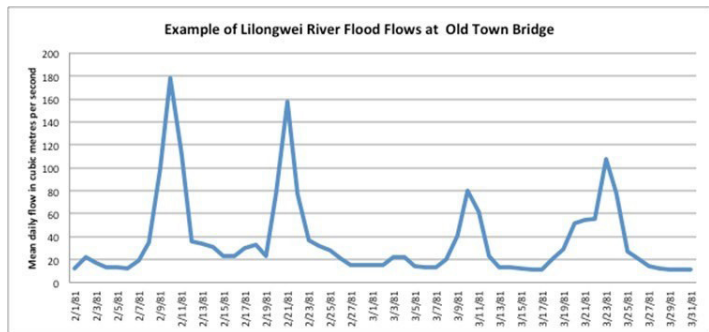
These relatively high in flow and short in duration storms cause run-off in Lilongwe City from the onset of rains in October or November causing floods that choke local drains, streams and rivers as it sweeps debris, dust and soil down the rivers. During the first two to three months of the rainfall, flood water in these streams and rivers is seen to be very turbid with considerable amount of suspended and dissolved bed load and solids. Furthermore, water floods stream banks, which flow over or along roads., The Lingadzi and Lilongwe river banks also get flooded and can result in damaged property or cause loss of life. This is further explained in the following sections.

These hydrological phenomena in Lilongwe City are dominated by hydrological regimes in Lilongwe River and its tributary Lingadzi River, as these are the main rivers passing through Lilongwe City. The Lilongwe River comes from the Dzanyama Hills and hosts two dams that supply water to Lilongwe City. The Lilongwe Water Board abstracts water from Lilongwe River just downstream of its confluence with Chankhandwe stream, as there is no aqueduct to transfer water from the dams. The river itself enters the city at Chigwirizano/Likuni, a built up area to old town.

The Lilongwe River flows at Old Town of February and March 1981 shown in figure (2-44), indicates an example of too much rainfall that cause flooding in Lilongwe City. During this period, the flows were so high that the old town bridge was over-topped and cars could not pass. It is the same bridge that is in existent presently and has high risk of being subjected to flooding. In fact, the flood peaks in Lilongwe are being attenuated due to reservoir effect of Kamuzu Dam I and II. However, continued urban development within its catchment upstream of the old-town bridge is likely to increase flood levels and the likelihood of the flood peaks to exceed those of the flood peaks that topped the bridge in 1981.



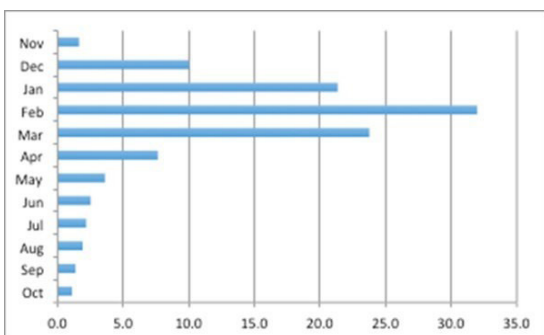
(2-44) Monthly Lilongwe River Flows at Old Town



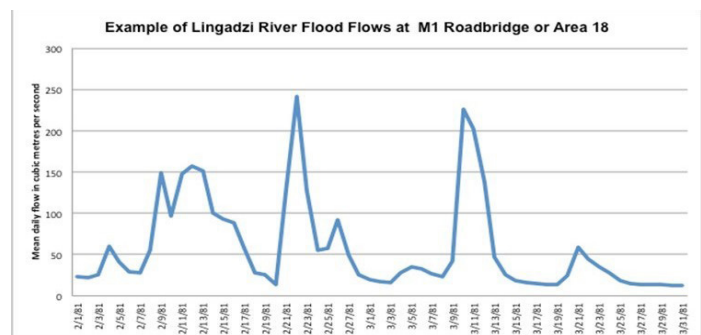
(2-45) Lilongwe River Hydrograph in Floods

The Lilongwe River’s hydrological regime changes significantly after its tributary Lingadzi River joins it. The Lingadzi River carries more water than Lilongwe, as seen in figure (2-45) and (2-47) The combined flow after confluence is almost double that of old town.

The monthly flows in Lingadzi River are typical of those shown in figure (2-46) and, just like Lilongwe River, the peak is in February, despite the rainfall peaks in January. However, the Lingadzi River flows are slightly higher than Lilongwe River prior to the confluence, for the same month. This is mainly due to the fact that Lingadzi River catchment does not have reservoirs and large abstractions as Lilongwe River.



(2-46) Monthly Lingadzi River Flows at M1 Bridge near Area 18



(2-47) Lingadzi River Hydrograph in Floods

Similar to Lilongwe River, Lingadzi also has flood flows that can be dangerous and are best illustrated with the flows of February and March of 1981. The flood flows appear to be higher than those of Lilongwe as recorded peak flow of 246 cubic metres per second. This resulted in flooding that topped the M1 Lingadzi bridge in March, 1981.

In recent years, floods have occurred along Lingadzi River, as recent as 2018 and 2019, but did not submerge the M1 road bridge. Nonetheless, these recent floods created disasters. If not monitored, such floods will continue to cause disastrous effects in the future. Flood disasters and damages have also been experienced in the Mchesi stream, a tributary of Lilongwe River, as the last three rainy seasons caused extensive damages to the bridges, houses and properties.

It is important to note that droughts also occur in Lilongwe and can cause widespread water stress conditions that can also cause water shortages. The worst drought to be recorded in 1992's rainy season, resulted in the dams on Lilongwe River not filled. The rivers and boreholes dried up and there were widespread water shortages during the dry season. Water supply was heavily rationed in Lilongwe City.

2.2.2 Growing Flood Hazard Exposure

The Lilongwe City's strategic policies in the 1970s to 1980s and more recently the 2010 Lilongwe City Master Plan have advocated good environmental management and better living principles that include facilitation of efficient land use, preservation of riverine environment and greenery and strengthening urban development and management capacity. Efficient land use aimed at preserving the riverine to function as safe waterways and ensuring sewerage works of septic tanks and soak-away pits function efficiently, by zoning riverine buffer zones along rivers and streams that were not allocated for development of buildings or houses but rather parks and recreation areas or forest reserves. This encouraged conservation of the environment and greenery as well as the prevention of environmental degradation and flooding or flood damages of properties and premises within the city.

The Lilongwe City's principles include strengthening of urban development and management capacity, by providing infrastructure that facilitates better management of excess rainfall and wastewater within the city. Additionally, storm drains and drainage works were provided and maintained. Sewerage works were constructed and expanded into central sewerage system in the 1990s to relieve challenges of managing septic tanks and small or localized sewerage works in Old Town, Kamuzu Central Hospital, Area 18, Capital Hill and City Centre. Despite these developments, large areas still use septic tanks as means of disposing wastewater.

However, mismanagement and policies of the 1990s and beyond encouraged filling of plots in designated riverine buffer zones. Houses and fences have been built in buffer zones and, in most cases, blocking the free flow of rivers and streams. The septic tanks have been constructed in the location of seasonal high-water tables, which prevents efficient septic tank/soak away management and functioning. The housing and infrastructure development in the river and stream buffer zones, locally known as dambos, have also reduced residual moisture retention that supported greenery in the city but increased run-off or likelihood of local flooding.

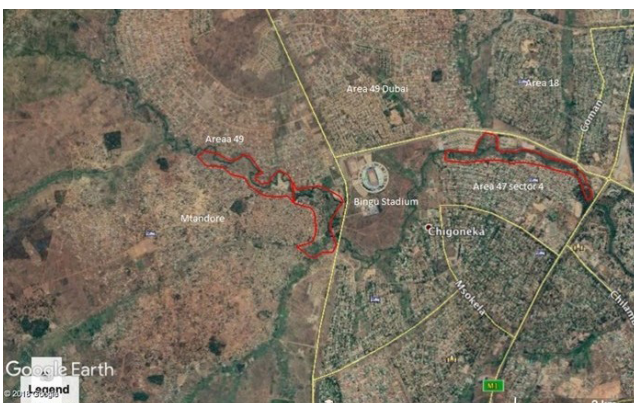
The growing floods hazards in the city have exacerbated the floods from the two rivers and their tributary streams. The interferences with the drainage buffer zones along the rivers and streams, urbanization of the catchment areas and poor or inadequate drains in the City, to relieve excess storm water and discharge it safely in the rivers and streams, have further exposed the city to flood hazards. In the planned areas, river and stream buffer zones were reserved for safe passage of floods as well as effective seepage of sewer in septic tanks. However, as of today most of these reserved buffer zones are being cultivated and settled, with house and fences built right in the buffer zones. These plots are being allocated by city council or the city council plays a blind eye to these illegal activities, as it approves drawings and construction of the houses and fences.

This has resulted in the construction of fences and houses which block the flow of rivers in Area 47 and Area 49 along Lingadzi River and its tributaries, exacerbating flooding and flood disaster risks. For example, figure (2-48) shows the flooded tributary of Nankhaka stream and flooding of the road and houses along it, due to flash floods and backwater from flooded Lingadzi River on the 10th of February, 2019. The same flood also damaged fences and houses along the Lingadzi River in area 47. There are also some houses and fences along Lilongwe River just upstream of its confluence with Likuni River where similar floods have occurred.

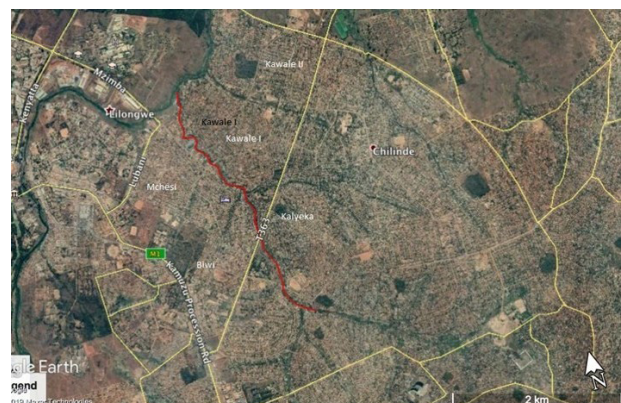


(2-48) Lingadzi River Flooding Area 47 in 2017, Source: (HS, Alma, 2019)

The flood hazards have also increased due to lack of or poor condition of storm drains, as a result of failure to safely dispose excess storm rainwater and safely discharge it into the rivers. Despite urbanization in the catchment areas that has increased the impervious surfaces, such as houses, building, roads and other investments, preventing rainwater from infiltrating to the ground and the dangers of open and overland runoff, there is an extensive lack of storm drains. This has resulted in producing more dangerous runoff or flows for the same amount of rainfall and duration, in comparison to 30 or 40 years ago when the catchments were under forests. The situation is particularly risky in central business districts and densely built up areas of informal settlements, such as Chinsapo, Chigwirinzano, Kalyeka/ Chilinde, Kauma, Msiliza, Mgoni, Kaoma, etc. Even informal settlements designated by the City Council tend to be densely constructed with no proper streets and drainage systems. It is important to note that there are no City Council services in most of these areas, so very few roads, bridges, drainages and storm drains exist. All these short falls increase the exposure of Lilongwe city to flood hazards. As a result, a number of areas experience or are at risk of flooding. Some of these areas are shown in the following maps (2-49) and (2-50).



(2-49) Flood Hazards areas along Lingadzi River in Lilongwe City Source: (HS, Alma, 2019)



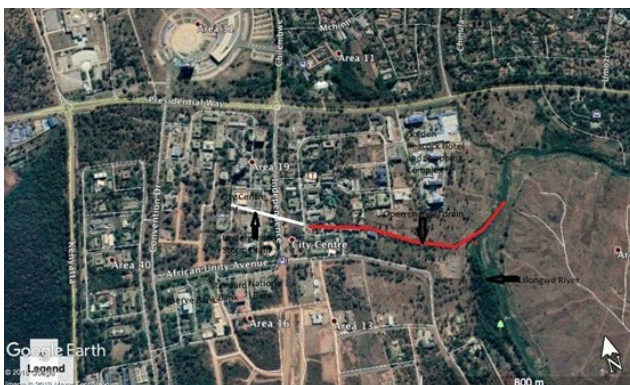
(2-50) Flood Hazards areas along Mchesi Stream within Lilongwe City, Source: (HS, Alma, 2019)

Lack of or poor storm drains and channels in the City have further exacerbated the impact of urbanization and building or cultivation in buffer zones, causing floods or other water related damages. There are very little or no open or conduit channels to safely receive and discharge storm water from built up areas. City Centre, Old Town and main bus depot storm overland runoff, often flooding streets and roads. The existing central drainage system at city centre (Lilongwe Centre East) and Old Town (Lilongwe South East north east) are in disrepair and remain safety hazards to residents and motor vehicles. These disaster risk problems and those on tampering with buffer zones and inadequate capacity to safely discharge runoff due to urbanization are further discussed in the following sections.

2.2.3 Water Related Disaster Risk Areas

The lack of or poor storm drainage systems, poor urbanization in the stream catchments and interference along river and stream buffer zones have created flood disaster risk areas along the rivers and stream. In the last two to three rainy seasons as well as the current one, Lilongwe City has experienced disastrous floods which have caused loss of lives and extensive damage to properties and infrastructure. The areas affected include Mtandire and area 47 along Lingadzi River and Kawale, Biwi, Kalyeka along Mchesi stream. The flood inundations were not limited to these areas but also several areas along Nankhaka and Mtedza streams around their confluence with Lingazi River, along Lilongwe River.

The river and storm water floods pose disaster risks in the city. Figures (2-51) and (2-52) show examples of central storm drainage system limitations in the city centre and old town CBD. The limited coverage of storm drainage system has resulted in storm water overflowing all over, even over bridges thereby, obstructing and endangering the safety of pedestrian and motor traffic. The City Centre and Old Town, with the disrepair of the central storm water drainage systems and the high rainfall intensities experienced in Lilongwe, have seen streets, buildings and cars being flooded. This is likely to worsen as urbanization has increased and climate change influence Lilongwe, as it is in a zone where climate change will cause higher rainfall regimes. This is further worrisome as the central storm drainage systems have not been expanded and increased in channel size. Statistics are not available; however, it is quite likely that such flooding is not only causing obstruction to traffic but also causing accidents, with people drowning and vehicles being swept away.



(2-51) Limited coverage of central underground storm drainage systems in City Centre CBD ,
Source: (HS, Alma, 2019)



(2-52) Limited coverage of central underground storm drainage systems in Old Town CBD,
Source: (HS, Alma, 2019)

These flood disaster risks are likely to increase, as the prospects of flooding in the city are real and on the increase. The poor urbanization with traditional housing and unplanned or uncontrolled development continue, this is in addition to the allocation of plots and cultivation along riverine buffer zones, lack of delineating buffer zones and secluding them from settlements and poor central storm water drainage system, which all play a role in exacerbating flooding.

The risk of having Kamuzu I and II dam break increases chances of flooding and flood disaster risks in Lilongwe City. As the city keeps expanding, it increases the area of imperviousness and the percentage of rain storm depth going to storm runoff, which also increases the chances of flooding.

2.2.4 Water Related Infrastructure Risk and Failures

The Chidzanja road bridge at Mchesi stream has been washed away more than twice in 2017, 2018 and again in 2019, it has also been damaged in the 2020 floods. The Lingadzi and Lilongwe bridges on M1 road have been over-topped in the past and houses and fences along Mchesi stream and Lingadzi River have been damaged, particularly in the floods of 2017, 2018 and 2019. The roads foundations are being undermined when flooding waters overflow over the roads and causing potholes in return. The likelihood of these infrastructural failures are high in Lilongwe unless interventions are made.

The outdated and inadequate roads, bridges, culverts and storm drains, which were designed without consideration of urbanization, are the ones at infrastructural failure risks. The design floods previously used are no longer valid due to urbanization and prospects of climate change. Furthermore, the storm drains fail to safely dispose excess water, and there is a need for them to be designed and constructed to flash out excess storm waters and prevent flooding of roads, walkways and buildings. The safety from Kamuzu I and II dam break needs to be evaluated, as it is the most dangerous infrastructure failure risk for Lilongwe City. It is likely to destroy, roads, bridges and buildings, including Lilongwe Waterworks.

2.2.5 Conclusion and Recommendations

The diagnosis of Lilongwe's urban hydrology and drainage problems, specifically the inadequacies and degradation of dambos and greenery, the protection of riverbanks, properties and infrastructure along rivers and streams and storm drains and drainage networks require serious intervention. Based on which, the following project interventions are recommended;

(i) Restoration of Dambos and Greenery along Rivers

The project for restoration and protection of the dambos and greenery along the streams and rivers in the city will comprise of the following;

- o The project should develop hydrological models and use them to delineate 1:100 flood zones along the river, where no houses or septic tanks should be built.
- o Appropriate recommendations should be made and implemented to protect the houses and structures currently existent in areas of floods or likelihood of future floods, as well as protect the river or stream from further degradation
- o Establishment and restorations of the greenery or recreational gardens and parks in the buffer zones. These could include building dikes and levees, rejuvenating the dambos with appropriate grass and flower plants;

The immediate project is the **delineation of dambo areas and river buffer zones and development and design of rehabilitation and protection interventions**. This requires the development and running of flood inundation models and delineation of 1:100 flood marks in a natural river or stream dambos or channel. The 1:100-year flooded areas or river buffer zones would be mapped and interventions needed to restore the dambos and greenery identified and analysed. Lastly under this phase, terms of reference for river and stream zone restoration and protection plan with priority projects that could have designs of restoration and protection works prepared, including cost estimate and details for the restoration and protection works.

The immediate project is the **Development of dambo areas and river buffer zones restoration and protection plan** that would include river buffer zones restoration and protection development plan and designs of rehabilitation and protection works priority projects. This consultancy work is estimated at 350, 000\$ US. The budget estimate will cover consultancy fees, hiring of survey equipment, purchase of licenses for topographic surveys and mapping, flood forecasting and routing models as well as other software to be used in the study.

(ii) River Bank and Infrastructure Protection Works

The project aims at the protection of city residents, property and infrastructure on or along the rivers from floods and riverbank instability, its interventions include the following;

- o Hydrological scouring, sedimentation and topographical studies to be carried out along Lilongwe and Lingadzi rivers and their tributary streams, including Mchesi, Nankhaka, and Mtedza streams. In order to determine the extent, mechanism and characteristics of flood inundation areas, scouring and deposition along the rivers and streams within the city and determine sections that need protection as well as identifying the required protection works.
- o Development of river training and scouring protection works within the city, in areas where properties are at risk of erosion, scouring and sediment deposition. This will involve feasibility and design studies and construction of works including bank protection wall.
- o Determine 1:200-year floods on all bridges in the city and determine the adequacy of the bridges to withstand such floods with appropriate recommendations to replace or restore them. This includes the Lilongwe Bridge at Chigwiridzano and Old Town, Mchesi river on Chidzanja road and other road bridges or culverts on Nankhaka and Mtedza streams in Area 25.

The immediate project would be hydrological, scouring and sedimentation studies and mapping vulnerable sections and areas to scouring and sedimentation along the rivers and streams in the city. It will also include designing river training and protection works along river and stream sections identified at risk as a result of the studies. The hydrological studies would also come up with 1:200 design floods for bridges and other infrastructure works along the rivers and streams. The results of this would feed into the designs of upgrading bridges and culverts or the construction of new ones where vulnerable bridges are determined. It is estimated that this consultancy service would require a budget of 285, 000\$. The design studies that will be carried out under this will come up with cost estimates of the riverbank and protection and training works.

(iii) Drainage Network and Storm Drains Improvement

The project aims at improving storm drains and drainage network in the city and protecting streets and buildings from flooding during heavy rainstorms. The interventions include:

- o Carry out urban hydrology studies and determine existing streams, storm drains and drainage network inadequacies in conveyance capacity to safely drain excess storm water throughout the city.
- o Design and construct improved drainage network in the informal settlements particularly Mchesi, Kawale, Biwi and Chilinde, Area 25, Chinsapo and Chigwirizano.
- o Design and construct extension works to existing and new underground storm drains or conduits in the central business districts of Old Town, City Centre, around Mchinji roundabout and other areas urban hydrological studies identify.
- o Design and construct open channel storm drains in areas with less building density in locations identified by the urban hydrological studies to be adequate and safe.

The immediate project would be the urban hydrological and drainage studies that would determine where storm drains and drainage networks would be required and in what form. This would be followed by feasibility and detailed design studies for the drainage networks in informal settlements and open channel and conduit storm drains in the city. The preliminary costing of this immediate project is 550, 000\$ covering consultancy fees, materials sampling and testing, soil sampling and testing, surveying and mapping equipment and services, etc. for urban hydrological and drainage studies, pre-feasibility feasibility and preliminary design studies.

The detailed feasibility and design studies would be followed by the construction of these drainage networks and storm drains. As these studies would determine cost estimates for construction and commissioning of the drainage networks and storm drains, while the immediate project studies would come up with cost of detailed feasibility and design studies.

(iv) Summary of Immediate Urban Hydrology and Drainage Project Proposals

- a) Development of dambo areas and river buffer zones restoration and protection plan that would include designs of priority rehabilitation and protection works. This study is estimated at US \$ 350, 000 budget.
- b) Urban hydrological, scouring and sedimentation studies along the rivers and streams in the city. This include designing river training and protection works along sections identified to be at risk from the studies at an estimated budget of \$285, 000. The design studies will present the cost estimates of the riverbank rehabilitation, protection and training works.
- c) Urban hydrological and drainage studies t determines the nature and location of storm drains and drainage networks, including feasibility and detailed design studies for the drainage networks in informal settlements and open channel and conduit storm drains in the city. Estimated at budget of \$550, 000.

Water related disasters emanating from drought affect water scarcity and drought risk management as well as water security. The Lilongwe Water Board (LWB) is dealing with this through the development of new water sources in Diamphwe River as well as from Lake Malawi. LWB is also working on raising the existing dams level and in return increase storage in the two reservoirs. All of the above interventions aim at drought disaster risk management or creating resilience to droughts in Lilongwe city. The drought disaster risk interventions have, therefore, not been included on this list.

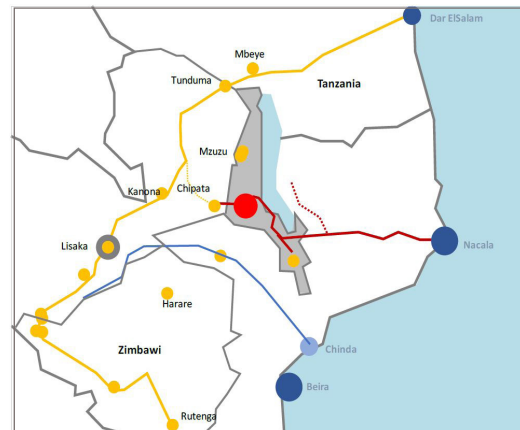
2.3 Transport and Transportation

Within this sub section the provision of transport infrastructure is thoroughly discussed, including the analytical composition of the transport service delivery in Lilongwe City, as well as the institutional set up in urban transport. Further analysis of the financing of roads and related institutional gaps is explored, concluding with a provision of a Multi-modal system and related analysis.

Transport is one of the most important non-consumable products. Statistically, of the non-food consumption products, housing and utilities are the highest consumption at 16% of the entire population and is seconded by transport at 6% (IHS3). Lilongwe is one of the fastest growing cities in Malawi, according to the 2018 Population and Housing Census Report, Lilongwe City was the second fastest growing city at a growth rate of 3.8% in the period between 2008 and 2018. Provision of improved and resilient urban transportation infrastructure and public transport service delivery is, therefore, essential to ensure sustainable economic growth and improved livelihoods for this growing population. This is in line with the goal of the National Transport Policy of Malawi which is to ensure the provision of a coordinated transport environment which fosters a safe and competitive operation of commercially viable, financially sustainable, and environmentally friendly transport services and enterprises.

By nature of Lilongwe's geographic location being in the centre of Malawi, it serves as a transport hub for the country where vehicles from the south, north, east and west of the country converge, making it strategic and essential to provide resilient and efficient transport infrastructure and services. Lilongwe City also serves a regional transport network for eastern parts of Zambia and some parts of the Central region of Mozambique linking them to the port of Nacala (Figure 2-53).

(2-53) Lilongwe Regional Connections. Source: (HS, Alma, 2019)



Malawi has a multi-modal system of transport which comprise of road, rail, maritime, and air transport. Road transport is the most dominant mode not only in Lilongwe City, but also the country as a whole, handling more than 70% of freight and 99% of passengers. Although road transport is relatively expensive compared to other modes of rail and maritime it is dominant mainly due to its wide connectivity, enabling it to provide door to door service to its users while in return accessing economic and social services within short turnaround times.

Malawi is a predominant agricultural country. Lilongwe and other neighbouring districts of Kasungu, Mchinji, Dowa and others are some of the largest producers of agricultural products such as tobacco, maize and legumes. The road network in Lilongwe provides a crucial transport link for farm produce from the production areas to the manufacturing hub of Kanengo and other agro-processing areas in the Old Town of the city.

Conclusion: Due to the central location of Lilongwe, the transport systems proves its vital importance to the entire country. This, in addition to the fact that road transport serves as the main mode of transport and means of transporting produce, proves the dire need to emphasize on road network without undermining the potential of railway transport.

The two main problems affecting transport and transportation in Lilongwe City are as follows;

- i) Poor road network specifically unpaved and poorly maintained roads leading to discomfort to road users. Most of the roads are narrow and have no provisions of walkways for pedestrians and cyclist, leading to safety risks for all road users.
- ii) Generally weak and disjointed regulation of public transport and traffic management leading to heavy congestion in the city and inefficiencies in transport service delivery.

2.3.1 Transport Infrastructure Provision

Composition and Condition of Road Network

The primary road network in Lilongwe City comprises of main, secondary, tertiary and urban roads, constituting a total length of 598 km. In addition, there are also community roads with a total network of 137 km. The city is also served by a regional road transport network; the M12 connecting to Zambia through Mchinji; the M1 connecting to Tanzania through the Northern region and the same M1 connecting to Mozambique through the southern region (Refer Annex 2, map 19 for the map of existing transport).

The primary road network is mainly paved while the community roads are mostly unpaved. The general condition of the road network, particularly community roads in the city, is poor especially during the rainy season when some roads become impassable. The poor condition is due to poor or lack of maintenance, unpaved shoulders and improper construction of roadside drainages. However, it has to be acknowledged that there has been significant upgrading of some roads from unpaved to paved during the past three years, which has resulted in improving the outlook of urban roads. Some of the improved roads are located in Areas 24, 36, 10 Junction, through Senti to Kaunda road, Area 47, and lastly Area 25 to Dzenza which is currently in progress.

Existing Gaps in Road Network Provision

In addition to the poor condition of the road network in the city, specifically community roads, one of the significant gaps in the road network is the capacity for the majority of the roads to handle the increasing levels of traffic of vehicles, cyclists, and pedestrians alike. Many roads are of single lane and exceed their maximum carrying capacity leading to congestion and reduced average speed. As observed by the Urban Development Master Plan as well as the National Transport Master Plan, the M1 road from Old Town all the way up to Kanengo is increasingly congested during both peak and off-peak times with traffic count of more than 14, 000 vehicles per day. The situation is the same for other roads such as the Kaunda Road from the roundabout at Getaway Mall (junction with the M12) and Chendawaka road. Poor drainage system is also affecting the life span of the roads and movement of traffic. The junction between the M1 and Kenyatta drive (around Standard and National Banks) is one example of an area with poor drainage on trunk roads within the CBD which affects traffic movement during periods of heavy rains. Some of the drainage issues have been caused by uncoordinated property development that resulted in doing away or impairing with existing drainage systems.

Most parts of the road network are not inclusive, they don't have sidewalks for pedestrians and cyclists despite walking and cycling being the dominant mode of transport in the city. This makes pedestrians and cyclists share the same space with motorized transports. Where they exist, sidewalks are poorly maintained and not conducive for pedestrian movement and pose a risks, particularly to children and people with disabilities due to absence of segregation. Most of the city roads also lack street lights which not only enhance safety on the roads for pedestrians and cyclists but also provides an opportunity for residents to increase their working hours due to the provided improved security. Street lights also beautify the city. Most roads do not have road signs which is mostly a result of implementation and vandalism. It is however worth encouraging that the newly rehabilitated and widened Parliament road to Bingu National Stadium road (Presidential Drive) has a provision for pedestrians, cyclists and functional street lights. Future road projects ought to have these as minimum standards.

Conclusion: This proves the need for wider better quality roads, which have proper drainage as well as other factors increasing the road lifespan. This is in addition to the need for an inclusive network made comfortable for its varied users, by providing sufficient street lights, cycle ways and accessible pathways for people with disabilities.

Another issue which is important to address, is the growing scarcity of parking areas within the city. This is forcing a most drivers to park along the roads especially along the M1 particularly in the Old Town, thus further narrowing the already single lane road. This issue was also observed by the Urban Development Study of 2010. As the city grows in population and economic activity as projected by NSO (2018), the need for adequate parking space is very crucial in addressing this challenge.

From consultation with community members, certain issues regarding transportation were raised. This included the lack of proper roads in some settlements to facilitate movement of public transport, very poor road network connecting settlements to the centers, and blocked access road by housing developments. Based on such, the community suggested improving road safety, widening the roads, providing road signs and signals, and increasing awareness among drivers and developers. They were also supportive of the introduction of a Bus Rapid Transit System (BRTS) in Lilongwe City, as it would offer an affordable alternative means of transport.

