

The SymbioCity Approach for
Sustainable Urban Development

URBAN SUSTAINABILITY REVIEW REPORT



A green, vibrant and friendly city

BUTERE

KAKAMEGA COUNTY

Cover Image: A woman selling
vegetables in Upper Butere market

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Executive Summary

The aim of this USR document is to provide a knowledge base to serve as a background for future strategic planning process in Butere town. The report identifies sustainability challenges and opportunities to help guide project prioritization, guide priority setting to decide where to focus the SymbioCity 'project' and support a consultative process which is transparent and inclusive by involving various members of the community.

A vision exercise involving community members was held and followed by strategies for development exercise. The visioning exercise proved valuable since it identified the most important areas of intervention in Butere town. It was agreed that the vision should entail sustainability, employment creation, provision of better infrastructural services and amenities' The vision for butere town was agreed to be; 'A green, vibrant and livable town',

Further, the report identified the strength, weaknesses, opportunities and threats available in Butere town. Some of the strengths identified included; Very Good Climate, fertile soil/land, permanent rivers, underground water, good landscape. Common weaknesses include unemployment, substance abuse, community awareness, lack of financial institutions, poor waste management/drainage system, poor roads/transport system, lack of industries and lack of tertiary institutions of learning,

Existing opportunities include; political goodwill, available expertise, possibility of solar energy and bio gas, proximity to proposed new SGR railway line, agricultural based industries and water harvesting for use in agriculture.

The report concludes by identifying the imperatives of sustainable urban development, This include preparation of a strategic urban development plan to guide installation and development of key infrastructural projects, improvement of local economic development to provide employment, environmental concerns, equity and governance issues.

Acknowledgments

This project consumed huge amount of work and time, research and dedication. Still, implementation would not have been possible if we did not have a support of many individuals and organizations. Therefore we would like to extend our sincere gratitude to all of them.

First of all we are thankful to the Council of Governors and Swedish Government for their financial and logistical support and for providing necessary guidance concerning projects implementation.

We are also grateful to Swedish Association of Local Authorities for provision of expertise, and technical support in the implementation. Without their superior knowledge and experience, the Project would like in quality of outcomes, and thus their support has been essential.

We would like to express our sincere thanks towards the Working Group (WG) members, the members of the Public and the Steering Committee from Kakamega County Government who devoted their time and knowledge in the implementation of this project.

Nevertheless, we express our gratitude toward our families and colleagues for their kind co-operation and encouragement, which helped us in completion of this project.

Chapter 1

Introduction

SymbioCity Kenya Project is a partnership between the Council of Governors of Kenya Government and SALAR (Swedish Association of Local Authorities and Regions).

SymbioCity is a Swedish concept that has been developed through many years of experience and is now being piloted in 7 Counties in Kenya, focusing on small towns and Kakamega County is one of the beneficiaries. In Kakamega County the approach is being explored in Butere town, through the approach the local community, county staff and the urban planning experts are taken through sustainable urban development process. The SymbioCity Project shall consist of three major stages; Urban Sustainability Review (USR), Quick win project and a Change Projects Implementation Phase. Having started in 2016, SymbioCity Project in Butere is planned to end in late 2018 or early 2019.

The Aim of the USR are

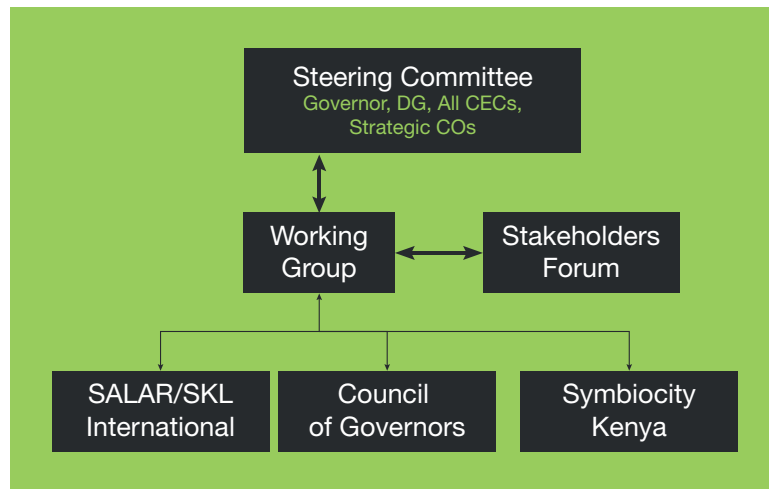
- i. To establish the challenges being faced by Butere town community.
- ii. To establish the strengths of the town as a potential city.
- iii. To establish the opportunities present for sustainable growth of Butere town.
- iv. To provide the Butere community with an opportunity to participate in decision making for their town
- v. To establish the threats faced during sustainable development of Butere town.
- vi. To develop the vision, objectives and strategies for addressing the challenges facing Butere town.
- vii. To propose possible actions to ensure a sustainable urban development process.

Target groups of the report include

- i. Youth
- ii. Administrative bodies
- iii. Civil Society groups
- iv. Community based organisations
- v. Urban planning experts
- vi. The County Government

1.1 Project Organisation/Management Structure

The Butere SymbioCity project is composed of a Steering Committee, Working Group and a stakeholder group. The Steering Committee acts as an oversight body, providing guidance and advises the working group, while the Working Group does the actual day-to-day operation and implementation work and activities. The Working Group has a Core Group that does reports and follows up of its member's tasks while writing and editing work the report.



The following representatives are members of the Steering Committee:

1. CEC, Lands, Housing, Urban Areas and Physical Planning
2. Area MCA Marama West
3. MCA representing Urban Planning Committee and also MCA Marama Central
4. Butere Sub County Administrator
5. CBO representative Butere
6. Director of Education- Butere Sub County.
7. County Lands Commission Chairperson.

The following representatives are members of the Working Group

1. Chief Officer, Ministry of Lands, Housing, Urban areas and Physical Planning
2. Pilot Coordinator/Town Administrator
3. Assistant Pilot Coordinator
4. County Government Of Kakamega Treasury
5. County Government Of Kakamega Lands, Spatial analyst
6. County Government Of Kakamega Environment
7. County Government of Kakamega Agriculture
8. County Government of Kakamega Water
9. County Government of Kakamega Health
10. County Government of Kakamega Planning
11. County Government of Kakamega Communications
12. Ministry of Education, Butere rep
13. Butere Sub County Administrator
14. Butere Sub County Works
15. Butere Sub County Procurement

16. Marama Central Ward Administrator
17. County Government Of Kakamega Lands, Spatial analyst
18. SymbioCity Facilitator

The members below represent the community from their different sectors

1. Boda Boda Group
2. Women Group
3. Civil Society
4. Civil Society
5. Business community
6. Business community
7. Youth representative

1.2 Stakeholder Mapping

Different key stakeholders in Butere were identified, and the representatives below were invited for Stakeholders' Forum meetings:

1. County and Sub-county officials
2. Butere Sub-county Polytechnic
3. Sub-county Educational Directorate
4. Matatu representatives
5. Butere Boda Boda Group
6. Women groups
7. Persons with disability
8. Butere youth
9. Sabatia Market representatives
10. Lower Butere Market representatives
11. Butere Sub-county hospital
12. Kenya Power & Lighting Company
13. IG Sacco Micro-financing institution
14. KWT Micro-financing institution

1.3 Community Participation

Apart from the Working Group meetings, review consultations were held with the following groups in Butere:

- Lower Butere Market members
- Butere Business Group representatives
- BodaBoda drivers
- Police
- Butere Hospital
- Women group in Mutoma
- Matatu Operators
- Informal settlement

1.4 Process and Methodology

The Working Group (WG) is consists of county, sub-county officials and representatives from the community stakeholder group, who are involved to form the wider working group.

The core-working group through continuous stakeholder consultations has developed the USR report; through fact-finding interviews, target stakeholders meetings, secondary data research among other methods.

The Working Group meetings have concentrated on group work, and plenary sessions to discuss the current situation in Butere including identifying assets and challenges, making SWOT-analysis and other relevant methodologies.

The following information, data and statistics have been gathered from the county, sub-county and other relevant formal institutions:

- Population
- Dwellings, housing
- Cars, buses and motorcycles
- Students/Schools/Colleges/Universities
- Churches, religious institutions
- Clinics/Hospitals
- Roads, length, standard
- Total area/Planned area/Built up area
- Business, registered companies
- Economy
- Informal/formal areas, percentage
- Sanitation
- Water
- Electricity
- Telephones and internet connectivity

Chapter 2

Butere Today

2.1 Introduction

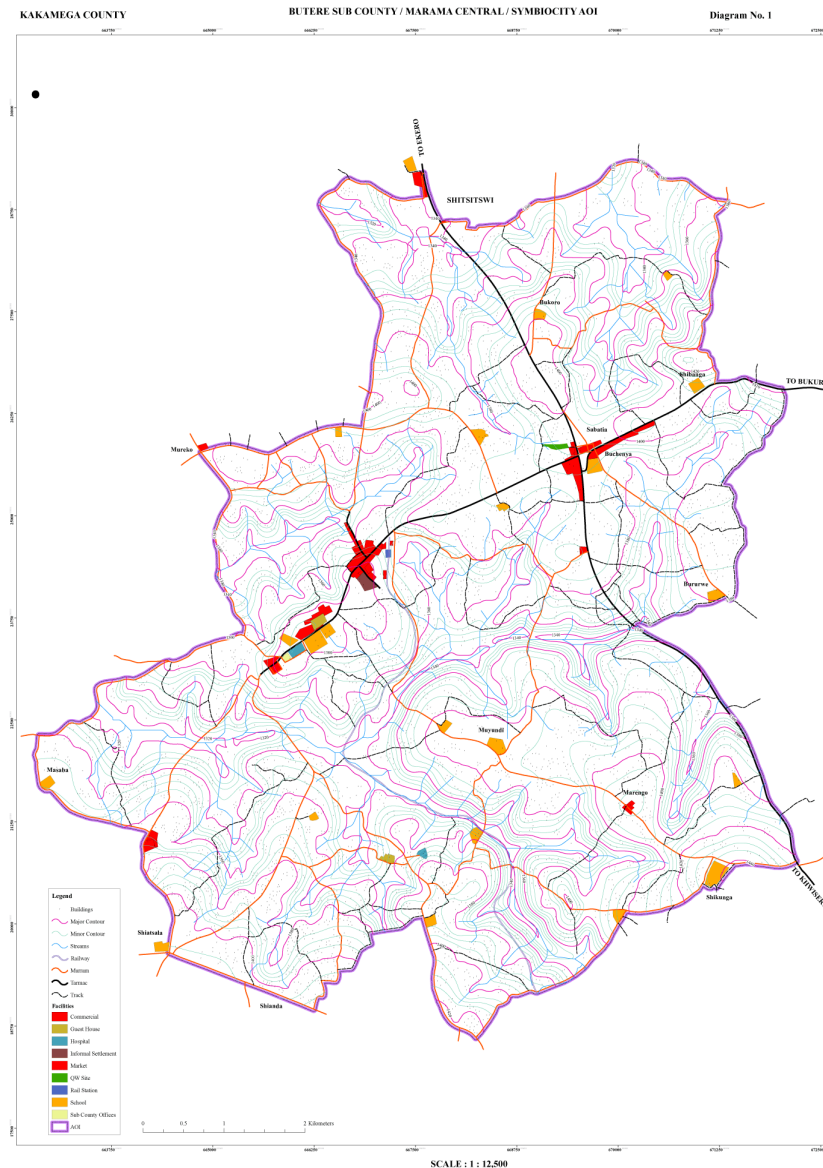
The name Butere comes from one of the main clans in the division called the Abatere sub clan who reside in areas such as Muyundi, Masaba and around the township. Abatere were the inhabitants of Butere before the colonial administration established the town as their administrative centre.

