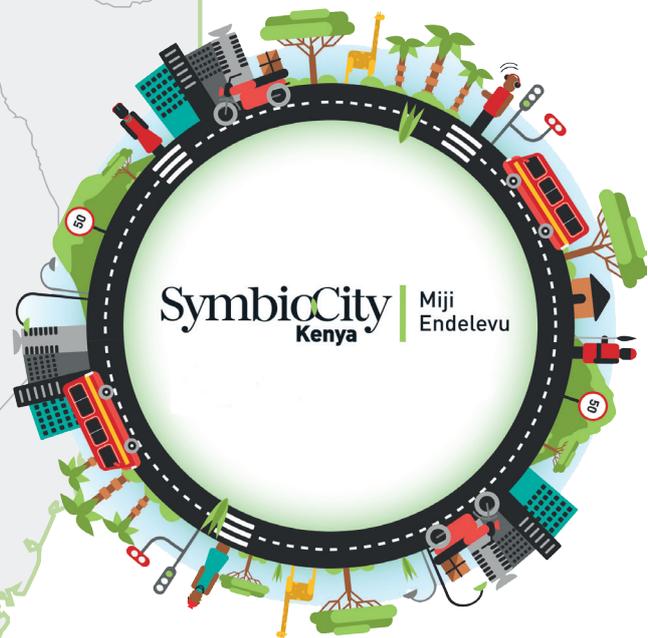


»A thriving university town with vibrant economy and sustainable green environment whose people delight in its habitability.«



URBAN SUSTAINABILITY REVIEW

KWA VONZA KITUI COUNTY



PREPARED BY:

**The Working Group
SymbioCity Kitui
County Government of Kitui
Kitui Town Administration**

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CIDP	County Integrated Development Plan
JICA	Japan International Cooperation Agency
KDC	Kitui Development Center
KEFRI	Kenya Forestry Research Institute
KIVEST	Kitui Vision for Economic & Social Transformation
Km2	Kilometers squared
KU	Kenyatta University
SEKU	South Eastern Kenya University
USR	Urban Sustainability Review
WARMA	Water Resource Management Authority

EXECUTIVE SUMMARY

OUR VISION AND OBJECTIVES



Objective 1



To promote: a) adequate, safe and fairly distributed water for domestic, industrial and agricultural use, b) hygienic sanitation

Objective 2



Adopt an effective, sustainable and efficient waste management system Kwa Vonza

Objective 3



A well-planned town and strengthen development control process and enforcement

Objective 4



Develop an attractive urban landscape with recreational opportunities

Objective 5



Develop a diversified economy by providing access to business opportunities and support business development

Objective 6



Enhance the capacity, accessibility, affordability of main public social services

Objective 7



Enhance safe local mobility for all users through a strengthened local road network

Objective 8



Ensure reliable, efficient and sustainable energy sources

THANK YOU

The preparation of the Kwa Vonza Urban Sustainability Review (USR) has been a success attributed to the concerted efforts of various actors; both in the County Government, National Government, academia and in the private sector. I take this opportunity to gratefully acknowledge the roles and contributions of everyone individually and collectively towards the completion of this important initiative.

I express gratitude to the Council of Governors for acceding Kitui County the opportunity to participate in the SymbioCity Kenya project as a pioneer pilot county. Your technical support through the Project Manager, County Facilitator and Urban Development Specialist has gone a long way in building our capacity. Your logistical and financial support in the process is appreciated.

I am indebted to the working group's members and their respective departments for their effort and support during the entire period of the USR preparation.

The extended stakeholders group in the SymbioCity town comprising of the local community, students and public institutions is highly appreciated for their consistent participation and contributions to the process. Your ideas, suggestions and proposals form the foundation of the SymbioCity process in Kitui Pilot County.

My deepest gratitude to the experts from the various county government departments: Health, Agriculture, Environment and Trade who contributed information, their expertise and time during the USR formulation process.

My appreciation goes out to the experts from the institutions of higher learning specifically from Kenyatta University and South Eastern Kenya University (Kitui Campuses) for their useful insights during the entire process. I thank the management of the institutions for releasing their staff to be members of the Working Group, and students to participate in various interactive activities including workshops and photo surveys.

I wish to acknowledge the various NGOs and private entities who were instrumental in providing county specific information in various sectors including water, environment and urban development. Contributions and efforts from MetaMeta, SASOL Foundation and Kitui Development Center are highly appreciated.

Finally, I take this opportunity to thank the Kitui County Executive and County Assembly for providing the much needed support in ensuring the successful completion of the USR and its ultimate implementation in Kwa Vonza.

Sammy Kathike
Project Manager, Kitui County
Kitui Town Administration

August 2017

1. CHAPTER ONE

INTRODUCTION AND BACKGROUND

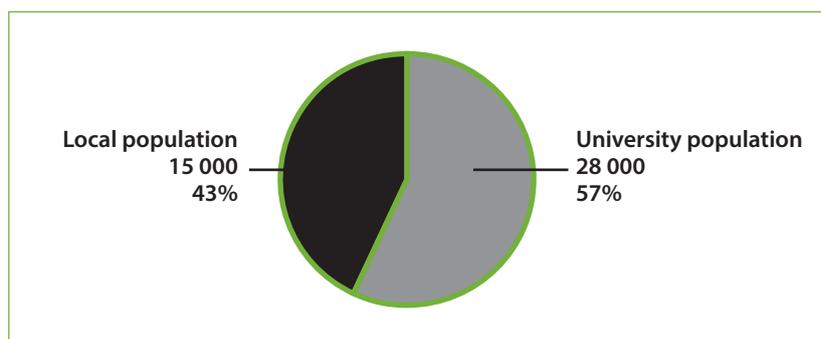
Our country is emerging as a middle-income country. A growing number of people are living in cities and towns and we have shifted to a devolved system of government. How we manage urbanization – and the development and planning of our urban areas – will likely determine whether and how we maximize the benefits of this momentous economic and social transformation. The future is exciting – but we must work hard to shape our place (Kwa Vonza) to spearhead an exemplar of sustainable urban development.