Opportunities that Exist in Improving the Road Network

With a coverage area of 456 Km², Lilongwe City has relatively more available land for expansion of the road network and construction of road shoulders and sideways for pedestrians. This is in comparison with other cities in Malawi, such as Blantyre, as the road reserve has not been heavily encroached.

The topography of the city is also an advantage on costs of road project. Located on a plain, it is more cost effective to construct roads in Lilongwe City compared to hilly areas. It would also be relatively easy to construct a railway network which is more suitable for flat areas. This topography is also conducive for other modes of transportation, other motor vehicles railways, such as cycling, bicycle taxis and even walking, which provides door to door service of public transport (For the GIS map of “2030 Road Network” refer to Annex 2, Map 21)

2.3.2 Analytical Composition of the Transport Sector in Lilongwe

An Analysis of the Current Public Transport Service Delivery in Lilongwe

Public transport service delivery in Lilongwe City is dominated by small passenger carriers. Minibuses, most of which have a capacity of 12 passengers per unit, remain the most dominant means which are used by 32% of the population in Lilongwe City (UN-Habitat 2011). Relatively larger buses with capacities of 32 passengers can only be found on the routes of Likuni/Chinsapo and Area 23.

In recent years, there has been a growing number of even smaller motorized modes of transport such as minivans and tricycles operating as public transport service providers, even within the CBD. Additionally, there has been an influx in the number of bicycle and motor cycle taxis being used as public transport, mainly on community roads in the residential areas. Most of the users of public transport system within Lilongwe City, commuting to work and business premises, are mostly low and medium income earners. Despite the existence of the different means of transport, there are also many people who walk or cycle to their workplaces or business places in Lilongwe City. Unfortunately, most of the roads do not have footpaths resulting in conflicts between motorists and pedestrians which contributes to road accidents and loss of life (UN-Habitat 2011).

Lilongwe is served by one bus terminal located in the Old Town. The bus terminal serves as a hub for arrivals and departures of most public buses connecting other districts in the country. A private minibus terminal is also located adjacent to the bus terminal providing connectivity to the different locations within the city and its outskirts, mostly to Mchinji. In addition, smaller vehicles also provide services from the same area. However, it has been observed that a growing number of public bus companies are not using this bus terminal especially for coach line services which are mainly patronized by middle to high income passengers. Instead coach line services buses use car parks of major shopping malls as their terminals. This is mainly due to congestion, lack of enough space, dilapidated condition and lack of proper facilities for passengers at the main bus terminal.

Conclusion: There is need for regulated official modes of transportation, providing a wide variety of connections, in addition to the need to improve the conditions of the existing bus terminals.

For the GIS map of existing public transport refer to, Annex 2, Map 18 “Map of Public Transport”

An Analysis of Challenges Being Incurred in the Provision of Public Transport

Unreliable Public Transport Provision

Public transport in Lilongwe City, and Malawi as a whole, is fully liberalized with numerous players on the market with weak regulatory instruments governing their operations. Public transport providers do not have fixed timetables and their availability is not pre-determined, making them unreliable. They also do not operate in all areas of the city where residents need their services, especially in areas where the road network is poor such as Area 25 (Dzenza side), most parts of Area 49, Mtandire, Mtsiriza, and Area 44. Other areas such as Areas 43, 10, 9, and 3, are not serviced by public transport mainly due to the majority being high income earners who use private vehicles. However, there is a need for such areas to also be served with reliable and efficient public transport to reduce congestion caused by increasing number of vehicles as well as reduce carbon emissions. Furthermore, some of the minibuses and vehicles are in poor conditions, and mostly exceed the required number of passengers. This is evident with providers operating on routes to Mwenyekondo, Areas 36 and 24, amongst others.

Small-sized Carriers leading to Congestion on the Roads

Despite both the 2010 Lilongwe City Master Plan and the National Transport Master plan recommending a shift from minibuses as the dominant mode of public transport to bus or rail rapid transit, the situation of public transport in Lilongwe City has continued to decline. Smaller carriers such as minivans and tricycles are increasing in numbers with it having the potential to drive minibuses out of business if left unchecked. This has been the case, as there hasn't been any established, controlled competition in the provision of public transport. This situation, coupled with increased numbers of private car owners has led to heavy congestion on the city roads, most of which are single lane. This also has negative environmental impacts due to high volume of carbon emissions from many cars. The areas which are mostly congested are the M1 road from Area 18 to Old Town, the Kaunda road from Area 49 up the Gate Way Mall round about, the Kenyatta drive from City Centre to Old Town, from Kanengo Industrial site to the junctions to Area 25, and the roads going to Area 24 and Area 23. The public transport on these roads mainly serve passengers going to work or business premises in Old Town and City Centre.

Poor Infrastructure and Congested Bus Terminal

The infrastructure at the bus and minibus terminal in the Old Town is in poor condition and heavily congested. This brings a lot of discomfort to users and has resulted in some bus operators using car parks of major shopping malls as their terminals since they have better infrastructure and are less congested. This is leading to shortcomings as the LCC is not able to generate the magnitude of revenue that the terminal has potential of generating. There is also a private minibus terminal adjacent to the bus terminal, but it has limited space. The city council constructed a minibus terminal which mostly saves minibuses to Chinsapo, Likuni and Chigwiri. However, the two minibus terminals cannot accommodate all the minibuses operating from the old town due to limited space and inadequate facilities. This forces other minibus operators to operate along the roads, blocking access and creating huge traffic problem.

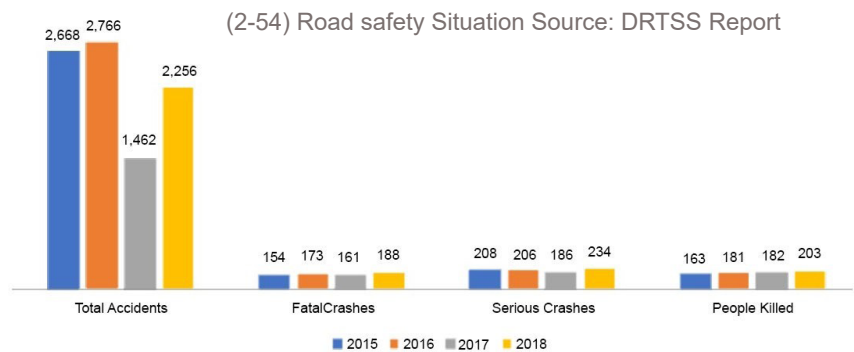
High Cost of Transport Fares

The current average fare for a single trip within the city is MK500. This is considered high in relation to income levels of those who need the services, who are mostly low-income earners. As transport fares constitute a large proportion of their disposable income, they resort to walking long distances or even worse is the use of poorly maintained vehicles. This is mostly observed on the roads to Areas 24 and 22, respectively. This alternative is cheaper and therefore relied on by many passengers despite better conditioned minibuses now operating on these routes post road network improvement. For the GIS map areas facing congestion, please refer to annex 2, map 20 “Map of Congestion Areas”.

Conclusion: There is a need to promote bus or rail as means of transport over minibuses and small vehicles. This can be achieved by improving the condition of the bus terminals and providing affordable bus fares.

Road Safety

The road safety situation in Lilongwe is not good, with frequent road accidents the order of the day. This is attributed to careless driving, walking and poor road designs which do not provide sideways for pedestrians and cyclists and separate traffic. Figure (2-54) presents data in regards to road safety during the period 2016 -2018.



According to DRTSS the causes of the accidents in order of magnitude are listed below;

- Over speeding
- Careless crossing of the road
- Driving under the influence of alcohol (both pedestrians and motorists)
- Crossing the roads outside pedestrian crossing

Most of the victims of road accidents are pedestrians, seconded by cyclists, then motorists.

2.3.3 Transport

a) Traffic Congestion

Road congestion is a problem in almost all the cities of the world and Lilongwe City is not spared of this ordeal. The causes of traffic congestions, include poor traffic management, poorly disgned roads, inadequate parking and weak enforcement, among others. Most cities have evolved over the years without proper planning which has resulted in failure to cope with the growing motorization. Congestion is also caused by the increase in the vehicle population on the roads as this lowers the speed of the vehicles.

In most cities of developing countries, less than 50% of the roads are paved thereby reducing the accessibility of large buses to densely populated areas. This is in addition to roads of substandard quality and which also have limited capacity to serve all road users e.g. cyclists and pedestrians. Furthermore, there are no dedicated bus lanes within the cities to accommodate large buses and most roads are narrow. Alternatively the unavailability of large buses has contributed to the proliferation of taxis and minibuses which have greater maneuverability but do not serve as an efficient means of urban transport. Minibuses and taxis cause congestion especially during peak hours and are not safe nor environmental friendly due to emissions they produce as most of them are old cars, which are poorly serviced and operate long hours nonstop (Ajay 2008).

Another cause of road traffic congestion is the delay to complete road construction works, this is a result of several factors such as insufficient cash flow, delay in site mobilization, shortage of technical personnel, fuel problems, shortage of foreign currency to import materials and delay to compensate landowners. The delays in road construction are not only costly to the contractor and client but also the road users who end up spending more time on the road due to detours (Kamanga, 2013). The impact of delays in road construction in Lilongwe City is very evident, such as the delay in completing the interchange at the old Area 18 roundabout.

The lack of traffic regulation facilities such as traffic lights, good road signs and road markings exacerbates the traffic problems experienced in urban areas of Malawi. In recent times, the increase in bicycle taxis and street vending have contributed to conflicts over the use of the roads with vehicles (Manda, 2013).

The impact of traffic congestion and conflicts amongst different road users have at times resulted in threats to human life. Road Traffic Injuries (RTI) and deaths are a major public health issue worldwide. Kamuzu Central Hospital Trauma Registry registered 96,967 RTI in Lilongwe City between 2009 and 2015 with 25,193 (26.2%) of patients having road traffic related injuries. The highest number of injuries concerned pedestrians (32.3%) and cyclists (28.2%) (Banza L.E et al).

b) Funding Road Infrastructure

The Government of Malawi recognizes the significance of good road networks and has outlined investment in road infrastructure as one of the strategies to spur economic growth and development of the country. Satisfactory road infrastructure helps to reduce travel time hence costs for persons and goods, enhances access to markets both locally and internationally, improves access to social and public services, reduces road accidents which are a threat to the public worldwide and attracts increased private sector investment in the operation and management of the transport infrastructure (MDGS III).

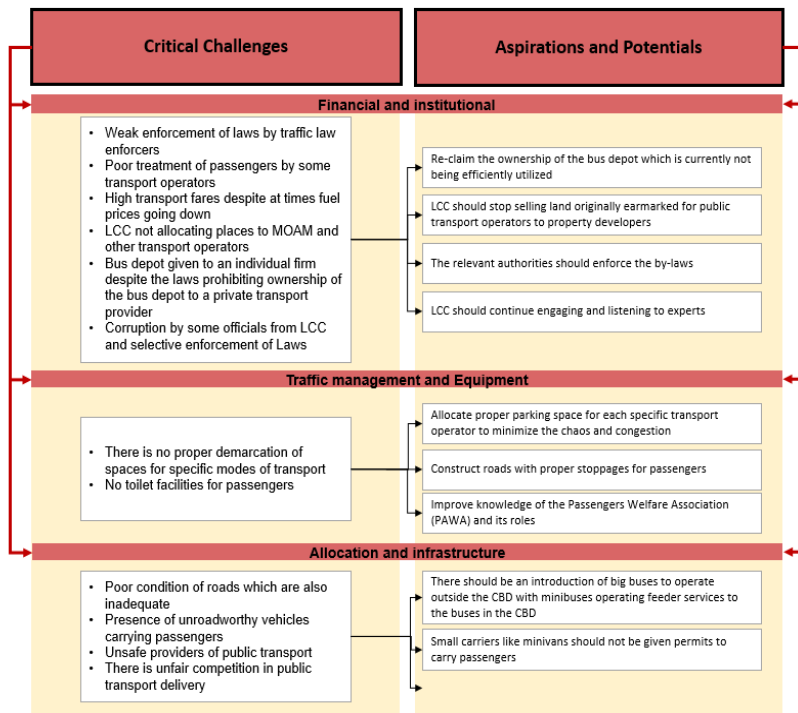
Makhwatha (2014), posits that contributing to road infrastructure results in economic growth and policy makers should ensure that capital and recurrent expenditures are properly managed to accelerate economic growth. There are two main sources of funding for roads construction and rehabilitation in Malawi namely; Government's Development Budget (GDB) and the Recurrent Budget (RB). The Government's Development Budget includes grants from the country's development partners and is mainly used for major road improvements, new roads, upgrading of unpaved roads to paved ones, as well as rehabilitation and periodic maintenance of roads. The Recurrent Budget is financed using funds raised from fuel levy, transit fees and various other sources. It is mainly used for maintenance and rehabilitation of all public roads, surveys and monitoring related to maintenance and rehabilitation of roads.

In order to strengthen the financing and management of roads, there is need to commercialise roads, bringing them into the market place and putting them on fee for service basis. This can be achieved by creating ownership through the involvement of road users in the management of roads as road board members or commissioners. This would help to win public support, secure adequate and stable flow of funds through road tariffs, vehicle license fees and fuel levy, efficient use of resources and limit the scope of the road works to what is affordable, clarify responsibilities of the different stakeholders. This could also be achieved through the adoption of best private sector management practices in the management of roads, for example through the involvement of the transport unions or associations in the management of the roads and lobbying for increased funding and improvement in the execution of projects. One good example of private sector management practice is the automation of the revenue collection systems and the use of coupons for collection of transit fees which was successfully implemented in Zambia through the engagement or partnership with transport unions and other agencies.

In Lilongwe City, there are different entities that are involved with road infrastructure development and enhancement namely the Roads Authority, Lilongwe City Council and Roads Funds. At times, there is lack of clarity on what each of these entities is supposed to do. The Ministry of Transport and Public Works is the main ministry in regards to all issues pertaining to transport

2.3.4 Analysis

On a participatory level, the roads and transportation sector suggested crucial issues on the development potential of Lilongwe City. Along with local community engagement, critical challenges and aspirations were raised as demonstrated in Figure 2-55. Guiding the development and prioritization of the intervention projects are showcased in part four of this report.



(2-55) Results of focus group discussion with the transport sector. Source (HS, Alma 2020)

According to the focus group discussion and local community engagement, reducing congestion, providing cost efficient transport services, increasing accessibility and number of parking spaces is crucial in the development of Lilongwe City’s transportation sector. This is in addition to introducing a multi- inter-modal system, supporting investment in traffic management, improving the availability of associations and engaging studies such as the City Master Plan.

Regarding the transportation layer in Lilongwe City, the roads network is relatively connected whether within the regional context or on the local level within the city. However, this sector is facing two main challenges which are the quality of local roads that are characterized as unpaved leading to safety issues, such as accidents, discomfort for the users, and low capacity for most of the roads to handle the increasing levels of traffic for vehicles, cyclists, and pedestrians.

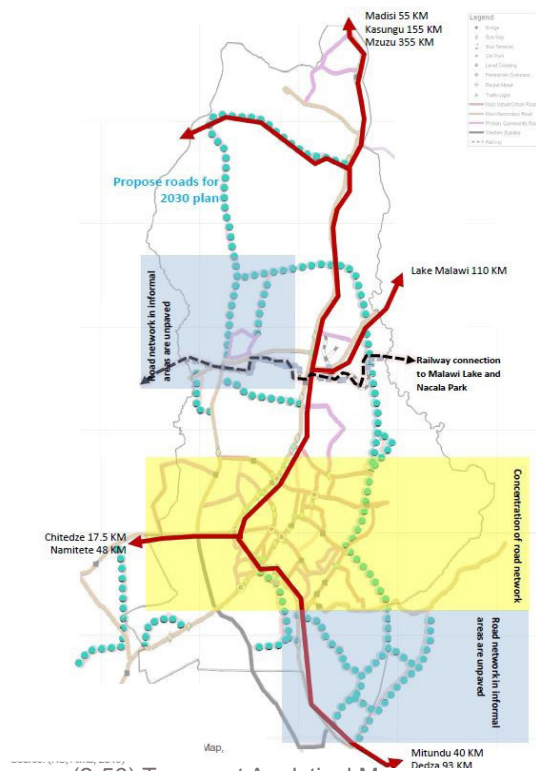
The other issue is the relatively long network which could be time and cost consuming for users due the scattered distribution of functions across the city. The 2030 plan has been working on this sector as it has proposed supportive road network throughout the city.

In regard to the public transportation, it is mainly provided by minibuses and other smaller carriers which are not reliable and are not well regulated leading to traffic congestion within the city.

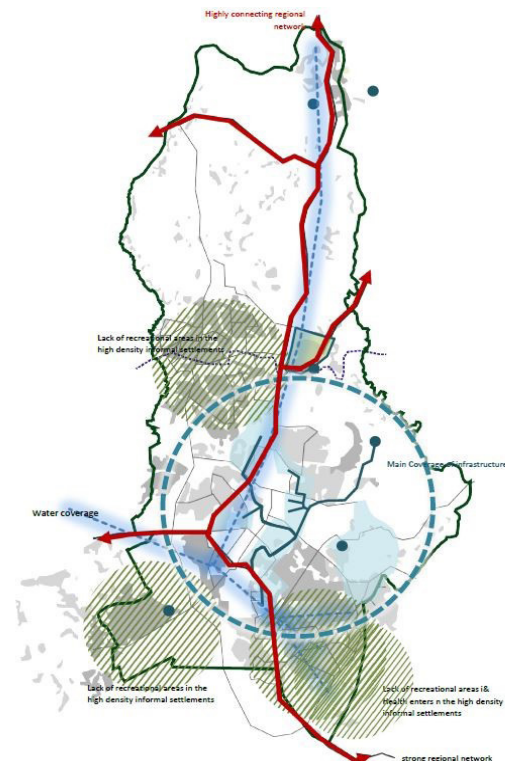
The railway passing through Lilongwe City is not efficient in that mater, as it has potential to serve passengers within the public transportation network on the long run is currently used for cargo and even for that purpose it is operational but not efficient. This railway could be seen as a potential that enhances the public transportation network, the connection of Lilongwe city in the regional context as a dominant mode for transporting imports and exports.

It was shown in the social-economic and demographic survey that the majority of the community use mini buses in Lilongwe City although many other modal systems are available in less numbers and coverage (Refer Annex 4 page section 4.5.2 page 229). It is therefore, imperative that more capacity modes of transportation be introduced to cover most parts of the city, consequently leading to a multi-modal transportation system which will be highlighted within the different proposals in subsequent sections.

Based on the above analysis the following maps have been drafted accordingly; figure (2-56) and (2-57)



(2-56) Transport Analytical Map.
Source: (HS, Alma, 2019)



(2-57) Services, Infrastructure, and Transportation Development Analysis Conclusion Map. Source: (HS, Alma, 2019)

SWOT Analysis

Strength

- Malawi has a multi-modal system of transport
- Significant upgrading of some urban roads from unpaved to paved over for the past three years
- Lilongwe City has relatively more available land for expansion of the road network
- The topography of the city is an advantage
- Convenient location, being in the centre of Malawi
- Lilongwe rail system has a direct linkage of road and rail in Kanengo Industrial Site, connecting the city to the port of Nacala in Mozambique.
- Ongoing rehabilitation works of the railway line from Nkaya in Mchinji through Lilongwe to Balaka, rehabilitation work expected to end in 2020

Weakness

- The transport sector faces a number of issues in Malawi some of which are:
 - » Inadequate funding over the years for maintenance and development of roads
 - » Clearing backlog payments due to huge accumulation of arrears
 - » Inadequate absorption capacity of road work funds by local consultants and or contractors
- The presence of the informal means of transport and increase in number of individuals owning private vehicles have further complicated traffic congestion in the city
- Road transport is relatively expensive
- The primary road network is mainly paved while the community roads are mostly unpaved.
- The lack of capacity of most of the roads to handle the increasing levels of traffic for vehicles, cyclists, and pedestrians.
- Poor drainage system is also affecting the life span of the roads and movement of traffic.
- Most parts of the road network lack sideways for pedestrians and cyclists
- The funding levels for both trunk roads and urban roads in Lilongwe are significantly low
- Weak regulation with regard to urban public transport
- The road safety situation on the roads in Lilongwe is not good.
- Currently the rate of utilization of the railway is low, with only 5% of total cargo moved by the railway originating from Lilongwe

Opportunity

- The connectivity of Lilongwe on a regional level creates a great attribute for the development of the city.
- The rail system creates a large opportunity for economic exchange.

Threat

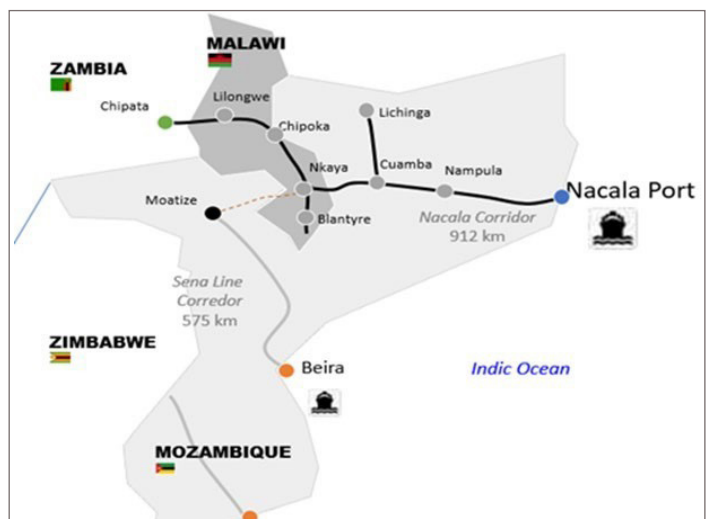
- The lack of maintenance and follow up of road networks creates the threat of increased costs
- The slow progress in maintenance works could lead to other infrastructural issues
- The quality of roads causes threatens service delivery and safety of residents
- The utilization of the local railway could lead to decreased employment and improve economy
- Lack of Pedestrian and bikes lanes cause a huge strain on the safety of road users
- Further increase in transport costs and has negative effects on the economy.

2.3.5 Concluded inter-linkages of road to rail and aviation in the provision of a multi-modal transport system Capacity challenges

The general vision of an efficient transport mode is the provision of a multi-modal system of transport through efficient linkages of all possible transport modes in a bid to achieve efficiency. The right tonnage of cargo ought to move on the appropriate mode of transport in a bid to reduce transport costs and increase the life span of transport infrastructure. Lilongwe is also serviced by an international airport, Kamuzu International Airport located just outside the city (to the far north) which provides connectivity of the road and aviation modes. It serves as an international hub mainly servicing domestic and regional airlines connecting Lilongwe and Malawi to the rest of the world. There is currently no public transport linking the hub of the city to the airport.

Lilongwe City has a direct linkage of road and rail to Kanengo Industrial site, connecting the city to the port of Nacala in Mozambique. Currently the rate of utilization of this railway is low, with only 5% (about 27, 000 tons) of total cargo moved by the railway originating from Lilongwe. This is mainly due to the poor condition of the rail line from Balaka to Kanengo. This results in most of the bulky cargo to be moved by road, which is not only expensive but also results in the reduction of the life span of the roads and causes traffic congestion in the city.

The opportunity that exists with this connectivity is the current rehabilitation works of the railway line from Nkaya in Mchinji through Lilongwe to Balaka. Upon completion of the rehabilitation work expected to end in 2020, it is anticipated that there will be an increased usage of the railway imports and exports for Lilongwe. It is expected that this will lead to reduced pressure on the city roads and will further prolong its lifespan apart from the reduction of transport costs for landed imports and exports. Figure (2-58) illustrates the railway connection in Malawi and the link to the port in Mozambique.



(2-58) Railway Connection in Malawi and the Nacala Port Source: (Olivier Cruzier, 3013)

2.4 Urban Services and Infrastructure

As a sub section within service delivery, the following discusses urban services and infrastructure which includes water supply network and distribution, wastewater networks, solid waste management, and power and telecommunication. Which are looked at from an analytical perspective while exploring the existing gaps and ways to fill it.

2.4.1 Water Supply and Network Distribution

Water Supply Systems

Lilongwe City is supplied water from Kamuzu Dam I and II. The dams are being supplied by the Lilongwe River, which flows through Lilongwe City's southern border of Dowa District, Salima District and finally into Lake Malawi. The river is nearly 200 kms long and provides essential ecosystem services to the City of Lilongwe as well as other districts. (SQ1, 2019)

The LWB abstracts its raw water from the Lilongwe River, which originates in the Dzalanyama Ranges. There are two dams upstream of the abstraction point; namely, Kamuzu Dam (I) constructed in 1966 and Kamuzu II constructed in 1989, with a combined storage of 24 million m³, which is barely able to sustain the current demand during the dry season (Lilongwe Water and Sanitation Project Appraisal Document (PAD) 2017). Kamuzu Dam (I) is located at about 25 km from the abstraction point and acts as the balancing reservoir, with its outflow going directly into Kamuzu Dam (II). Water discharged from Kamuzu Dam (II) flows by gravity down to the abstraction point at about 20 km downstream. The two reservoirs upstream of the intake works act as storage during the dry season when the Lilongwe River cannot sustain production. For an outline of the raw water sources refer to annex 3, table 14 "General Outline of Dams for LWB Water Sources".

The LWB has two water treatment plants, with a combined design capacity of 95,000 m³ per day. Treatment Works I (TW1) has a nominal design capacity of 35,000 m³ per day while Treatment Works II (TW2) has a nominal design capacity of 60,000 m³ per day. However, the actual production capacity is 27,600 m³/day at TW1 and 57,000 m³/day at TW2. It can thus be concluded that the current combined production capacity of the two plants at present is around 84,600 m³/ day. The water purification process at the two treatment plants consists of rapid sand filtration and disinfection.

The LWB has three high-lift pump stations for the transmission of water after treatment. These high-lift pump stations either pump directly to intermediate booster stations or to the service reservoirs. There are five booster stations namely; Mtunthama, Northern Booster, Kanengo, Lumbadzi and Mwenda. Thereafter, the treated water is distributed by gravity from the reservoir tanks to consumers through the distribution pipes.

Lilongwe Water Board (LWB) is implementing the Lilongwe Water Resources Efficiency Programme (LWREP) with financing from the European Investment Bank (EIB). One of the works under project Component 5 is the raising and rehabilitation of Kamuzu Dam I (KD I) by 7-meters. The main objective for raising and rehabilitation of the dam is to increase raw water storage capacity from 5.1 million to 25.1 million cubic meters. With this storage increase, LWB will have the capability to increase its water production capacity by 50,000m³ per day. The Board has engaged Mota Engil Engenharia Construcao Africa and Studio Pietrangeli Consulting Engineers as works contractor and supervision consultant respectively. The works will be implemented over a period of 24 months, effective on the 5th November, 2018

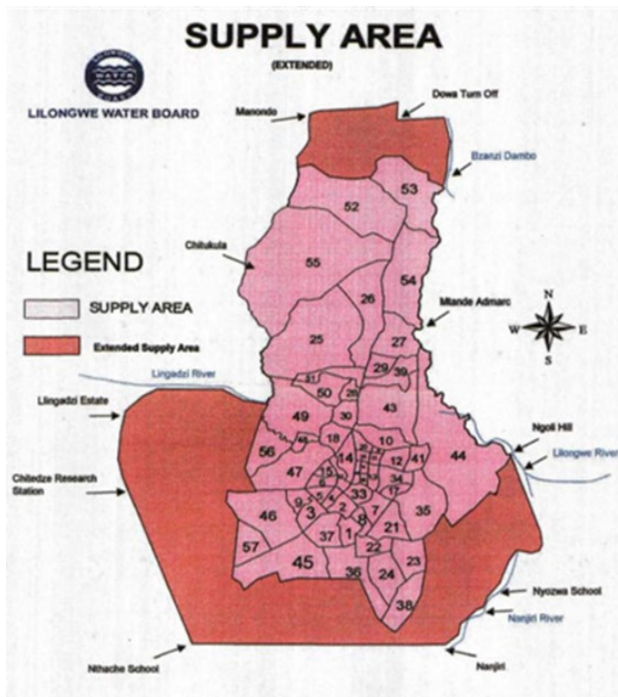
According to the community consultations conducted, the community complained of poor water quality, low water pressure, frequent dry taps, unjustified water bills, and delays in water connection Household surveys also showed that residents have a low perception of Lilongwe City regarding its ability to deliver services

Water Distribution

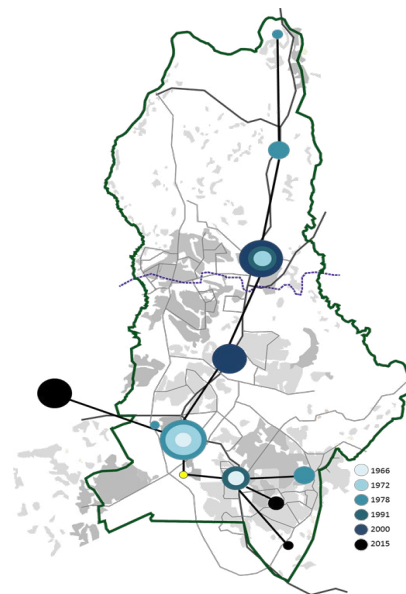
Lilongwe is the largest and fastest growing city in Malawi, with a population of 989 318 in 2018 (National Statistical Office, 2018) an increase from 20,000 in 1966. Although the City is growing slowly, the increase in water supply capacity is tremendous; from 2,250 m³/day to 95,000 m³/day, over the last five decades, as demonstrated schematically in figure (2-61). In theory, the amount of total water produced is sufficient to ensure universal coverage.