Largely the Marama sub-tribe of the larger Luhya Community inhabits Butere town, with a significant number of Luo immigrants from the neighboring Siaya County. The population of Butere town is projected to be a total of 15,609 with 5771 inhabitants residing in core urban area and 9838 being rural. Most of the town is located in Marama Central ward with a population density of 773 people per square kilometer.

2.2 Spatial Dimensions

Butere town is located in Kakamega County of the former western province of Kenya (Map 1). It is the headquarter of Butere sub county (Map 2) The town is linked by road to Mumias in the North and Kisumu in the South East. A Branch of the railway line from Kisumu ends in Butere town hence the famous name 'Mwisho wa reli' (end of the railway line). The provisional project area of the town is 16km². The area covers Marama central ward, part of Marenzo-shianda and Marama westwards.

BUTERE SUB-COUNTY / MARAMA CENTRAL / SYMBIOCITY AOI



2.2.1 Physiographic Characteristics

The annual rainfall ranges from 1280-2214 mm per year. The rainfall pattern is evenly distributed all the year round with March and July receiving heavy rains while December and February receiving light rains, The temperature ranges from 180 C to 290C. January, February and March are the hottest months with other months having relatively similar average temperatures except July and August, which have relatively cold spells,

Butere town falls within lower medium (LM) ecological zone. Within this zone, the main economic activities include sugarcane production with some farmers practicing maize, sweet potatoes, tea, groundnuts and cassava production.

Planning issues in Butere town revolve around the lack of an integrated spatial framework to guide spatial growth and development that form the basis for provision of critical urban service and infrastructure as well as spur economic growth and enhance and manage the environmental assets while promoting social cohesion.

2.2.2 Urban Growth Trend and Pattern

Urbanization in Butere town has occurred with low densification that has translated into greater demand for land and corresponding infrastructure. At the current pattern of urban growth, land demand will increase faster than the population. The urban form in the commercial nodes is largely linear following the main transport network from Sabatia junction to Butere. This pattern of growth if left unchecked, is likely to make service and infrastructure provision costly.

The urban sprawl phenomenon can be identified where growth of the urban area is occurring through the process of scattered development of mixed types of land use in isolated locations on the fringe, followed by the gradual filling-in of the intervening spaces with uncomplimentary land uses.

This will not only result into an inefficient and unpleasant environment on the urban fringe, but adversely affects the inner urban area and the nearby rural areas as well.

The various commercial nodes have no identifiable urban form or structure, and no clear neighborhoods to form activity-organizing elements. These nodes have no evident functional specialization.

The strategic objective in this thematic area should be to guide land use decisions towards more sustainable development choices. Possibly to uphold smart growth principles that promote compact, mixed use development, encourage the provision of a variety of transportation options, advocate for green building and the preservation of open space. This will also encourage effective community involvement to develop and implement smart growth solutions.

The main development Constraints in Butere include;

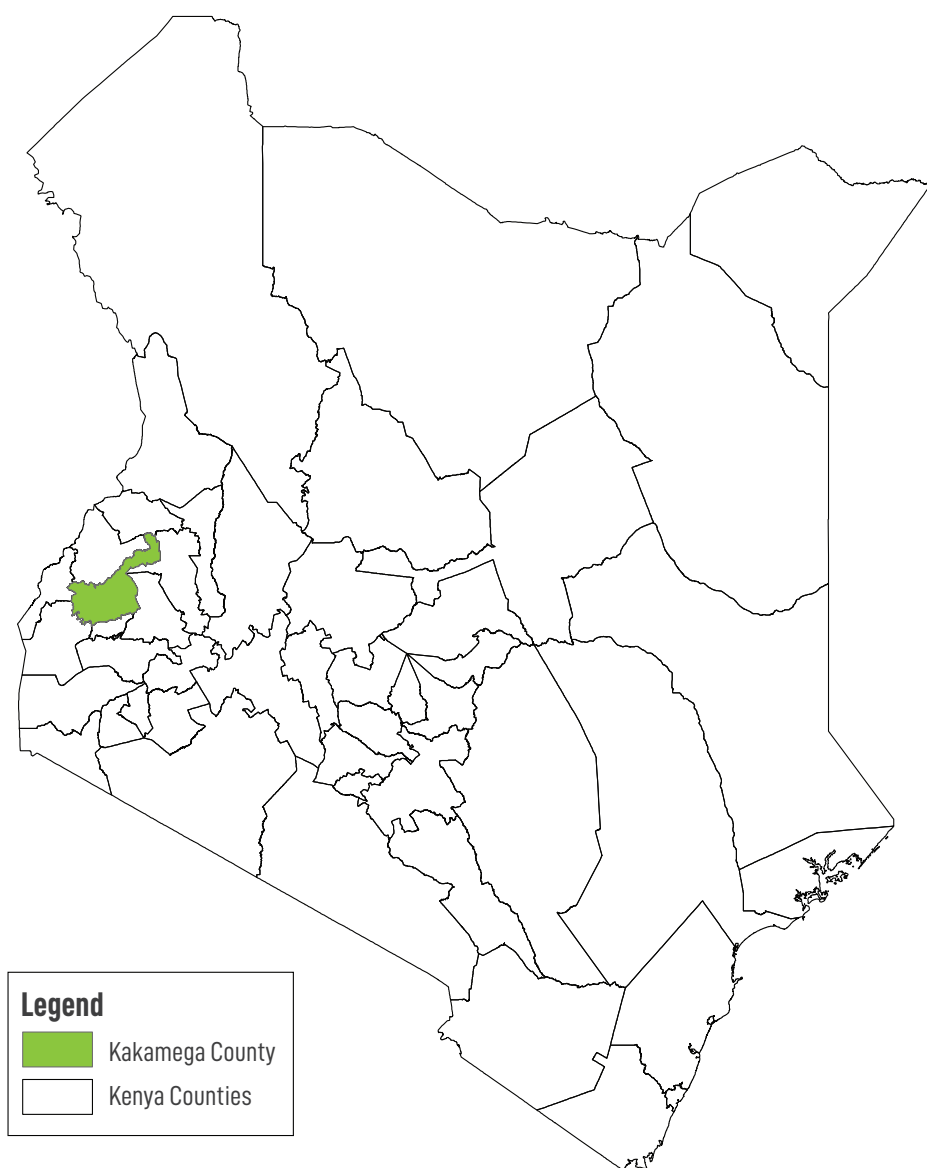
- Inadequate public land for urban projects
- Lack of industrial investment
- Competition from other major urban centres in the region
- High poverty levels

The opportunities that abound in Butere include;

- Robust young population
- Potentially large regional market
- Fertile hinterland
- Location on major and key highways
- Butere as a sub-county headquarters
- Presence of outstanding education institutions

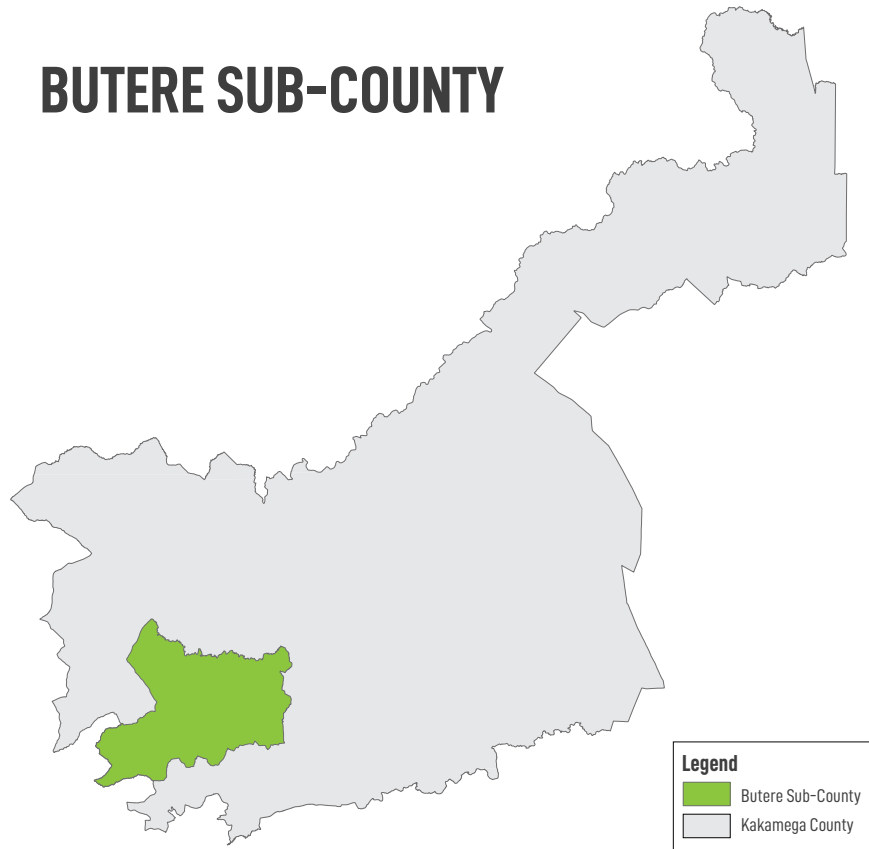
2.2.3 Kakamega County in National Context

KAKAMEGA COUNTY



2.2.4 Butere in the County Context

BUTERE SUB-COUNTY



2.2.5 Butere Sub County



Chapter 3

Institutional Factors

Butere Township is currently managed by the Sub County Administrator and assisted by the Ward Administrator for Marama Central. It is yet to be gazetted as a township by H. E. the Governor according to Urban Areas and Cities Act. Efforts are under way to upgrade Butere urban centre into a township with a distinct management structure away from Sub County Administration.