Exhibit 1: Population dynamics in numbers

- 27% the proportion of our country's population living in urban areas – but this is projected to increase to 50% by 2050 – it's growing by 4.3% a year
- 60% of the population have access to improved water sources
- 50% have access to electricity
- 30% have access to improved sanitation in urban areas

Kwa Vonza, just as any other urban area in Kenya, is facing a myriad of challenges due to the rapid rate of urbanization. The establishment of the two universities has transformed rural set up of Kwa Vonza into a vibrant urban community. The population has increased fivefold from 7,000 in 2009 to a current 35,000 which is projected to reach 50,000 in the year 2020 (Kitui CIDP). Out of the current 35,000 population – 20,000 of Kwa Vonza's residents are students and staff from the two universities: South Eastern Kenya University (SEKU) and Kenyatta University (KU).

Exhibit 2: Population distribution in Kwa Vonza



Apart from the establishment of the two universities, the provision of infrastructure and services by the County Government has also attracted the rural population to Kwa Vonza due to the opportunities for education, employment and livelihoods. Notwithstanding, the opportunities brought by the urbanization in Kwa Vonza, the phenomenon has presented a range of challenges. Pressure on the existing resources including water has been increased resulting to shortages. The now cosmopolitan community that was once a simple rural community is also experiencing delinquency including prostitution and crime, and urban youth who are abusing alcohol and drugs.

What is an Urban Sustainability Review?

An Urban Sustainability Review (USR) is both a process and a product. It is a process for jointly exploring urban areas from a holistic perspective; an inclusive way of selecting and describing key issues which the town needs to address in development strategies, and key assets and opportunities, which should be leveraged in development projects and actions. It provides a platform for open and transparent discussions and consultations on matters of local attention, as well as relations to global policies such as Sustainable Development Goals. The USR product is a report presenting the findings and conclusions of the process. This report concludes on the key findings from the process and sets out Visions and Strategies for addressing urban challenges while making use of existing assets. The USR is the initial phase of the SymbioCity Approach.

About the SymbioCity Approach

The SymbioCity Approach promotes a holistic, integrated and multidisciplinary approach to sustainable urban development based on extensive experience in Sweden and from developing countries. The Approach provides opportunities to improve living standards and well-being, safety, comfort and quality of life for all citizens – creating sustainable urban areas. It provides a conceptual framework for sustainable urban development, with primary entry points in the spatial and environmental dimensions. The hallmark of the SymbioCity method is its emphasis on getting all stakeholders and citizens talking about their values and aspirations for the future of their towns.

The SymbioCity Approach is now being adapted to Kenya through the SymbioCity Kenya Programme. The programme is mainly funded by the Embassy of Sweden in Kenya and implemented through a partnership with the Swedish Association of Local Authorities and Regions (SALAR) and the Kenyan Council of Governors (CoG). The County Government of Kitui applied for and was successfully selected as one of the seven pilot counties in Kenya for SymbioCity. Kitui County in turn selected Kwa Vonza, to be the pilot town for the SymbioCity process. The programme is being piloted in seven counties: Homa Bay, Kakamega, Kisumu, Kitui, Meru, Nakuru, and Trans Nzoia.

The intention is that administrative and professional representatives in the seven counties will be strengthened in their recognition of participatory practices, and communities will have a better understanding of the sustainable urban development process and how to influence it. By introducing the SymbioCity Approach in seven counties, capacity will be built to plan, manage and develop urban areas in a sustainable manner, with support provided through local and international expertise, practical work, training and peer learning.

Exhibit 3: Objectives of the SymbioCity Approach

- To encourage and support multi- and trans disciplinary cooperation among stakeholders, and a holistic and integrated approach
- To contribute to capacity building by mutual sharing of knowledge and experience between different stakeholders, primarily at local government level
- To serve as a basis for dialogue and cooperation between stakeholders, particularly at local level, but including regional and national institutions
- To serve as a guideline for urban sustainability reviews, based on a combined multidisciplinary and sector approach, which can be applied on different urban levels or scales
- To contribute to the development of city-wide strategies for short, medium, and long-term improvement of urban areas, including all dimensions of sustainability
- To support cities and towns in identifying practical and integrated systems solutions for sustainable urban development