The per capita consumption in the central zone increased significantly after extra water was made available to the city. The increase in consumption in Areas 3, 9, 10 and 47 29, 59, 65 was respectively at 53%. Consumption rates in these areas, which were already higher in 1998, thus became even higher in and after 2008. In Area 9, for instance, consumption increased from 480 to 762 litres per capita and day (lpcd) and, similarly, Area 43 consumption rocketed from 631 to 868 lpcd in 2008. These values of consumption are way higher than the standard of 135 lpcd set by LWB. On the contrary, areas in the south suffer from poor coverage and are served mainly through kiosks did not gain much from the availability of extra water. See figure (2-59) for the varied supply areas.

Conclusion: There is a need for increased awareness with regard to water consumption in areas of high water coverage, as well as the need to equally distribute water connection between different residential areas



(2-59) Water Supply Areas. Source: (Tiwale, Zwarteveen, and Rusca, 2018)



(2-60) Schematic representation of water supply areas. Source: HS, Alma 2019

Water Quality

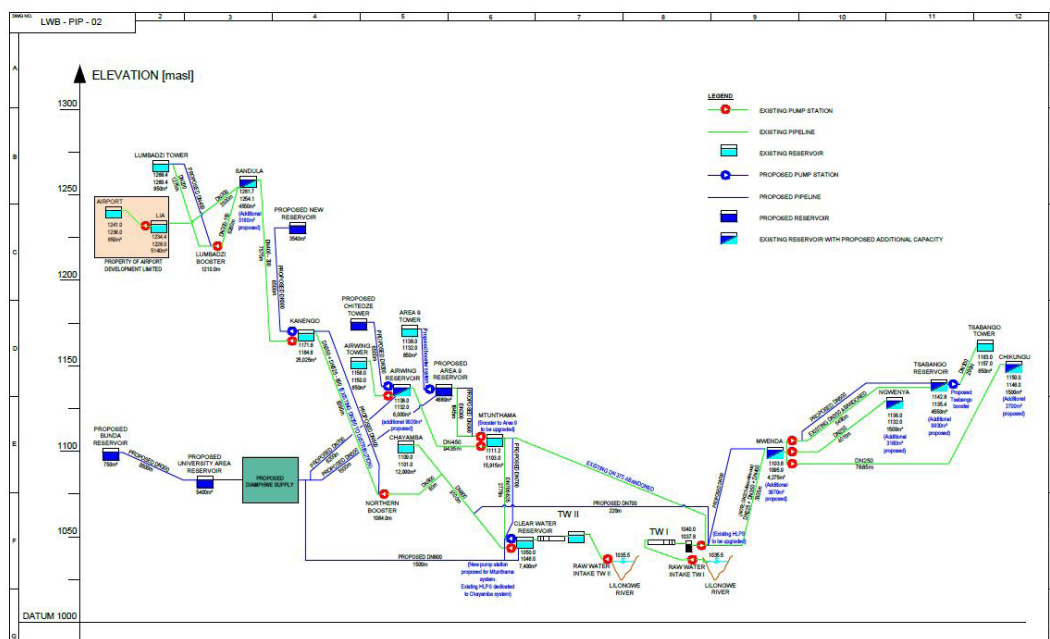
Turbidity, residual chlorine, faecal coliform and pH are the critical water quality parameters assessed by the LWB on daily basis. These parameters are tested by LWB to ensure the water being supplied to the consumers meets the WHO guidelines.

Existing Gaps and Ways to fill it

Lilongwe Water Board (LWB) is implementing the Lilongwe Water Resources Efficiency Programme (LWREP) with financing from the European Investment Bank (EIB). One of the works under project Component 5: is the raising and rehabilitation of Kamuzu Dam I (KD I) by 7-meters. The main objective for raising and rehabilitation the dam is to increase raw water storage capacity from 5.1 million to 25.1 million cubic meters.

With the increase, LWB will have the capability to increase its water production capacity by 50,000m³ per day. The Board has engaged Mota Engil Engenharia Construco Africa and Studio Pietrangeli Consulting Engineers as works contractor and supervision consultant respectively. The works will be implemented in 24 months, effective 5th November, 2018. Even after the storage capacity increase there will be a continuous need to upgrade the water treatment plants, pumping system, conveyor system and related distribution systems to properly utilize the extra water storage in Kamuzu Dam I This is in addition to properly connecting to the unconnected households, coping with the increase in water demand caused by rapid increase in the city population. New water system shall be prioritized in a way that gives a high urgency rank to provide safe water supply to vulnerable people. The following figure (2-61) schematically demonstrates the existing water transport system as well as the proposed investments.

Conclusion: Despite the works being carried out to increase water storage, further facilities are required such as water treatment plants, and pumping and water distribution system, in order to ensure a well distributed water system

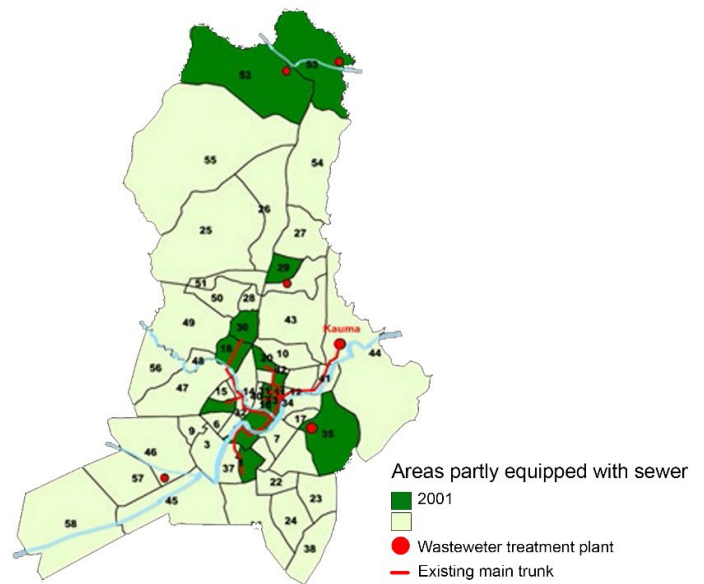


(2-61) Schematic Existing Water Transport System Plus Proposed Investments. Source: (VitensEvides International and Royal HaskoningDHV, 2016)

2.4.2 Wastewater Networks

Lilongwe City Council (LCC) is responsible for providing sewerage and sanitation services in Lilongwe City. However, the National Sanitation Policy of 2008 recommends that the sewerage services should be transferred to the Water Boards. Hence, Lilongwe Water Board should be the responsible organization for both water supply and sewerage systems in Lilongwe City

The following figure (2-62) portrays the areas partially equipped with sewage services by 2001 in dark green. Noting, there are five existing locations for sewerage networks in Lilongwe, for each location’s catchment area and estimated length of network. Please refer to annex 3, table 19 “Existing sewerage network in Lilongwe”.



(2-62) Existing Sewerage Systems in Lilongwe. Source: (MW-LWSP)

Population density is the key parameter in determining the appropriate level of a sewage disposal system. Low population density areas, which can be managed through on-site systems (septic tanks) at a much lower investment with equivalent health benefits should be excluded from the sewerage service area. Development of sewerage system in the populated area is technically viable due to the effective collection of much wastewater and expansion of service coverage area. For populated areas where water supply is not available as house connection or where the present sanitation system is unsafe latrine, an intermediate system of sanitary latrine is proposed. For further details in regards to the proposed sewerage system applied by area, refer to annex 3, table 20.

The Current sewerage facilities shall be rehabilitated for maximum utilization of current assets. The plan projects the following;

- I. In 2030, 98% of the population should have access to safe sanitation by sewer, septic tank and sanitary latrine.
- II. Wastewater generation in 2030 is estimated at 121,000 m³/day for the sewerage treatment plant.
- III. In 2030, about 54% of the population will depend on the sewerage systems while 6% will depend on on- site technologies such as septic tanks, and 38% will depend on sanitary latrines.

Collection and treatment facilities of sewage from septic tanks and sanitary latrines including a strong institutional capacity backed by adequate skills base and strong legal authority is essential to deliver the service. Refer to annex 3, table 21 for further details in regards to sewage treatment, septic tanks and sanitary latrines demand for 2030.

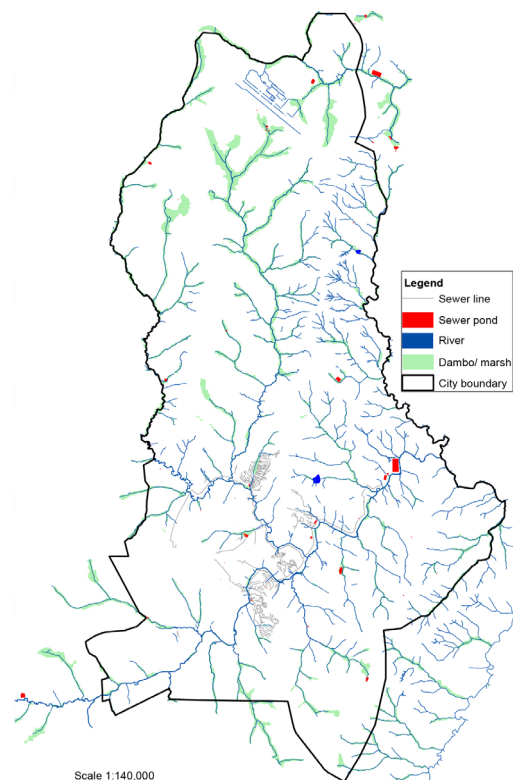
Existing Gaps and Ways to Fill It

There is no basic information on how many households are connected to the sewerage system. According to the Monthly Reports issued by the Sewerage Service Section of Lilongwe City Council, the blockages are cleared regularly. However, deliberate blocking of pipelines is reported in order to use the sewage as soil improvers/manure. Noting, storm water drainage is maintained by the Roads Authority.

Lilongwe Water and Sanitation project/ World bank funded project will finance the rehabilitation and expansion of the sewerage network and treatment and priority on-site sanitation interventions. Approximately 107km of sewerage network and connecting approximately 5,000 new households to the sewer network; and rehabilitation and upgrading of the existing Kauma sewage treatment plant. The map shown (2-63) demonstrates the existing drainage and sewage in Lilongwe.

Priority areas were identified based on the following criteria: (i) availability of capacity in nearby trunk sewers; (ii) proximity to nearby trunk sewers; (iii) risk to groundwater pollution-densely populated areas; and (iv) potential for densification. Given the resources available, the project will focus on areas that can be connected to sewer without significant extension of existing trunk.

Using the same criteria mentioned above and depending on the availability of capital funds, the area covered by the sewer systems shall be expanded. The final goal is providing safe sanitation service for all city residents. This could also be achieved by a long term plan for sewer systems coverage.



(2-63) Drainage and Sewage. Source: HS, Alma, 2020 - Data Source: LCC 2020

2.4.3 Solid Waste Management

Solid waste collection in Lilongwe City is still inadequate, due to lack of resources and equipment. Most households, especially in the informal settlements of Lilongwe, dispose of their waste in open spaces, on river-banks and along roadsides. Uncollected solid waste is also a common sight in Lilongwe's markets and a major cause of environmental degradation (Sanitation Planning for the City of Lilongwe Low Income Areas, 2013).

During consultations with block leaders of Kauma, Mtandire and Mgoni, it was noted that most households lack awareness on proper solid waste disposal. In areas close to markets, solid waste is mostly disposed of in rivers. In Mtandire (Area 56), there is an organisation that promotes the use of solid waste as manure, as a result, disposal of market waste in the river is reported to have decreased.

Although some private companies separate their waste at source, Lilongwe City Council does not place the waste in separate containers when collecting, rendering the separation efforts useless and defeating the objectives of good sanitation practice as stipulated in the National Water Policy of 2005.

At the Low Income Area (LIA) markets, paper, plastic, metal, food and produce make the majority of the waste generated. There is no waste segregation and the waste is supposed to be collected in skips. However, the skips are not emptied frequently, resulting in overfilling and spillage. Waste collection from the markets by the Lilongwe City Council was reported to be very irregular.

Assessment and Review of Solid Waste Management

The main sources of solid waste in the City of Lilongwe are households, commercial entities, industries, markets, institutions (schools and health facilities) and public places. Waste generation for the City of Lilongwe is 0.493 kg/ capita/ day (excluding industrial waste). Solid waste is temporarily stored in storage facilities such as bins, bunkers and skips from where it is collected to a communal waste dump site or to rubbish pits located within the premises.

Waste sorting is very low at all levels of the society. The main reasons for low levels of sorting are lack of sorting facilities; lack of legal requirement for sorting; lack of awareness among the households on sorting; and lack of adequate demand for sorted material. Waste salvaging at the solid waste disposal site (SWDS) for reusable materials is prevalent at the SWDS.

Waste reuse, recycling, and resource recovery are not practiced in the city of Lilongwe other than a few Non-Governmental Organisations (NGOs), Community Based Organisations (CBO), schools and private companies which undertake some recycling and composting at a small scale.

Despite the City Council having the responsibility of solid waste collection in Lilongwe City, it has few working waste collection vehicles. Additionally, there is weak private sector participation in waste collection. However, a few commercial entities and industries have dedicated waste collection trucks.

The bulk of solid waste (70%) is generated by households. The most common method of disposing the waste is through burning, followed by dumping in open space and burying, which contribute to air pollution, greenhouse gas (GHG) emissions and water pollution. In health institutions, general waste is collected for disposal while clinical waste is either incinerated or buried. In schools, waste is disposed within the school premises by either burning or dumping in rubbish pits. In commercial entities, markets, industries and some communities, solid waste is collected by the City Council or private entities for disposal or sometimes burnt or dumped in open space.

The City Council has a designated SWDS located outside the urban limits of the city on the southeast side of the city in Area 38. The site does not meet the acceptable standards of a landfill and is generally classified as open dumpsite.

A designated solid waste disposal site is located in area 38 to the south of Lilongwe City, near the turn off to Lilongwe University of Agriculture and Natural Resources (LUANAR). The solid waste disposal site is not properly managed as a sanitary landfill site. The site had a monitoring well, in accordance with the requirements of the Water Resources Authority. However, the well is non-functional, as it is buried in solid waste. Noting, a new landfill site (final disposal site) will be necessary after 2025 when the present disposal area of 25 ha. in Area 38 is fully used up.

In regards to the Solid Waste Management plan, it aims for waste collection services to be provided for all household, governmental, educational and private business activities by 2030. Based on the estimated waste generation rate, targeted waste collection coverage, and planned population and economic growth, the future amounts of solid waste to be collected has been projected. For detailed numbers in regards to future amounts of solid waste to be collected for both domestic and municipal waste over the period of 2015 to 2030, refer to annex 3, table 22 "Future Amount of Solid Waste".

Solid Waste Management Project

Fifteen projects for institutional enhancement, collection and transportation improvement, final disposal improvement, and waste reduction promotion, etc. are proposed in table 23, annex 3. The selected priority projects include i) capacity development of the institutional organization, ii) procurement of equipment for waste collection and transportation, iii) procurement of equipment for landfill management, iv) pilot project for composting at a community, and v) program for community activity for cleaning. Among these five priority projects, capacity development of the institutional organization is proposed as the most priority project, which involves the capacity improvement program for LCC on waste collection, final disposal, and waste reduction tasks. Procurement of skip carriers for Traditional Housing Authority (THA) and unplanned settlements; and heavy machines is necessary for the proposed semi-sanitary landfill. The composting pilot project at a community and the program for community activity for cleaning are important to educate the residents.

For List of solid waste management system development projects refer to annex 3, table 23.

Existing Gaps and Ways to Fill It

Typical sources of solid waste delivered to the SWDS are households, commercial entities, markets, health institutions, industries and self-haul. The main components of the waste were organic (putrescibles and garden), paper and cardboard, plastic, leather, rubber, textiles, soil, glass and e-waste. Organic materials represented the single largest component of the MSW stream accounting for more than 65%. Waste collection rate is determined to be 8.68%, which demonstrates that most of the waste is left uncollected. Waste generation for the city is estimated to increase from 186,585 tonnes per year in 2015 to 395,792 tonnes per year in 2030. While, waste disposal to the SWDS is estimated to increase from 16,190 tonnes per year in 2015 to 279,454 tonnes per year in 2030. This entails that the waste collection rate increases from 8.68% in 2015 to 70.6% in 2030. This will however require substantial investments through provision of proper infrastructure for waste collection services. It is obvious that there is a need for integrated solid waste management system that will organize the entire cycle from cradle to grave. This includes proper waste collection handling and dumping in the proper septic landfill.

Private Sector Initiatives

The National Water Policy of 2005 mandates the Ministry and water utilities to promote private sector participation in water development and water supply services, and provide a clear role for the private sector in such projects. The Public-Private Partnership (PPP) Act of 2011 provides the overall legal framework for all PPPs in Malawi, with the water sector as a priority. Under the PPP Act, government entities can act as the contracting authority for the procurement of PPPs. The PPP projects can include any type of wastewater or solid waste projects.

2.4.4 Power and Telecommunication

Power

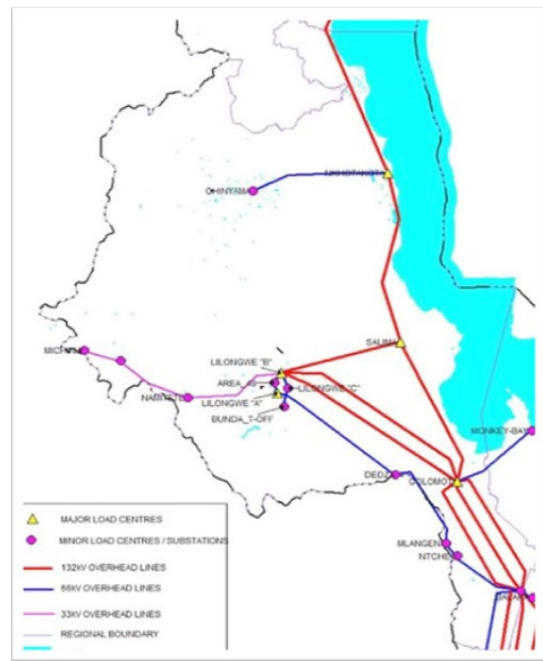
Assessment and Review of Electricity Power Management

The Electricity Supply Commission of Malawi is the sole supplier of hydroelectric power in Lilongwe, generated and transmitted from the Shire river in the South of Malawi. Connection to electricity

is by application and the major determinant is affordability. Approximately 45,105 households are connected to electricity. The annual demand growth is about 7-9 megawatts. However, the use of electricity is decreasing while that of fuel wood is increasing, particularly in the informal settlements. This is mainly due to the high cost of electricity connection which is not affordable for the informal settlement residents. Solar power is also utilized but to a very small extent, the government is trying to change this by encouraging people to turn to solar power which is cheaper. To this end, the government has installed solar panels in some newly constructed public buildings e.g. at Kamuzu International Airport.

Electricity supply in Lilongwe is characterized by frequent blackouts, many cases of illegal connections and vandalism of electricity infrastructure. The energy policy of 2003 promotes alternative energy sources such as solar power to increase access to electricity and the liberalization of electricity supply services in order to create competition and improve service delivery. The Electricity Supply Corporation of Malawi supplies electricity to the majority of the city.

The electricity supply infrastructure is old and worn out resulting in frequent power outages and high maintenance costs. Furthermore, the cost of electricity supply is high and inaccessible to the poor. Alternatively, the high reliance on charcoal and firewood for cooking and lighting, mainly by the urban poor, is the major cause of deforestation. See figure (2-64) which shows the transmission lines and load centers around Lilongwe. Refer to annex 2, map 22 for the map of Lilongwe City Council Electricity Grid Network



(2-64) Transmission lines and load centers around Lilongwe city. Source: Electricity supply corporation of Malawi (ESCOM)

Conclusion: The Electricity Supply Corporation of Malawi along with Egenco need to research new alternatives to improve energy supply, such as solar power.

During the consultation with the community it was noted that they complain about the time it takes for electricity to be connected to a house, in addition the frequent power cuts.

Existing Gaps;

- There are no specific guidelines for supplying electricity in the informal settlements.
- There is poor coordination among service providers.
- Illegal electricity connections and vandalism of electricity poles has resulted in frequent power outages.
- There is inadequate capacity to meet the demand for electricity supply in the city.
- High electricity bills make electricity connection unaffordable for most low-income residents of Lilongwe

Ways to Fill it;

- Reduce the time for electricity connection
- Speed up electricity connections to applicants.
- Reduce electricity tariffs and connection fees especially in the informal settlement
- Explore alternative sources of renewable energy.

Telecommunication

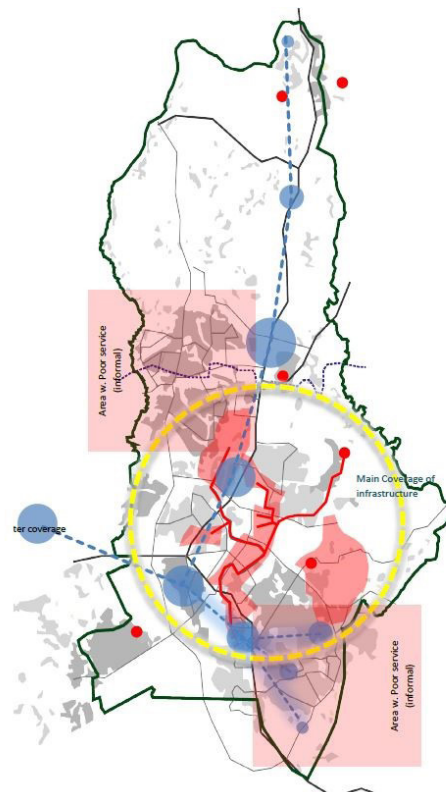
Mobile penetration in Malawi remains low in comparison to the regional average, therefore there are considerable opportunities for further growth, particularly in the mobile broadband sector. Telekom Networks Malawi (TNM) was the first operator to launch an LTE-A service, followed by Airtel Malawi in January 2018. The market remains a duopoly between these two operators given the failure of G-Mobile and Telkom Malawi to launch services. However, there is an expectation that Lacell Private (operating under the Smart Mobile brand) will provide some competition and encourage a reduction in end-user prices. To encourage additional market competition, the government has followed in the footsteps of several of its neighbours and introduced a converged licensing regime which allows the two fixed-line operators, Malawi Telecommunications (MTL) and Access Communications (ACL) to enter the mobile market as well. The converged licensing regime was revised and came into force in September of 2016.

Key Developments:

- New SIM cards require registration process
- Airtel Malawi launches LTE services
- Mobile termination rates begin to glide path reduction through to 2020
- MTL switches off its CDMA network
- World Bank provides 72.4 million\$ to help Malawi engage in the digital economy
- Regulators of Zambia and Malawi sign MoU related to cooperative efforts in the telecom and broadcasting sectors
- TNM boasts 46% increase in net profit for H1 2018
- TNM launches LTE-A services
- National Fibre Backbone Project nears completion
- Reserve Bank of Malawi reports on ATM-payment progress
- Regulator develops Universal Access Fund (UAF) to deliver mobile services to rural areas
- White space spectrum trials to increase broadband availability
- Report updates include recent market developments, operator data to Q2 2018

2.4.5 Analysis

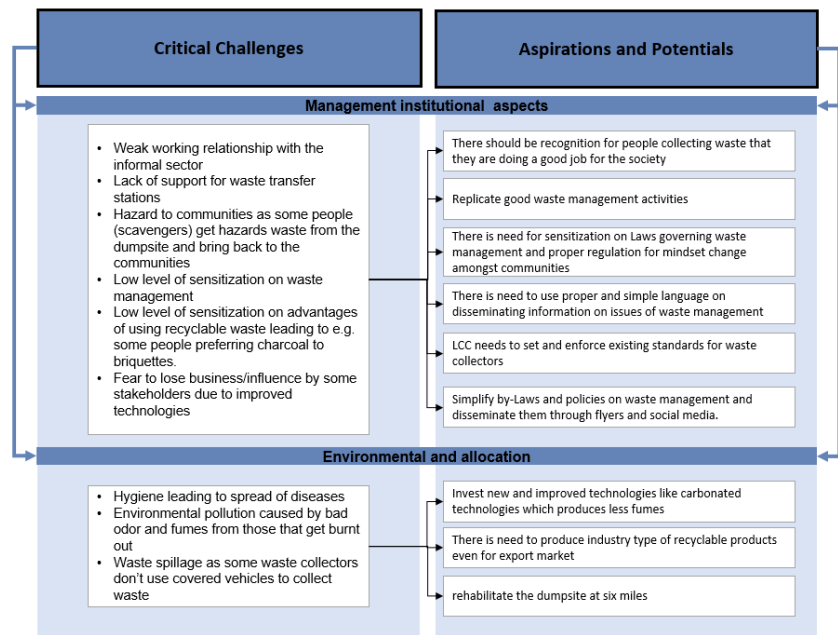
The infrastructural services challenges in Lilongwe city are mainly contributed to water distribution and coverage, and waste management in both liquid and solid forms. Water distribution in the city is facing many issues due to the polluted water resources and the poor network coverage leading the residents specifically in certain informal settlements to transport water manually from the rivers. In regards to waste disposal which is considered a major issue in Lilongwe City, the disposal coverage doesn't exceed 30% of the total waste in the city. Lack of awareness and poor distribution of waste disposal areas is leading to littering on the riverbanks and in empty areas that are not designed for waste disposal across the city and especially near by the market. This is contributing to the pollution of Lilongwe City's natural assets. Figure (2-65) demonstrates the above analysis.



(2-65) Waste and Water Analytical Map.
Source: HS, Alma 2019

According to the participatory approach using focus group discussions held with the sanitation sector along with engagement with the local community, the following aspirations and needs were raised, as demonstrated in figure (2-66). Taking this into consideration, an integrated development of compact hubs and centers in the city is needed to control delivery of services within the surrounding areas of these hubs.

(2-66) Results of focus group discussion with the sanitation sector
Source (HS, Alma 2020)



Based on further focus group discussions with related personal in the business community, it has become evident that the city is failing to manage the environment as there is a lot of waste and deforestation. It has therefore been proposed to invest in equipment which can be used to separate and sort waste for recycling, as well as offer incentives to businesses in order to promote good management of waste, and facilitate investment through Public Private Partnership arrangements in the management of waste.

SWOT Analysis

Strength

- The increase in water supply capacity is considered large
- In 2030, 98% of the population should have access to safe sanitation by sewer, septic tank and sanitary latrine.
- Collection and treatment facilities of sewage from septic tanks and sanitary latrines septic tanks for market toilets are emptied by the Lilongwe City Council.

Weakness

- Turbidity, residual chlorine, faecal coliform and pH are the critical water quality parameters assessed by the LWB on daily basis.
- Continuous need to upgrade the water treatment plants, even with the planned storage capacity increase.
- Some of the distribution mains have been in the system for over 50 years.
- Excessive water pressure in a system will lead to wasted water by customers and increase the risk of pipe failure.
- The LWB indicates that repairs by pipe bursts often contribute to the contamination of the potable water.
- No basic information is provided in regards to how many households are connected to the sewage system, there is no information of sewer locations.
- Lilongwe City Council was able to collect only 30% of all the refuse (solid waste) in the City due to inadequate resources
- Refuse collection is inadequate, due to lack of resources and equipment.
- Uncollected refuse is also a common sight in Lilongwe's markets and a major cause of environmental degradation

- Although some private companies separate their waste at source, Lilongwe City council does not place the waste in separate containers when collecting. At the Low Income Area (LIA) markets, paper, plastic, metal, food and produce make the majority of the waste generated.
- Waste sorting is very low at all levels of the society.
- Waste collection rate is determined to be 8.68%, which demonstrates that most of the waste is left uncollected.
- There are few private institutions providing septic sludge emptying services in Lilongwe City.
- There is weak private sector participation in waste collection
-

Opportunity

- Having sufficient infrastructural attributes can add to the environmental stability of the city as many of the issues are causing environmental echo
- Having proper physical infrastructure in low income areas adds up to the quality and satisfaction of users

Threat

- The water resources and distribution is a major threat in the city due to high dependency
- The un-sanitized water resources increase the threat of vulnerability in this sector, which is one of the main issues in the city
- The unsanitary sewage and pot holes serve as a major health and sanitation issue

2.4.6 Conclusion

There are some obvious gaps in the studied four sectors (Water Supply, Waste Water, Solid waste and power and telecommunication), these gaps need to be filled as per short, medium and long-term plans. The reduction of non-revenue water and the expansion of the area covered by water supply systems are two major goals for water supply systems. For the waste water systems, it is important to increase the areas served by this system as well as construct and rehabilitate wastewater treatment plants accordingly. Solid waste management shall be integrated from the creation to final disposal, considering opportunities of recycling and reuse. Finally, the power grid coverage area needs to be expanded and governed, additionally involvement of the private sector in telecommunication is needed.

According to the focus group discussions with the sanitation sector, as well as engagement with the local community, the need for developing a community realization of the shared responsibility in waste challenges was made evident. This is in addition to the need to support community initiatives and empowering communities to mobilize their own resources for waste management, as well as enabling the development of waste management. Along with engaging local governance structures for behavioral change, strengthening capacity building for communities, exploiting waste management opportunities for employment, and improving waste management in existing markets.

2.5 Service Delivery of Public Amenities

The following sub-section explores the service delivery of public amenities, which include community and education, health, financial, and security services.

2.5.1 Existing Situation of Public Facilities

Public facilities such as schools (both primary and secondary), hospitals/ health centres, markets, water supply, electricity connectivity, recreational areas, police, community halls and play grounds are in most residential areas insufficiently provided or non-existent altogether.