3.1 Existing vision

The Urban centre has been run on basis of the Kakamega County Integrated Development Plan (CIDP) of 2013-2017 that provided for vision and strategies for development of all urban areas in the County. However, the working group and stakeholders have so far developed a vision and strategy specifically for Butere town.

The agreed vision is;

'A green, vibrant and livable town'

3.2 Policies and plans

The County Department for Lands, Housing, Urban areas and Physical Planning developed an urban development control policy to guide development control mechanisms in urban centres as reinforced by area local development plan for Butere. The existing spatial plan and development policy seem not to be in tandem with emerging institutional and socio-economic challenges. While conducting consultative meetings with various stakeholders it emerged that there was urgent need to come up with an Integrated Strategic Urban Development (ISUD) plan to address the gaps left by the existing development frameworks.

3.3 Urban governance

Butere Sub County is one of the administrative units in Kakamega County; its headquarters is Butere town, which has a population of 4,725 (2009 census). Butere Township hosts a population of more than two thousand people most of who are area residents, it also hosts government institutions like schools, public offices, hospitals and markets. There is urgent need to provide a structured management system which may offer social amenities like recreation grounds, cemetery, play fields, libraries, road networks, street lighting, water and sewerage services as listed in First schedule of the Urban Areas & Cities Act (2011) so as to make it livable city. For effective service delivery, Butere requires an urban management committee, a substantive Town Administrator, with staff and budgetary allocations to address the running and management of urban service cited herein above.

3.4 Roles and mandates of government departments

Butere is endowed with both national and county government institutions with well nit intergovernmental relations as well as technocracy, which are quite essential for planning, implementation, delivery of infrastructure services and amenities geared towards sustainable urban development. The department of Lands, Housing, Physical planning and Urban areas in charge of physical planning in the county and developing strategies for spatial development. The Economic planning on the other hand is in charge of resource allocation to the various needs identified during the stakeholders meeting and ensuring implementation of the projects by the respective departments.

3.5 Legislation and bylaws

Butere does not have a legal capacity to enforce control on physical development trade or nuisance. However, once gazetted as a township, it shall invoke the Kakamega County Urban Management Act (2017) and enact its by-laws to regulate the conduct of physical development and business.

Other laws in place are those of public health and environment that has ensured a bit of control on spatial development.

3.6 Public participation

The leadership of Kakamega County Government lays great emphasis on governance by the people as enshrined in the constitution of Kenya (2010). The County Urban management Act 2017 as read with the County Public participation Act 2017 provide the main basis for its implementation. Kakamega County is among the first county to have a county public participation Act in Kenya and have a dedicated officer for the same. Arising from the foregoing the symbiocity pilot for Butere engaged various stakeholders on a number of meetings to gather their views as well as identification of needs, gaps and priority development proposals.

Chapter 4

Socio-Cultural Dimensions

This section describes Butere from the perspective of the people who live there. Population characteristics, people experience of the city in terms of health, safety, comfort and quality of life and the situation for the urban poor, women and youth. It also identifies key socio-cultural factors that influence urban development.

4.1 Population Size and Growth

Based on the classification of urban areas as stipulated in the Urban Areas and Cities Act of 2011, the Kakamega County urban population in 2009 stood at 1,660,651. This population was projected to be 1,789,989 in 2012 and 2,028,324 by the year 2017.

According to 2009 population census, Butere town had a population of 12780 people of which 4725 were residing in core urban area while 8055 resided in peri urban area. This population is projected to be 15,609 residents by 2017 as indicated in the table below.

Population Projection for Butere Town

BUTERE		2009			2011			2013			2015			2017		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
	Core-Urban	2168	2557	4725	2279	2688	4967	2396	2826	5222	2516	2976	5483	2648	3123	5771
	Peri-Urban	3830	4225	8055	4026	4442	8468	4233	4669	8902	4444	4903	9347	4678	5160	9838
	Rural Area	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Kakamega County CIDP

According to County Integrated Development Plan (CIDP), the population growth rate for the county is estimated at 2.5 per cent. This has put great pressure on social facilities; especially on health and education facilities. Resources, which could have otherwise been utilized elsewhere, have been diverted to meet the health and education needs leaving very little for other investment.

4.2 Urban Safety and security

Butere Town and its environs are facing a serious security threats from the local unrest of unemployed youth. There has be reported increased incidences of rape cases, burglary, and hacking and even killings in the area. Lack of streetlights, unequipped police force, and poor feeder roads are also major contributors of insecurity in the area.

Urban safety in this context entails a city where all urban inhabitants regardless of socio-economic status, gender, ethnicity or religion are able to fully participate in the social, economic and political opportunities offered. Engaging urban poor, youth and women in particular at all levels of planning and decision making is key to creation of a safer city.(UN Habitat(2015). Cities today are marred by inequalities and lack social cohesion. These inequalities are important root causes of crime. For example, as the city expands so do gated communities and informal settlements. In both cases, availability of urban services including safety is often lacking or inadequate. It is in these informal settlements, areas characterized by poverty, lack access to quality basic services, unplanned settlements and high rates of insecurity and crime that we find some of the greatest challenges to urban safety. Inspite of the above challenges, Butere town is largely important for its potential for sustainable development. It will also act as a site of opportunities for education, employment, social cohesion, gender equality and freedom of expression. According to local security agents some of the most prevalent local crimes include rape, defilement, assault, causing disturbance, robbery with violence, burglary, other breakings, cycle theft, malicious damage, arson, being in possession of stolen items and other offences against children.

4.3 Poverty

The overall poverty level in the county stands at 51.3 percent, this is relatively high compared to the national level that stands at 45.9 percent according to the basic report on the wellbeing in Kenya of April 2007, K.N.B.S. This means that more than half of the county population is poor. The high level of poverty has implications on the county's efforts in development initiatives since no meaningful development can take place with over half of the population still unable to meet their basic needs and carter for a service to help sustain it.

The causes of high poverty levels include poor farming methods, overdependence on one cash crop such as sugarcane, poor quality livestock, overdependence on rain fed agriculture, high population density, poor infrastructure, inaccessibility to quality health, low level of entrepreneurial skills, inadequate capital to invest in high yielding areas, high HIV and AIDS prevalence rate, increasing number of orphans and vulnerable children due to HIV and AIDS. Other effects of HIV and AIDS include the disease burden resulting from the cost of treatment for HIV and AIDS and loss of productivity.

4.5 Culture and Religion

The most predominant religion in towns is Christian, though there are also Muslims and few traditionalists.

Butere district is inhabited 17 sub tribes, amongst them Abamarama/ Abamukhula, Abatere, Abashirotsa Abashisa, Aberecheya and Abachenya. Butere town is majorly inhabited by the

Marama sub clan, The Marama's most popular dance is the lipala dance and eshiremba (a funeral ceremony dance performed by Abashibanga clan) which seems to be vanishing with modernity. The Marama have been very close to the Wanga and the Wanga king Nabongo Mumia was a son to a Marama woman.

4.6 Gender equality

Human rights are for all human beings, men as well as women. Women are entitled to the same human rights as men. However, in Butere women have historically often been discriminated against in many ways, due to the fact that they are born as female and not male. Even though there have been some improvements, unfortunately this kind of discrimination still exist in society. Gender equality is a precondition for the fulfilment of human rights; the largest proportion of Butere is rural based with women constituting about 53% of the population. The main economic activity in the sub county is agriculture where women form almost 80% of on –farm work force. Women however own less than 1% of family wealth. This is because men control land ownership and control over wealth in the sub county. Various intervention programmes have been initiated such as involvement of women in all development committees, increased access to credit (Women Enterprise Fund and Kenya Finance Trust). Land ownership and possession of title deeds is a preserve of men that greatly reduces access to credit by larger women population.

Women in Butere have not been actively involved in development for quite some time. Most of them are unemployed and illiterate. Early marriages, poverty and male chauvinism are the major causes of women's poverty and economic setbacks among women. HIV/ AIDs cases have made most of them widowed at an early age, therefore leaving them with economic burden of taking care and educating their children. Early pregnancies among the girls in the area have also taken a toll in their education. Most of them drop out of school before completing primary schools. They and their children become an economic burden on already stressed economy due to high dependency rate.

Maternal health among women is also another issue with most of them claiming poor maternal health care in the Town. The nearest hospital which anyone can receive good maternal healthcare is in St. Mary's hospital which is 40km away from Butere Town. This has seen rise in maternal and infant deaths.

The county Government has recently improved Butere sub county hospital by an additional maternity ward.

Insecurity is also one of the issues that women of Butere are worried about. They cannot freely walk around at night due to crime and hooliganism in the area.

For the elite, they have come across sexual harassments in the work place while looking for employment. Therefore, most of them give up at an early stage progressing career wise.

4.8 Health

Butere and specifically the target SymbioCity area have one sub county hospital, two-health centre's, one dispensary, one private nursing home and two private clinics. The total bed capacity

for the above public and private facilities is 100 with public sector having 88 beds while the private facilities have 12 beds. With the high and growing population of Butere town, this calls for expansion and equipping facilities so as to cater for comprehensive health care. The doctor patient ratio in the sub county stands at 1: 32152. In terms of distance to the nearest health facility, it takes the population between 1km to 5km to reach the nearest facility. Malaria, Diarrheal and Respiratory infections are the most common with malaria being the most prevalent. These diseases are normally caused by lifestyle, poor handling of food and failure to take precautionary measures such as using insecticide treated nets, and HIV prevalence is approximately 5.9%.

4.9 Public Health

Butere has a Sub County referral hospital that is underequipped and understaffed. Pediatric ward is under construction at the moment. There is need for maternity special beds for mothers and the new borns, a modern administration block with enough pharmaceuticals, surgical wards and theatre facilities. This will enhance accessibility to improved health facility in Butere Town. Doctors and nurses quarters are not available and as such the medics have to find their own accommodation, this makes it difficult to access them during the night due to insecurity and fear of movement..

Sanitation in the area is also poor due to lack of clean water and proper sewerage system. Butere lacks a water treatment plant and a sewerage system, which renders most of the residents to usage of pit latrines that are not properly constructed and environmentally sound thus contaminating the underground water tables.

The issue of agro-nutrition in the area has been overlooked. This has seen many children suffer malnutrition. The residents should be encouraged to practice agro-nutrition in their farms so that they can have well fed future generation.