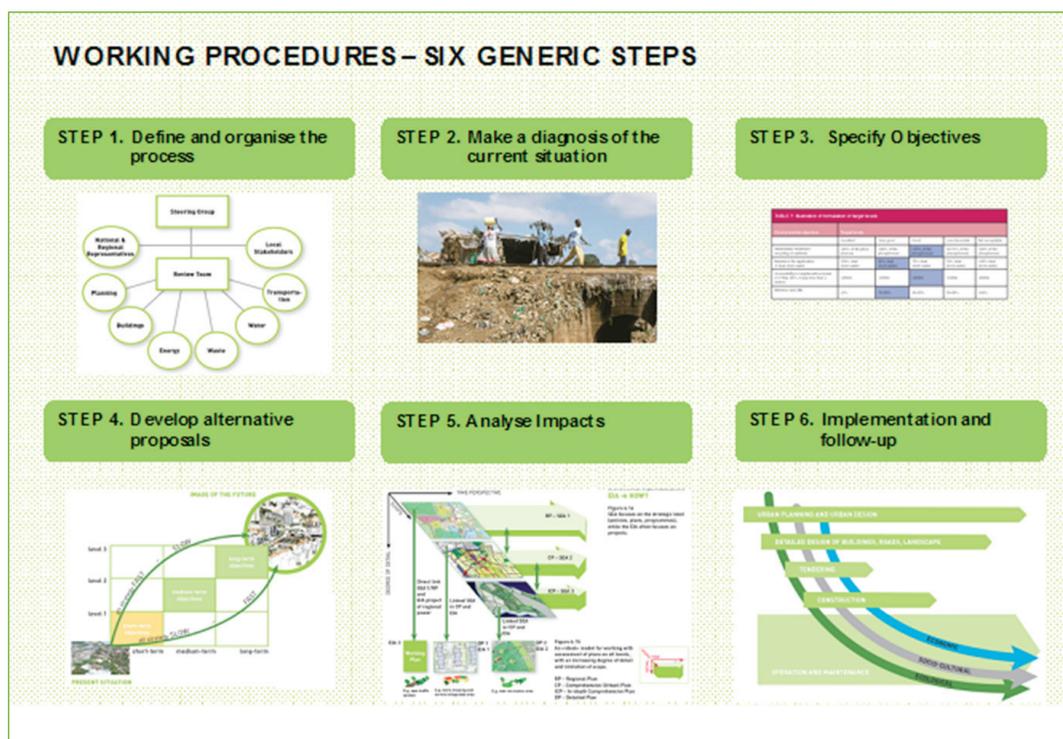
Process and Methodology

The SymbioCity Approach comprises six steps (Exhibit 4) which have been refined and tailored to the Kwa Vonza context.

Organizing the project (defining and organizing the process)

For Kwa Vonza we have developed the structures necessary to ensure the SymbioCity process is efficiently executed. A Working Group was established to manage the process under the guidance of an Urban Development Specialist and a Pilot Facilitator – part of the SymbioCity Kenya Secretariat based in the Council of Governors (CoG). The core Working Group consists of professionals from different county departments with support from the local universities. A larger more inclusive group of stakeholders from Kwa Vonza was also established. This was achieved through identifying stakeholders at the outset of the process and making sure these stakeholders were actively onboard throughout the development of this USR. The SymbioCity activities in Kitui are coordinated by a Project Manager responsible for managing and overseeing the process and for regularly briefing the Kitui Town Administrator and Chief Officer (Ministry of Lands, Infrastructure and Urban Development) on progress.

Exhibit 4: The SymbioCity process



To guide and document the progress, several tools have been adopted. The tools include: a comprehensive work program, activity log book, stakeholder mapping and communication plan and this Urban Sustainability Review (USR).

To avoid duplication of projects, the project team has built synergies with organization operating and implementing similar activities namely: Sponge Towns Project also being implemented in Kwa Vonza (by MetaMeta Research, Sahelian Solutions and SEKU) and the Kitui Development Centre which is supporting the start-up of a Local Urban Forum in Kwa Vonza.

Diagnosing the current situation

The situation at Kwa Vonza was examined and mapped in order to identify the needs, problems, opportunities and characteristics of the town. The situation analysis was undertaken through technical evaluation and stakeholder input. The technical evaluation mostly focused on the review of existing literature and generation of missing data through surveys. A household survey undertaken and published by MetaMeta Research was been integrated in our analysis. Stakeholder workshops were held at different phases of the USR development process. The workshops accorded the stakeholders the opportunity to present their views, suggestions, comments and proposals (see Exhibit 5). The outputs of the workshops were well documented.

Exhibit 5: Stakeholder engagements in Kwa Vonza

What we did	When we did it
WORKSHOP 1 Our strengths, weaknesses, opportunities and threats / constraints	10 November 2016
WORKSHOP 2 Our Vision. Our priority sustainability challenges and issues	7 December 2016
WORKSHOP 3 Our objectives and targets	2 February 2017
Photo survey of issues and challenges	23–25 February 2017
WORKSHOP 4 From Vision to Action. Our priorities and proposed responses	21 April 2017
WORKSHOP 5 Validating our priority Quick Win	16 June 2017

SEKU is an important stakeholder in the process. A photo survey was conducted by students as a separate report.

The situational analysis has culminated in this USR document – a living document that we intend to update and sharpen our analysis where necessary that is updated in each phase of the project. The USR will provide the springboard for identifying and formulating Quick Win and Change Project proposals as part of the SymbioCity process.

Identifying key issues, a vision and objective setting

This step involved both the identification of the main sustainability issues from the many issues identified in step two, and establishing a vision and long term objectives. Shaped by the technical review and stakeholder engagements, we have identified eight critical sustainability issues: these are presented in section 3. An adequate response to, and management of, these issues will ensure sustainable urban future for Kwa Vonza. The main sustainability issues were subjected to prioritization by the stakeholders and their presentation in section 3 is in order of priority. Using the prioritized issues, stakeholders were guided in developing objectives that are in line with the vision.