There are both private and public service providers of basic urban services to residents of Lilongwe City. The Government of Malawi operates parastatals to offer goods and services at non-market cost and due to their nature certain services, cannot be offered by the private sector only for example security, health, and education. Some of these basic urban public services are supplied on application basis such as water and electricity where the applicant has to pay application fees to have water or electricity supplied to the applicant. Provision of these services is problematic especially in informal settlements where water is supplied through communal water kiosks which are managed by Community Development Committees (CDCs) and Water Users Associations (WUAs). Lilongwe Water Board (LWB) and Electricity Supply Commission of Malawi (ESCOM) are the utility providers of water and electricity respectively in Lilongwe.

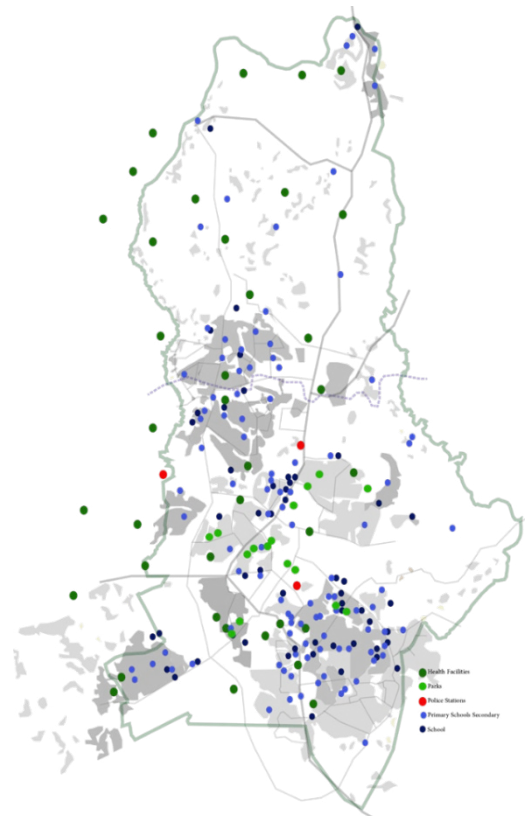
Security and safety, transport, sanitation and waste management, health, education and financial service are other services provided to residents of Lilongwe City. The main challenge in the provision of the services is that most service providers including ESCOM and Lilongwe Water Board lack the capacity to service the entire Lilongwe City. (UN - HABITAT, 2011)

Community and Education Services

The Lilongwe City Council owns and manages a number of public infrastructure which include: markets, public toilet facilities run under PPP arrangements, the Town hall, Sport ground and building at the community centre, a recreation centre in area 10, health clinics, primary schools and the civic centre. Shown in figure (2-67).

In regards to the status of public service availability in areas under the city council's direct administration only one location; area 7 Kawale provided public schools playground and clinic. Few areas such as Area 8 (Biwi/Mchesi), Area 21/1 (Chilinde 1 and 2), Area 25/3 (25A, B, C) offered public school and clinic, however no public playgrounds. The majority of the locations only offered public schools, this includes Area 22/1 (Tsabango CDSS), Area 22/4-6, and Area 36/2 (St John's Campus to name a few. In one location; Area 49/6 (New Shire), neither public schools nor clinics were provided, however a playground was available. Furthermore, there is a good percentage of areas which do not have public schools, playgrounds, or clinics. Such is the case for; Area 22/7 (near SOS), Area 24/4 (Katondo), Area 25/5 (Dzenza West) and Area 27/3 (Adjacent to Chatata) to name a few.

For further locations, please refer to annex 2, table 15 "Provision of Services".



(2-67) Services coverage in Lilongwe, Source: HS, Alma, 2020 - Data Source LCC 2020

According to information gathered during meetings with the community leaders, see figure (2-68) and (2-69). It was recorded from virtually every meeting that public facilities in the city are inadequate, and do not meet the requirements of the resident populations in their respective areas. Most of the facilities such as schools, markets, and health centres are overcrowded. In other cases, these services are very far, which requires people to walk or travel long distances. This situation is exacerbated in the informal settlements where even public transport is not available. There are no recreational facilities, no community halls, no play grounds for the youth and the situation is concerning in all aspects.



(2-68) Meeting at Chigoneka Ward with Community Leaders and Councilor of the Ward (far right), Source: (HS, Alma, 2019)



(2-69) Recorded issues raised by the Community Leaders at Mgoni. Source: HS, Alma 2019

In general terms the community leaders called upon the LCC to ensure appropriate standards and guidelines can be applied and adhered, in order to provide adequate public facilities for the citizens.

The Lilongwe City Council is one of the service providers whose responsibilities are:

- 1) Registration of births and deaths
- 2) Provision of sanitation and sewage services
- 3) Solid waste management
- 4) Security
- 5) Business licensing etc.

During the consultative meetings, it was evident enough that Lilongwe City Council has not been able to meet the expectations of the residents of the city which is attributed to a number of both internal and external factors as explained below.

Based on the local community engagement, and focus group discussion, clear differentiation in the provision of public facilities and services according to the type settlement was made evident. The formal settlements are well serviced with adequate public facilities of health, security, and markets strategically located throughout. Meanwhile, the informal settlement lack in public facilities, and the very few are overcrowded or require its residents to travel long distances in order to meet their needs. This is taken into consideration, ensuring the equitable provision of services and facilities throughout the different settlements.

According to social-economic survey among other aspects, it was made evident that certain areas such as: (56,57,36,21,54) -see annex 4 section 4.5.2 page: 171- have longer distances to basic daily services in comparison to other well-served areas. This indicates these areas should be provided with economic public amenities such as central markets, transportation hubs, and community nodes.

Barriers to quality service delivery by Lilongwe City Council includes internal factors such as lack of funding, administrative expenses. This is in addition to external factors which include, lack of funding inadequate staffing in key areas, lack of proper stakeholder engagement, operating without a strategic plan, and finally over reliance on revenue generated from property rates which are mainly used to cover from the central government, vandalism of city's properties, climate change and urbanization due to migration. For further detailing, refer to annex 3, table 17 "Barriers to Quality Service Delivery".

In addition to Lilongwe City Council, there are countless number of service providers within Lilongwe City, this includes national bank of Malawi, Deloitte, City centre clinic and Lilongwe Water Board, to name a few. Further providers in relation to nature of service is provided in annex3, table 18 "Some of the Service Providers in Lilongwe City"

The importance of the service sector cannot be overemphasized due to its contribution to the country's GDP. In Lilongwe City, 5% of the households which operate non-farm enterprises are in the other service sectors as well. Noting, the majority of other service businesses are in urban areas in comparison to rural areas (IHS4).

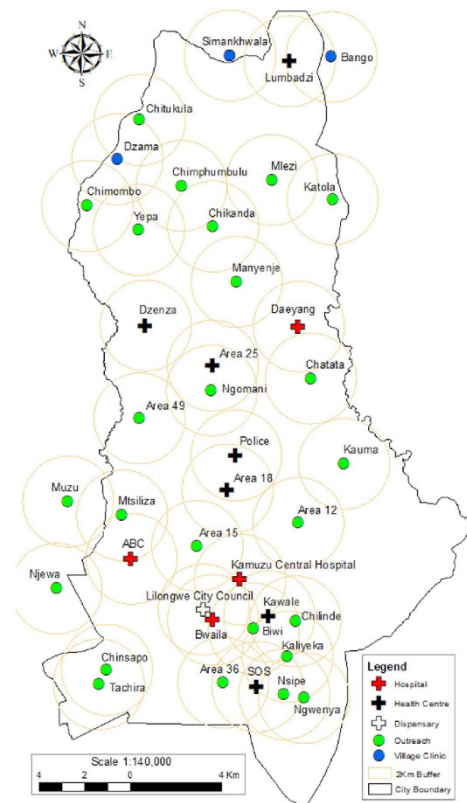
Health Services:

Health services are provided by both the public and private sectors within Lilongwe City. The Pharmaceutical Division in the Ministry of Health (MoH) is responsible for coordination and provision of guidance on procurement and distribution of medicines within the health system, while the Central Medical Stores is responsible for procurement and distribution of medicines at all levels including ensuring rational use. In order to improve access to and essential health services, the Ministry of Health and Population Services strive to ensure that the majority of Malawians live within an 8-kilometer radius of a health facilities (MoH, 2011).

The provision of quality health services is on high demand within the City due to limited number of healthy facilities. In order to improve access to essential health services, the government is working closely with private health service providers and other stakeholders such as donors and churches. The government is also working closely with training institutions such as the Christian Health Association of Malawi in order to train and increase the number of qualified health workers. The Government of Malawi subsidizes the cost of health services such that most of the essential health services are provide free of charge (MoH and ICF International,2014).

Despite concerted efforts to improve access to essential health services, some areas within Lilongwe City continue to face problems in accessing essential health services, due to the long-distance to the nearest health facility, shortage of drugs and in some cases inadequate health personnel and equipment. The situation is exacerbated by the ever-growing population within the city and the informal settlements. The following figure (2-70) shows the distribution of health facilities within Lilongwe City.

It was made evident from the social economic and demographic survey among other aspects, most of the areas investigated and surveyed have long distances to reach a health facility see annex 4 section 4.5.2 page 207



(2-70) Distribution of Health Facilities. Source: HS, Alma, LCC 2020 - Data Source: LCC 2020

Financial Services:

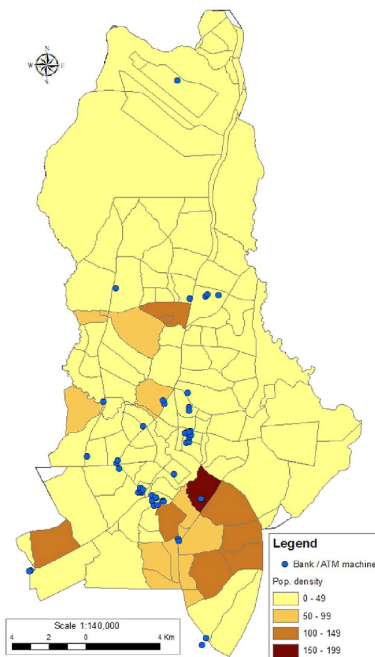
Access to credit is a problem in Malawi due to high lending rates offered by commercial banks. The situation is exacerbated by the huge borrowing by the Malawi Government from commercial banks to finance its over expenditures. The debt-to-GDP ratio declined marginally to 58% of GDP in 2017/18 from 59% in 2016/17, and up from 30% in 2012/13 (African Economic Outlook). The debt to GDP ratio is currently estimated to be over 62% which is an alarming rate. Commercial banks are willing to lend the Government since the loan is risk free and the interest rate is high. This however has contributed to the huge domestic debt. The current bank's lending rate is around 25.5%.

The majority of households borrowed money to start a business. For the urban households, 74% accessed credit for starting a business in comparison to 48% in rural based households. The proportion of household that obtained credit for agricultural purposes is higher in rural areas as compared to those households based in urban areas. In terms of location, Mzuzu City had the highest number of households (91%) borrowed money to start a business followed by Blantyre City (87%), Lilongwe City (69%) and Zomba City (63%).

In attempt to increase access to finance, the Government of Malawi amended the Credit Reference Bureau Act, allowing Credit Reference Bureaus to collect client information from banks. The Reserve Bank of Malawi launched a Financial Literacy Strategy with the objective of providing Malawians with basic skills in regards to loan applications.

Access to credit alone is not sufficient without improving the availability and presence of financial institutions and infrastructures. As the map in figure (2-71) shows, there is concentration of financial institutions and ATMs in specific areas which makes access to finance difficult and costly for residents of others areas e.g. Area.43, 44,23,36 and 28 etc.

The introduction of mobile financial services is seen as an alternative solution, offering access to finance and is considered to be comparatively a cost-effective service delivery channel even by banks. However, the effectiveness of mobile financial services is based on the availability of reliable networks. Some banks have even introduced mobile vans as a means of reaching out to their customers.

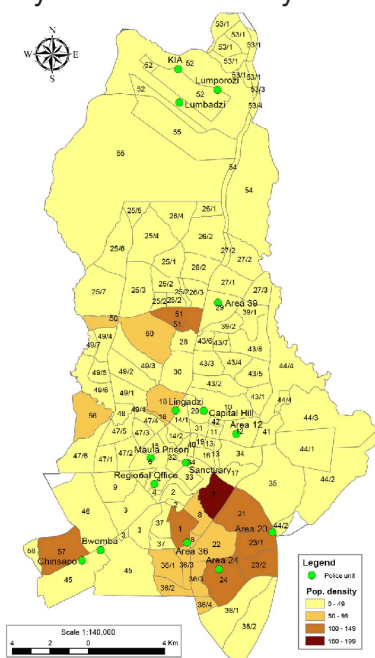


(2-71) Distribution of Banks/ATM Machines in relation to population density Source: (HS, Alma, LCC 2020 - Data Source: LCC 2020

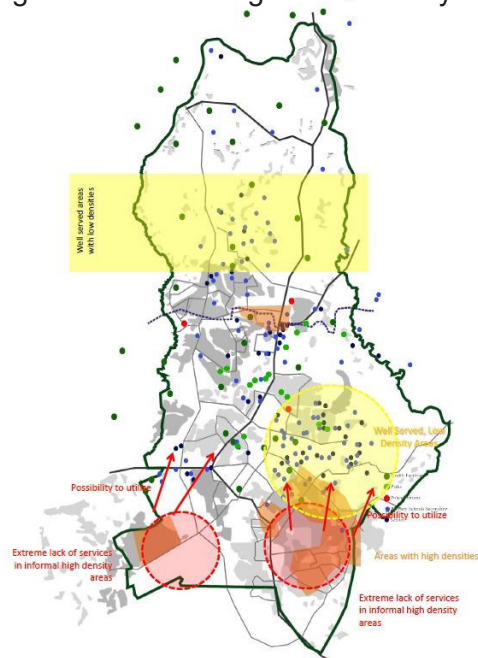
Security Services:

Security is one of the catalysts for attracting investment in a city. The presence of police and punitive measures which are supported by the appropriate legal instruments can deter incidences of insecurity. As shown in the below map; figure (2-72), some areas such as Area 25 sector 5 to 7, Area 49 sectors 5 and 4 and 44/1 and 2 have remotely located police units which compromises the security of the areas. There have been security lapses within Lilongwe City especially at night and there is a need for police patrol to monitor the situation. The recent demonstrations in the country have also highlighted capacity gaps in the police service within the city.

According to a social-economic survey among other aspects, it was made evident that certain areas such as: (56,57,36,21,54). See annex 4 section 4.5.2 pages: (174, 176) the perception of security is absent in many of these areas, therefore, it should be highlighted that these areas should be provided with more safety and more security and better living conditions through urban catalyzers in nearby nodes.



(2-72) Population Density and Police Units. Source: (HS, Alma, LCC 2020 - Data Source: LCC 2020



(2-73) Provision of Services Analytical Map. Source: (HS, Alma, 2019)

2.5.2 Analysis

The services sector in Lilongwe is a highly discussed issue due to the distribution of services and demands. One of the main discussed attributes within this sector, is the inefficient distribution of services based on residential densities. This could also alternatively be viewed as people are concentrated in informal settlements are far from services. Three main attributes regarding service provision highlighted and prioritized in the analysis layers include; public facilities, transportation and infrastructural services.

The public facilities in Lilongwe city are distributed unequally in regards to residential density variations across the city. It is clear that the facilities are clustered in the areas of low-density and there is a clear lack of service provision in the high density and informal settlement areas as shown in the above map (figure 2-73). The uneven distribution of public services decreases social inclusion in the city and promotes segregation, an issue that threatens the resilience of the city

SWOT Analysis

Weakness

- Insufficient public facilities such as schools (both primary and secondary), hospitals/health centers, markets, water supply, electricity connectivity, recreational areas, police, community halls and play grounds and the existing facilities face overcrowding,
- Lack of recreational facilities, community halls, and play grounds for the youth
- Most of the areas lack service and public amenities which include community, education, health, financial, and security services.

Opportunity

- Equal distribution of services creates a platform of social justice and equity in the city
- Utilizing the existing facilities to serve larger population can be key in the development process
- Need to establish community centers and nodes in the peripheral areas.

Threat

- Lack and insufficient service distribution in specific areas (low income).
- Unequal distribution within the facilities such as schools and hospitals illuminates the ability to have sufficient services and education for all.

2.5.3 Conclusion

The uneven distribution of public services decreases social inclusion in the city and promotes segregation, an issue that threatens the resilience of the city.

PART THREE: A CRITICAL ANALYSIS OF LILONGWE CITY DEVELOPMENT STRATEGIES AND CAPACITIES

The Constitution of the Republic of Malawi establishes local governments under Chapter XIV, Sections 146-148 outline the functions, composition and jurisdiction of the local government authorities. The Lilongwe City Council is part of the local government system (LGS) which draws its legal mandate from Section 146 of the Constitution and from the Local Government Act (LGA) of 1998 which was revised in 2009. This Section of the Diagnostic Report analyses Lilongwe City Council by looking at its governance and from management arrangements, financing and service delivery as well as its functions. The section also outlines the relevant policy and legal frameworks that impact the governance, finance and functioning of the council.

1. CAPACITY BUILDING: Institutional Analysis

1.1 Governance and Management

The Constitution of the Republic of Malawi mandates local government authorities to perform several functions. These functions include:

- Promotion of infrastructure and economic development through the formulation and implementation of local development plans and enabling business enterprises;
- Presentation of the local development plans and promotion of awareness of local issues to central government;
- Consolidation and promotion of local democratic institutions and democratic participation
- Registration of death and births and participation in the delivery of essential and local services.

In order to perform these functions, the council is organized into (a) the council or political arm and (b) administrative/ management also referred to as the secretariat.

1.1.1 The Policy Arm / The Council

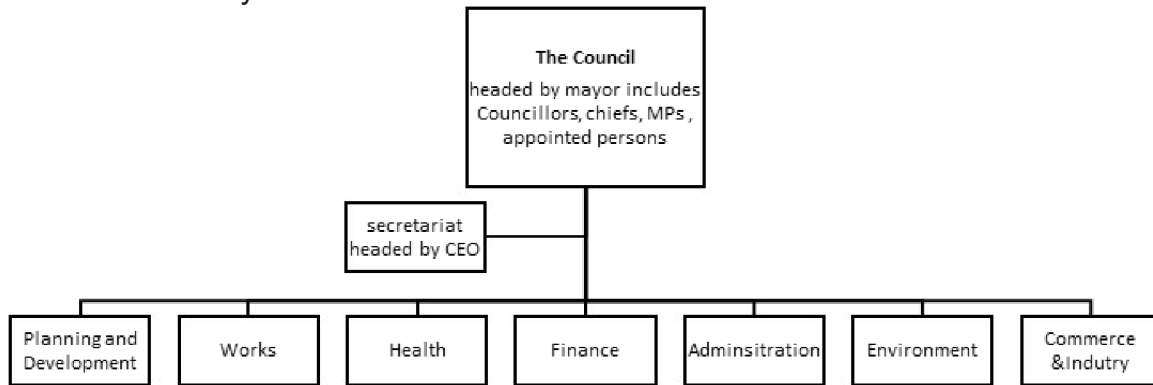
The political arm of the local government authority comprises of elected councilors (members of council) headed by a mayor and deputy mayor. The mayor and deputy mayor are elected from among the councilors and serve 2.5 years within a term of 5 years. There are 27 councilors. The Constitution of the Republic of Malawi also requires that chiefs are part of the council. As shown later, a revision of the Local Government Act in 2010 led to the incorporation of 5 Members of Parliament (MPs) in the council. As such there are 5 members of the parliament that form part of the council. The MPs are those whose constituencies are within the city boundaries. The councilors can also appoint 5 non-voting or ex-officio members to cater for the interests of vulnerable or have special needs persons. The elected councilors are required to meet at least 4 times a year and in their first meeting they elect a mayor and deputy mayor.

The council makes policy decisions and makes by-laws as a full council through deliberations and voting. The standing service committees can also make policy decisions. The number of service committees were prescribed by the Local Government Act. The standing committees are headed by a Councilor and have a corresponding service delivery department of the council.

Lilongwe City Council has seven following standing committees, as demonstrated in (3-1);

- i. Finance Committee
- ii. Planning and Development Committee
- iii. Commerce Committee
- iv. Works Committee
- v. Health Committee
- vi. Environmental Committee
- vii. Human Resources Committee

Each of these service committees has a dedicated director in the secretariat responsible for actual service delivery.



(3-1) City Council Committees Structure -Source: (HS, Alma, 2019)

The councilors are allowed under the local government law to establish ad hoc committees where necessary. Some of these committees include:

- i. Town Planning Committee which is established under the Physical Planning Act (2016)
- ii. Plot Allocation Committee
- iii. Building By-laws committee, among others established from time to time.

The Political Influence Challenges in Lilongwe

a) The incorporation of MPs into the local councils has been a source of political conflicts at the ward level as both MPs and Councilors seek visibility and compete for funds. The MPs have leverage as they control CDF while councilors lack any funds readily available and have to wait for approved projects as per city budget. This frustrates the councilors who successfully lobbied for ward development fund. A pilot ward development fund was attempted to be established in the 2000s. However, it has not been reviewed to learn from any successes and failures or strengths and weaknesses. Despite this lack of evaluation, it was scrapped as it was clear that abuse of the funds was a major reason for its discontinuation. Consequently, ward councilors stand demotivated to propel development at the local level in the face of inadequate funding. These challenges negatively impact planning and development control in Lilongwe city. Specifically, illegal land sales by either block leaders or chiefs have been widely reported in the media. It, therefore, becomes difficult to deliver services according to urban plans and strategies as per mandate of the council.

b) At the ward level, conflicts between elected chiefs or block leaders and traditional chiefs provide additional governance challenges as the council prefers to work with block leaders who work on volunteer basis and leave in the city against traditional chiefs. These traditional chiefs, who apparently command significant community respect, are also respected by national leaders and MPs. They also paid wages by the central government.

c) The councilors have less influence in areas where there are traditional chiefs that reside within the city. This is particularly true in Areas 25 (some parts), 54, 55, 26, 56, 57, 36 (some parts), 38 and 23 (some parts), despite the councilors having been elected, mandated and having the interest to promote planned development of the city, the traditional chiefs pull the extreme opposite as their interest is with the majority of their people who live beyond city boundary. This challenge becomes complex because chiefs have authority over customary land in areas within the city but still no fully registered and gazetted as public land. The situation is compounded by satellite township and locations at the periphery of the city do not have plans and the traditional chiefs allocate as authorized by the Land Policy (GoM,2002). This allocation is done after the land has been sold by the traditional chiefs or the villagers that use it, despite sale of customary land is illegal. The allocation of land by chief is one of the main causes of the growth and proliferation of informal settlements in Lilongwe City. Attempts to address the informal settlements challenge legally has been affected by delays by the national assembly to promulgate the housing bill since 1998.

d) The council is not fully developed according to the Local Government Act of 1998, particularly in formally and legally devolving power to the people concept. The governance system is still ending at Council even though steps have been taken to involve in the form of ward and neighbourhood development committees. The Ward Development Committees (WDC) and Neighbourhood Development Committees (NDC) were proposed and are headed by ward Chairpersons and Block Leaders, respectively. These WDCs and NDCs are expected to prepare actions plans (WAPs and NAPs) following participatory processes. WAPs/NAPs are a set of key priority needs that are then forwarded through the ward councilor to the council where they are consolidated into the Urban Development Plans of the city. If this process was followed, the urban development plans (Urban structure plans inclusive) would represent the priorities of all Lilongwe City residents through their representatives. Despite being central to decentralization policy as reflected in the Local Government Act of 1998 that promotes democracy, these committees are not yet in place to have the preparation of city level plans based on communities inputs.

e) The mayor and deputy mayors are elected at the first meeting of the council soon after elections. The previous practice of mayors and deputies serving for 5 years was reduced to 2.5 years. This practice makes the holders of such positions to be more concerned with retaining their positions than in strategizing for the growth of the City.

1.1.2 The Council Secretariat

The management unit of the council, the secretariat, is established by section 147 (3) of the Constitution of Malawi and Local Government Act. The head of the council management is the Chief Executive Officer (CEO) whose functions of the CEO are stipulated in section 11 of the Local Government Act. The CEO is responsible for implementing resolutions of the council, day to day functions of the council, supervision of departments of the council, and management of staff. The secretariat is subordinate to councilors and is expected to implement resolutions and policies of the councilors. To achieve this role, there are 9 directorates/ departments headed by nine directors who head the service delivery departments. These directorates correspond with the statutory standing and ad hoc committees of the council that are headed by elected councilors. For the institutional framework of the planning department refer to annex7. The role of the directorates is to achieve effective service through sound management in the following key areas:

Department of Finance

The purpose of the Directorate is to manage financial resources of the City Council. This Directorate is headed by the Director of Finance (M2). Its functions consist of the four divisions:

- a) Recurrent Account Division: headed by a deputy director of finance (M3),
- b) Development Account Division: headed by a chief accountant (M4),
- c) Debt Management Division: headed by a principal accountant (M7),
- d) Reconciliation Division: headed by an accountant (M7).

Department of Administration

The purpose of the Directorate is to provide administrative support service to the Secretariat. Its functions are to provide legal services (drafting city by-laws and providing legal counsel), manage personnel records/library services and provide information system design and maintenance, service elected assembly councilors, procure and manage stores, and coordinate policing service, and provide human resource planning and human development services.

The Directorate has four Divisions as follows:

- a) Legal Service Division: headed by one position of legal officer (M3),
- b) Information and Communication Technology Division: headed by a chief system analyst (M4),
- c) Other Services Division: headed by a service provider officer (M5),
- d) Human Development Management Division: headed by a HRD officer (M5).

Department of Engineering

The purpose of the Directorate is to provide engineering and rescue services. Its functions are to (a) provides engineering services, (b) provide electrical and mechanical engineering services, and (c) provide fire and rescue services. The Directorate is headed by the Director of Engineering Services (see Figure 3.3.3). The Directorate has the following two divisions:

- a) Civil Engineering Division: This division is headed by a deputy director (M3). The three chief engineers (M4) of road, building and sewerage services are placed under the deputy director. Those public services are at the fourth tier of administrative decision-making, which makes it difficult to discharge its duties with proper authority.
- b) Mechanical and Electrical Division: This division is also headed by a deputy director (M3). The two chief engineers (M4) of mechanical and electrical services are placed under the deputy director.
- c) Fire and Rescue Service: There is one position called the Chief Fire Officer handling fire and rescue services directly under the Director of Engineering Services.

Department of Commerce and Industry

The purpose of the Directorate is to create a conducive environment for the growth and development of trade and industry in the city. Its functions are: (a) provision of business inspectorate and licensing services for small and medium businesses, (b) management of market centres, levying market fees, and managing commercial assets, and (c) investment promotion of industrial development, dissemination of appropriate technology for small scale industries, and promotion of cooperative societies. The department is headed by the Director of Commerce and Industry (M2). It has three divisions: (a) Inspectorate and Licensing Division: headed by a chief trade officer (M4), (b) Commercial Management Division: headed by a commercial management officer (M4), (c) Investment Development Division: headed by an investment promotion officer (M4).

Department of Health and Social Welfare

The purpose of the Directorate is to ensure health and well-being of the population in order to increase productivity in the city. The Directorate has two functions. One is preventive health (water sanitation, health education, communicable disease control) services, community (nursing, clinical community) services. The other is cleansing (waste management, street cleaning, markets and public toilets) services. a) Preventive and Commercial Service Division: This division is headed by a deputy director (M3). The four managers (M4) of community service, clinical service, nursing service and environmental service are placed under a deputy director. b) Cleansing Service Division: This division is headed by a deputy director. The three assistant managers (M5) of waste management, street cleaning and market & public toilet cleaning are placed under a deputy director.

Department of Education

This directorate was established as part of the devolution process that allowed Lilongwe city council to take charge of primary school education within the city. The purpose of the Directorate is to equip pupils and adults with basic knowledge and skills, harness youth potential and promote mental and physical development of individuals. The functions of the Directorate are therefore (a) provision of primary education services, (b) provision of youth development services (entrepreneurial, family life education, facilitation of anti-drug, and promotion of youth participation in development programs), and (c) provision of functional adult literacy services. It is headed by a director (M2). a) Primary Education Division: headed by a deputy director (M3). The three managers of primary school administration (school management, employment of teachers and preparation of text books), methods advisory (advice and supervision on teaching and learning), and inspectorate (enforcement of education standard), are placed under a deputy director. b) Youth Development Division: headed by a principal youth officer (M5), c) Adult Literacy Division: headed by a principal community development officer (M6).

Department of Parks, Recreation and Environment

The purpose of the directorate is to entertain city residents and ensure a healthy environment. Its functions are (a) provision of recreation services (parks, sports development services), (b) provision of conservation and landscaping services (woodlots and forests, tree and ornamental plant nurseries, and fruit tree seedling), and (c) provision of environmental protection services (veterinary services, and coordinate and protect environment).

The directorate is headed by a director (M2). It has the following three divisions:

- a) Recreation Division: headed by a deputy director (M3),
 - b) Conservation and Landscaping Division: headed by a chief landscape officer (M4),
 - c) Environment Division: headed by an environmental affairs officer (M4).
- 8) Department of Internal Audit

The purpose of the Department is to ensure that the assembly utilizes and accounts for resources appropriately and in compliance with relevant stores, finance and accounting regulations. The functions of the Directorate are to (a) examine accounting and stores transactions and (b) to review resources control systems. The Directorate is headed by a chief internal auditor reporting directly to the Chief Executive Officer.