The county together with development partners and agencies are advised to consider phasing out the use of pit latrines in town to promote a healthy generation.

Kenya, lying within the tropical climate has a high Malaria prevalent followed by HIV/AIDs cases that has seen most of the residents seek better of healthcare, which is limited locally available.

4.10 Education

Butere town has one national and one provincial secondary school; Butere Girls' High School, which is the National school, and Butere Boys' High School, which is the Provincial school. The Town also has numerous day secondary schools with Lunza Secondary School being the largest in terms of student population and good performance. Others are Bukolwe, Shiatsala, Shikunga and Bumamu Secondary School.

The introduction of the Constituency Development Fund has seen Buchenya Girls' School being chosen as a center for academic excellence due to its central location. Shibembe Secondary, Mukoye girls and Mabole Boys have also been recently established. There are several primary schools in the Town with Butere Primary School and Buchenya Primary being more famous.

The county has 83.6 per cent and 83.3 percent of its population who can read and write respectively. On the other hand those who are not able to read and write are 83.1 per cent. This calls for more investments in programs aimed at increasing literacy levels such as establishment of Community Learning Resource Centers and sensitization of the community on their usage.

Chapter 5

Environmental Dimensions

The area has high rainfall almost throughout the year the annual rainfall ranges from 1,597mm to 2873 mm per year. The maximum temperature is about 29 degrees Celsius. The section below describes environmental sustainability and highlight key environmental assets and challenges.

5.1 Biological Diversity

Butere Sub County does not have any natural forests. However, there are several manmade forests, especially in schools owing to a sustained school greening programme. Eucalyptus is the most predominant tree species.

5.2 Aquatic Ecosystem

The Sub County has a number of streams and rivers giving it ample surface water resources. The major rivers include Viratsi, Siga, Mungotse, Mumulinga, and Lusumu and their tributaries. The rivers flow all year round. Butere Town is situated midway between two tributaries of the Viratsi River. A confluence of the two tributaries is located about 3 kilometers west of Town. One of the tributaries flows in Southeast-Northwest, while the second one flows Northeast –Southwest direction, which is also the direction of the Viratsi River. The Viratsi is a tupper course stage, flowing on rocky bed. The sizes and river volumes have been declining in the recent past. A number of factors are responsible for this trend. The annual rain patterns are showing changes with reduced rainfall. The vegetation cover, wetlands and riverine catchments have been degraded considerably due to encroachment through farming and settlement. The poor farming methods have resulted in silting of most rivers and streams. Mushitoi wetland and Manyala area are among the few remaining wetlands in Butere Sub County.

5.3 Health and Environment

Population's health is determined by the status of the environment it inhabits. Environment is one of the major important factors that influence health status and disease incidence. Poor environmental conditions are usually associated with ill health. Unsanitary and crowded

environment usually contribute to the highest burden of diarrhea, respiratory and other health conditions. Proper disposal of wastes and pollution control are some of the measures of ensuring a clean living environment. However, Butere town does not have a sewer system nor a proper public waste disposal mechanism. Homesteads mostly use pit latrines that in turn contribute to pollution of ground water resources.

5.4 Hazardous waste

There are certain waste types considered as hazardous and require specialized handling to prevent occurrence of contamination. Biomedical waste found in healthcare facilities and similar institutions are examples of hazardous waste. Hazardous waste also include any solid or liquid waste that is considered toxic, chemically reactive, and flammable or is corrosive in nature. Closer inspection of homes in Butere will expose various hazardous waste items unknown to occupants. The most common examples of hazardous waste to be found in homes include; paints, batteries, solvents, cleaning agents and pesticides. Unfortunately, since there is no regulation on disposal of such items, they are likely to be disposed of improperly, like down the drain, in the open posing negative impact on the environment. Disposal of hazardous waste can be done through; sanitary landfills, surface impoundments (liquid) and deep – well injection.

The major contributing factors to environmental degradation are:

- Quarrying and mining in the Sub County is rampant leaving a lot of derelict land.
- Lack of modern waste management practices for both solid and liquid waste; improper handling of waste from open air markets (Butere upper & lower, Sabatia, Buchenya upper, Buchenya lower, Shitsitswi, Bukura, Shiatsala, Ituti, and Masaba) contributes to environmental pollution. Wastewater discharged from households, business community, institutions into open drains also contributes to the pollution of water sources. Storm water runoff is another contributing factor to erosion, pollution and land degradation within Butere town.
- Pollution at farm level arises from the use of agrochemicals and fertilizers. These have the potential to pollute soils, surface and underground water through surface runoff and leaching.
- Water pollution from Kibos Sugar Collection centre factory.
- On-farm deforestation due to overdependence on wood fuel.
- Human activities such as sand harvesting and poor agricultural practices on riparian areas have contributed to habitat degradation and loss of soil profile.

Some of the common environmental challenges are;

- Negative public perception while dealing with environmental matters.
- Butere town lacks a modern sanitary infrastructure (sewerage, landfill, and burial sites).
- Poor town planning in Butere including zoning, haphazard land subdivision has led to construction of buildings in unsuitable sites.
- The lack of efficient environmental management systems leading to adverse environmental impact on infrastructure development; the road network, utilities and buildings interfere with other public utilities such as pipe water distribution network and main electric grid connections.
- Water pollution; Siltation arising from erosion of farms, water contamination by agrochemicals, solid waste, and effluent discharge pollutes water and soils within the environment.

- Parasitic and invasive species e.g. *Cuscuta dodder* encroaching, colonizing and killing existing vegetation, newly and largely emerged and still growing without control.
- Low enforcement on forest legislation and environmental compliance measures due to lack of officers and political goodwill.

Some of the proposed environmental interventions include;

- Encourage public environmental education especially on proper land management and pollution control.
- Development of a modern sanitary landfill, made-up wetlands, conventional wastewater treatment plants.
- Encourage subjection of all projects and programmes to Environmental and Social Impact Assessment (ESIA) to remedy the infrastructure challenges.
- Institute a management plan to deal with parasitic and invasive species through farmer education and enhanced research on modern technology of control.
- Consider the development of forests on public land and environmental conservation legislation.
- Rehabilitation and restoration of wetlands, riparian, and catchment areas through growing of environmental friendly species i.e. bamboo.

Chapter 6

Economic Dimensions

This section identifies key aspects/drivers of the urban economy. That is; Local Economic Development, Consumption and Production, Economic Growth, Employment, Informality, Livelihood, Tourism, Local Government Budget and Expenditures and Sources of Revenue.

Butere's economic mainstay is subsistence maize production. Since the collapse of Mumias Sugar Company, the residents have uprooted sugarcane for other crops such as maize and fruits. The residents are yet to embrace commercial agriculture for example horticulture and dairy farming. Agricultural activities are hampered by small sizes of land though mitigation measures can be applied to reduce future unsustainability in food security. Residents of this area are also small-scale cattle and beekeepers as well as fish farmers. The people of Butere have traditionally been small-scale farmers planting sorghum, millet and vegetables, which they traded with their neighbours from south Nyanza with fish from Lake Victoria. The introduction of maize saw a change of staple food from Ugali made from sorghum to maize meal.

People have also tried other sources of income such as transport industry where the youth have engaged in motorbike business commonly known as bodaboda. This is a major source of employment for the youth at the moment, although also a major source accidents, the need for training on driving skills for the youth in Butere was identified .

It is a major concern that unemployment rates are very high despite favourable climate, rich fertile soils for agriculture and average literacy levels.

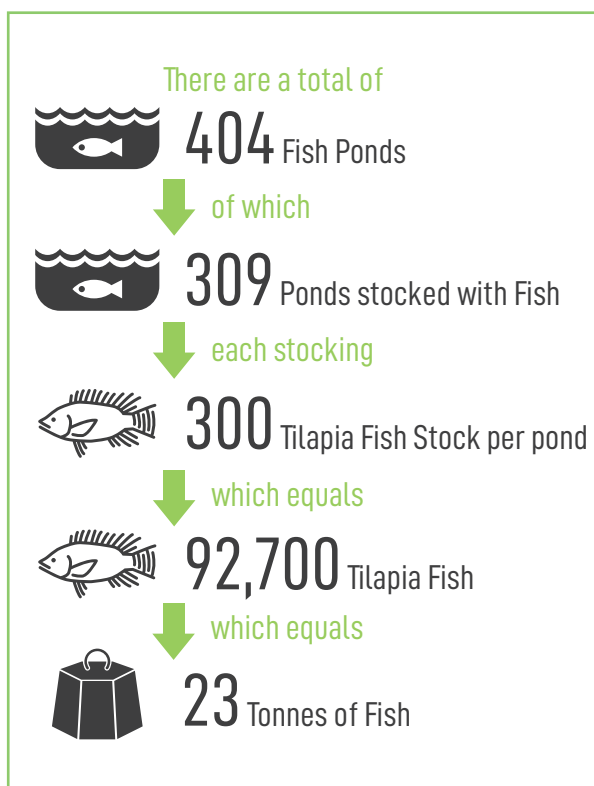
The anticipated Standard Gauge Railway from Mombasa is expected to act as one of the economic catalysts of Butere urban development.

In addition fisheries have also played an important role in Butere town although it has not been fully exploited.

The fisheries statistics report is as follows:

- There are 404 fish ponds, of which 309 stocked with fish – 309
- Tilapia fish stock per pond – 300, which will result in Tilapia fish stock of 92700 fishes. This can be translated to 23 tons of fish

In an attempt to diversify agricultural economy the county government has now introduced the **one cow initiative** in order to boost the dairy industry. One cow initiative is a programme that was rolled out by the County Government in the financial year of 2014/15 through the Ministry of Agriculture, where the locals were getting one dairy cow per family. The new cow owners would then receive agricultural extension services where the County Government would ensure that the dairy cows were given the best veterinary services and also for sustainability purposes.



The economy of the commercial nodes within Butere Town does not relate to the expected forward and backward linkages to the main industry driving the town, i.e. proximity to Mumias Sugar Company. There is very little subsidiary industrial development in the commercial nodes and most of the economic activities are commercial concerns with little industrial or manufacture component. The few light industrial activity is carried out in road reserves and open spaces. The economic activity in the commercial nodes is mainly service oriented (business outlets) with considerable proportions of informality.

A fundamental issue to be addressed in this sector is therefore how to improve the economic base of the Town, promote a strong and diversified local economy using local resources and spur economic growth to positively impact on the livelihoods of the residents.