Developing Proposals

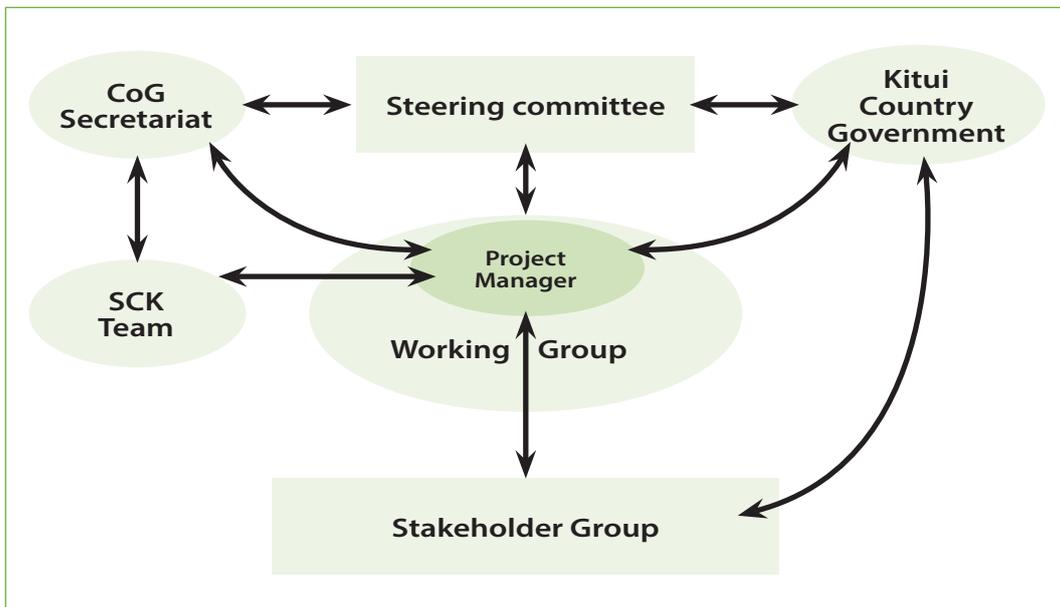
The eight sustainability issues and attendant objectives provide the foundation for developing integrated solutions to be implemented as popularly agreed Quick Win and Change Projects; these proposals shall be sanctioned by the Steering Committee and submitted to SymbioCity Kenya for funding. This step involved consideration of the outcomes of the analysis and meas-

ures that could contribute to sustainable urban development. This was a participatory process that involved stakeholders identifying multi-faceted solutions tailor made to solve their problems. The ideal solutions are those that encourage the creative building of synergies.

Project organisation/management structure

Kitui County Government through the Kitui Town Administration has formed a Steering Committee (the County Government Cabinet) and Working Group headed by a Project Manager. Our working arrangement is shown in Exhibit 6.

Exhibit 6: SymbioCity Structure in Kitui Pilot County



The Working Group meets periodically through the guidance of the SymbioCity Kenya Secretariat.



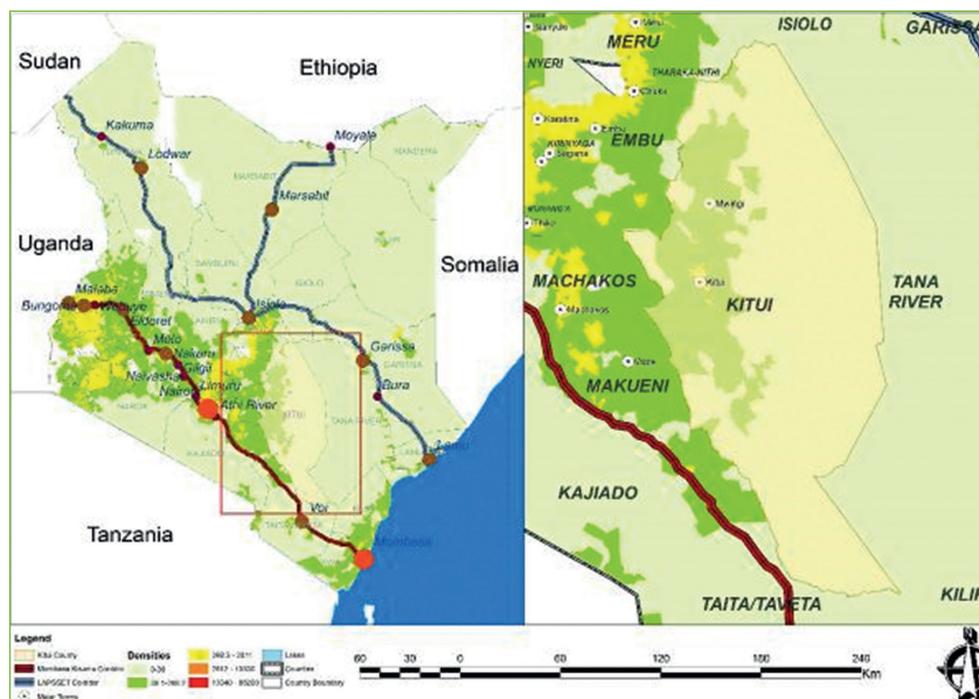
The Stakeholder Group in action: discussing issues and forging consensus through participatory consultative workshops

2. CHAPTER TWO

KWA VONZA TODAY

Kitui County is one of the forty-seven counties of Kenya, located in the center of the country and covering an area of 30,496.4 km². It borders Machakos and Makueni counties to the West, Tana River County to the East, Taita–Taveta County to the South, Embu and Tharaka–Nithi Counties to the North.