Department of Planning and Development

The Department is headed by the Director (M2) of Planning and Development. There are two deputy directors (M3) for town planning and economic planning. The four divisions headed by the five managers (M4) are comprised of (a) Town Planning Division, (b) Development Control Division (c) Building Inspectorate Division, (d) Project Management Division, and e) Estate Management Division.

- a) Town Planning Division:** This division is responsible for local physical planning development plan. The Town Planning Division is the coordinator City Development Strategy (CDS) is also coordinated by this division.
- b) Development Control Division:** This division deals with the day to day development administration in the city, i.e., receiving development applications, processing them for relevant approvals by the Town Planning Committee and monitoring their implementation. It works with the building inspectorate service, which monitors compliance to the Planning Guidebook.
- c) Building Inspectorate Division:** This division deals with the day to day building development administration in the city, i.e. receiving building applications, processing them for relevant approvals by the Town Planning Committee and monitoring their implementation. It works with the development control services, which monitor compliance with the Building by-Law.
- d) Project Management Division:** This division currently works for keeping records of NGOs and CBOs (community-based organizations) operating in the city.
- e) Estate Management Division:** This division deals with the administration of Traditional Housing areas (THA). Over 50% of urban residents live in THAs. The council is responsible for the development and management of such areas. The main responsibilities include advising the assembly on management aspects of THAs, servicing the Plot Allocation Committee, coordination of basic infrastructure and services in THAs, and revenue collection

Challenges Faced by the Secretariat

The secretariat faces many challenges that impact the delivery of services in the city. The JICA report (2010) also highlighted several challenges that impact the Lilongwe City. Some of the challenges include the following:

- (a) Many positions in the secretariat remain vacant and have remained so for many years. The persistently high vacancies rate which was estimated at over 30% among directorate level and the short retention of staff impact service delivery. This is despite the availability of several staff members

at lower levels who could easily ascend to the vacant positions with only relevant training being provided. For example, the council had six acting director positions. Despite the limited financial resources attempts have been made with the recruitment of Environmental Health Officers in 2019/20 financial year. High staff turnover also affects organizational performance of the council due to lack of continuity especially when there are more vacant positions at the director level. According to the functional review, critical vacant positions exist at Lilongwe City Council as shown in annex 3, table 24 “Critical Vacant Positions Existing at Lilongwe City Council”. However, the council does not have a dedicated budget for training staff; however, it does support staff to attend various short courses on a need basis. It also supports those employees with self-initiated training programmes.

(b) Despite the shortage of key middle management staff, the functional review conducted by the Department of Human Resource Management and Development (DHRMD) revealed the council had over employed staff. Specifically, there were 1,634 employees instead of the required 1,381, that is 18% over employment. Out of the 1,634 employees, 1,410 (86%) were labourers. This large number of employees contributed to a huge wage bill of K160 million per month. Proposal to lay off some of the staff faced problems of compensation.

(c) Lack of incentives especially the low salary levels if council wages are compared with the central government wages which leads to difficulties to recruit experienced staff members.

(d) The Council also faces serious problems related to office space, transport and equipment that can enable the secretariat to support the officials to undertake their activities effectively. For instance, there is a significant shortage of vehicles to the extent that the few that are available have to be rotated among various departments that wait in a queue, implementing first come first served criteria. Additionally, there are inadequate skip trucks for waste management, and only a few computers are available to support the work of experts, as some of the computers do not have up-to-date software.

(e) There are policy issues that also impact the secretariat performance. Although some policy issues are internal to the LCC, most of these policy issues border on national policies, the Lilongwe City can only request for their review. Among others, these policies relate to road funding and management, land governance and waste water management. Specifically, these are the domain of the Roads Authority, Central Government and Lilongwe Water Board all of them established under specific legislation.

(f) Inability to implement the City Development Strategy (CDS) leading to failures to align activities of different departments to the overall goal of the institution and indeed to ensure there was coordination among departments. For example, it is very difficult for the Human Resource Department to recruit employees without guidance from the city development strategies. In particular, no strategic plan had been developed to guide what the council intends to achieve and the skills that are required. As such there is a lack of solid foundation for projects and programmes under implementation. However, two positive developments are noted. Firstly, with support from World Bank, Lilongwe City Council was developing a Strategic Plan at the time of compiling this report. Secondly, a Staff Performance Management System has been introduced with the aim of rewarding good performance through promotion, recognition and even monetary rewards. Nonetheless, recent demands by lower ranked staff for the removal of key management officials shows that though well intentioned, these initiatives have created fear of job loss among the ordinary workers.

(g) The lack of co-ordination is a major aspect of inadequate capacity either on how well to go about coordination or silo-based operation of the service departments. For instance, it was learnt that the planning department senior officials had not contributed to the functional review exercise and for this reason had no access to the functional review report. This creates challenges in the delivery of planning functions. For the “Organogram of the Directorate of Planning and Development”, refer to annex 7.

(h) There are also several governance issues that directly impact the performance of the secretariat. These challenges are:

1.2 Governance and Urban Development

The Malawi Government recently established the Department of Urban Development in The Ministry of Lands, Housing and Urban Development. The role of the department is to promote development of urban infrastructure projects. However, within the MLHUD most infrastructure projects are implemented by the Department of Lands who control the funding for the same. The linkages with city councils including Lilongwe City is not clearly spelt out. Consequently, prioritisation by the central government is likely to contradict prioritisation of the City Council. This situation is made worse by the lack of clarity in the parent Ministry of Local Government and Rural Development (MLGRD). In MLGRD there are management divisions that focus of chiefs, rural development and local government services. In this way, the key area of urban development becomes less prominent if not obscure.

Another key issue is the relationship of LLC with the central government. It is expected to facilitate functionality and service delivery. The council's role is to enforce national policies through local by-laws, programmes and projects. This is important as the council is part of the public services and hence all activities of the council are expected to be in line with national policies, strategies and programmes. However, several issues negatively impact the councils. For instance, the recruitment of staff is done by Local Government Services Commission (LASCOM) but sometimes persons may be appointed to or removed from positions for political reasons. This situation creates elements of fear among the council's employees. There exist conflicts on planning and land management with the Ministry of Lands Housing and Urban Development (MLHUD) which emerged especially when the planning committee was fully devolved to the council by the ministry. Such institutional conflicts can derail the process of devolution.

1.3 Urban Land Governance

Several urban land management challenges that affect Lilongwe City are noted:

(a) Urban sprawl;

Urban land management is affected by several factors that Lilongwe City is less able to resolve and require the intervention of national leaders and policy review. Firstly, it is noted that Lilongwe City is sprawling into other local governments of Lilongwe Rural District Council and Dowa District Council fully within District Council. In the rural district council land use planning to support urban development is less regulated. This situation poses a serious challenge for Lilongwe City as it cannot conduct development functions outside its jurisdiction. However, the local government legislation provides for joint planning of borderland. This opportunity has not been fully explored. In addition, it is noted that only less than 40% of land area is currently developed within the City which implies that urban sprawl is a function of difficulties faced by developers to access planned land within the jurisdiction of the LLC.

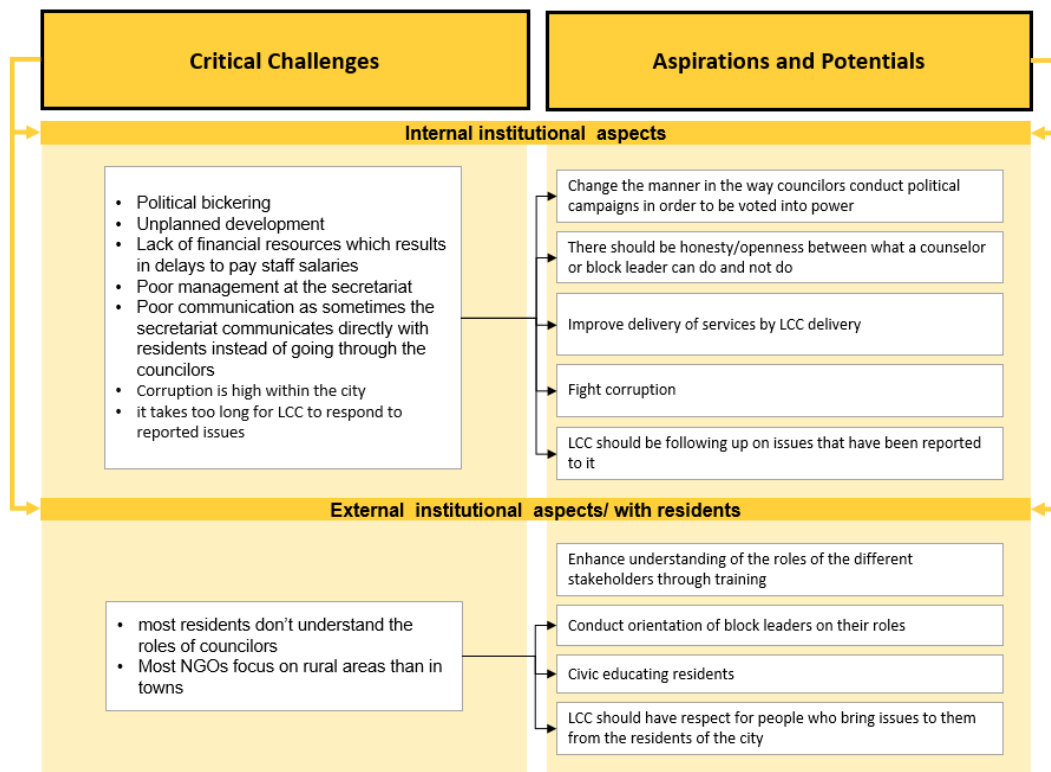
(b) Multiplicity of landlords within the city;

According to The Land Act (2000) the state to control and own all types of land in Malawi. The GoM (Department of Lands in MoLHUD) owns and manages most of the institutional, commercial and residential lands in the city. The GoM transfers or leases its government land to public and private entities through freehold or leasehold titles that are registered at the Department of Lands. The LCC, Malawi Housing Corporation, Airport Development Limited and private developers are entrusted to manage the land/area they administer as freehold tenure. Freehold title relates to private ownership while leasehold title refers to a land holding agreement for a specified period (usually leasehold of 99 years), which is recorded in the title. The LCC subdivides the land allocated to it into plots for individual allocation through leasehold titles of 99, 66 and 33 years or monthly tenancy agreements under certificates of title. Traditional chiefs control most of the land that informally settled whose area covers 9.4% of the city area (39,345 ha). The LCC has no control over chiefs as it recognises block leaders. The main problem with multiple landlords in the city is that it affects development control as the landlords sometimes do not allocate land or do not develop their land in accordance with plans and strategies of the city council. The legal status of informally settled land is also unclear.

(c) Malfunctioning land information system- a GIS mapping of properties conducted in 2000 system crashed leading to loss of data and consequently to the use of an otherwise inefficient analogue system.

(d) The devolution of the governance to the lowest level though desires has not performed well previously. The LLC had 7 sites offices in Areas 8,21,23,24, 36, 49 and 25 but these were closed leading to challenges of access by the citizens. The participation of local communities is a good measure and a key element of good governance, including land governance.

(e) Perception of the general public against the Council is negative. The results of the participatory approach and based on the focus group discussion held with the councillors and block leaders as well as engagement with the local community, the following issues were raised (See figure 3-2) Accordingly, engaging local governance structures for encouraging a spirit of servant leadership among office bearers at the secretariat, enhancing collaboration with different stakeholders, and empowering the existing collaboration between block leaders and councillors is vital in achieving resilient institutional development.



(3-2) Results of focus group discussion with counselors and Block leaders. Source (HS, Alma 2020)

2. Financial Capacity

2.1 Sources of Financing

Lilongwe City Council has several sources of financing. The Local Government (Amendment) Act, 2014 gives mandate to City Councils to collect and manage their finances. According to the Third Schedule of the Act, City Councils have three main revenue sources namely own source revenue, Government Grants and Ceded Revenue.

Government Grants

The Government provides grants to council in three main ways. First, there are conditional grants or intergovernmental transfers. These are funds for sectors that have been devolved to the councils and are expected to be used only for those sectors e.g. education, agriculture etc. In short, the councils are conduits of national funds to sectors at district or council levels. In 2017, the intergovernmental funds transfer amounted to 597.3million MK and increased to 725.6million MK in 2018. In 2019 there was a decline to 507.3million MK despite the growing need occasioned by increased population.

Second, is the unconditional grant or general resource fund. These funds are disbursed on a monthly basis and can be used by the councils according to their development plans and are not supposed to be used to pay staff salaries. These funds are disbursed through the National Local Government Finance Committee (NLGFC) which was established by the Constitution as a window through which the national assembly could provide government grants. According to existing law and policy, these funds were expected to make up 5% of net national revenue and would be shared among local councils based on an intergovernmental fiscal transfer formula which is developed by National Local Government Finance Committee and approved by Parliament and population size is one of the factors for sharing funding. Evidence however, shows that the government has not been able to provide such revenue in full. It is noted that NLGFC recently took control of the Local Development Fund (LDF) which is a national local investment basket fund with funds provided by the national government and donors. This will increase the funds available for distribution to the councils. However, the funds provided by NLGFC are considered inadequate for the fast-growing city's needs, in part as they focus on small scale projects such as markets and bus stops.

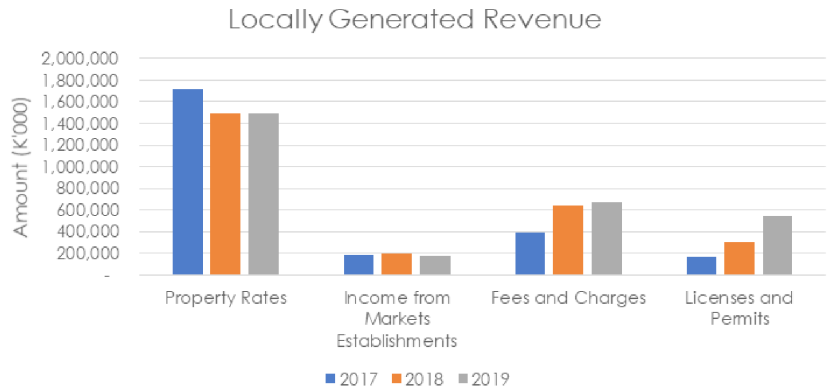
The third government grant is ceded revenues. The ceded revenues are non-tax funds which the government transfers to the councils. These funds are collected by government agencies on behalf of the government (e.g. motor vehicle registration fees, fuel levy and gambling fees) and are redistributed to councils using a formula decided by cabinet. This has not been rolled out since the adoption of the decentralization policy and this was substantiated by the financial information that was gathered from Lilongwe City Council which does not clearly showed the Council has never received any funds from the ceded revenue.

Local or Own Revenues

The locally generated revenues relate to own income generate by the city council from property rates, ground rent, fees and licenses, commercial undertakings and services. The main source of revenue for LCC is property rates followed by fees and charges. However, in regards to property rates, although there is high potential for revenue generation due to rapid population and building rate, high default rates have significantly affected the functioning of Lilongwe City Council. For instance, it was reported that the council was owed up to 9 billion MK in property rates by 2019. As some of defaulting institutions are government organisations, there was a limit to which the Lilongwe City Council could enforce compliance considering the contradictory situation that arises from the government also providing grants to the council. Nonetheless there was evidence of capacity gaps through inability to follow up with private property owners and collect the rates or respond to queries raised by property owners.

The collection of market fees was affected by the volatile relationship with vendors as well as the prevailing political situation. For instance, in July of 2019, it was reported that LCC was unable to collect market fees worth about 5 million MK per month, over the period of three months, due to disagreements with vendors who refused to carry out their payments.

Other sources of local revenue are a multitude of business ventures ranging from properties that are rented out, and bus stations among others. In the past the council owned guest houses and lodges which were sold out due to losses and abuse by employees, and some councillors who availed themselves to the facilities declined to pay for services. The following figure (3-3) displays the varied locally generated revenue sources.



(3-3) Locally Generated Revenue. Source: (LLC Financial Statements, 2019)

Lilongwe City Council has property valued at 14,100,542,100 MK as of the 26th of August, 2019. This includes properties such as the civic offices (K2.3bn), Wenela Complex - Shops (K2.9bn), Rest-house (K1.2bn), Lilongwe Main Market (K0.7bn) Landscape main office (K3.3bn). The list of the property has been provided in Annex 10 attached to this report.

Except for property rates which showed a steady increase largely due to increased property development in the city, revenue earned from the other local sources were erratic or decreasing over the years. For the exact numbers refer to annex 3, table 26 “Summery of locally generated revenue”.

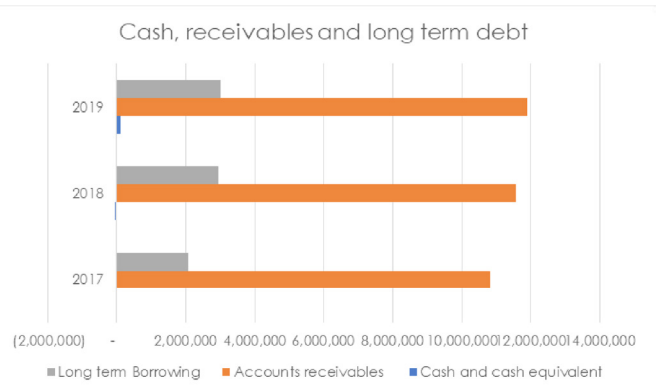
2.2 Finance Challenges

Lilongwe City Council currently faces huge problems in achieving financial self-sufficiency. Lilongwe City Council receives inadequate direct funding from the Central Government, a situation that has crippled the Council’s ability to deliver on its mandate of providing reliable and quality services. The main and reliable sources remain property rates, levies and fees which are collected from businesses and residents. The Council does not charge its clients full recovery rates and this compromises its ability to generate adequate funds to provide the required services.

Due to limited capacity to generate revenue, almost all the locally generated revenue is used to meet administrative expenses such as staff salaries, travel expenses and office supplies and not much is left for service delivery improvements and developmental expenditure e.g. fixed asset replacement and rehabilitation of existing infrastructures such as markets, street lights and even offices for the council in order to improve its ambience.

Refer to annex 3, table 27 “Income and Expenditure “ for details in regards to the financial situation of Lilongwe City Council during the three financial years of 2016/17, 2017/18 and 2018/19.

An analysis of the statement of financial position indicates the LCC's debtors balance or receivable has been increasing over the past three financial years, which is indicative of the Council's inability to collect revenue when it is due. This has affected the Council's cash position such that in 2016/17 and 2017/18, the Council had deficits of 24 million MK and 49 million MK respectively against receivable amounts of 10 billion MK and 11 billion MK. The failure to collect revenue has contributed to the ever-growing long-term debt balance which increased from 2 million MK in 2016/17 to 3 million MK in 2018/19. The figure (3-4) gives a picture of the cash, debtors/ receivables and long-term loan position of the Council.



(3-4) Analysis of cash, receivable and long-term debt. Source: (LCC Financial Statements, 2019)

Financing for Roads Works

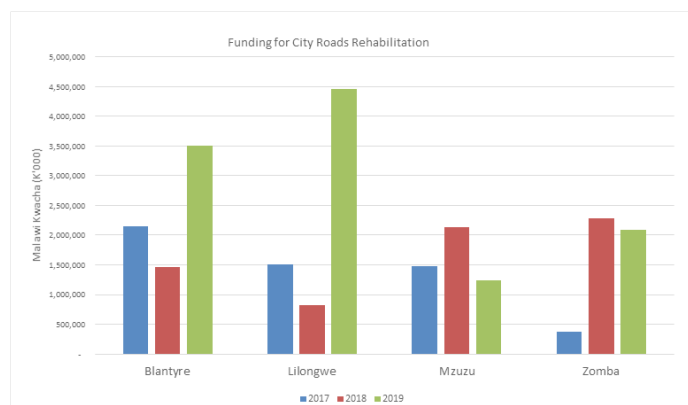
Financing of road works in Malawi and Lilongwe is through the Roads Fund which is managed by the Roads Fund Administration; a governmental institution created by the Roads Fund Act of 2006. The roads fund is composed of revenues from the following sources;

- Appropriation by the Malawi Parliament
- Roads Fund Fuel Levy
- International Transit fees from foreign registered trucks
- Road user charges by foreign registered saloons and other small vehicles
- Grants and loans from development partners

Until 2016, the Roads Authority was managing urban roads on behalf of local authorities due to capacity challenges within most of local authorities including the LCC. However, it was observed that urban and community roads within the cities were not been given full attention probably due to the focus/mandate of the Roads Authority to manage trunk roads. In order to address this challenge, there is a devolution process taking place so that the cities take up their full mandate of managing all urban and community roads within their jurisdiction.

Since 2017, the City Councils have been receiving direct 'special funding' from the Roads Fund Administration (RFA) to manage urban roads. LCC and all other councils still prepare their annual roads programme which is incorporated with that of trunk roads prepared by the Roads Authority to form an Annual National Road Programme (ANRP). The cities are then requested to indicate priority projects of which they receive this direct special funding from Roads Fund Administration (RFA) to engage contractors and consultants to do the upgrading, rehabilitation, and maintenance of these priority roads.

The Roads Authority also receives funding from the RFA to manage trunk roads including those that pass-through Lilongwe City. The RFA also finances selected road safety and, road traffic management including axle load control projects in Lilongwe City as determined by its board in conjunction with DRTSS. Figure (3-5) provides data on funding for city roads rehabilitation from direct funding from RFA.



(3-5) Funding City Road Rehabilitation. Source: Own calculation using data from RFA Financial Statements

It has to be noted that the direct funding arrangement currently in place is a special arrangement, and the Public Roads Act is in the process of being amended. In order for the city councils to be fully decentralized, and be eligible to access direct funding from the Roads Fund Administration in a more sustainable manner for managing their road network.

2.3 Potential Strategies for Sustainable Revenue Generation

Creation of Value

Lilongwe City Council should focus on value creation for its residents through efficiency, effectiveness and equity, if it is to stimulate the willingness of its residents to finance the provision of quality services in the city.

Efficiency: The city should improve the way it delivers its services by ensuring the limited available resources are properly utilized to meet the desired goals. This would enable the city to save on costs and utilize the surplus or savings to invest in improving service delivery.

Effectiveness: Lilongwe City Council needs to prove to its residents that it is capable of providing tangible benefits in line with Lilongwe City's residents wants. This will be critical in unlocking resources of the city's residents as they will be willing to contribute resources towards the development of the city.

Equity: Lilongwe City Council is currently not able to serve all the urban areas of Lilongwe City. Its services are concentrated in areas whose residents are middle to high income earners. It also focuses more on the large private sector players or businesses. In order to maximise revenue generation, the city will be required to serve all classes of its residents. After all there are more people in high density areas whose aggregate demand for the city's services is high.

Income Diversification

Lilongwe City Council will need to diversify its revenue streams to reduce the risk that comes with over reliance on few revenue streams. There are a number of diversification strategies that the Council can pursue such as:

I. Construct new and modernize old markets

- Most markets are in a dilapidated state. As such, there is need to modernize them in order to increase revenue generation. Modernisation of the market also motivates market users to voluntarily pay fees.
- Construction of new markets to address current problems residents face in accessing long distant markets. These new markets will result in additional market levies for the Council.
- Modernize the collection of market fees through use of electronic payment system at the entrance to the market. This would make all the people who patronize the market pay fees. Currently, only those with cars parked at the carpark and businesses with benches or hawkers in the market pay fees, while walk-ins do not.
- Rehabilitate existing buildings or infrastructures in order to attract more tenants who would be willing to pay high rental fees. Apart from markets, Lilongwe City Council has houses and commercial buildings that are in dilapidated state and cannot fetch high rental fees for example buildings at Old Town at Wenela which could be rehabilitated to maximise their revenue generation potential.

II. Establish new car parks in designated places

There are limited parking spaces in Lilongwe, and the City Council could take advantage of this to establish new car parks which could also be a source of revenue. LCC could introduce an electronic payment system either at the entrance or exit point of the car park to collect parking fees. At the moment, employees are involved in collecting fees which is not efficient as most people end up not paying parking fees. Often times, the staff approaches car owners as they are about to start off. In absence of closing monitoring, the system could be prone to abuse through use of counterfeit receipts which may result into less funds being declared to the council than the actual collected amount.

III. Fees from advertising

There are a number of bill boards along the streets of Lilongwe City where the Council can generate additional income by ensuring that advertising agents and organisations pay to have their billboards/signposts along the streets. They should have a register of all licensed billboards /signposts which should be kept up to date. The register would help to ensure the completeness of revenue collected as the monthly revenue collected would be matched to the billboard/sign posts erected on the streets.

IV. Introduction of Development Impact Fees

Development Impact fees will be paid by real estate or property developers for new developments e.g. construction of new houses in order to reduce the impacts of the new development on the community. Development fees could represent designated funds for financing development activities and not used for daily operations of the City Council. For example, development impact fees could be used to pay for community amenities such as street lights, sewers and schools.

V. Sales Tax

This relates to tax that could be paid on purchases made in the city by residents. This could be a small percentage however would allow all residents and visitors in the city to contribute to the financing of the delivery of services. This would however require legislation to be passed to allow the city to do so, accompanied by a public debate to garner the support of residents and business owners within Lilongwe City.

VI. Fines, forfeiture and penalties

The City Council could have an arrangement of revenue sharing with other government departments that collect fines and penalties for violation of by-laws that occur within the city. Through a relevant legislation, there could be a rate for distributing the revenue among the different entities.

Enhance the Capacity of Lilongwe City to Collect More Revenue

Despite having limited revenue sources, Lilongwe City Council lacks the capacity to maximise revenue generation from the existing revenue streams. The City is owed a great amount of money in property rates. In order to address this challenge, the following is proposed;

- I. Conduct an investment /financial analysis of the available economic assets to determine their best utilization options in order to improve their revenue generation ability.
- II. Establishment of a fully-fledged revenue collection section with the Finance Department to be dedicated debt collection .
- III. Reform the legal frameworks which are currently weak to improve debt collection.

The current legislation does not allow the city council to confiscate or cease properties for outstanding property rates of less than three years. This compromises the ability of the city council to recover debts on time before they accumulate.

Improve Budgeting and Financial Reporting Process

Lilongwe City Council financial statements have been unaudited for approximately seven years. Thus, the budget is not strictly used to guide the Council on how to utilize its financial resources. Inadequate prioritization of expenditure was noted, as it is difficult to control over-expenditure without conducting budget variance analysis.

The absence of audited financial statements comprises the City Council's ability to attract additional financial resources from other stakeholders such as development partners, or source bank loans. Furthermore, the City Council should maintain a debtors aged analysis to ensure that all outstanding debts are followed and necessary provisions for bad debts are made.

Reduce Corruption or Fraud

Incidences of fraud and corruption have been common in the past which undermines the ability of the city to collect more revenue and protect its meagre financial resources. Therefore, eradicating corruption will help to save and unlock the much needed financial resources for the Council.

Improve ICT Infrastructure for Optimal Revenue Collection

There is a need to improve ICT infrastructure within the city in order to enhance the capacity of Lilongwe City Council to collect more revenue. ICT will help to automate or digitize transactions including the billing system which would form the basis for revenue determination and appropriation to the Council.

Enhance the Identification and Tracking Systems for all Properties

Lilongwe City Council is not able to track all the properties within the city and this affects its ability to collect more revenue. It is therefore imperative for Lilongwe City Council to enhance its GIS department and have all the properties within Lilongwe City identified and profiled in the system for easy tracking and billing of property rates. This would help monitor construction projects which violate the city's building plans.

Valuation of Properties within Lilongwe City

The last valuation of property using the Quinquennial Valuation Roll (QVR) was completed in 2011. The City should conduct another valuation exercise in order to update its register with new properties that have been developed and revalue the old property in order to reflect the properties' current value which forms the basis for property rate determination.

The Fixed Asset Register maintained by Lilongwe City Council is not regularly updated. As some assets do not have their original costs, accumulated depreciation and net book values. Furthermore, there are a number of assets that have been fully depreciated that either need to be disposed or written off, while others need to be re-evaluated in order to reflect their current economic value. Refer to annex 11 for the list of revalued lands and buildings.

Lobbying and Advocacy

I. Government

Government is one of the main debtors for the Council. Lilongwe City Council should lobby the government to pay the outstanding property rates. Lilongwe City Council should also lobby for increased and consistent funding from the central government for implementation of its various projects. The Council needs to engage with the government on the possibility of the Central Government to improve its direct provision of grants to the Council and in supporting the formulation of appropriate legal instruments that will enable the council to fulfil its mandate through improved mobilization of financial resources.

Lilongwe City Council should lobby the government to change or reform some of the legal frameworks that negatively compromises the ability of the Lilongwe City Council to enforce collection of overdue property rates. Currently, Lilongwe City Council cannot confiscate property for outstanding debts until after three years, which affects the ability of the City Council to enforce some of the legal instruments as a means of making defaulters comply with property rates remittances.

II. Public

Lobbying and advocacy will be instrumental in raising awareness to residents of Lilongwe City Council on the need for them to take full ownership of the city's various developments and contribute to the improved quality of life in the city.

III. Private Sector

Furthermore, the Council will need to engage with the private sector players such as commercial banks and investors to support the various development projects that will contribute to increased revenue for the city. Lilongwe City Council should take advantage of the Credit Reference Bureau to closely work with banks to ensure that all property owners who have not paid property rates should not be able to access bank loans by pledging the said properties as security for loan.

Formalization or Professionalization of Businesses

There are a number of informal businesses that comply their trade within the city. The informality of these businesses is a disadvantage not only to the Council in terms of collection of fees but also to the businesses themselves. It is difficult for the city to know where the businesses are and the challenges they encounter, in order for the Council to better serve their interests. Therefore, there is a need to raise awareness on the benefits of business formalization and facilitation of capacity building programmes that would assist in the formalization of businesses within Lilongwe City.