Chapter 7

Urban Systems and Functions

This section describes the key features of urban systems and functions in the current situation and trends. For each urban system, we describe challenges and opportunities in terms of, environmental, economic sustainability and governance:

7.1 Environmental Sustainability

Butere town faces a number of environmental issues such as:

- Solid waste, collection and its management: This is a major challenge because a large amount of solid waste is left by the side of streets, to decay, which is a major source of health concerns. Further, there are no appropriate mechanisms to collect and dispose off the waste thus generated.
- Liquid wastes discharged: The major sources of drinking and domestic water contamination have been identified to be untreated domestic and industrial wastewater and fertilizer contaminated surface water runoff.
- Un-serviced settlements or settlements provided only with rudimentary infrastructure
- In the low-income neighbourhoods air and water pollution cause chronic and infectious respiratory disease, water-borne diseases such as diarrhea and intestinal worm infections, increased mortality rates particularly among children.
- Loss of green space, destruction of special local ecosystems, noise pollution, and aesthetically unpleasant sights and smells
- Lack of waste treatment plant
- Lack of drainage and other facilities within low-income residential neighbourhoods.

Some of the solutions to environmental challenges include the following;

- Development of a shared of sewerage system
- Improving storm water drainage services within the urban area
- Provision of more public toilets within the urban
- Improving water supply for residents if Butere
- Designation of solid waste dumping sites
- Provide litter bins in urban area
- Green of the town through tree Planting

7.2 Economic Sustainability

The economy of the commercial nodes within Butere Town does not to relate to the expected forward and backward linkages to the main industry in the hinterland i.e. sugar.

There is very little subsidiary industrial development in the commercial nodes and most of the economic activities are commercial concerns with little industrial or manufacture component. The few light industrial activity is carried out on road reserves and open spaces. The economic activity in the commercial nodes is mainly service oriented (business outlets) with considerable informal proportions.

Low levels of services and infrastructure provision characterize the town: Low investment in urban drainage facilities and inadequate drainage management and design

The lack of pollution-abating infrastructure, such as sewer systems and lack of control l over waste discharges has contributed to contamination of water sources with adverse impacts on watercourses.

By products of human settlements, such as solid wastes, are not properly managed thus the likelihood of affecting groundwater quality through the percolation of residual liquids. Part of the population in poor neighborhoods dumps their waste on streets and in the drainage system, Other infrastructural limitations include limited road paving and ancillary services, inadequate water and energy reticulation, none provision of public recreational facilities, inadequate health personnel, inadequate health facilities.

7.3 Governance

Capacity to enforce urban planning regulations is lacking and hence should be given special attention. The regulation of land and property development, through statutory plans and development permits, is a vitally important role of the urban planning and development system.

Challenges experienced in relation to governance in Butere include;

- Insecurity
- Location and space for hawkers and small traders in the town
- Poor communication
- Lack of public participation

Some Solutions to address citizen inclusion in the management of Butere town shall include; availability of forums to engage inhabitants through public participation; Public sensitization on governance; Streamline communication channels and formation of various committees drawn from the public for specific purposes in town.

Chapter 8

Urban Structure and Land Use

Residential development (in form of homesteads) is the main land use in Butere taking up close to 70% of space. However most of the homes in the peri-urban areas are intertwined with agricultural use. A distinct informal settlement called Sophia exists in Butere town

The apparent challenges in housing provision include: Lack of quality residential neighbourhoods for the middle and low income groups; Individual housing initiatives are not supported by the requisite infrastructure and services; Absence of social housing programmes to target the poor; Sources of building materials not properly developed; Strict development control mechanisms to regulate housing development are lacking.

Informal residential settlements are characterized by:- Lack of basic services—water, sanitation, waste collection, storm drainage, roads for emergency access, street lighting, paved footpaths; Lack of schools and health care facilities within easy reach; Lack of safe areas for children to play; Lack of places for the community to meet and socialize.

Commercial land uses are concentrated in Butere CBD and Sabatia junction. Most of the new developments have taken a linear pattern along Sabatia-Butere road.

There are no distinct industrial activities in Butere. Most of the activities are informal and located along roads reserves. There are efforts by county government to locate Jua kali sheds in the town to provide opportunity in the light industry.

Butere town is home to several educational facilities like, Butere Girls', Butere Boys, Mabile, Manayala etc. These schools have over the years competitively produced best students in the National Examinations, Kenya Certificate of Primary Education (KCPE) and Kenya Certificate of Secondary Education (KCSE). Portraying a potential in the sector.

8.2 Public Space

Butere town does not have designated public spaces; most available open spaces are playgrounds within the many existing institutions. Since the density of development is still low coupled with the rural nature of the town, there exists some greenery, however this will continue to diminish as the town's development becomes more densified.

Urban agriculture is highly practised though with less technology. Some of the activities include poultry, dairy farming, sugarcane growing, growing of sorghum and maize.

Strategic intervention within this sector is to control plot densities and ratios during construction, designate and maintain public open spaces and provide beautifully landscaped streets with street lighting.

8.3 Housing

Butere offers a diversity of housing ranging from well-designed quality company estates to low quality housing.

The apparent challenges in housing provision include:

- Lack of quality residential neighborhoods for the middle and low income groups
- Individual housing initiatives are not supported by the requisite infrastructure and services
- Absence of social housing programmes to target the poor
- Sources of modern building materials not properly developed
- Development control mechanisms to regulate housing development are lacking

The strategic objectives for this thematic area will therefore be to: fulfilling the right to adequate housing and promoting the right to the town; ensure affordable, decent and suitable homes for all, including disadvantaged groups; developing social housing provision and promoting choice and security of tenure.

8.4 Water

Water services in Butere Sub-county is provided by Kakamega County Water Services and Sewerage Company and Sabatia market water supply.

Key Water Sources

S/No	Villages/Sub-Locations	Boreholes	Hand Dug Wells	Spring Sources
1	Imanga	27	24	64
2	Shinamwenyuli	1	27	28
3	Shirotsa	11	39	63
4	Ibokolo	4	84	72

In terms of water coverage; 70% of the urban population has access to clean water, 55% of the rural population has access to clean water, Average distance to clean water point is 1Km, 80% of the population has access to sanitation facilities including pit latrines and a few flush toilets.

The main challenges in water sector include; Inadequate funding of water sector, Population growth is not proportional with the development of the water infrastructure, high cost of electricity to gain water-pumping machines.

Some of the measures to address the challenges include; Promotion subsidised solar powered project, Gratuity powered water through green energy, Partnership with NGO living water services center and Davis Shirtlif.

8.5 Waste

Butere town does not have a sewage system in place; liquid waste from domestic and commercial premises is discharged in the open posing serious health and environmental problems. There is need for sewage syWWstem that will enhance the town's liquid waste management.

The most common solid waste in Butere town include municipal solid waste, agricultural, construction, domestic and healthcare. Household waste in Butere is composited, dumped into farms or fed to animals. Commercial waste on the other hand is deposited into bins provided by county government or dumped at designated places at market centers. The county cleansing department using a tractor usually empties bins and designated sites. Frequency of collection is a concern as uncollected waste posses numerous health hazards. Waste collection is part of waste management process. It is the transfer of solid waste from the point of use and disposal to the point of treatment or landfill.

Composting is the most common method used in Butere and entails natural bio degradation process that turns organic waste into nutrient rich food for plants. Though considered as one of the best methods of waste disposal, it's slow and most people have no skills or proper composting.

Butere town requires proper waste management process entailing all activities and actions required to handle waste from generation to its final disposal. This entails among other things separation, recycling, collection, transportation and disposal. Waste management is intended to reduce adverse effects of waste on health, environment or aesthetics. Waste in Butere is generated basically from the following:

The best place to separate waste materials for re-use and recycling is at the source of generation. Home owners should be aware of separation (news papers, cardboards, bottles, yard waste aluminum cans, ferrous materials and especially hazardous wastes. Waste processing is used to reduce the volume, recover usable materials and alter the physical form of solid wastes. The most common on-site processing operation used in Butere is yard –waste compositing. There is need for food waste grinding, component separation and incineration where applicable. Separation of waste is also practiced in health facilities by color-coding system. Waste so generated is categorized thus: infections waste-Red bags, domestic waste – green bags, and sharps/needles-sharp/puncture proof containers. Segregation is done at source ie ward, operation theatre, laboratory, labour room and other places.

Recycling is the process of minimizing waste generation by recovering and reprocessing usable products that might otherwise become waste (i.e. recycling of aluminum cans, paper and bottles). Recycling is a key component of modern waste reduction and is the third component of reduces, reuse and recycle waste hierarchy. Recyclable materials include various kinds of glass

paper and cardboard, plastic and textiles. However this process is not common in Butere town.

E-waste is a popularly refers to electronic products nearing end of their useful life destined for re-use, resale, salvage, recycling or disposal. The hazardous content of these materials pose a threat to human health and environment. Discarded computers televisions, VCRS, electric lamps, cell phones, audio equipment and batteries if improperly disposed can leach lead and other substances into soil and ground water causing serious health and environmental problems. E-waste in Butere town is discarded with other household garbage posing a threat to both health and vital components of the eco system. In view of all ill effects of hazardous waste to both environment and health, there is urgent need to address problems and challenges bound to the posed by e-waste considering the severity of the problem. It is imperative that certain management options be adopted to address e-wastes. Below are suggested options for Butere Town and the public.

Butere town responsibility.

- Have in place a regulatory agency responsible for coordinating and consolidating regulatory functions of various departments regarding hazardous substances.
- Provide adequate system of laws, controls and administrative procedures for hazardous waste management including review and revamp existing laws concerning e-waste disposal. Such laws should empower relevant agency to control, supervise and regulate activities of government departments.
- Enforcement of strict regulations against dumping of e-waste in the town by outsiders
- Awareness creation on dangers of e-waste.

Butere town resident's responsibility

- Waste prevention could be more preferred to any other waste management option including recycling. Donating electronics for re-use extends lives of valuable products and keeps them of waste management system for a longer time. Donated items should be in a working condition.
- Avoid disposing e-waste with garbage and other household wastes. When buying electronic products, opt for those that Are energy efficient, utilize minimal packaging, offer leasing or take back options, use recycled contents that are made with fewer toxic constituents.