Exhibit 7: Kitui County in the regional context

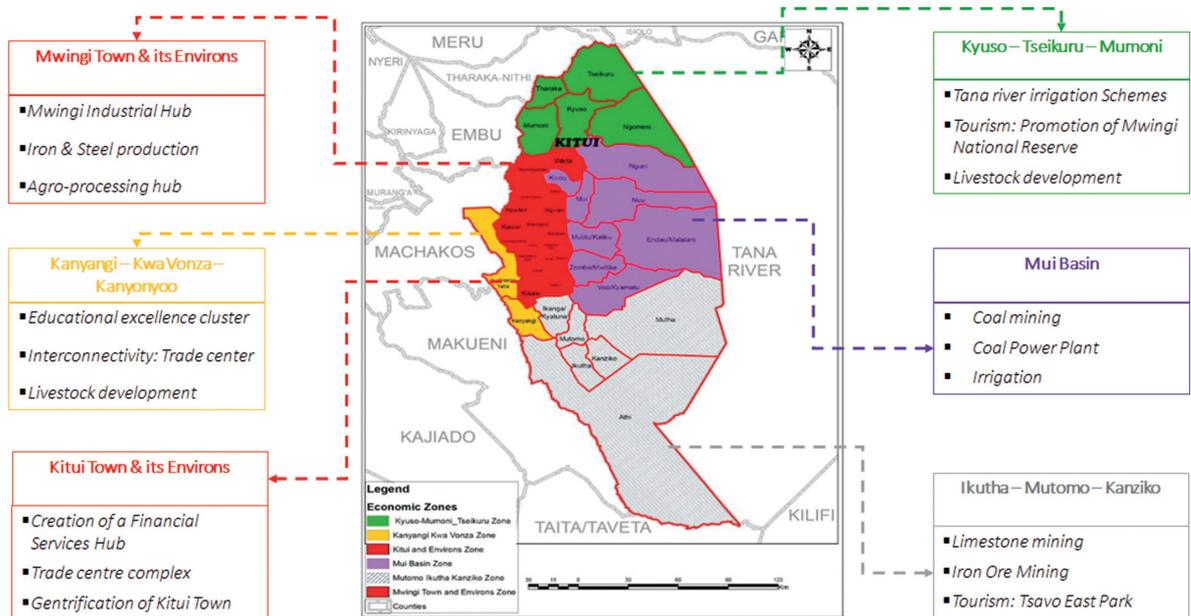


Source: Kitui CIDP

Kwa Vonza town was selected to be the SymbioCity pilot town for Kitui. This was informed by the KITUI Vision for Economic and Social Transformation which designates Kwa Vonza as a university town under the *Kanyangi – Kwa–Vonza – Kanyoonyoo* Economic Investment Zone.

Kwa Vonza town is located in Kitui rural sub county, Yatta/Kwa Vonza ward. It is the strategically located gateway to Kitui County through Machakos County. Kwa Vonza ward is located about 30 km southwest of Kitui town. The ward spans 757.4 km². The urban landscape and development trajectory of Kwa Vonza has drastically changed since the establishment of the two universities. There is, therefore, a pressing need for a sustainable approach to the town’s development.

Exhibit 8: Kitui County Economic Investment Zones



Source: KIVEST

Kwa Vonza is a cosmopolitan town. Its population is comprised of representatives of almost all of the communities in Kenya. Currently, the population stands at approximately 35,000 and is projected to hit the 50,000 mark by 2020 when the two universities shall be operating at full capacity.

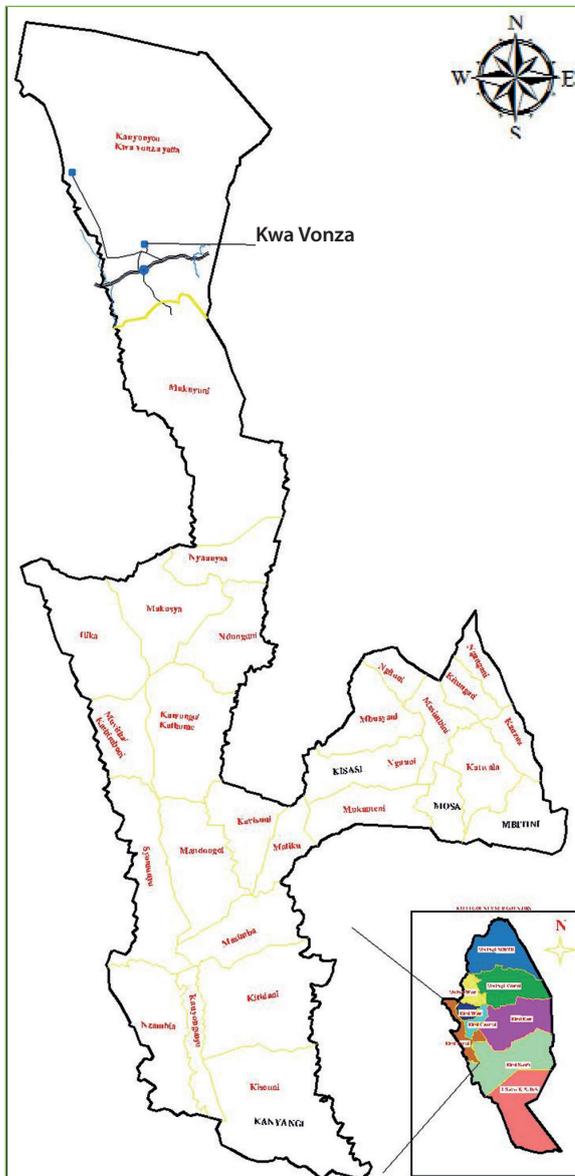
Kwa Vonza was previously a local centre serving a largely rural hinterland. Following the establishment of KU and SEKU, it is being transformed into a major commercial and residential hub characterised by housing, retail shops, hostels, entertainment spots, and buildings for religious use. Other major developments including a shopping mall and a hotel are underway. Other previously stagnating small local centres along the road connecting Kwa Vonza to Kitui town have also seen their fortunes turn as they begin to perform a dormitory centre role for Kwa Vonza.