3. Policy and Legal Framework

In order to address the capacity challenges several ideas and initiatives are needed. Some of these border on legal reforms while others relate to services and equipment that can support the Council's secretariat to deliver services effectively. Different proposals in regards to the varied challenges discussed above have been put forth. For further details, refer to annex 3, table 25 "Capacity Needs Suggestions".

3.1 Institutional Set Up of the City in Urban Transport Service Delivery

The responsibility for management of the roads in the city is two-fold. The Roads Authority is responsible for the management of the trunk roads (primary, secondary and tertiary roads) passing through the city, while the Lilongwe City Council (LCC) is responsible for the management of urban and community roads within its jurisdiction. Traffic regulation for both public and private transport is the responsibility of the Department of Road Transport and Safety Services which is under the Ministry of Transport and Public Works.

The Roads Authority

The Roads Authority was established under the Roads Authority Act (Cap 69:03) to be a corporate body responsible for the overall management and development of the public road transport infrastructure in the country. Specifically, the Authority is mandated to:

- a) Ensure public roads which are part of the national road network are constructed, maintained or rehabilitated at all times
- b) Advise the Minister of Transport and Public Works, and where appropriate, the Minister responsible for Local Government on the preparation and efficient and effective implementation of the annual national roads programme referred to in section 22 of the Roads Authority Act.

For Lilongwe city, The Roads Authority is responsible for the management of the trunk roads (primary, secondary and tertiary roads) passing through the city, in terms of maintenance, rehabilitation, upgrades and construction.

Lilongwe City Council

Lilongwe City Council was established under the Local Governments Act and has an overall responsibility of policy provision and management of service delivery for the city. In relation to roads, LCC is responsible for the management of urban and community roads within its jurisdiction in terms of maintenance, rehabilitation, upgrades and new constructions. The Roads Authority prepares the Annual National Roads Programme for the entire country. This is a consolidated programme for trunk roads whose responsibility is the Roads Authority and for urban and community roads prepared by all respective local authorities including LCC. The annual National roads programme is then approved by the minister responsible for transport and is financed through the Roads Fund.

Directorate of Road Transport and Safety Services

The Directorate of Road Traffic and Safety Services (DRTSS) provides Traffic and Safety Management Services in the country with the legal framework derived from the Road Traffic Act (1997) and Regulations (2000). DRTSS as a department under the Ministry of Transport and Public Works (MoTPW) has the overall responsibility for the road traffic regulations, including the certainty and promotion of road safety in the country. Additionally responsible for vehicle registration, fitness certification of vehicles, managing axle loads, assigning routes for public transport providers, enforcement of traffic rules and regulations, and road safety management. However, traffic rules enforcement is delegated to the Traffic Police Unit of the Malawi Police Service. LCC contributes in regulation of traffic management and road safety by providing road (traffic warning) signs and traffic lights in the city.

Ministry of Transport and Public Works

The Ministry of Transport and Public Works is the overarching policy holder in the provision and regulation of the transport sector in Malawi. It has five departments as follow; Civil Aviation, Road Traffic, Roads, Marine, Rail, and Private Vehicle Hire and Engineering Services

Transport Associations

The transport associations comprise of associations of different providers for a particular service from private sector players. The notable ones with vibrant membership are Public Transporters Association (comprising owners of minibus, buses, taxis), Minibus Owners Association (comprising owners of minibuses) and Road Transport Operators Association (comprising owners of Trucks). They are important as they provide a platform for authorities to consult on policy and regulatory transport reforms in Lilongwe and Malawi as a whole. They also organize issues from their stakeholders for lobbying with Government in a bid to improve the efficiency of the transport system.'

3.2 Policies

Review of Decentralization Policy, 1998

The national decentralization policy was approved in October of 1998. The policy devolves administrative and political authority to the district level and integrates governmental agencies at the district and local levels into a single administrative unit. The highest administrative and political institution at district level is termed the District council and is comprised of elected members with full executive powers, as well as non-voting traditional and political leaders. The policy mandates local governments to regulate planning and development within their jurisdiction in addition to empowering them to have by-laws which specify among other issues, how specific development projects should minimise or avoid environmental degradation. Approvals of projects are granted by the Council after satisfactory reviews at both technical and policy levels.

However, the introduction of MPs as member of council creates a challenge for councillors. Therefore, reverting to previous arrangement when MPs were not members of councils would go a long way in realizing separation of powers among state institutions.

The policy can also be revised to provide for the election of the mayor could follow the procedure of electing a national president whereby all citizens rather than only elected councillors select their mayor. Through this the mayor would be more responsible to the citizens rather than a sponsoring political party. It is recognized that this reform proposal requires national policy and legal shift.

Review of the National Land Policy, 2002

The National Land Policy of 2002 provides an institutional framework for democratising land management and outlines procedures for protecting land tenure rights, land-based investments and management of development at all levels. The objectives of the policy are to promote tenure reforms that guarantee security and instil confidence and fairness in land transactions e.g. compensation, promotion of a decentralised and transparent land governance. However, multiplicity of landlords leads to challenges in land use planning and development control and is a cause for increasing growth of informal settlements. The transfer of land from central government to city council would address this challenge.

Review of National Water Policy, 2004

The National Water Policy addresses all aspects of water management including development of water resources and service delivery conforming to the current global and regional trends and the requirements as reflected under the Millennium Development Goals. The overall policy goal is sustainable management and utilisation of water resources in order to provide water of acceptable quality and of sufficient quantities, and ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Malawian and for the enhancement of the country's natural ecosystems. The policy is based on the premise that all people shall have access to potable water and adequate sanitation services in order to reduce incidences of water related diseases. However, the majority of city residents rely on unsafe sources of water. Involving other players in water delivery may help reach more people.

3.3 LEGAL FRAMEWORK

Local Government Act, 1998

The act mandates local governments to regulate planning and development within their jurisdiction and also empowers them to have by-laws. The LGS has a single tier structure which implies that all local authorities are independent of one another and no local authority has supervisory responsibility over another. This creates a problem on how to manage development control in borderlands. The provision in the LGA for collaboration between and among councils in form of, for example, joint planning committees for border lands. A major concern in this law was the amendment of 2009 which led to MPS sitting councils as ex-officios. Review of the law to revert to previous set up can assist realise separation of powers among state bodies.

Land Act, 2016

The Land Act of 2016 repeals the Land Act of 1965 (Cap 57.01). The Land Act of 2016 deals with land access, use and disposal and categorises land into public and private land with public land including government and unallocated customary land used for benefits of a whole community. While private land is composed of freehold land, leasehold and customary estates. The Land Act also outlines the procedures for acquisition of customary land for public utilities and the conversion of customary land to registered land.

At the moment, the Government has not fully started implementing the 2016 Act due to financial and logistical constraints. During this transitional period the old Land Act is still technically operational. This means some of the old provisions are still being used to guide some of the land management processes until such a time when the new act is put in place. The central government can use the transitional period to rectify the issues of multiple land lords and consider the transfer of public land to city councils. The customary land law however is operational. Among other this law provides for the registration of customary land parcels as customary estates. Therefore of customary land parcels within the city boundaries can attain legal status thereby clarifying a sticky issue in the governance of urban land. The LCC need an internal policy to govern and develop such land parcels.

Water Works Act, 1995

The Water Works Act provides the legal framework for the establishment of the water boards including the Lilongwe Water Board (LWB). LWB provides water to residents of the City of Lilongwe including commercial and institutional entities. Act requires the LWB to provide safe and clean water to all residents. As many residents remain unserved with water, the success of the law is questionable. There is still discussion between the ministries of Agriculture and Water development and MLGRD on how to manage water resources including waste water in the city and other cities in the country. The delay to deal with this issue has already created a problem of legal responsibility in the court case of Area 18 residents.

Physical Planning Act, 2016

The Physical Planning Act of 2016 repealed the Town and Country Planning Act of 1988 (Cap 23.01). The Act sought to regulate land use, land use planning and the developments of physical projects in Malawi. The law sought to promote orderly spatial physical development in order to optimize use of land and to protect and conserve fragile ecosystems in space. Physical development projects require planning permission which may be granted following appropriate scrutiny by Lilongwe City planning committee in or for certain projects and in areas of special planning control by the Commissioner for Physical Planning. However, there are many challenges to achieve the objectives of the planning law. For instance Central Government and other land owners prepares land use plans for public land, but this can conflict the plans produced by LLC. Land transfer to Lilongwe City Council can resolve the issue.

Public Health Act, Cap 34.01

The Public Health Act of 1948 is for the protection of public health from activities that might endanger human life. The Act prohibits any person from causing nuisance on any land or premises owned or occupied by another. The law was developed before independence and is the location of the building regulations for traditional housing areas. The Public Health Act also contains the Guidelines for THAs are the main guidelines regulating the building of houses in Traditional Housing Areas where the majority of the city residents live. The guidelines stipulate building density and sanitation requirements. The location of these regulations is a focus of debate as they are viewed as best being located in the Physical Planning Act (2016) for visibility. However, their continued location in the Public Health Act appears to cement the colonial ideology of looking at low income housing from racial and health perspective. However, despite several land related laws being revised and approved in 2016, the Public Health Act has not been revised and as such the regulations for traditional housing remains in the form it was in the 1960s. It is unclear if original rationalization of low-income housing being seen as public health issue, still obtains in the country. The bylaws for housing of THAs needs review to reflect the present aspiration of LCC citizens.

Public Roads Act, 1996 and Roads Authority Act 2006

The Public Roads Act is the key instrument that regulates road reserves and the road infrastructure. The Provisions of this act requires that no development should be located within the reserve boundaries. However, unauthorized building within road reserves is a common practice in Lilongwe City. The Roads Authority was established under the (Cap 69:03) to be a corporate body responsible for the overall management and development of the public road transport infrastructure in the country. Specifically, the Authority is mandated to:

- a) construct, maintain or rehabilitate national road network
- b) Advise the Minister of Transport and Public Works, and where appropriate, the Minister responsible for Local Government on the preparation and efficient and effective implementation of the annual national roads programme referred to in section 22 of the Roads Authority Act.

For Lilongwe city, The Roads Authority is responsible for the management of the trunk roads (primary, secondary and tertiary roads) passing through the city, in terms of maintenance, rehabilitation, upgrades and construction.

However, it is noted that the Public Roads Act is in the process of being amended in order for the city councils to be fully decentralized, and be eligible to access direct funding from the Roads Fund Administration in a more sustainable manner for managing their road network. This process needs to be speeded up. There is currently a debate on mandates of Roads Authority in relation to Lilongwe City and other cities on management and construction of city roads. The contention of LCC is that all city roads fall under the LCC in compliance to the decentralisation policy. That the Roads Authority retains this role sometimes conflict priorities of LCC.

Environment Management Act, 1996

The Environment Management Act, enacted in 1996, provides the legal basis for the protection and management of the environment and the conservation and sustainable utilization of natural resources. Section 24 of the act outlines the EIA processes to be followed in Malawi and requires that all project developers in both the public and private sectors comply with the process. The "Prescribed List for which EIA is Mandatory" is gazetted under section 24 of the Act, which sets out which activities must have an EIA before they can be implemented. If a developer is proposing a "prescribed project", EIA applies, and therefore the developer needs to submit a project brief. The Act under section 26 (3) further requires that no licensing authority issues any license for a project for which an EIA is required unless the Director of Environmental Affairs (DEA) has given consent to proceed, due to completion and approval of a satisfactory EIA report or due to non- requirement of an EIA. Prescribed activities for which EIA is mandatory are outlined in the Guidelines for EIA (1997). Most of the projects proposed by the Diagnostic Study will require EIA, hence any costing should take this into consideration.

4. Analysis and Conclusion

Lilongwe City relies heavily upon its own revenue sources in operations and service delivery. However, revenue resources base is marginal due to difficulties in registering city rate payees and most informal settlement residents, who do not pay city rates and form a majority in the City. Besides, city rates are considerably defaulted, as the City Council does not have the mechanisms to strictly follow and make defaulters pay within the reasonable time of city rate payments. The meagre resources base of the City Council is a major challenge to raising capital for its resilient urban development and service delivery.

Institutional Gaps in Relation to Roads, Public Transport Provision and Traffic Management

Capacity Challenges: There are capacity challenges which cut across all the above mentioned public institutions managing transportation in Lilongwe. The City Council for example has human resource capacity challenges in managing the road network. The problem is particularly related to skilled workforce. As currently, they only have about 30% of the required number of engineers and other skilled staff. A large proportion of the staff are non-skilled whose proportion is adequate for the current needs. Unless the capacity constraints are addressed, the full decentralization which is needed might not achieve its intended purpose.

Inadequate Funding Levels: The funding levels for both trunk roads and urban roads in Lilongwe are significantly low compared to the needs of the city as far as transport delivery is concerned. The Roads Authority currently gets about 40 to 50% of the needed funding. This affects the management of trunk roads in the country and Lilongwe city. The special funding which LCC gets for the management of urban roads is also not adequate and has been in decline. Furthermore, fuel levy serves as the dominant source of the road fund as it constitutes to 90% of the roads fund. However, fuel levy is not a sustainable source of funding in light of the drive towards a green environment and improved technologies which is making vehicles/machines to be more fuel efficient amongst others. In addition, the emergence of electronic and ethanol driven vehicles are being promoted and this shall lower the revenues of the roads fund basket in the long run.

Preserving the Existing Road Network: Authorities tend to show great interest when it comes to the implementation of new infrastructure projects while it allocates very little resources for maintenance of the existing infrastructure. Routine and periodic maintenance are given less priority in terms of funding which result in the deterioration of the existing network which in the end becomes costlier to rehabilitate. For example, as per the required standards, paved roads need to undergo periodic maintenance at least every 10 years. With the existing paved network of about 4017km in the country, it means about 400km of periodic maintenance is required annually. However, only 40km/year was maintained by the Roads Authority as reported in their 2018/19 annual report, which is far below the minimum requirements. The situation is the same with urban roads in the city which have not been undergone periodic or routine maintenance at the required intervals. An example of such, is the Paul Kagame Highway which has exceeded its time for a periodic maintenance.

Weak Regulation of Urban Public Transport: Effective urban public transportation requires coordinated attention to urban planning, construction and maintenance of infrastructure, and organization of transport services (World Bank 2002). However, this is not the case in Lilongwe City, as the level of regulation is weak, resulting in public transport providers consisting of too many independent players who operate in a weak regulatory environment. The end result is an unreliable public transport delivery which is neither time conscious nor cost effective. Furthermore, there is no dedicated unit to manage urban transport service delivery. There is divided responsibility in transport management with DRTSS doing regulation in traffic management and safety services in conjunction with Traffic Police as an enforcement agency, while LCC on the other hand plays more or less an insignificant role of placing road (traffic warning) signage and traffic lights.

Their level of coordination is low and there is no integrated planning and dedicated schedules for engagement. These entities engage in an ad hoc manner. The two institutions fall under different line ministries with DRTSS under Ministry of Transport and LCC under the Ministry of Local Government and Rural Development. Unless the city public system is well organized and properly coordinated, it will not be able to efficiently serve the residents or attract people to opt for public transport as an alternative to private cars.

Institutional and Financial Proposal on Capacity and Revenue Generation

The following diagram (3-6) demonstrates the main strategies for improving revenue for the councillor three main phases to include, short- mid- and long – term objectives. For further details, refer to annex 3, table 29.

Short Term Objectives		Medium Term Objectives		Long Term Objectives	
Objective	Strategy	Objective	Strategy	Objective	Strategy
Increase rental and market fees	<ul style="list-style-type: none"> - Map out all assets - Rehabilitate all council's buildings 	Procure service vehicles	<ul style="list-style-type: none"> - Lobby funding from central government - Set up fund for fixed asset replacement 	Improve power supply	<ul style="list-style-type: none"> - Conduct feasibility study on energy options - Promote investment in the energy sector
Increase income from asset disposal	<ul style="list-style-type: none"> - Utilize the asset valuation report - Auctioning old or obsolete assets - Prepare fixed asset schedule - Set funds for financing new fixed assets 	Reduce staff payroll cost	<ul style="list-style-type: none"> - Utilize functional review report - Prepare retirement packages - Conduct staff performance appraisals - Prepare compensation packages 		
Enhance revenue from property rates	<ul style="list-style-type: none"> - Map and update register - Valuate properties - Invoice based on computed value 	Improve investment in ICT infrastructure	<ul style="list-style-type: none"> - Lobby for tax incentives - Partner with related operators and suppliers 	Improve debt collection	<ul style="list-style-type: none"> - Conduct regular debtors analysis - Engage in collecting long overdue debts - Lobby public entities to settle debts - Enhance capacity of debt collection
Reduce corruption	<ul style="list-style-type: none"> - Automate revenue collection - Develop fraud prevention policy - Enhance internal control systems 				
Enhance financial management	<ul style="list-style-type: none"> - Capacity building of staff - Recruit qualified accounting personal - Control expenditure - Monitor financial performance of LCC 				
Introduce sales tax	<ul style="list-style-type: none"> - Introduce sales leading to payment of services - Liaise and sign MoU with the MRA 				

Figure (3-6): Strategies for improving revenue for the Council, Source HS, Alma 2020

PART FOUR : A PROPOSAL ON PRIORITIZED INTERVENTIONS TOWARDS A RESILIENT URBAN DEVELOPMENT AND SERVICE DELIVERY

Detailed Proposal - Annex 1

Subsequent to the sectoral analysis highlighted above in part two and three, main diagnostic aspects were raised towards a resilient Lilongwe City. A strategy of resilient Lilongwe City was developed based on the priority aspects identified through infrastructure, environment, institutional development and investment and connectivity. Furthermore, a vision for development of the city was based on the needs and assets of the city that triangulate to form a strategic framework. This was followed by development of alternative scenarios to identify how development will take place. Annex 1 details the steps analysed towards defining the strategic framework and alternative scenarios from which the priority interventions are developed.

This section highlights the main aspects constituting the urban envelope and associated mind map that resulted from both technical and consultation levels towards the potential strategies for a resilient development of Lilongwe. It further illustrates and concludes in a proposal of prioritized interventions to be undertaken according to a time plan suitable and tailored to priority, cost and preparation stages. The list of possible interventions will be analysed in the pre-feasibility report in phase II of the project.

1. Urban Envelope

Incorporating the vision of development described in detail in annex 1, in line with the integrated development resulting from the linkage of all layers discussed in the previous sections and based on the 2010 urban structure, an envelope was demonstrated to support compact development in specific zones. These zones promote interconnected development of projects. The environmental challenges faced in the city are also addressed resulting in environmentally protected areas, recreational and public spaces. As shown in figure (4-1).

Development implied by the Land use Plan (JICA 2010) was also suggested in the consultant's findings. However, certain zones were revised and differently considered in the development direction. Industrial areas suggested by the 2010 plan on the west side of Lilongwe are to be replaced by residential and high business areas so as to be in line with the identity of the different nodes and hubs. On the other hand, industrial areas in the south, mid north and north are to be condensed with further industrial facilities and investments to highlight that identity and to improve efficiency.

The development of Lilongwe is essential to cater for the overall economic development and improvement in the living conditions for the local communities. This urban envelope results in shaping and formulating strategic framework that is illustrated from community consultation levels as shown in figure (4-2).

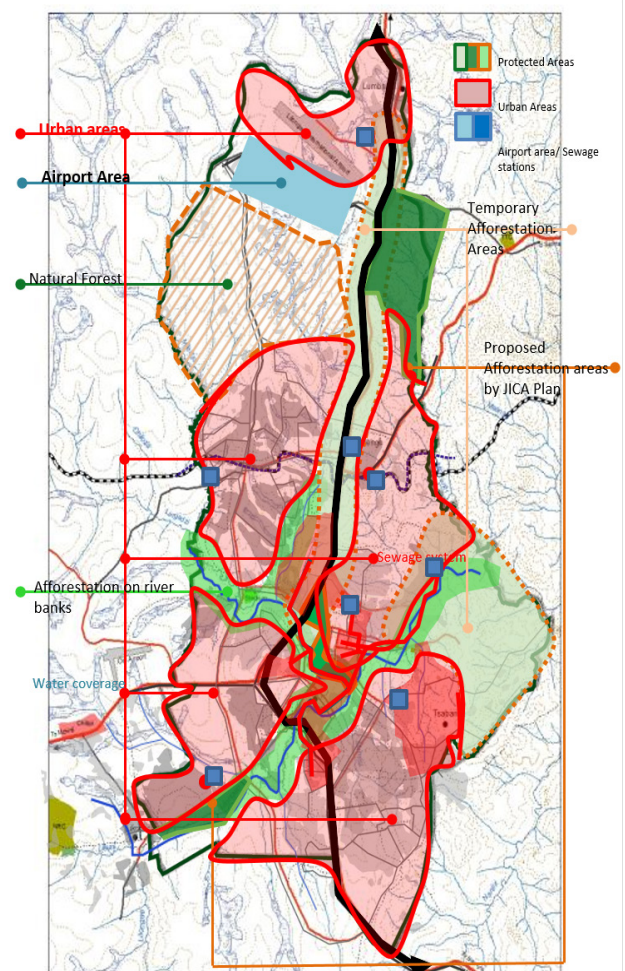


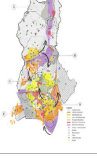

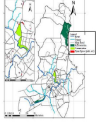







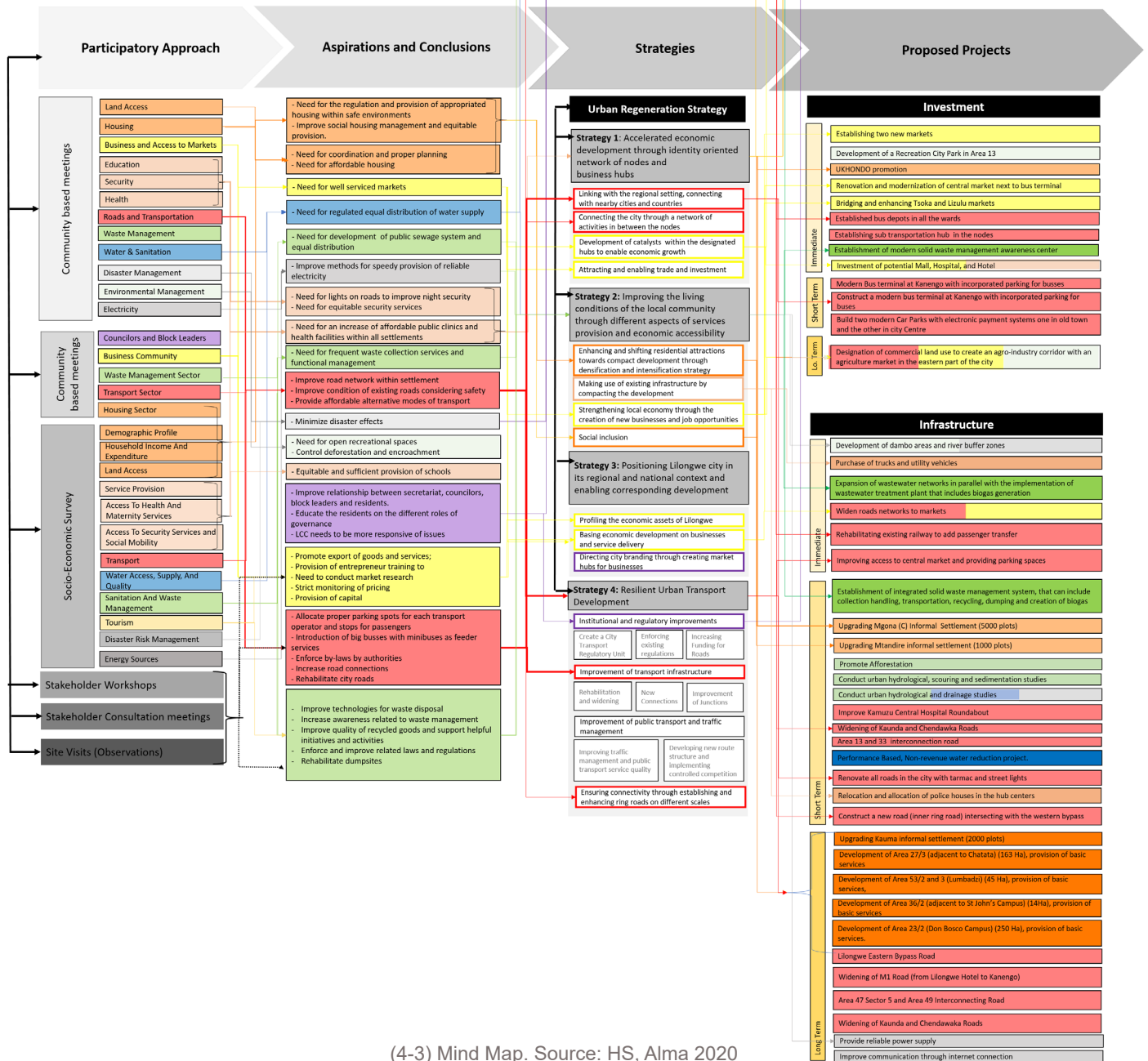
Figure (4-1): Urban Envelope, (Source HS, Alma 2019)

Further compliances and deviations between the proposed solutions to the city and the ones suggested and recommended by the Master Plan 2010 by JICA are represented in the diagram (4-2)