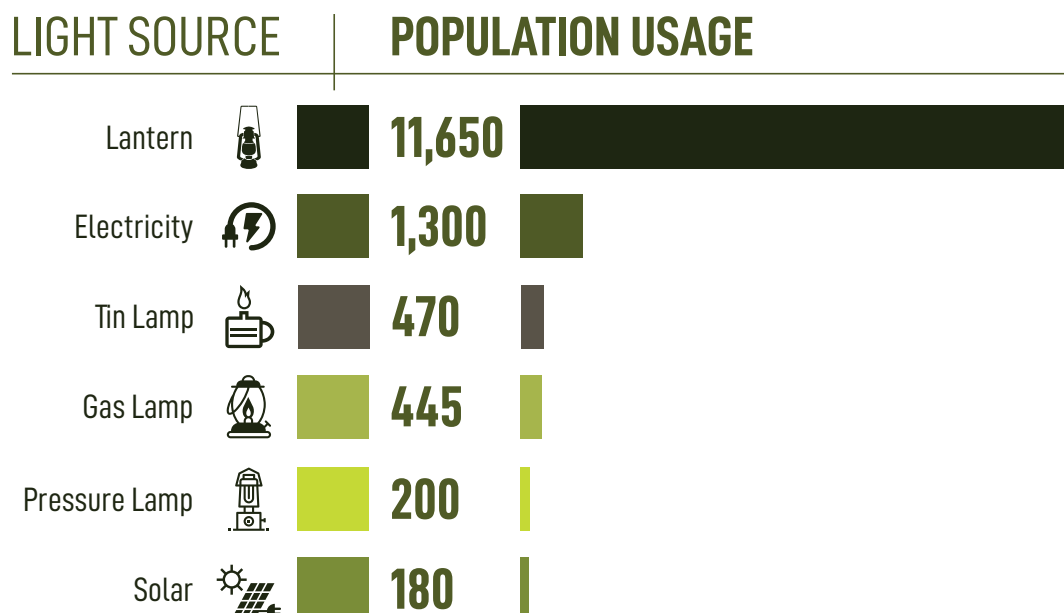
8.6 Energy

Both renewable energy and Non-renewable energy sources exists in Butere

The most common sources of energy in Butere are hydroelectric power (Kenya Power and Lighting Company) supplying the national grid to which Butere town in connected to, solar power, biomass, petroleum and gas are also prevalent in Butere and used for both lighting and cooking.

The sugarcane waste is also used as a source of fuel.

Below is an extract from KNBS on the statistics collected on the usage patterns of various usages of energy per household in Butere Sub County.



The town's infrastructure (i.e. markets and roads) also enjoy (or have been earmarked for) lighting provided for by the national and county governments through; the conventional street lighting programme in conjunction with Kenya Power company, three electricity high masts erected at Upper and Lower Butere Markets and Sabatia markets, solar street lighting (yet to be rolled out).

8.7 Mobility

Butere is one of Kakamega's busiest town centres and enjoys close proximity to the Ekero – Mumias road which intersects with the D260 Sigalagala – Bukura – Butere – Sidindi Road at Sabatia Centre.

The road network serving Butere is above average though much can be done to improve on the connectivity and quality of what exists. Currently, in the mapped out area for Butere symbiocity approximately 14.8 km is tarmacked and approximately 40 km is of gravel and earth road standards.

A railway line branching from the main line to Uganda also served Butere area; the service has however since being suspended from operations but the infrastructure remains existent. The anticipated SGR is expected to utilize the infrastructure.



Figure 1: Butere Railway station

For a town of this magnitude, it's worth noting that trip purposes were mainly for work and non-work purposes. For work purposes (especially on market day), it was noted that the town centre was busy with people (particularly business owners and hawkers) and goods being ferried to and within various points of the center.

For non-work purposes, individuals would be moving to and from various points and localities e.g for travelling reasons or visiting amenities and facilities such as Medical clinics.

The above movements are facilitated by 2 modes of transport, which include:

- Motorized transport
- Non - motorized transport

Under motorized transport, the following vehicle types were;

1. Private motor vehicles.
2. Public transport vehicles e.g. 14 seatermatatus, 25 seatermatatus, long distance buses, Station wagons popularly known as Proboxes.
3. Lorries and articulated trucks (Long distance haulage trucks)
4. Motorcycles (popularly known as BodaBodas)
5. Rickshaws (Tuktuks)

Below are photographic illustrations of types of motor vehicles that move within the butere township.



Figure 2: A long distance bus plying the Nairobi – Butere Route



Figure 3: A bodaboda cyclist ferrying a passenger towards Butere Upper market

Under Non-motorized transport we have;

1. Individuals Walking
2. Bicycles
3. Handcarts
4. Wheelbarrows
5. Animal transport
6. Animal drawn carriages

Informal transport operates outside the officially sanctioned public transport sector. Such operators may lack official credentials to offer public transportation. Such a category exists to fill the gap left by the formal public transport sector operators

The primary niche is to offer access to mainline services e.g. feeder connections between neighbourhoods and bus links. The most prevalent form of informal public transport in Butere is the Probox station wagon vehicle. This vehicle is categorized as one intended for private use but has been popularized as a public transport service provider in the area sometimes carrying up-to 12 passengers despite having the capacity of 5 passengers max. An example of one such vehicle is as shown below;



Figure 4: Popular Probox station wagon used to transport passengers and goods

Some of the challenges facing this sector include;

- Often unruly driving leading to high number of accidents
- Poorly maintained vehicles
- Increased carbon emissions resulting in higher doses of pollution
- Regulatory challenges especially with the relevant transport authorities

There exists one bus park that is currently under construction at Sabatia Market. This bus park is meant to serve Butere residents seeking to travel to various corners of the county and those connecting from Kisumu to Mumias / Bungoma and other neighbouring towns.

There however need to be an additional bus park in upper Butere market where some long distance buses and middle distance buses terminate their journeys.



Figure 5: Ablution block in Sabatia Bus Park under construction



Figure 6: Designated parking area of the Sabatia bus park.

The public transport sector is very vibrant in butere with its strategic location along the busy Ekero – Buyangu road which links Mumias and Bungoma to the Kisumu – Busia highway supporting the economic activities of this town. There exist multiple bus companies such as Mbukinya, Climax coaches and Western express that offer transport to and from Nairobi through Kisumu. Buses that offer transport within the region e.g. msamaria wema also are huge contributors to this sector in Butere. Multiple saccos have been registered in this region that serve Butere and its residents in matters public transport.



Figure 7: Middle distance bus plying the Eldoret – Bungoma – Mumias – Ekeru – Butere route

Ever since suspension of rail services in Butere the aspect of freight was negatively impacted. The only modes of transport that can be used to account for freight services are the long distance haulage trucks. The town also doesn't have freight facilities such as a weighbridge or an inland container depot.

Challenges facing the transport sector include;

1. Poor road network.
2. High number of road accidents due to driver error, un-roadworthy vehicles and/or poor roads
3. Escalating fuel prices.
4. Poor transport policies and planning leading to unfair practices and disorderly operations especially in public transport sector.
5. Environmental pollution.
6. Cream skimming; the tendency to operate only along lucrative routes.
7. Rapid motorization that may lead to congestion.

Some of the proposed solutions to the challenges are;

Increased funding to the road sector which in turn will result in;

- Construction of new roads and maintenance of existent ones to ensure they remain motorable thus facilitating ease of transport of goods and services and reducing maintenance costs of vehicles.
- Providing NMT facilities for the urban poor e.g. walkways to prevent pedestrians from coming into close contact with motor vehicles.
- Capacity building for all shareholders in the transport sector. This can go a long way in ensuring road carnage is reduced and efficiency in the transport systems. Examples of capacity building benefactors include Bodaboda cyclists, matatu drivers and pedestrians
- Policy planning for improved regulation of particularly the public transport sector.

8.8 Information and Communications Technology

Butere town has access to all major mobile phone networks operating in Kenya. This includes Safaricom, Telkom and Airtel. Uptake on use of internet is low as the town has very few cybercafés and its not connected to the 4G network. The available network is 3G which is slower in accessing internet.

Chapter 9

Conclusion: Key Sustainability Issues

This section concludes the results of the analysis and describes the key sustainability issues in Butere. For the city to develop sustainably, it needs to address the following key sustainability issues. Each issue is described as what is the issue, why is it an issue, and how does it affect sustainability in the urban area.

What is the issue	Why is it an issue	How does it/could it affect sustainability in the urban area
Lack of updated Integrated Urban Development Plan	Haphazard Development	<ul style="list-style-type: none"> Poor provision of infrastructural services Development of slums
Local Economic development	Unemployment	<ul style="list-style-type: none"> High poverty Incidence Insecurity
Environment	Environmental degradation	<ul style="list-style-type: none"> Poor sanitation Loss of species Poor Health
Equity	<ul style="list-style-type: none"> Gender inequality Social Cohesion in the city Non sensitivity to special groups 	<ul style="list-style-type: none"> Descrimination Lack of safety
Governance	<ul style="list-style-type: none"> Lack of public participation Lack of urban governance structure 	<ul style="list-style-type: none"> Identification of felt needs Poor problem solving Lack of Prioritization of projects Lack of policy implementation

The following key assets/opportunities should be leveraged in developing the city:

19. Climate and (Land) soil
20. The geographical location
21. Own people
22. Devolution

Chapter 10

Vision, Objectives and Actions

A vision exercise was done end November 2016 and the result of that is found in the Vision Exercise appendix 6. It was followed by a Mayors' Strategies for Development exercise in January, also found in its entire length in the appendix 7

However, before the official launch of the SymbioCity project, which took place on April 24, the following vision was provisionally drafted for the sustainable development of Butere: Sustainability, Employment Creation, Provision of Better Services, i.e. Waste and Sewerage Management and Water Services, Provision of Recreation Facilities, Transport Improvement, Road Connectivity.

Even if this provisional vision is slightly heavy, it was valuable to identify the most important areas of intervention. Within these areas of intervention all proposals for Objectives, Strategies and Actions in the Vision Exercise, the later following Mayors' Strategies for Development and other analytical processes for sustainable development, have been sorted into the following tables.

10.1 The Vision

After consultation with stakeholders, the tentative vision for Butere town 2035 that was arrived at was

"A green, vibrant and friendly city."

Vision Description

Butere is welcoming it's citizens and visitors with green areas combining the gains of aesthetics, soil prevention, microclimates, windbreaks, eco systemic services and recreation.

Men, women and children are equally interacting through striving businesses, engaging studies, social clubs, leisure and physical recreation.

We are friendly and open, embracing differences in age, gender and experience. New and old citizens, visitors, entrepreneurs and ideas are welcome, creating a safe and positively developing place to call home. The Eco Park is an engine for green initiatives now spreading through private and public projects.





10.2 Objectives and Actions

Find below the objectives and possible areas of actions addressing the key sustainability issues of Butere to achieve the vision above.

The listed actions also make up to a kind of Sustainable Urban Solutions Package that hopefully will give an useful input to future urban development plans and interventions.