Kwa Vonza has a rich history due to missionary activities in the beginning of the 20th century. Though largely undocumented, several monuments and accounts from the local communities serve as evidence of missionary activities in Kwa Vonza including the name of the town which is named after Alfonse, the first white Scottish missionary to set up in the area.

Geography

Kwa Vonza is located about 30 kilometers from Kitui town. It is in Yatta/Kwa Vonza ward, within Kitui rural sub county. Yatta/Kwa Vonza ward is approximately 757.4 kilometers sq. The ward shares its borders with four other wards and a county: Machakos county to the west, Mulango ward to the north east, Kanyangi ward to the south, Kisasi ward to the east, and Kwa Mutonga/Kithumula wards to the north.

Exhibit 9: Kwa Vonza in the Kitui Rural Sub County context
Map 1:



Kwa Vonza is located between two hills but the area has a low-lying topography. Apart from the slopes of the two hills, the general landscape is flat with a plain that gently rolls down towards the west. The other significant relief feature is the Yatta Plateau, which stretches from the north to the south of Kitui County. The plateau is characterized by plain wide shallow spaced valleys.

Kwa Vonza has a semi-arid climate with two major rain seasons: short rains between October–January and long rains March–May. The short rains are more reliable than the characteristically unreliable long. The periods falling between June to September and January to March are usually dry. The annual rainfall ranges between 500–1050 mm with 40 per cent reliability. The area experiences hot temperatures for the greater part of the year. The maximum mean annual temperature range between 26° C and 34° C. The minimum mean annual temperatures in the county vary between 14° C and 22° C.

The land use of the Kwa Vonza is mainly characterised as range-bush land with subsistence agriculture but is currently transforming into urban land characterised by the development of residential and commercial buildings, as well as urban infrastructure.

The geology of Kwa Vonza consists of red sandy soils, loamy sand soils and patches of black cotton soils.

Soils are of generally low fertility and prone to erosion. The vegetation cover consists of short trees and a mix of exotic and indigenous species with few naturally occurring trees and shrubs. There also exists a large-scale nursery and forestry research Centre in Kwa Vonza run by Kenya Forest Research Institute (KEFRI) with support of the Japan International Cooperation Agency (JICA). The institution has established a planted forest and further restricts human activities from large tracts of land in the county.

Socio-cultural dimensions

Population

Kwa Vonza has a cosmopolitan population, a reflection of the large university population. Based on projections made in 2012 (Exhibit 10) it is estimated that Kwa Vonza's current population stands at approximately 35,000 (Exhibit 11) and is projected to hit the 50,000 mark by 2020 when KU and SEKU will be operating at full capacity.

Exhibit 10: Population per Sub County (2012 projection)

Sub-County Constituency	2009 (Census)			2014 (Projection)			2015 (Projection)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
MwingiNorthh	65,187	74,780	139,967	69,252	79,444	148,696	69,943	80,236	150,179
MwingiWest	48,274	55,500	103,774	51,284	58,962	110,246	51,796	59,550	111,346
MwingiCentral	67,397	73,810	141,207	71,600	78,413	150,013	72,315	79,195	151,510
KituiWest	48,022	54,292	102,314	51,017	57,678	108,695	51,526	58,254	109,780
KituiRural	50,365	54,078	104,443	53,506	57,451	110,957	54,040	58,023	112,063
KituiCentral	63,517	68,198	131,715	67,478	72,451	139,929	68,151	73,174	141,325
KituiEast	59,021	64,218	123,239	62,701	68,223	130,924	63,327	68,904	132,231
KituiSouth	79,499	86,551	166,050	84,457	91,949	176,406	85,299	92,866	178,165
Total	481,282	531,427	1,012,709	511,295	564,571	1,075,866	516,397	570,202	1,086,599

Exhibit 11: Population per ward (2012 projection)

Sub County/ KituiRural	S/no.	Ward	Population
	1.	Kisasi	26,759
	2.	Mbitini	24,858
	3.	Kwa Vonza/Yatta	30,732
	4.	Kanyangi	22,094



Kwa Vonza Primary School

Social and Health Services

There are two public owned primary schools and two secondary schools in Kwa Vonza. The County Government of Kitui health's vision is "a county with healthy residents that embrace preventive health and have access to affordable and equitable healthcare services". It also resonates well with our county vision of being a prosperous county with vibrant rural and urban economies whose people enjoy high quality of life. But our current health provision in Kwa Vonza is in sharp contrast to this vision and level of demand. Kwa Vonza's rapidly increasing population are in need of both preventative and curative health care.

Kwa Vonza is served by two privately owned medical facilities which are limited to out-patient services (with the exception of maternity services) and a public dispensary which also provides a referral service to other smaller health facilities. The general perception of the local community is that the facility is inefficient and should be upgraded to a level four hospital. Both universities run an infirmary that offers first aid and basic treatment to staff and students, and which refer on to the Kwa Vonza dispensary or Kitui level four hospital.