	The 2010 Study on Urban Development Master Plan for Lilongwe in the Republic of Malawi			The 2020 Diagnostic and Pre-Feasibility Studies for Resilient Urban Development and Service Delivery in Lilongwe City		
	Strategies	Action plans		Strategies	Action plans	
1 Urban and Spatial Growth of Lilongwe	Efficient Land Use in both Commercial/Business Land and Residential Land to absorb Pop Increase & Economic Expansion	<ul style="list-style-type: none"> Urban concentration in the central area (Old Town and City Centre) Introduction of some indices of urban planning and building control for the increase of land use efficiency in the Old Town and City Centre area. <p>Expansion of economic activities areas of business and commercial, manufacturing and logistics sectors</p> <p>cluster shape urban development is expected to encourage community-based social activities. The built-up area in Lilongwe forms an oval shape with the Old Town and City Centre at its centre. Nature sanctuary is located as the buffer greenery zone between the Old Town and City Centre, and brings about the favourable amenity to the urban environment in the City. As exemplified by the nature sanctuary, the cluster shape development makes it possible for the City to be planned with built-up areas surrounded by nature open spaces and buffer greenery zones</p>		<p>Positioning Lilongwe city in its regional and national context and enabling corresponding development</p> <ul style="list-style-type: none"> Profiling the economic assets of Lilongwe Urban Branding Boosting economic development on businesses and service delivery Creating identities for the urban nodes and hubs 	<ul style="list-style-type: none"> Development of five polycentric hubs Development of an ecological corridor in the city center along Lilongwe river towards the sanctuary Creation of new residential area in area Establishing development corridor cutting through areas 23/2, 23/1, 44/2, 35, 17, 34, 41 along with the designation of commercial landuses Establishing a touristic spine to the east and incorporating a sub center intersecting with the ecological corridor, the new residential area and the development corridor 	
2 Housing and Informal Settlements	Improvement of Living Condition in TOH/Unplanned Settlement Prevention of Further Encroachment of Unplanned Settlement	Improvement of living environment in the informal settlement by informal settlement through strict land use control and building construction control		<p>Improving the living conditions of the local community through different aspects of services provision and economic accessibility</p> <ul style="list-style-type: none"> Enhancing and shifting residential attractions towards compact development through densification and intensification strategy Strengthening local economy through the creation of new businesses and job opportunities Social Inclusion 	<ul style="list-style-type: none"> Upgrading of Kauma informal settlements Creation of new residential area to act as social housing in line with development corridor in the east 	
3 Economic and Community Development	Diversified Urban Functions with Qualified Business/Commercial Area Development Expansion of Industrial and Logistics Function for Economic Growth	Development of high quality commercial and business zone to realize diversified urban functions in the Capital City		<p>Accelerated economic development through identity-oriented network of nodes and business hubs trough:</p> <ul style="list-style-type: none"> Linking with the regional setting, connecting with nearby cities and countries Connecting the city through a network of activities in between the nodes Development of catalysts within the designated hubs to enable economic growth Promotion of industrial and agro-industrial zones in the city Development of the urban configuration of Lilongwe to outline a less linear structure and to reach out towards metropolitan development 	<p>Establish new Markets</p> <p>Investment of potential Mall, Hotel and health facility in Area 53/1</p> <p>Creating agro businesses with an agricultural market along Areas 38/2, 23/2, 23/1</p>	
4 Environmental Aspects	Preservation and Utilization of Abundant Greenery to Create Green Network & Buffer Green The environmentally friendly zoning categories shall be introduced. These are i) forestry, ii) nature reserves, iii) parks/recreation areas, iv) nature sanctuary and v) natural open spaces (greenery).	<p>Preservation of the existing greenery resources such as nature reserves and water front greens for the realization of eco-friendly urban development</p> <p>The concepts of environmental development are as follows:</p> <ul style="list-style-type: none"> Green space shall be positively reserved Current reserved areas shall be reserved continuously in the future in compliance with the laws. Afforestation shall be carried out especially in the designated afforestation areas. Parks shall be designated in the land use plan and will be developed in accordance with this master plan. 		<p>Improving the living conditions of the local community and Accelerating economic development</p> <ul style="list-style-type: none"> Making use of existing infrastructure by compacting the development Promotion of industrial and agro-industrial zones in the city 	<p>Development of a Recreational City Park</p> <p>UKHONDO promotion</p> <p>Development of dambo areas and river buffer zones restoration and protection plan for better drainage in Area 48 and along rivers and streams</p> <p>Generation of biogas waste water treatment plants in area 48</p> <p>Conduct urban hydrological, scouring and sedimentation study</p> <p>Conduct urban hydrological and drainage studies</p>	
5 Urban Hydrology and Drainage	Urban utility development, rehabilitation, and expansion	<p>Development of the Water Supply System</p> <ul style="list-style-type: none"> LWB planned to serve 100% of the city area by 2030 expanding individual connections and common taps instalment Development of dam/justification plant <p>Development of Sewerage and Sanitation System</p> <p>Targeting to bring the entire population under a safe sanitation net, either by piped sewer, septic tank or sanitary latrine</p> <ul style="list-style-type: none"> preparation of the sewerage and sanitation master plan, study on sewerage service tariff, study on on-site sanitation management <p>Development of Solid Waste Management</p> <p>the study targeted that waste collection services should be provided for all household governmental, educational, and private business activities by 2030. It also includes capacity improvement program for LCC on waste collection, final disposal, and waste reduction tasks.</p>		<p>implementation of significant development plans and provide the required basic infrastructure and urban services needed for economic development to take place</p> <ul style="list-style-type: none"> Incentivizing investments on issues related to solid waste management and agriculture for both local and exporting 	<p>Establishment Integrated solid waste management center in node E area 38/1</p> <p>Purchase of trucks and utility vehicles</p> <p>Geo-technical study for future landfill site</p> <p>Establishment of integrated solid waste management system</p> <p>creation of biogas</p> <p>Provide reliable power supply</p> <p>Improve communication through internet connection (Smart City)</p>	
6 Transportation and Infrastructure	Improvement of Transportation Infrastructure and Urban Utility	<p>The transportation development plan is formulated in conjunction with the cluster shape development (urbanstructure):</p> <ul style="list-style-type: none"> A road network including the missing links for smooth road transport in the city Improvement of M1 Road Construction of an inner ring road around the central area of the two poles of the Old Town and the City Centre Construction of an outer ring road bypassing cargo traffic from the Kanengo industrial zone to the south area Construction of seven radial roads connecting the inner/outer ring roads to the suburban area Construction of the Western Bypass as part of the Nacala Corridor Public Transport Development: Public transport development comprised of comprehensive projects The priority is given to the 		<p>Resilient Urban Transport Development</p> <ul style="list-style-type: none"> Institutional and regulatory improvements Improvement of Transport Infrastructure and highlighting a multi-modal system Improvement in public transport and traffic management through encouraging traffic operators consortium to manage urban transportation and reduce congestion Ensuring connectivity through establishing and enhancing ring roads on different scales 	<p>Improvement of roads in the peri-urban areas</p> <p>Establishment of interconnection roads</p> <p>Interconnection road between Area 47 Sector 5 and Area 49</p> <p>Construction of a city eastern by-pass road from Nanjinji to the Airport with the future metropolitan Lilongwe</p> <p>Construction of railway and introduction of train routes within the city</p>	
7 Institutional and Financial Capacity	Strengthening Urban Management Capacity	<p>Capacities are defined as institutional arrangements, organizational or functional capabilities, and individual capabilities for the attainment of good governance.</p> <ul style="list-style-type: none"> Institutionalization of urban development master plan, capacity development for effective urban management, Improvement of living environment in THA and unplanned settlements 		<p>Having an institutional reform in the city council to enhance efficiency</p> <ul style="list-style-type: none"> Linkages between different department in the city council Enabling crisis management through establishing a designated unit at LCC for better dialogue and sensitization <p>Develop Lilongwe as a metropolitan area</p> <ul style="list-style-type: none"> Decentralized outline of the institutional layout of Lilongwe through establishing smaller <p>Development of local government capacities</p> <ul style="list-style-type: none"> Establishing a liaison office to inform and enable an anchor for dialogue and collaboration with the ministries 	<p>Construction of the main building LCC (Greater Lilongwe city council) (GLCC) in area 40</p> <p>Construction of new civic offices of LCC in area 53/1 and Area 3</p> <p>"Establishment of awareness and sensitization unit along with a crisis management unit at LCC in addition to a liaison office of all stakeholders"</p> <p>Building a quality management system at LCC compatible to international quality and operation systems</p> <p>Introduction of Bus Rapid Transit System</p>	

(4-2) JICA - Proposal Comparison . Source: HS, Alma 2020

The resultant priority investment projects are a result of various stages of consultations. Starting with a participatory approach and conducting community-based meetings, socio-economic surveys, focus group discussions, stakeholder workshops and meetings, as well thorough site visits, this has resulted in aspirations which were illustrated as strategies on both an urban regeneration and financial and institutional level. As shown in the mind map (figure 4-3) which demonstrates the process of project development categorized by main diagnostic aspects.



(4-3) Mind Map. Source: HS, Alma 2020

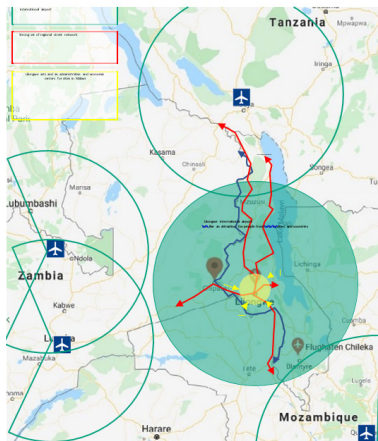
2.Strategic Framework

In order to reach a planning approach for Lilongwe city which promotes resilient and sustainable development, and fulfils the vision, the planning team proposes main strategies, aiming to enhance the socio-economic, ecological, institutional and spatial attributes of the city. These strategies interlink in many attributes. The main goal was to transform the challenges in a synergized way into tailor-made and need-oriented strategies. The strategies were set with the aim of sizing the potentials and assets in the city on one layer, and catering for risk mitigation and potential of resilience in the city on another. Refer to annex 1 for a detailed layout of the strategies.

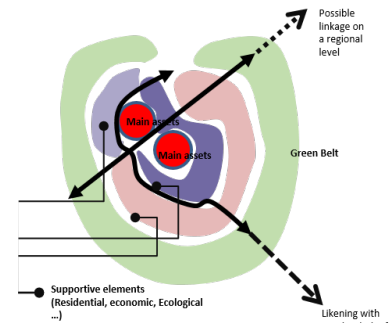
2.1 Urban Regeneration Strategies

Strategy 1: Accelerated economic development through identity-oriented network of nodes and business hubs

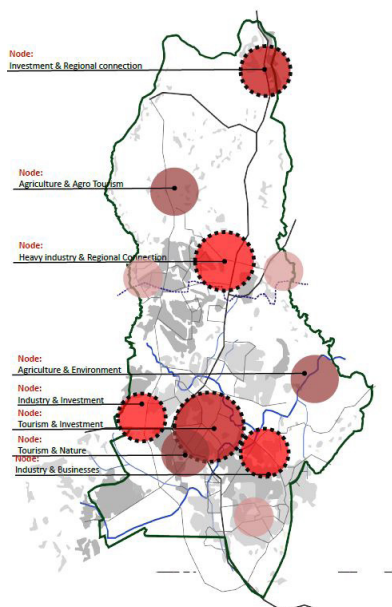
1. Linking with the regional setting, connecting with nearby cities and countries, see figures (4-4)
2. Connecting the city through a network of activities in between the nodes, see figure (4-5)
3. Development of catalysts within the designated hubs to enable economic growth, as illustrated in figure (4-6)
4. Promotion of industrial and agro-industrial zones in the city, as shown in figure (4-7)
5. Development of the urban configuration of Lilongwe to outline a less linear structure and reach out towards metropolitan development. See figure (4-8)



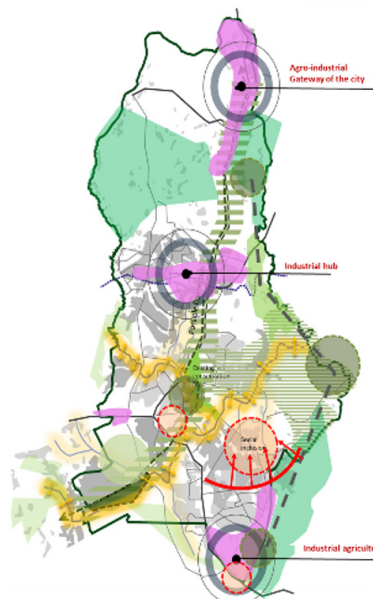
(4-4) Regional Connection. Source: HS, Alma 2019



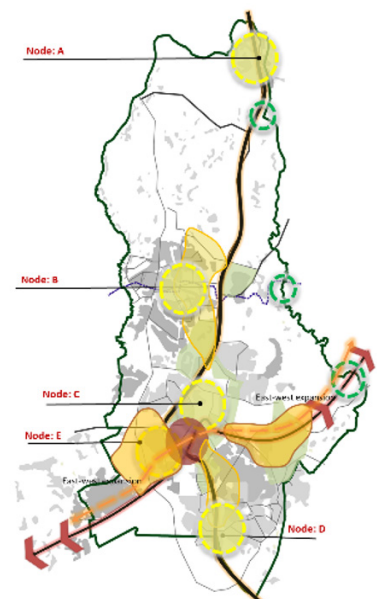
(4-6) Economic Growth. Source: HS, Alma 2019



(4-5) Nodes Definition Source: HS, Alma 2019



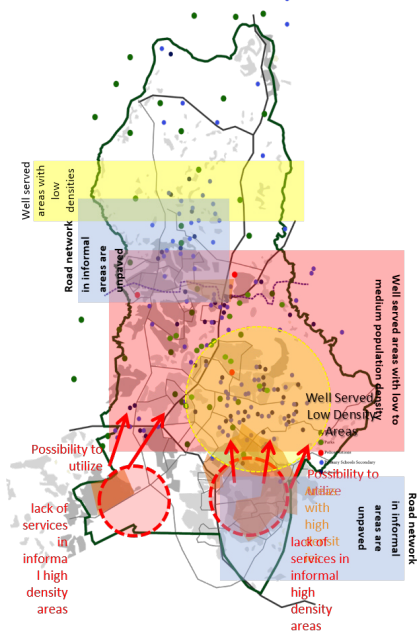
(4-7) Industrial Growth Source: HS, Alma 2019



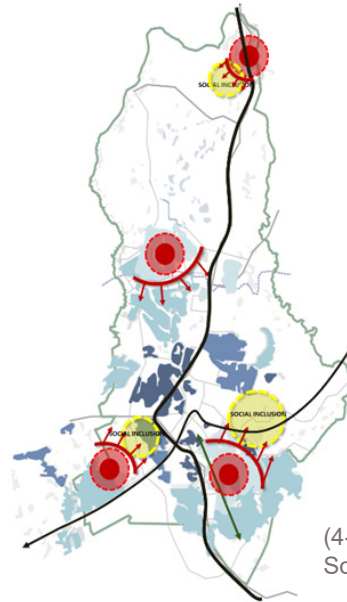
(4-8) Non-linear Structure Source: HS, Alma 2019

Strategy 2: Improving the living conditions of the local community through different aspects of services provision and economic accessibility.

- 1- Enhancing and shifting residential attractions towards compact development through densification and intensification strategy, see figure (4-9)
- 2- Making use of existing infrastructure through compact development
- 3- Strengthening local economy through the creation of new businesses and job opportunities
- 4- Social Inclusion, see figure (4-10) for a schematic representation.



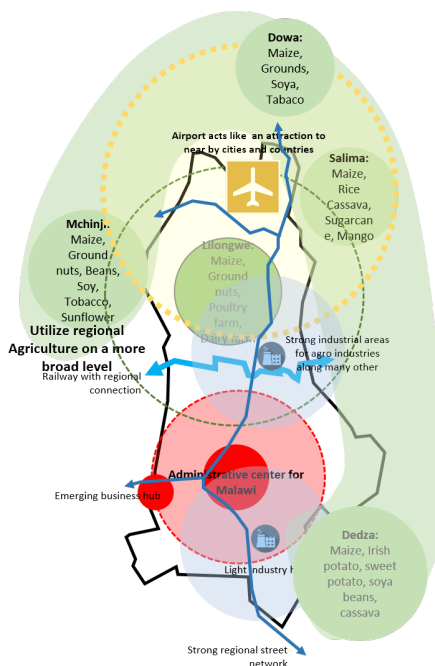
(4-9) Shifting residential attractions
Source: HS, Alma 2019



(4-10) Social Inclusion
Source: HS, Alma 2019

Strategy 3: Positioning Lilongwe city in its regional and national context and enabling corresponding development

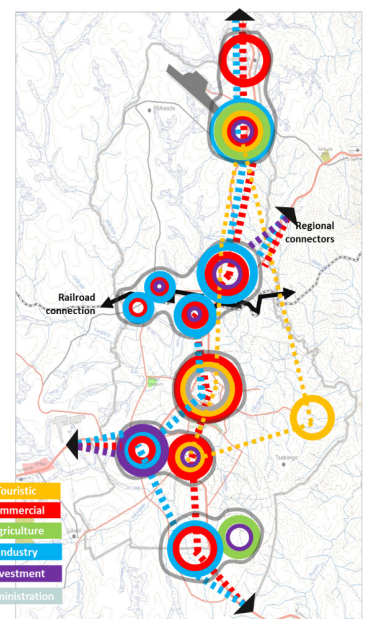
- 1- Profiling the economic assets of Lilongwe, see figure (4-11)
- 2- Urban Branding, see figure (4-12)
 - 2.1 Directing city branding through creating market hubs for businesses.
 - 2.2 Basing economic development on businesses and service delivery.
 - 2.3 Creating identities for the urban hubs and nodes to incorporate correspondent land uses and functions.



(4-11) Schematic proofing of economic assets.
Source: (HS, Alma 2019)



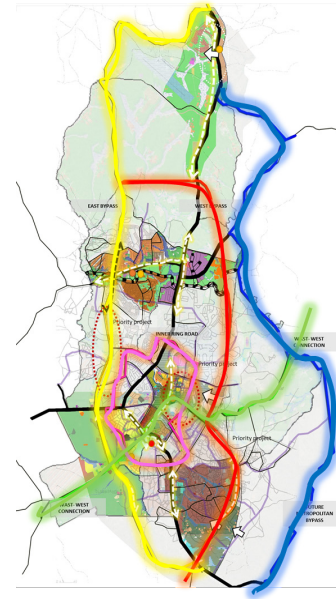
(4-12) Urban Branding
Source: (HS, Alma 2019)



Strategy 4: Resilient Urban Transport Development

- 1- Institutional and regulatory improvement
- 2- Improvement of transport infrastructure and highlighting a multi-modal system
- 3- Improvement in public transport and traffic management through encouraging traffic consortium to manage urban transportation and reduce congestion.
- 4- Ensuring connectivity through establishing and enhancing ring roads on different scales as well as the east west connection. As illustrated in figure (4-13)

(4-13) Networks. Source: (HS, Alma 2019)



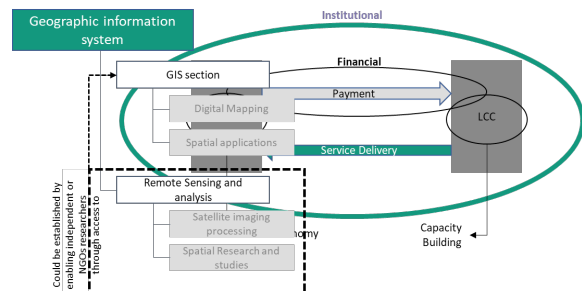
2.2 Institutional Strategies

Strategy 1: Institutional reform in the city council to enhance efficiency

- 1- Building an institutional quality management system.
- 2- Propose a system of electronic revenue collection.
- 3- Diversify city revenue resources through introducing sales tax, improving debt collection and enhancing revenue generation from property fees in addition to other faces of revenue generation. Figure (4-15)
- 4- Propose and enhance sectors like GIS
- 5- Linkages between different department in the city council
- 6- Capacitating the CDS to take on roles of crisis management and community liaison for better dialogue and sensitization
- 7- Intensifying investments in solid waste management

Diversifying city revenue resources through introducing sales tax, and enhancing revenue generation from property fees in addition to other faces of revenue generation				
Objective	Strategies	Strategies Responsibility	Potential Source of funding	Estimated Budget
Enhance revenue generation from property fees/fees	Map all properties within Longue City and update the property register	Outsourced	Central Government and Donors	US\$250,000
	Conduct valuation of all mapped properties within Longue City and update the Council's records	Outsourced	Central Government and Donors	US\$250,000
	Compute property rates and invoice property owners based on the market value of their properties	LCC	LCC	This will be done by LCC and implemented by the Finance Department
Enhance revenue generation from property fees/fees	Automate revenue collection to allow for instant invoicing and issuing of receipts for market fees, car parking, fees and property rates to control arrears	LCC's Directorate of Finance	LCC	US\$250,000
	Develop a fraud prevention policy and orient staff on the impact of fraud, fraud detection, prevention and reporting	LCC's Directorate of Finance	LCC	US\$15,000
	Enhance the effectiveness of financial internal control systems through regular internal and external audits of the Council's financial systems and controls	LCC's Directorate of Finance and National Audit Office	LCC, National Audit Office	US\$20,000
Enhance financial management of Longue City Council	Build capacity of staff through short courses and on the job training programmes to enhance their skills in budget formulation, implementation and monitoring, record keeping and preparation of financial statements	LCC's Directorate of Finance	LCC	US\$90,000
	Recruit well experienced and qualified accounting personnel in all critical accounting positions	LCC's Directorate of Finance	LCC	US\$100,000
	Control expenditure through strict adherence to the budget	LCC's Directorate of Finance	LCC	This will be done by LCC and implemented by the Finance Department
	Monitor the financial performance of the Council through use of monthly management accounts and take remedial action to improve on weak areas	LCC's Directorate of Finance	LCC	This will be done by LCC and implemented by the Finance Department
Improve debt collection in order to collect financial resources tied up in receivables	Conduct regular debtor's age analysis and follow up on all outstanding debts through invoices, phone calls and emails	LCC's Directorate of Finance	LCC	This will be done by LCC and implemented by the Finance Department
	Engage debt collectors to collect all long overdue debts	LCC, Market Assessment and Value Services Unit and the Provisional Commission of Abner	Public Private Partnership (PPP) arrangement	5% success rate
	Lobby for all public entities to settle the outstanding debts	LCC's Directorate of Finance	LCC and Central Government	US\$10,000
Enhance the capacity of debt collection department through training and provision of adequate resources such as cars, vehicles and fuel to monitor and instantly follow up on receivables once they fall due		Outsourced or done by LCC's	LCC	This will be done by LCC and implemented by the Finance Department
Introduce sales tax on sales made within Longue City	Lobby government for introduction of sales which is meant to make residents within Longue City pay for the services they enjoy	LCC and the Ministry of Finance, Economic Planning and Development	LCC	US\$10,000
	Issue and sign an MOU with the Malawi Revenue Authority on the collection and remittance of the sales tax	Malawi Revenue Authority, LCC and businesses	LCC	US\$5,000
Increase revenue from recreational activities	Develop recreational centres and parks within Longue City as a means of diversifying revenue for the Council	LCC, Malawi Revenue and State Revenue (MRA) and the Provisional Commission of Abner and NGOs involved in environmental conservation and biodiversity	Public Private Partnership	US\$3.5 million
	Monitor and enforce the protection and conservation of natural biodiversity including development in wetlands within Longue City	LCC	LCC and NGOs involved in environmental conservation	US\$100,000

(4-14) Diversifying city revenue strategies. Source: HS, Alma 2020



(4-15) Diversifying city revenue and building an institutional system. Source: HS, Alma 2019

Strategy 2: Develop Lilongwe as a Metropolitan Area

- 1- Institutional reform to enable better coordination of juridical areas that could form a metropolitan area of Lilongwe
- 2- Decentralized of the institutional governance of Lilongwe through establishing Zone and ward offices. Strategic plan to support long term planning framework with a backbone of infrastructural network incorporating ICT infrastructure as well as road and transport infrastructure Figure (4-16).

Strategic plan to support long term planning framework with a backbone of infrastructural network incorporating ICT infrastructure as well as road and transport infrastructure				
Objective	Strategies	Strategies Responsibility	Potential Source of funding	Estimated Budget
Long term Improve power supply within Lilongwe City to enhance productivity.	Conduct the feasibility study of the different energy options and identify the most reliable, cost-effective and appropriate technologies including renewable energy sources for Lilongwe City.	Outsourced	Central Government and Donor.	US\$500,000
	Based on the result of the feasibility study, promote investments in the energy sector within Lilongwe City to potential investors.	LCC, Malawi Investment and Trade Centre (MITC) and the Privatization Commission of Malawi	Public Private Partnership (ESCOM, EGENCO and financial institutions etc.)	US\$100million
Improve investment in ICT infrastructures within Lilongwe City.	Lobby for tax incentives on ICT related infrastructures and services to increase usage or adoption.	LCC	Central Government	US\$15,000
	Partner with mobile service operators and suppliers of ICT equipment and services to improve access to ICT.	LCC, Malawi Investment and Trade Centre (MITC) and the Privatization Commission of Malawi	Public Private Partnership	US\$8million

(4-16) Strategic plan to support long term planning framework.
Source: HS, Alma 2020

Strategy 3: Development of local government capacities

- 1- Training and recruitment of middle level managerial and skilled staff
- 2- Definition of legal responsibilities of local government mandates to raise revenue
- 3- Supporting dialogue on different levels in between LCC, Local community and ministries
- 4- Establishing a community liaison office within CDS office to inform enable and serve as an anchor for dialogue and collaboration with the stakeholders and the community.

3. Development of Scenarios

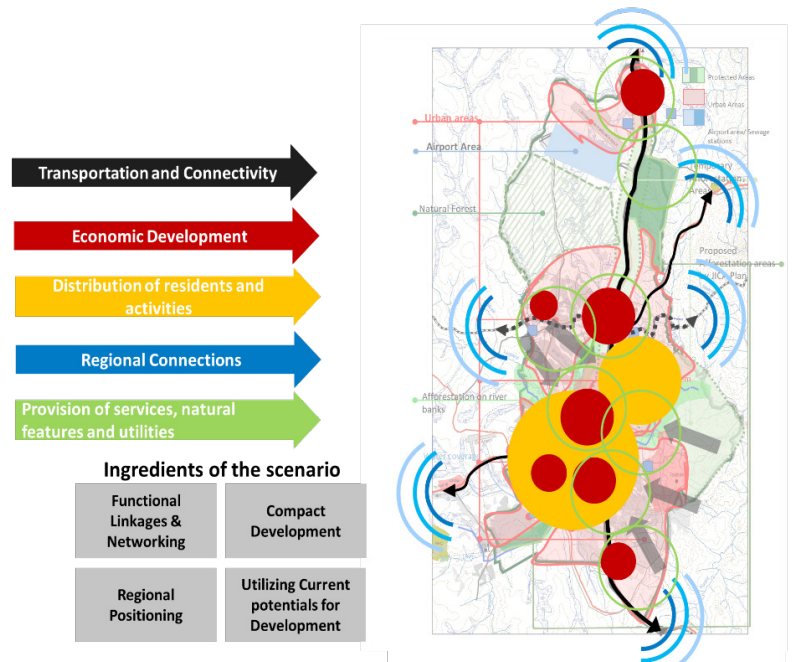
Based on the analysis of the different scenarios as shown in annex 1. A preferred scenario resulted for a resilient Lilongwe, as shown in figure (4-17).

This scenario focuses on the economic growth and connectivity on one hand and considers the morphological and environmental growth of the city on the other.

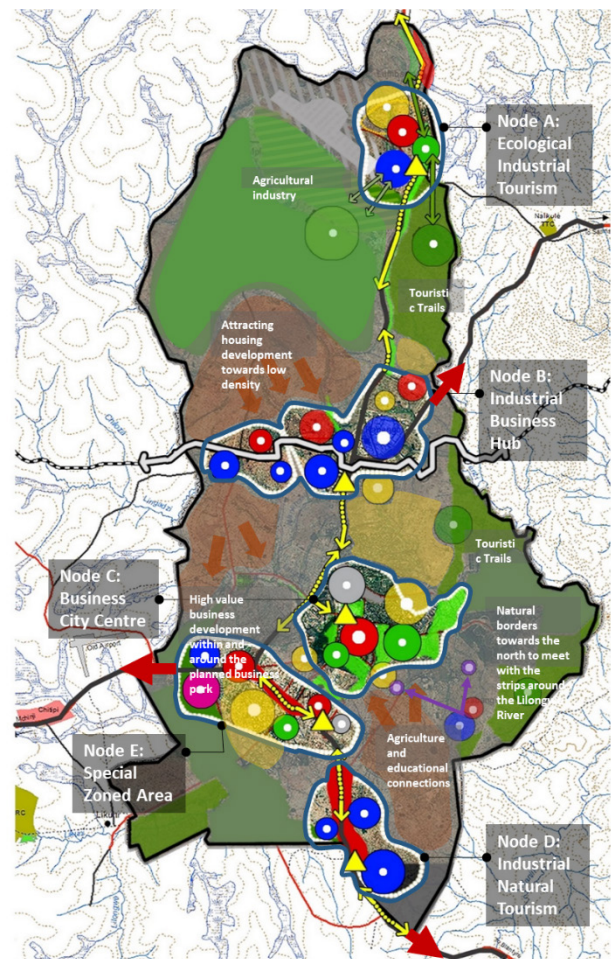
A hybrid scenario between the poly-centric development and the garden city movement leads to developing the city within both the local and regional levels, compacting certain hubs of identities and positioning Lilongwe on the national and regional level. For further information on the evaluation of the different scenarios, see annex 1.

The idea of this development runs parallel to the understanding of regional relations. The synergy and strength of designated hubs creates great base through regional networks of specialists, suppliers, specialized education and labour markets. This overlain with huge respect of natural resources and initiatives could truly enhance the image of Lilongwe. As shown in figure (4-18).

This planning approach highlights connectivity as a main aspect, in which interconnections in between different nodes are as important as connections within each node. This connectivity must be created through both public and private transportation modes and well as infrastructural enhancements



(4-17) Preferred Scenario of Development. Source: HS, Alma 2019



(4-18) Schematic Representation Preferred Scenario of Development. Source: HS, Alma 2019

4. Outcome and Impact of the Scenerios

Interconnected City development

The connectivity map , (figure 4-19) showcases the interconnection by steering away from a linear configuration and providing alternative networks connecting both north to south, as well as east to west, and implementing ring roads at various scales. This will result in an interconnected city, reviving different areas throughout while addressing the problem of congested roads.

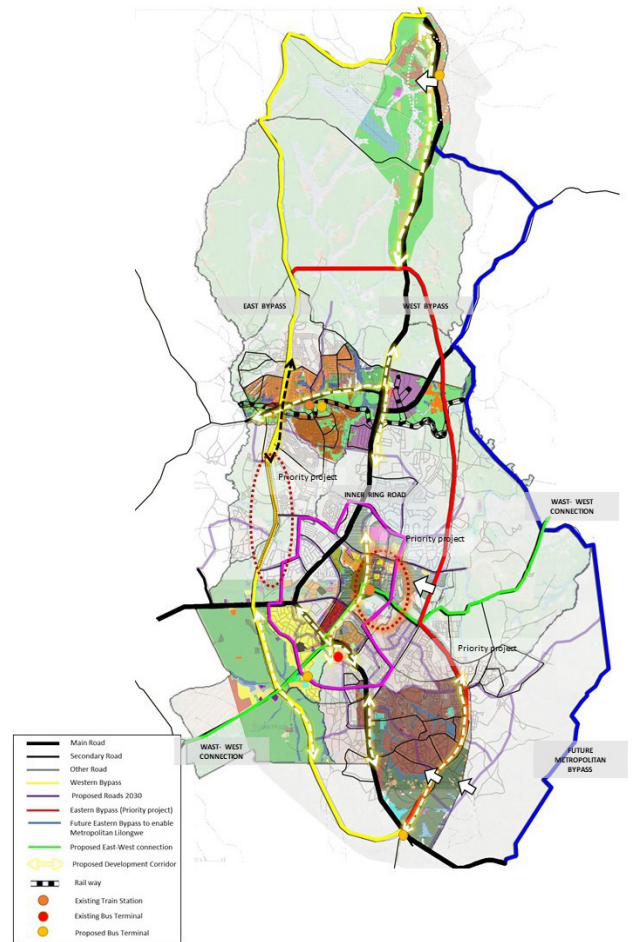
The main ring roads occur at three different levels, each addressing a specific objective in line with the proposed strategies.

The outer ring connects through a proposed long term project of eastern bypass on the city border. This is in line with the metropolitan development Lilongwe city represents, as it connects to other cities through transnational and national roads.

The middle ring road connects the five designated action areas (nodes/hubs) based on proposed roads and projects, synergizing with the projects within the nodes and interconnecting to create an enabling environment. This ring road encompasses the nodes at certain points and intersects them at others, connecting the nodes to one another and the city of Lilongwe as a whole. This serves reducing the congestion on M1 and traffic going through this city, while creating intervention areas in the overlap between the ring road and main nodes. In return, improving connectivity and accessibility through incorporating public transportation modes resulting in a positive impact on the businesses.

An interlinked network is created by connecting the proposed bus terminal at the entry point from Blantyre with the bus terminal in Kanengo along with the train station and emphasized by bus stops along the route. The ring road does not only serve as a transportation intervention but rather an economic intervention. By passing through vacant areas planned to have businesses, agro- industry and markets in return manifesting economic revenue through increased users, while also injecting the informal settlements and incorporating social inclusion. This interconnection is further emphasized through an inner ring road connecting the main development spines and in return encompassing compact development while connecting the nodes allowing for further growth outward.