CLUSTER OF CHALLENGES:









SUSTAINABILITY

OBJECTIVES	 Provide wholesome Information & Education	 Provide Constant Monitoring & Evaluation	 Proper & Inclusive Planning	 Promote Environmental, Social & Economic Sustainability
STRATEGIES	→ PROPER LAND TENURE SYSTEM → SENSITIZING PEOPLE ABOUT ENVIRONMENT → IMPROVE EDUCATION STANDARDS → MEANINGFUL, PUBLIC AND INCLUSIVE PARTICIPATION → PROMOTE BIO-GAS GENERATION		→ PROMOTE HYDRO-POWER ENERGY GENERATION → PROMOTE SOLAR ENERGY GENERATION → ENHANCE WATER HARVESTING FOR USE IN AGRICULTURE	
POSSIBLE AREAS OF ACTION	→ Promote land tenure by subsidising charges/fees → Provide legal framework that informs land subdivision → Enforce protection of environmentally fragile ecosystems by encouraging good farming practices, e.g. contour farming, terracing, etc.		→ Increase tree cover to 10-20% of canopy per plot through greening programme in schools and public institutions. → Encourage growing of environmentally friendly species of trees → Provide framework for harnessing solar and wind energy	



CLUSTER OF CHALLENGES:


EMPLOYMENT

OBJECTIVES	 <p>Improved living Standards</p>				 <p>A well educated society full of vocational skills for self reliance</p>				 <p>Economic Empowerment</p>				 <p>Improved Housing Sector</p>			
	 <p>Improved Income Levels through Basic Education & Improved Skills through Capacity Building</p>				 <p>Flourishing agribusiness through value addition to locally produced food.</p>				 <p>Improved income generation through better farming methods</p>				 <p>Youth Equipped with job skills promoting self-employment</p>			
STRATEGIES	<ul style="list-style-type: none"> → BUILD AN EDUCATIONAL INSTITUTION SUCH AS A UNIVERSITY, COLLEGE → SPECIAL NEEDS SCHOOL → EMPHASISE TECHNICAL EDUCATION → IMPROVE ON FARMING TECHNIQUES, ENCOURAGE MODERN FARMING METHODS → AGRICULTURAL BASED INDUSTRIES WITH VALUE ADDITION TO AND PACKAGING OF LOCAL PRODUCE 				<ul style="list-style-type: none"> → LAND BANKING FOR DEVELOPMENT PURPOSES → SMALL BUSINESS SUCH AS MOTORCYCLE AND CAR REPAIRS, SELLING OF SPARE PARTS, CAR WASH, ETC → FISH AND MUSHROOM FARMING → POULTRY → HONEY INDUSTRY/BEE KEEPING → START BAMBOO CULTIVATION AND INDUSTRY 											
	<ul style="list-style-type: none"> → Set up a youth empowerment fund → Encourage vocational training through cooperation with the Polytechnic → Start a bamboo cultivation and industry development centre. → Encourage set up of agribusinesses and other value addition enterprises. 				<ul style="list-style-type: none"> → Engage with Min. of Agriculture for training in beekeeping, poultry handling and fish farming. → Safeguard land for establishment of set up of vehicle repair and service. → Plan and build a bus and matatu terminal → Plan and build new educational institutions 											
POSSIBLE AREAS OF ACTION																



CLUSTER OF CHALLENGES:





SOLID WASTE

OBJECTIVES	 <p>To improve Solid Waste Management</p>
STRATEGIES	<ul style="list-style-type: none"> → WE HAVE TO REDUCE WASTE AT THE SOURCE → REUSE WASTE WHICH CAN NOT BE REDUCED AT POINT OF SOURCE, E.G. PLASTIC BOTTLES → RECYCLE LIKE PAPERS INTO TISSUE PAPERS → RECOVER BY COMPOSTING ORGANIC WASTE INTO FARMYARD MANURE. RECOVER AGRICULTURAL WASTE INTO HAY OR FODDER → REJECT AND RETURN E-WASTE WHICH IS DEEMED TO BE OBSOLETE → CONVERTING ORGANIC WASTE INTO ENERGY (BIO-GAS, ELECTRICITY)
POSSIBLE AREAS OF ACTION	<ul style="list-style-type: none"> → Avoid and minimise solid waste → Reducing, reusing, recycling and recovery of waste, 4R → Promoting and ensuring the effective delivery of solid waste services → Treating and safely disposing of solid waste as a last resort → Enhance separation at source especially in public places by providing receptacles. → Enhance awareness on solid waste management → Purchase for final waste disposal/landfill → Purchase more modern vehicles for waste collection and transportation



CLUSTER OF CHALLENGES:

WATER & SEWERAGE SERVICES

OBJECTIVES	<div>  <p>Clean, safe, piped water adequate for all</p> </div> <div>  <p>Well ventilated and hygienic toilets for all</p> </div> <div>  <p>Well planned sewerage system to cover the entire town</p> </div> <div>  <p>Adequate Storage of Water for the whole town</p> </div>
STRATEGIES	<div> <p>→ GET WATER FROM RELIABLE SOURCE</p> <p>→ RAIN WATER HARVESTING</p> <p>→ CONSTRUCTION OF WATER TANKS, UNDERGROUND AND ELEVATED</p> <p>→ ACCESSIBLE AND ADEQUATE PUBLIC TOILETS</p> </div> <div> <p>→ CONSTRUCTION OF SEWER TREATMENT PLANT WITH BIOGAS PRODUCTION</p> </div>
POSSIBLE AREAS OF ACTION	<div> <p>→ Construction of water distribution from new identified source, Sigalagala</p> <p>→ Rehabilitation of existing water supply, Sindindi-Malanga</p> <p>→ Drill more bore holes</p> <p>→ Construction of sewage collection system</p> <p>→ Construct a sewerage treatment plant</p> </div> <div> <p>→ Construction of gutters on major buildings and storage tanks for rainwater harvesting</p> </div>

CLUSTER OF CHALLENGES:

RECREATION & CULTURE

OBJECTIVES	<div data-bbox="445 465 573 590"></div> <div data-bbox="442 592 585 618">Literate Society</div> <div data-bbox="684 465 813 590"></div> <div data-bbox="684 592 838 642">Maintain cultural life for everybody</div> <div data-bbox="920 465 1048 590"></div> <div data-bbox="918 592 1173 642">Sports & recreational activity from the whole society</div>
STRATEGIES	<ul style="list-style-type: none"> → PROMOTE THE DEVELOPMENT OF CULTURAL, SOCIAL AND RECREATIONAL CENTRES → CREATE MORE PUBLIC SPACE FOR INTERACTION → YOUTH EMPOWERMENT
POSSIBLE AREAS OF ACTION	<ul style="list-style-type: none"> → Develop cultural and social centres → Develop and construct recreational facilities: parks, theatres, meeting places → Develop well equipped sport centres, playing fields and amenities → Build and equip ICT centres → Develop public spaces over the entire town

10.3 Urban Solutions Package and Project Proposals

Since the Sustainability, Employment, Solid waste management, Water and Sewerage Services and Recreation and Culture were selected and prioritized areas of actions for the Sustainable Butere this also provides the basis for possible Symbio City interventions in the form of Quick Win and Change Project proposals.

Appendices

Appendix 1: Butere USR Working Group

No	Name	Designation
1	Benjamin Orwa	Project Coordinator/ Town Administrator
2	Stephen Chune	Director of Physical Planning
3	Edwin Amira	Finance Officer, Treasury
4	Stephen Wasike	Spatial analyst lands
5	Isaac Kuya	MOE Education
6	Christopher Musando	Butere Sub County Works
7	David Waboko	Butere Sub County Procurement Officer
8	Hassan Mapesa	Chairman BodaBoda Group
9	Roda Kusinyo	Leader Women Group
10	Zablon Indakwa	Civil Society
11	Jacob Akhonya	Civil Society
12	Paul Wabuyabo	WA-Marama Central
13	Millicent Cherotich	Assistant Project Coordinator
14	Judith Lubanga	Sub County Administrator Butere Sub County
15	Jacob Shamala	County Government Of Kakamega Environment
16	Edward Aginga	County Government of Kakamega Agriculture
17	Bernard Mulele	County Government of Kakamega Water
18	Robert Bogita	County Government of Kakamega Health
19	Henry Alukhaba	Business Community Representative
20	Edwin Shikanda	Business Community Chairman
21	Jacklyne Mukolwe	Youth Representative
22	Kevin Lumwaji	
23	Jeffery Wesanza	County Government of Kakamega Planning
24	Benson Many	Agriculture Office Butere
25	Bramwell Shikanda	County Government of Kakamega Communication
26		SymbioCity Kenya Facilitator

Appendix 2: Butere USR Steering Committee

1. CEC, Lands, Housing, Urban Areas and Physical Planning
2. CEC, Finance
3. Michael Keya, Marama Central MCA
4. Marama West MCA
5. SubCounty Administrator- ButereSubCounty
6. Jacob Akhonya, CBO Representative, Butere
7. ZablonIndakwa, CBO Representative, Butere
8. Isaac Kuya, Director of Education- ButereSubCounty.
9. Commercial Chambers of Kenya representative

Appendix 3: Haves and Have Nots in Butere

HAVE	HAVE NOT
Hospitals Schools Markets Skilled manpower Roads Entrepreneurs Fertile soil Insecurity High number of orphans Land Rivers Feeder roads Human resources Polytechnics BTR Technical Institute Good climate High population Political good will Enough forest Crime Adequate civil society	Tertiary institutions/Colleges Bitumen roads Resources for entrepreneurship Banking industry Referral hospitals Industrialisation/Industries Improved farming technologies Recreational centres/facilities Security Adequate bursary for orphans Police Adequate supply of water Investors Adequate food Limited land for development Adequate agricultural extension services High levels of crime Medical supply/amenities Quality public participation Meaningful political involvement Waste disposal amenities
WANT	WANT NOT
Resources for entrepreneurship Bitumen for roads/all weather roads Tertiary institutions Referral hospitals Industrialisation/Industires Banking industry/Banking institutions Improved farming technologies Recreational centres Security All to access education and health services Bursaries for orphans Street lights Improved health facilities Colleges, schools for physical challenged Food security Food storage facilities Clean piped water Good roads	Insecurity Muddy roads Illiteracy Over dependency on government Joblessness Drop outs in both primary and secondary schools Ignorance High prevalence of HIV/Aids Clan-ism Political influence on matters of develop-ment Beggars – attitude change Rural-urban migration looking for job opportunities Corruption Political interference

Appendix 4: SWOT Analysis

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> • Very Good Climate • Fertile Soil/land • High forest cover • Permanent Rivers • Underground water • Good landscape • Availability of sand and stones • In the centre of a rich agricultural area • Skilled and Unskilled labor • High population • Availability of civil society organization • Availability of Social amenities • Conducive business environment • Political stability • Cultural Cohesion/Peace amongst different communities • Proximity to Kisumu city • Good communication network • Construction of new power lines by KPLC • Recreational Facilities 	<ul style="list-style-type: none"> • Political goodwill • Intellectuals, expertise • Possibility of solar energy • Possibility of bio gas production • Possibility of hydropower generation • Proximity to SGR • Railway Reserve • Packaging and standardization of farm produce • Agricultural based industries eg. Dairy farming, fertilizer plant • Water harvesting for use in agriculture etc.