A privately owned health facility in Kwa Vonza & service delivery charter at the Kwa Vonza Dispensary

SERVICE OFFERED	PATIENT/CLIENT REQUIREMENT	USER CHARGE	WAITING TIME
CUSTOMER CARE DESK ENQUIRIES	CO-OPERATION FROM CLIENT/PATIENTS	FREE	UP TO 5 MINS
CHILD HEALTH SERVICES IMMUNIZATION & VIT A SUPPLEMENTATION	VISIT THE DISPENSARY DAILY REGISTRATION CARD	FREE	UP TO 30 MINS
INFECTION & COUNSELLING CURATIVE & DIAGNOSTIC SERVICES ADULT & CHILDREN OVER 5 YEARS CHILDREN BELOW 5 YEARS	VISIT THE DISPENSARY DAILY REGISTRATION CARD	FREE	UP TO 20 MINS
MATERNAL HEALTH SERVICES, ANTE-NATAL SERVICES, POST-NATAL CARE SERVICES, FAMILY PLANNING	REGISTRATION CARD CLIENT CO-OPERATION VISIT DISPENSARY DAILY ANC/HC CARD FP FOLLOW UP CARD	FREE	UP TO 30 MINS
PHYSICIAN SERVICES FOR ANC/HC SERVICES	VISIT DISPENSARY DAILY ON CARD & IDENTITY CARD	FREE	UP TO 30 MINS
PHYSICIAN SERVICES FOR ANC/HC SERVICES	VISIT DISPENSARY DAILY ON CARD & IDENTITY CARD	FREE	UP TO 30 MINS

There are several churches in Kwa Vonza with the most predominant one being the Africa Inland Church – a reflection of the missionary activities in the town.

Economy, commerce and employment

Kwa Vonza town is an economic hub with opportunities in trade and commerce. The presence of KU and SEKU has oriented the development of Kwa Vonza with a more diversified economy combining rural life, with newly created employment and investment; the most recent formal business transaction is the sale of land which has attracted investors and opened up the town to new opportunities. It is estimated that 80% of the non-teaching staff at SEKU and 70% at KU are drawn from the local community, making the universities the largest employers in the town.

Economic related activities in Kwa Vonza include supply of goods and services in both the informal and formal sectors, and transport services. A growing population has increased the demand for goods and services, and necessitates the start-up of restaurants, grocery shops, boutiques, salons, supermarkets, retailing outlets, and providers of various products and services. Currently there is no bank in the town. There is a vibrant market day held on Friday and most of the commodities traded include vegetables, livestock and fruits.

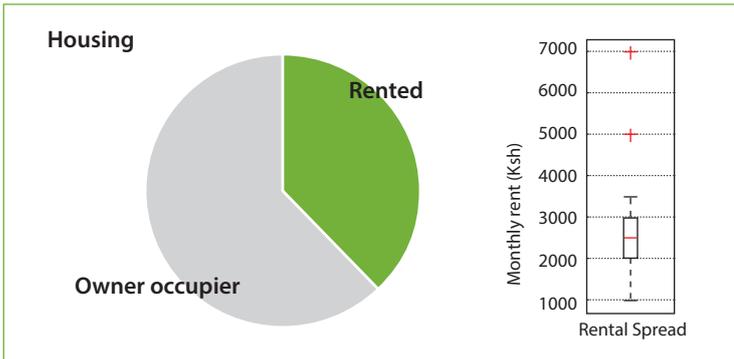
Although KU and SEKU have provided job opportunities, unemployment amongst the youth is estimated to be high and is considered a big challenge. It is estimated that there is over 65% of youth unemployment in the broader county (KIVEST). The situation has worsened due to the unwillingness of the youth to engage in informal economic activities, despite the limited availability of formal.

Urban Systems and Functions

Housing

The distribution of housing units in Kwa Vonza is unique with the highest concentration in the town centre. With the establishment of KU and SEKU on the outskirts of Kwa Vonza, residents have opted to put up boarding facilities known as hostels. The main targets are the students who reside in the town. The hostels are crowded and often share amenities like washrooms. The town is densely populated.

Exhibit 12: Home ownership in Kwa Vonza



Source: 'Kwa Vonza Baseline Study' (2017) MeteMeta Research, SASOL and SEKU (Sponge Towns)



Typical student hostels in Kwa Vonza





Ongoing development in Kwa Vonza

Nearly two thirds of the residents in KwaVonza stay in houses which they own, while 37% are tenants. The average rent is Ksh 2500 per month, with the cheapest being Ksh 1000 per month and the most expensive Ksh 7000 per month. (Metameta, 2017)

The medium density residential units spring up beyond the central business district. Most native residents near the town have subdivided their land and sold it to various investors who opt to develop residential and commercial buildings. Kwa Vonza has no informal settlements though there are a number of informal businesses that have sprung up along the main road near to the market center.

The building materials used are bricks made out of earth, water and cement and compacted to dry in a controlled temperature. These bricks are affordable, convenient and durable. Water, being a critical component in construction, is scarce and expensive therefore hiking the cost of construction.

Teaching and non-teaching staff at both KU and SEKU prefer to seek housing in Kitui town due to the lack of housing facilities that can accommodate families in Kwa Vonza.

Water

Water Supply

Kwa Vonza market and the larger Kitui is supplied with piped water from the Masinga–Kitui pipeline under Kitui Water and Sewerage Company (KITWASCO). The supply is erratic and unreliable. Mikuyuni and Tiva rivers supply water for different uses in Kwa Vonza and its environs. Virtually all of the seasonal rivers in the project area drain into the Tana River drainage basin – Kenya’s largest river that drains the Eastern flank of the Aberdares and the Southern slopes of Mount Kenya.

The Mikuyuni river in the project area is characterized by very low flow (base flows) in the dry season and high flow during the rainy seasons. Most of the ephemeral streams generally run dry within one month after the rainy season (Borst and De Haas, 2006). The flows are usually fast and turbid due to high sediment concentration associated with soil erosion in the catchment area.