Additionally, there is a need for an east west connection, relieving pressure from the north-south connection. Such a connection is demonstrated in two areas, a smaller scale connection along the main railway in node B, emphasized by land use and zoning promoting industrial economic development. The larger connection links three nodes; node C, D, and E connecting to the ecological corridor and following the natural layout of the city along Lilongwe River to the west, manifesting into smaller nodes along the path.



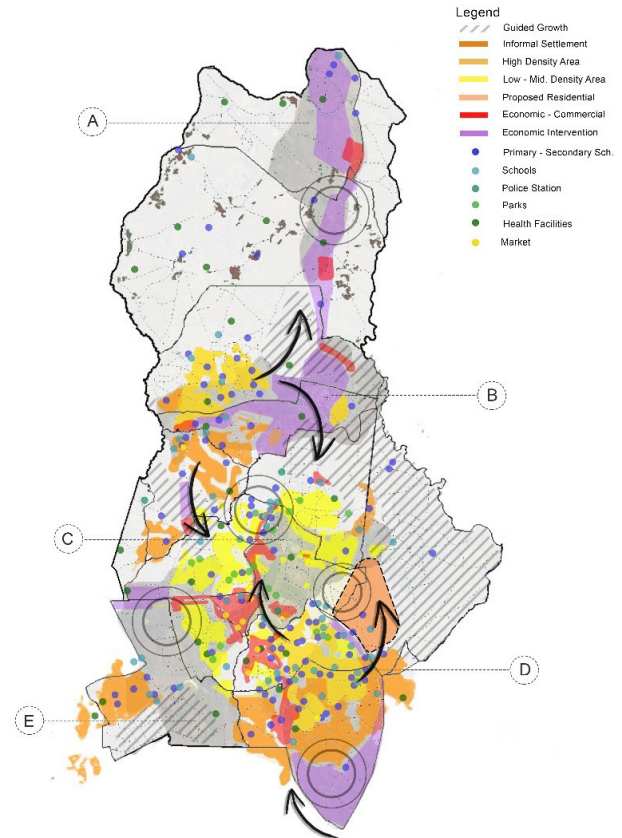
(4-19) Connectivity Map. Source: HS, Alma 2019

Social Inclusion

The social inclusion map, figure (4-20) demonstrates how different members of the community are integrated in Lilongwe City in order to create an enabling environment for further development. By first analyzing the different layers with the aims of identifying significant spatial patterns of social exclusion, this involves mapping out the settlement patterns linked in the social status of its users and comparing it to the provision of services as well as the availability of economic and industrial opportunities.

Social inclusion through economic development

Each node is treated individually as each has a specific economic identity, but interlinked with one another achieving mutual benefit. This can be seen in the eastern development (Node D), where informal business can be developed catalyzing the agro industry and related markets, attracting the informal settlers upwards and improving their living environment. As for the western development (Node E), it serves mainly as an official zone for economic development with the Business Park and serving as a hub for investors. While the central development (Node B) and related informal settlement have the possibility to grow upwards towards the industrial areas or downwards towards the business hub.



(4-20) Social Inclusion Map. Source: HS, Alma 2020

Social Inclusion through densification and intensification strategies

The Lilongwe City is expanding beyond its boundaries and there is an uneven distribution of high- and low-density- housing. This has led to the demonstrated intervention by establishing an urban boundary to prevent sprawl and directing future development at higher densities to existing urban centers with low density and high provision of services. Blurring the current segregation line between the areas with informal settlements and high density areas and its counter, the well serviced low-density areas.

Through densification and intensification, promoting higher-density neighborhoods serviced by public amenities and offering opportunities to create healthy stimulating urban environments enhancing social cohesion and interaction. While also intensifying the adjacent vacant land and guiding the growth and development by attracting people across all groups through economic opportunities and expansion of the agro-industry. Serving as a quality compact urban intervention as it focuses on the quality and livability of the spaces. This also involves intensified development at, and around, existing transit and retail centers of varying scales as “transit-oriented development” incorporated in the five main nodes in relation to the proposed projects.

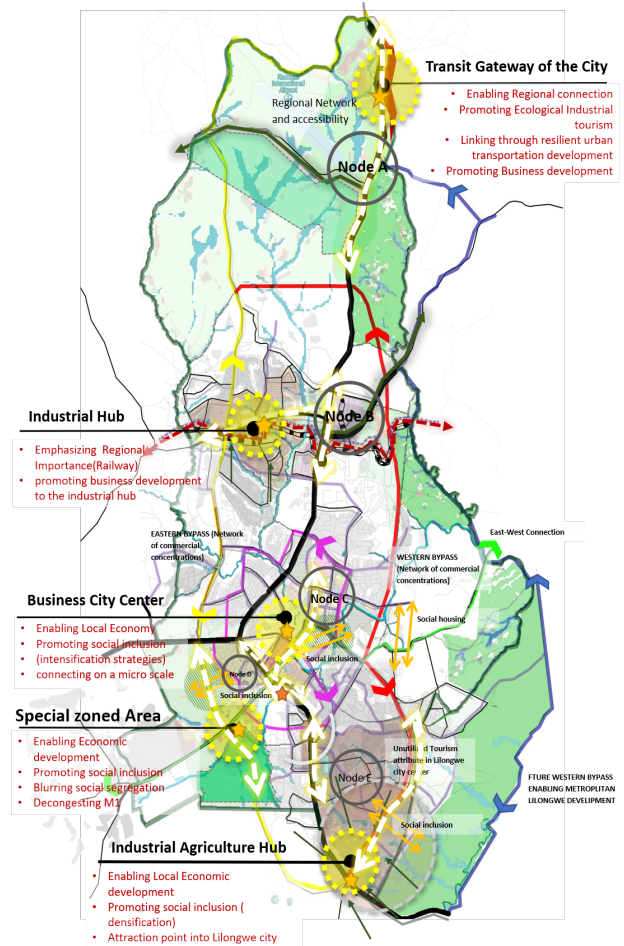
According to social-economic and demographic survey certain areas such as (44,56,50,57,25) they could be more included in these urban envelope areas as their living conditions and healthy environment are not in its better condition. (See Annex 4 section 4.5.2, pages 148,149,151).

Enabling Development

As demonstrated in figure 4-21, each node/hub has a specific development identity, through the proposed projects and interventions. This identity has been assigned to each node based on its existing attributes, discussions with the local communities as they identified and allocated their aspirations and challenges, as well its potential in achieving the strategies.

The center for each node is highlighted and anchored by the development corridors passing through. Considering each nodes development within, connections were made synergizing the projects and activities while allowing for growth and development between the different nodes, creating new identities for development through points of intersection.

The northern node “Airport Hub” serves as the transit gateway of Lilongwe, as it enables regional connection through resilient urban transport links while promoting business development along with ecological industrial tourism. Such an indirect intervention adds up to the overarching strategy of accelerated economic development



(4-21) Enabling Development. Source: HS, Alma 2020

Moreover, a link from the south to the “Industrial Hub” was established, this development corridor incorporated different spatial experiences from industrial/agro business and residential to enable economic growth on this level, but also serves social inclusion through the new residential land use. Corridor on the east side of the city. This southern industrial Agricultural nodes exploits the existing industrial area in the south and promotes it through the expansion of such land use and links it to an agro business corridor. A created sub-hub was generated from the ecological corridor with the further touristic line to the north to encapsulate a residential zone that is seen to cater for a better social inclusion through the living residents of the southern informal settlements.

Further to the industrial Agricultural hub, this intervention utilizes the proposed eastern bypass to create development along the route in relation to the agro industry, making use of the vacant lands for agriculture and limiting urban sprawl towards the south, but rather guiding development upwards through creating opportunities for informal businesses supported by internal and external tourism along its eco-touristic trails and markets.

The more developed “City Center Hub” serves as the ecological heart of the city and focuses on promoting social inclusion through intensification strategies, attracting residents into the low density well serviced areas by also enabling the local economy. This node is connected by an inner ring to the southwest zone “Business Area Hub” which by creating such a hub attracts investors and enables economic development. The business center is strategically located between the low density well

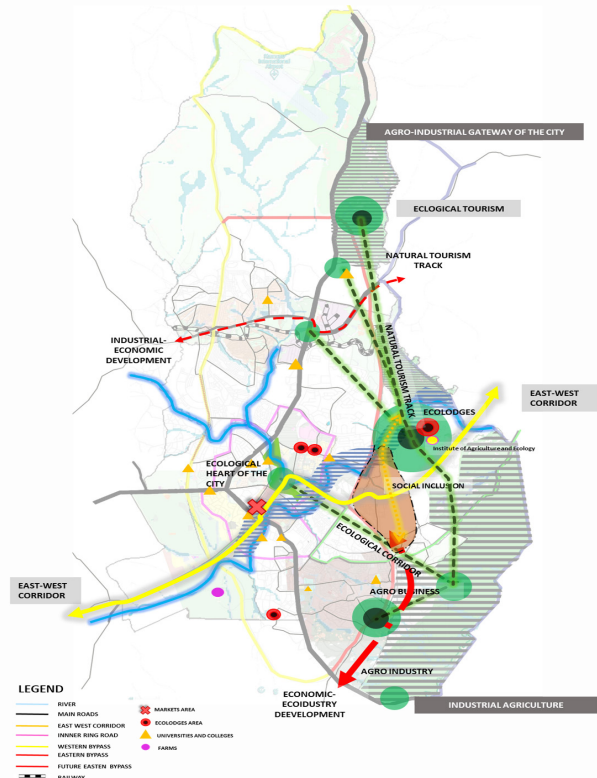
served areas and the informal settlements serving as an attraction point for both, and in return blurring the segregation line. The southern “Agro-industry Hub” utilizes the proposed eastern bypass to create development along the route in relation to the agro industry, making use of the vacant lands for agriculture and limiting the growth of the informal settlement outside city borders towards the south, but rather guiding development upwards through creating opportunities for informal businesses.

Development of Urban Configuration

As Lilongwe city is planned to expand and form new urban configurations, considering Lilongwe City’s range of natural resources, the proposed intervention and projects presented in this report implement an ecological approach, integrating biodiversity in the urban fabric and in return emphasizing the importance of ecology to the city. This has resulted in the ecological spine, linked to the ecological heart of the city at its center and offering an alternative network.

Additionally, the preserved green areas are based on the afforestation zones as demonstrated in the JICA 2010 urban structure plan. However emphasized through connections to the varied nodes and set to generate different types of touristic investment.

The northern node serves as the transit gateway of the city as the main entry point for international tourists containing the Kamuzu International Airport along with a hotel and lodgings. Other than the airport and industrial spine along the M1 road, this node contains mostly agricultural land, allowing for centers for ecological tourism.



(4-22) Urban Configuration.
Source: HS, Alma 2020

A larger sub node is created at the meeting point of the ecological spine from the north and south at Lilongwe River as it creates an additional connection towards the city center and the ecological heart of the city. Creating an additional east-west corridor, relieving pressure from the main north-south connection. Linking node C, D, and E along the path and connecting to the ecological corridor following the natural layout of the city along Lilongwe River.

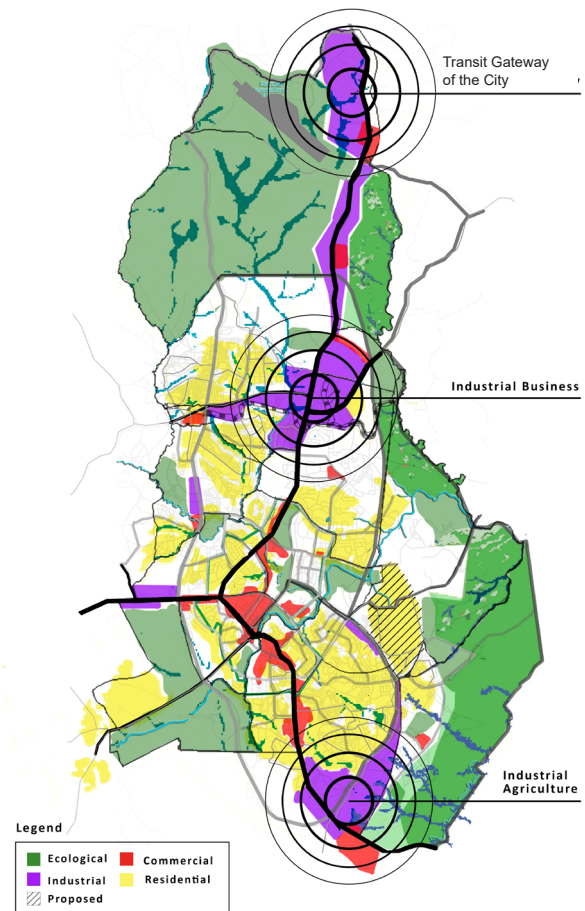
In return emphasizing the city center (node C), supported by pedestrian urban pathways within the city through improved sidewalk conditions, and planted trees along rivers and dambos. This along with the specified land uses for agriculture and designated lots for afforestation, as well as the centrally located wildlife sanctuary create the ecological heart of the city. Connecting outward from the city center through ecological corridors to the main ecological spine and other ecological hubs and agro businesses linking to both proposed and preserved entities such as the Institute of Agriculture and Ecology and the nearby eco lodges.

Joining at the main ecological spine toward the south which serves as an attraction point for industrial agriculture. An eco-touristic trail with agricultural market in the south serves as one of the main attraction points, along with the established agricultural markets in the north of the node, linking to similar markets nearby. Such an identity generates revenue and creates job opportunities through activating its markets as well as provides incentives for local communities to protect the environment which the industry depends on. This is carried out through actions such as afforestation, protecting the river banks, and proper waste management.

Promotion of Industrial Growth

Industrial development plays a major role in economic prosperity, which is why there is a need for industrial promotion and attracting investors through incentives. In addition to that, creating attractive environments for industrial growth by ensuring stable power connections and developing power generation methods as well as improving access to finance, innovation, and research is needed. This includes further developing the road network and transport sector in order to transfer products and goods at ease.

The proposed layout considers and builds on the development implied by the Land use Plan (JICA 2010). Certain zones were replaced considering the development direction and identity of the different nodes and hubs. As such, the Industrial areas suggested by the 2010 plan on the west side of Lilongwe are replaced by residential and high business areas so as to be in line with the identity of the different nodes. On the other hand, industrial areas in the south, mid north and north are thought to be condensed with further industrial facilities and investments to highlight its identity and raise efficiency.



(4-23) Industrial Growth. Source: HS, Alma 2020

In line with the strategies presented in this report and specifically in regards to accelerated economic development through identity-oriented network of nodes and business hubs, certain nodes in particular serve as a catalyst for such development. Resulting in three main zones for compact industrial development subject for investment.

This includes the industrial corridor in the north of Lilongwe linking two main industrial zones; Lumbadzi which focusses on agro industry and Kanengo with heavy industry, and injecting a manufacturing line between both nodes supported by safe road network. This link will allow for local manufacturing of products from the harvest of surrounding areas. The third industrial zone located south of Lilongwe focuses on small scale industry fabrication in relation to agriculture, and linked to the technical college and research center, as it is located within the agricultural area. In return, this will attract informal businesses, generating industrial economic revenue and leading to further industrial growth.

5. Priority Investment Projects

The priority investment projects and the resulting analytical strategy framework which forms 5 zones (polycentric hubs) reflecting different activities to promote development to include agro-industrial gateway, industrial business, business city center, industrial agricultural, and special zone. The following matrix (figure 4 -24) displays the different polycentric hubs in accordance to the projects which is illustrated further annex 1 presenting a full table of the projects as well as detailed information for each.

	Node A: Agro- Industrial Gateway of the City Area: 54,55,52,53	Node B: Industrial Business Area: 25, 25/3, 25/2, 26/2, 26/3, 29, 39/1, 39/2, 51, 28, 50	Node C: Business City Center Area: 20, 14/1, 31, 42 , 11, 34, 13, 16, 19, 40, 14/2, 15, 6, 32, 5, 4, 2,1	Node D: Industrial Agriculture Area: 1, 36/3, 36/4, 38/1, 38/2, 24, 23/2, 23/1, 22	Node E: Special Zoned Area Area: 45, 46, 03, 09, 47/6, 47/1, 47/2	
Urban Regeneration Projects	<ul style="list-style-type: none"> Establishing a touristic spine to the east 	<ul style="list-style-type: none"> Replace Police residential houses and relocate to Area 30 and Hub Centers 	<ul style="list-style-type: none"> Development of City Park in Area 13 Development of an ecological corridor along Lilongwe River 	<ul style="list-style-type: none"> Develop residential area (social housing) Establish a touristic spine to the east Redesign and redevelop Area 1 as commercial center 	<ul style="list-style-type: none"> Establish a development corridor along with the designation of commercial land uses 	
Housing Projects	<ul style="list-style-type: none"> Development of Area 53/2 and 53/3 Upgrade Kauma informal settlement 	<ul style="list-style-type: none"> Upgrading of Mgone (C) Informal Settlement Development of Area 27/3 	<ul style="list-style-type: none"> Upgrading of Mwandira informal settlement 	<ul style="list-style-type: none"> Development of Area 36/2 Development of Area 23/2 		
Economic Projects	<ul style="list-style-type: none"> Development of Mall and Hotel in Area 53/1 	<ul style="list-style-type: none"> Construct new produce market in Area 25 next to the bus terminal 	<ul style="list-style-type: none"> Promotion of quality and affordable housing delivery 	<ul style="list-style-type: none"> Construct new market in Area 38 Creating agro businesses with an agricultural market 	<ul style="list-style-type: none"> Construct new market in Area 3 	
Transportation Projects	<ul style="list-style-type: none"> Construction of a city eastern by-pass road from Nanjiri to the Airport Improve road from Dzenza secondary school through Choto Village connecting with the road to KIA 	<ul style="list-style-type: none"> Construct a modern bus terminal Rehabilitating existing railway Improve ring road off-Kaunda road from Area 49 back to Kaunda road Improve road from Dzenza Secondary School to Area 25/3 Improve road connecting Kaunda Road with Old Airwing-Kasiya Road through Area 51 construct connecting road between Kauma and Kanengo with a spur to the eastern by-pass construct Interconnecting road between Mgone and the western by-pass 	<ul style="list-style-type: none"> Widening of M1 Road Construction of a road connecting Area 49 roadblock to Old Airwing-Kasiya road Construction of a road interconnecting between area 49 (Gulliver Baghdad, Dubai) and Kaunda road 	<ul style="list-style-type: none"> Build two car parks with electronic payment systems Improve Kamuzu Central Hospital Roundabout Improve the road from Makatani to Kauma Market Construct interconnecting road through Kamuzu college of Nursing Construct a new road (inner ring road) 	<ul style="list-style-type: none"> Improve the road connecting Chidzanja road and Chipasula Improve road from Area 23 to 38 Construction of a city eastern by-pass road from Nanjiri to the Airport Improvement of the road from western by-pass road passing through Kaphiri and Area 36 connecting to M1 road 	<ul style="list-style-type: none"> Widen and rehabilitate Kaunda and Chendawaka Roads Construct a new road (inner ring road) Interconnection road between Area 47 Sector 5 and Area 49
Urban Hydrology and Drainage Projects		<ul style="list-style-type: none"> Dambo areas and river buffer zones restoration and protection work in city and along rivers and streams Lilongwe/Lingadz/Mchesi/Nankhaka River Training and Protection Works City Centre Central, Old Town Storm Drainage and Other Selected Drainage Networks 			<ul style="list-style-type: none"> Construct waste water treatment plants in area 48 	
Solid Waste and Urban Services		<ul style="list-style-type: none"> UKHONDO promotion/ public health awareness Purchase of waste collection trucks and utility vehicles Conduct Geo-technical study for future landfill site Improve communication through internet connection (Smart City) 			<ul style="list-style-type: none"> Develop integrated waste management center (IWMC) Construct biogas plant next to IWMC Construct waste recycling plants next to IWMC - 	
Financial and Institutional Reforms		<ul style="list-style-type: none"> Construction of civic offices of LCC in 4 Zones in medium term and ward offices in each ward in long terms Capacitate CDS Office to take on additional roles of awareness and sensitization, crisis management, community/stakeholders liaison Develop GIS Land Management System (LMIS) Develop quality management system compatible to international quality and operation systems Creation of a City Transport regularity Unit Introduction of Bus Rapid Transit [BRT] system 	<ul style="list-style-type: none"> Construct new main building for Greater Lilongwe city council (GLCC) 			

(4-24) Project Matrix. HS, Alma 2020

The following section will specify the priority investment projects according to the sub sections; urban regeneration, housing, economic, transportation, environmental and urban hydrology, solid waste and infrastructure, and institutional and financial reforms.

Urban Regeneration Projects

Most parts of Lilongwe City have become eye sore due to weak development control, dilapidated buildings, congestion, unorganized growth, and poor waste management. In order to address these challenges, the following projects are proposed to address urban regeneration challenges in the short, medium and long terms over a 30-year horizon as illustrated in the below table (figure 4-25).

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	1	Development of a Recreational City Park Area 13	200,000				
2	2	Development of an Ecological Corridor between City Centre and Old Town along Lilongwe River Area 34, 16, 13, 17, 41,44,32	5.5 M				
3	19	Establish Tourism Centre in Area 54, 37 and 54	0.5 M				
4	20	Redesign and redevelop Area1(old Town) into a high class commercial centre to replace Police residential houses and relocate police residential to Area 30 and Hub Centers	200,000 m				
4	3	Development of new residential area in Area 35, 41, 17 to act as social housing In line with development corridor in the east	5 M				

(4-25) Urban Regeneration Projects. HS, Alma 2020

Housing Projects

Unorganized urban sprawl, the increasing number of informal settlements and their poor quality and the distinct social exclusion and segregation are considered as main challenges facing the City of Lilongwe. In order to address these challenges, the following projects are proposed to address housing challenges in the short, medium and long terms over a 30-year horizon as illustrated in the below table (Figure 4-26).

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	21	Upgrade Mgona (C) Informal Settlement (5000 plots) in Area 51	5.5 M				
2	22	Upgrade Mtandire informal settlement (1000 plots) in Area 10	2.5 M				
3	42	Upgrade Kauma informal settlement (2000 plots)	4 M				
4	43	Development of Area 27/3 (adjacent to Chatata) (163 Ha),Provision of basic services	3.5 M				
5	44	Development of Area 53/2 and 53/3 (Lumbadzi) (45 Ha), provision of basic services	2.5 M				
6	45	Development of Area 36/2 (adjacent to St John's Campus) (14Ha), provision of basic services	1.5 M				
7	46	Development of Area 23/2 (Don Bosco Campus) (250 Ha), provision of basic services	5.5 M				

(4-26) Housing Projects. HS, Alma 2020

Economic Projects

Residents of Lilongwe City face a number of socio-economic problems ranging from poor access to markets, unreliable and high communication costs, poor access to finance and increasing unemployment rate despite the city being the capital and government administrative city with suitable agricultural land, largest airport in the country and direct road networks to the other major towns and cities of the country. Key developmental projects have been proposed in response to the challenges highlighted herein to stimulate the socio economic growth of the city as illustrated in the below table (Figure 4-27).

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	4.1	Construction of new market in Area 3	1 M				
2	4.2	Construction of new produce market in Area 25 next to the bus terminal	1 M				
3	4.3	Construction of new market in Area 38 near the Bunda Roundabout	1 M				
4	44	Development of Mall and Hotel in Area 53/1	50 M				
5	45	Developing and improving existing markets in area 23 to cope with the agricultural business in this area	1.5 M				
6	43	Improvement of communication through internet connection (Smart City)	2.5 M				

(4-27) Economic Projects. HS, Alma 2020

Transportation Projects

Many roads in Lilongwe, especially unpaved roads are in poor condition which brings discomfort amongst road users, most of the main urban roads are narrow and heavily congested during almost all times of the day.

Public transport system is not well regulated which results in inefficiencies in public transport delivery. In order to address these challenges, the following projects are proposed to be implemented in short, medium and long term over a 30 year period as illustrated in the below table (Figure 4-28). They range from construction and upgrading of roads, introducing road management system, and improving public transport delivery.

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	40	Develop Lilongwe City Transport Policy	0.08 M				
2	17	Development of Road Inventory Database	0.4 M				
3	6	Widen to dual carriage the M1 Road (from Lilongwe Hotel to Kanengo)	41 M				
4	23	Widen to dual carriage and rehabilitate Kaunda and Chendawaka Roads	24 M				
5	24	Upgrade The road from Dzenza secondary school to the airport road	6 M				
6	25	Upgrade the interconnecting road between Penyenye in Area 24 and Area 23 through Chipasula	9 M				
7	7	Upgrade The road from Area 23 to Bunda Roundabout	6.2 M				
8	49	Upgrade The road from western by-pass road passing through Kaphiri and Area 36 connecting to M1 road near Wakawaka market	7 M				
9	30	Construct East-West Road from Areas 57 to Area 44	12 M				
10	57	Construct an inner ring road intersecting with the East- West connection road from Area 7, to Area 35	10 M				
11	58	Construct an Eastern Bypass Road from M1 at Nanjiri connecting M14 and back to M1 at Area 53	49.8 M				
12	31	construct a road from Area 13 through Kamuzu college of Nursing to Area 33	7 M				
13	59	construct a road connecting Kauma and Kanengo with a spur to the eastern by-pass	5.6 M				
14	16	Introduce mini bus routes and colour codes	0.1 M				
15	18	Develop Road Data Manager	0.8				
16	61	Construct a dedicated bus lane from from the old town to Kanengo through the western side for BRT	63 M				

(4-28) Transportation Projects. HS, Alma 2020

Environmental and Urban Hydrology Projects

The urban hydrology and drainage of Lilongwe City is characterized by heavy storms with moderate floods, lost greenery in the dambos and along the streams and rivers, poor flood protection works and inadequate drainage system. As a result, the city looks dry with no greenery parks and recreation areas and its rivers and streams floods damaging road infrastructure, have bank erosion and are threats to lives and property and eye sore to residents. Besides, the central business districts and areas highly populated with buildings get flooded with streets and buildings occasionally getting flooded. Under Lilongwe Resilient Urban Development and Delivery Service Plan project, the following priority projects in the below table (Figure 4-29) are proposed to restore greenery parks and recreational areas, rehabilitate and protect rivers and streams in the city to protect lives and property and improve storm drainage network in central business districts of the city to protect infrastructure, lives and buildings.

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	35	City Centre Central, Old Town Storm Drainage and Other Selected Drainage Networks (urban hydrological and storm drainage network prefeasibility, feasibility and design studies and construction)	5.5 M				
2	8	Dambo areas and river buffer zones restoration and protection works in city and along rivers and streams (pre-feasibility, feasibility, design and construction)	3.50M				
3	34	Lilongwe/Lingadzi/Mchesi/Nankhaka River Training and Protection Works (urban hydrological, flood, scouring and sedimentation protection prefeasibility, feasibility and design studies and construction);	2.85 M				

(4-29) Environmental and Urban Hydrology Projects. HS, Alma 2020

Solid waste and Infrastructure Projects

Lilongwe City and its metropolitan area is facing an unprecedented economic, demographic, fiscal and environmental challenges that make it vital for the public and private sectors in the city to consider the fundamental need for modern, efficient and reliable infrastructure, on the other hand, proper solid-waste management is important for the protection of public health, safety, and environmental quality. In order to address these challenges, the following projects are proposed to address these challenges in the short, medium and long terms over a 30-year horizon as illustrated in the below table (Figure 4-30).

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	9	Development of Integrated solid waste management center in node E area 38/1	1.2 M				
2	36	Construction of biogas Plant next to the Integrated solid waste management center	2 M				
3	37	Construction of waste recycling plants next to the Integrated solid waste management center	2 M				
4	10	UKHONDO promotion/ public health awareness	500,000				
5	11	Purchase of waste collection trucks and utility vehicles	750,000				
6	12	Construction of waste water treatment plants in area 48	5 M				
7	13	Construction of future landfill sites	6 M				

(4-30) Solid Waste and Infrastructure Projects. HS, Alma 2020

Financial and Institutional Reform Projects

Lilongwe City faces several institutional challenges. Some of the challenges are external while others are internal to the organisation. External challenges are those that border on national urban governance as well as land governance policies, legislation and practice. Internally there have been challenges to deliver services due to weak development control and inertia related to implementation of institutional reforms such as City Development Strategy (CDS). Institutional reforms are proposed that can assist in addressing these challenges as outlined in the table below.

Priority	ID no.	Project	Est cost (\$)	Yr1	Yr1-5	Yr6-15	Yr 16-30
1	14	Construction of new main building for Greater Lilongwe city council (GLCC) in area 40	2 M				
2	66	Construction of civic offices of LCC in 4 Zones in medium term and ward offices in each ward in long terms (Area 53/1,25, Area 3,and area 38)	1 M				
3	15	Capacitate CDS Office to take on additional roles of awareness and sensitization, crisis management, community/stakeholders liaison (recruit (1)urban planner to serve on position of CDS Manager, (2) Community Liaison Officer (3) Crisis Management Officer)	2 M				
3	38	Development of GIS Land/Plot Management System (LMIS)	30,000				
5	39	Development of quality control management system (compatible to international quality control and operation systems)	500,000				
6	40	Development of Lilongwe City Transport Policy	0.6 M				
7	67	Introduction of Bus Rapid Transit [BRT] System	80 M				

(4-30) Financial and Institutional Reform Projects. HS, Alma 2020

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