WEAKNESSES	THREATS
<ul style="list-style-type: none"> • Laziness and Idleness • Substance abuse • Illiteracy • Lack of political awareness • Polygamy • Negative attitude towards projects • No bus terminus • Lack of enough technical expertise • Lack of financial institutions • Poor waste management/drainage system • Poor ways of rain water capture • Poor roads/transport system • Lack of land for investments • Lack of industries • Lack of tertiary institutions of learning • Poverty • Poor income distribution • Poor housing • Lack of street lighting • Weak cooperatives • Lack of localized and customized weather forecast statistics • Lack of multi services center/health center • Lack of Specialized hospitals • Poor planning of available land • Lack of protection of environmental assets • Public information not adequately availed • Limited stakeholders participation in projects • Political interference • No legitimacy of residence • Insecurity of land tenure especially for women 	<ul style="list-style-type: none"> • High prevalence of HIV/AIDS and Malaria • Livestock disease, crop diseases • Early pregnancy • Insecurity/crime • Rising crime • Low rate of employment amongst the youth • Low purchasing power • Deforestation • Soil erosion • Climate change • Poor garbage collection • Poor Housing • No financial institutions • Encroachment of public land • Land fragmentation • Poor land tenure system • Corruption • Lack of inadequate public participation in county laws • Political rivalry • Clan-ism

Appendix 5: Weakness, Causes and Solutions

WEAKNESSES	CAUSES	SOLUTIONS
Lack of public participation in projects	Community are not involved in the formulation of any project be they county government projects or donor funded projects Not all projects are of value to the Community	
Early Marriages, Wife inheritance, GBV, Sexual abuse	The community still practices retrogressive culture that lead to the injustices that women and youth of Butere are facing Lack of Exposure to different cultures- most of the residents in Butere are born & Breed with little interactions with other communities	
Poverty	Lack of income generating activities eg industries makes level of poverty still high in the area Most of the youth in the area are also lazy and do not accept certain jobs Lack of innovation in ways of doing things	
Denial of rights	This can be linked to the community still practicing retrogressive cultures where women and the girl child are not allowed to get a share of their fathers property Due to lack of exposure to their rights most of the residents are not aware of what they should demand from the county government, etc.	
Corruption	Lack of accountability of public funds by both the county and national government leading to intended projects or development reaching the locals	
Poor infrastructure for PLWD	The county does not take into account PLWD when planning hence they lack proper schools, walking aides etc	
Poor leadership	The locals feel that the county government is not well run therefore they are not benefiting fully from it	
Lack of technical expertise among the youth	Lack of Institution of higher learning/tertiary institutions that the locals can attend to learn new trades	
Poor yield from farming	Due to the high rate of poverty the parents cannot take their children to tertiary institutions that are located away from the county	

Rise in drugs and substance abuse amongst the youth	The young people in the area are turning to substance abuse due to lack of social amenities where they can spend their free time	
Laziness & Idleness	Idleness is also leading to the ride in the vice	
	Family/Social/ Illiteracy & ignorance Culture of hand-outs Lack of disaster trigger factors Lack of economic engagement	Attitudinal change Embrace values towards work Instilling life skills Model parenting Enforce basic education Act
	Negative attitude towards work Lack of self-initiative Illiteracy & ignorance	
Drug & substance abuse	Cultural factors (retrogressive) Peer pressure Influence by Western cultures Abuse of IT Poor parenting Moral degradation Low self esteem Corruption	Enforcement of the laws (Narada) Strengthen positive cultural practices Stop/eradicate corruption Rehabilitation and empowerment Promote civic education
Lack of meaningful participation in political affairs	Lack of political awareness Psychophancy Element of corruption Unnecessary bureaucracy Unstable political discourse	Promote awareness on political matters Enforce political/ electoral Acts
Polygamy	Lust Poverty Wife inheritance	Economic empowerment Education
Negative attitude towards projects	Apathy Lack of transparency & accountability False promises Poor communication	Meaningful, public, inclusive participation
Lack of technical expertise	Stereotyping education Lack of technical institutions Negative attitudes Lack of awareness on value of technical education	Emphasize technical education
Undeveloped public land	Poor planning Lack of ownership Encroachment	Zoning

Illiteracy & Ignorance	Early school drop-outs from both gender Early pregnancies on the girl child High levels of ignorance from the parents	
Poverty	Laziness Illiteracy Lack of initiative HIV/Aids Over-dependency within the family and without the family Brain drain Corruption Insecurity	
Poor infrastructure, e.g. roads, recreational centres, poorly equipped health facilities, solid waste management infrastructure	Misappropriation of resources Poor planning Inadequate technical expertise Lack of innovativeness and creativity Bureaucracy	

WHAT CAN THE THREATS CAUSE?	
THREAT	WILL CAUSE
HIV/Aids	Untimely deaths High number of orphans Poverty
Bureaucracy in procuring govt projects	Slow development in terms of infrastructure the HOW, not the RESULT
Unemployment	High crime rate Poverty Slow economic growth Brain drain
Rampant removal of vegetation Ignorance Agrochemicals Poor environmental policy enforcement	Environmental degradation caused by

Appendix 6: Visioning Exercise

Vision Exercise 30 Nov -16			
CLUSTER	GROUP 1	GROUP 2	GROUP 3
Sustainability	Provide wholesome information and education		Proper and inclusive planning
	Provide constant monitoring and evaluation		Proper succession planning
	Provide periodic reviews		Proper land tenure system
	Develop measuring tools		Improving education standards of our people
	Do/perform benchmarking with other similar projects		Create environmental awareness among our people
	Put in proper leadership that will steer the project		
Work/ Employment Industry Activities	All inclusive which should comprise of youth, women, physically challenged, men	A well educated society full of vocational skills for self reliance	
	Agricultural value addition industries (ground nuts)	Flourishing agribusiness, society embracing value adding to locally produced food (local industry i.e. poultry/food crops)	Engage in agricultural business activities, esp. horticulture which does not consume a lot of land
	Dairy value addition industries		Encourage a working culture
	Poultry		Encourage dairy farming practices
	Fish based industries		Mainly agribusiness industries: Agro-vet, animal feeds, fodder, dairy factory, juice processing factory
	Industries based on imported products (bananas)		Small business such as motorcycle repairs, selling of spare parts, car wash, etc.

	Mushroom farming		Fish farming
	Honey processing		Honey industry/Bee keeping
Housing	Based on locally available materials All types (high class, middle, low income)	Upgraded slums and existing buildings into modern housing structures	Community regulated housing sector
	Plan to effectively and economically occupy limited space	Spatial planning with well critical facilities including recreational space, health, education, roads, etc.	Restrictions and regulations of land tenure systems
	Plan to infuse building standards that will avoid disaster	Housing system that are friendly to PLWDs, children, aged, women, etc.	Development of a spatial plan
	Plan in such way that will encourage beautification and conserve the environment	Maximum utilisation of solar energy	
	Disability friendly		
Water	Rain water that will be harvested, purified		Encourage water harvesting culture
	Underground water that can be drilled, pumped and purified		
	River water that can be harvested through construction of dams		
	Uses: Domestic, industrial, irrigation		
Sewerage	Well planned to avoid pollution as designed by experts	Recycled sewage waste for domestic use	Encourage sewerage treatment designs in ...
Waste	Biogas production: recycling of human and animal waste		
	Manure production: recycling of human and animal waste		
	Note: Any waste can be turned into something useful		

People	The city is people: they will provide manpower to propel the development and sustainability of the city		Changing attitudes towards work through public forums, adult education and proper leadership
Culture	Will provide values and virtues that will drive and guide governance of the city	Enhanced cultural aspects that inspire traditional diversity	Fighting individualistic, retrogressive culture such as wife inheritance
	Institutions based on culture will also provide entertainment, develop skills among the youth, talents		Literate society
	Promote cohesiveness among the residents		
	Provide employment when developed into cultural tourism		
Recreation	Recreation entails sports, entertainment; if well planned for, will promote cohesiveness		Recreational facilities: stadiums, parks, theatre
Transport Roads Connectivity		Improved road network from feeder to murram and from murram to tarmac	Tarmac roads
			Good planned roads that are in sync with the rest of the development

Appendix 7: Priority Strategies for Development, Mayor's Game Exercise

Butere Vision and Objectives - Priority Strategies for Development	
Main Challenge	Strategies
First Mayor	
Insecurity	Strategies <ul style="list-style-type: none"> • Street lighting • Increasing number of police patrols in the villages • Construction of police stations • Education programmes on security in churches, chiefs' barazas, mosques • NyumbaKumi initiative, community policing
Low Economic Empowerment	Strategies <ul style="list-style-type: none"> • Improve income to our people/basic education - on women funding & other enterprises, improve on skills - capacity building • Youth empowerment fund - increase knowledge of good use • Utilise loans on profitable areas • Improve on farming techniques and modern farming methods • Value addition to our products
Poor Infrastructural Development	Strategies <ul style="list-style-type: none"> • Low road network coverage • Low water supply for domestic use
Second Mayor	
Insecurity	Strategies <ul style="list-style-type: none"> • Improve NyumbaKumi initiative, Community Policing • Sensitise members of the public on security matters • Increase business activities within hotspots by improving on street lights • Initiate public partnership with business groups and lobby groups to make sure that those who are involved are brought to book • Develop vocational training centres for our youths; this will keep them busy and a result: the society will be free from criminal elements
Lack of public land for development	Strategies <ul style="list-style-type: none"> • The Government should initiate land banking for development purposes • Secure existing public land by issuing them with title deeds • Proper site planning on existing public land to improve the utilisation • Sensitise public on retrogressive culture that undermines development

Third Mayor	
Poverty	Vicious circle <ul style="list-style-type: none"> • Poverty caused by high employment rates, causing: • High crime rates • Early pregnancies & spread of HIV/Aids • Increased population that is unproductive • High illiteracy levels, which gives increased poverty
Environmental Degradation	Vicious circle <ul style="list-style-type: none"> • Causes climate change which causes • Poverty • Food insecurity • Soil degradation • Food insecurity • Poverty • Crime



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