Water point at Mukuyuni River



A water kiosk in Kwa Vonza town

Within the project area, boreholes and shallow wells do exist. Sand dams have also been constructed along rivers close to the project site. Collectively – rivers, earth dams, shallow wells, sand dams and boreholes play a significant role in providing water to the local community particularly during the dry seasons and especially to households unconnected to the Masinga–Kitui water pipeline. However, most of the dams are small and dry up during the extended dry seasons due to the high-water abstraction and evaporation rates.

Kwa Vonza market and the larger Kitui experience acute water shortages. The main water consumers in Kwa Vonza are households, students and pupils in all learning institutions, business operators and domestic animals. There are four water suppliers:

- Kitui Water and Sewerage Company (KITWASCO) that serve the locals with piped water from Masinga dam though the supply is erratic and unreliable.
- An individual has erected a reservoir tank that is usually fed on a daily basis and sells water to the locals.
- Individual water vendors who supply water with jerrycans using TukTuk/motorcycles from the nearby river – the supply is reliable though expensive compared to the other two suppliers.
- Caritas Kitu (a faith based organization) supplies water using water bowser to SEKU at a cost of Ksh. 16,000 per trip.

There are known to be local water cartels that dominate the water supply market and thrive on its scarcity. The efforts to find cheaper water by the County Government have been frustrated. KITWASCO has installed a pipeline known as Phase II, and is currently undergoing testing to leak-proof its layout. The pipeline is to be commissioned soon and will ease the burden of water by increasing its supply and lowering its price.



Point in Mwita Syano river where water vendors draw their water

The variation in the cost of water in KwaVonza is huge and exhibits some elements of seasonality. On average the price of a 20 litre jerrycan of water is Ksh 25 though the cost of water can range from a low of Ksh 5 to a high of Ksh 60. This variability in the cost of water is attributed to the source of supply which includes water tinkering, water vendors, piped supply, public tap stands, sand scoop holes from a seasonal river nearby, boreholes and rainwater.

Sanitation

The main mode of sanitation in Kwa Vonza is pit latrines. These are lower in cost to construct and maintain when compared to other sanitation methods. Septic waste is disposed of by private exhauster services offered at a fee. There is one public toilet block in the town centre provided by the Town Administration.

Most premises at Kwa Vonza are served by sewerage management structures that include septic tanks, pit latrines and soak pits. At the household level, and in Kwa Vonza Primary School,

the common sanitation structure is the pit latrine. Once full, the pits are abandoned and new ones constructed. Within the town and at the universities and high schools soak pits and septic tanks are used. Once full they are emptied through exhaustion.



Pit latrines in Kwa Vonza



Drainage

Drainage has been provided along the main Kwa Vonza – Kitui highway only. Although Kwa Vonza is not prone to flooding, the absence of roadside drainage on other roads has led to the destruction of the road surface now characterized by rutting with cross road gulleys.



Culvert connecting storm water drain

Waste

The Kwa Vonza area comprises of mixed land uses that generate different types of waste. The market and farm produce generates organic waste that is reused in the farm as manure. The non-organic waste is generally disposed in a temporary holding pit and collected by a refuse collection vehicle on a weekly basis. The cost of collection is solely borne by the Kitui Town Administration.

The area is not connected to the main sewer line. Most developments have their own septic tanks, which on filling to capacity are emptied by exhauster trucks. The cost for this is incurred by the owners of the developments.



The Town Administration skip loader in Kwa Vonza



Garbage heap



Cleansing officers burning waste

Public Space

There is no green and/or open space designated for public recreational use in Kwa Vonza. Most community activities and youth tournaments utilize the primary school grounds. The market shed is also utilized for public gatherings, though there is an opportunity for the market area to serve a dual role by providing a recreational resource on the six non-market days (Saturday to Thursday).

Energy

The main energy supply for Kwa Vonza is electricity. This is supplied by the national parastatal, the Kenya Power and Lighting Company. There is no substation in Kwa Vonza. Charcoal and firewood are the main sources of energy for domestic use. These are drawn from felling trees, an activity that is controlled by the County Government. Kerosene is also used to light domestic lamps and stoves.

There is no fuelling station in Kwa Vonza town but there are vendors who have installed kerosene dispensing machines. The County Government is exploring solar as a major source of alternative energy, and this is being slowly embraced as a source of energy for lighting homes and street lights.



Power lines and security lights along the road Kwa Vonza SEKU road

Mobility

Kwa Vonza is a linear town served by the Kitui–Machakos highway; a bitumen standard road. Most vehicles that ply this route are public use vehicles that often stop at the town to drop off or pick up passengers and goods. Trucks that carry goods into Kitui town also frequent this route. The second major connecting road is the Kwa Vonza–Kvusiani route which is not an all-weather. The remainder of Kwa Vonza’s roads are not classified. The major roads are lined with trees that

provide for an aesthetics townscape and provide much needed shade.

Motorbike taxis, locally known as bodabodas, are the second most common means of transport in the area and are key in accessing the areas that are not accessible by vehicles due to the poor road network. They are used to ferry goods and services, and are run by the young men who are grouped in self-help groups. There is one bodaboda shed that doubles up as a bus stand. There are no seating areas in the town and people rely on large trees for shelter whilst awaiting transport.

The ownership of the local transport services is mainly by savings and credit cooperation organizations. These are made up of people with a common interest and aim at wealth creation.

A street lighting initiative has been undertaken in the town by Kitui Town Administration and has provided high mast street light that serve to eliminate crime rates in the town and promote a 24-hour economy. This has been accomplished on major roads and is progressing towards the remote areas.



Mini buses awaiting passengers in SEKU



Bodabodas at Kwa Vonza Town

3. CHAPTER THREE

KEY SUSTAINABILITY ISSUES

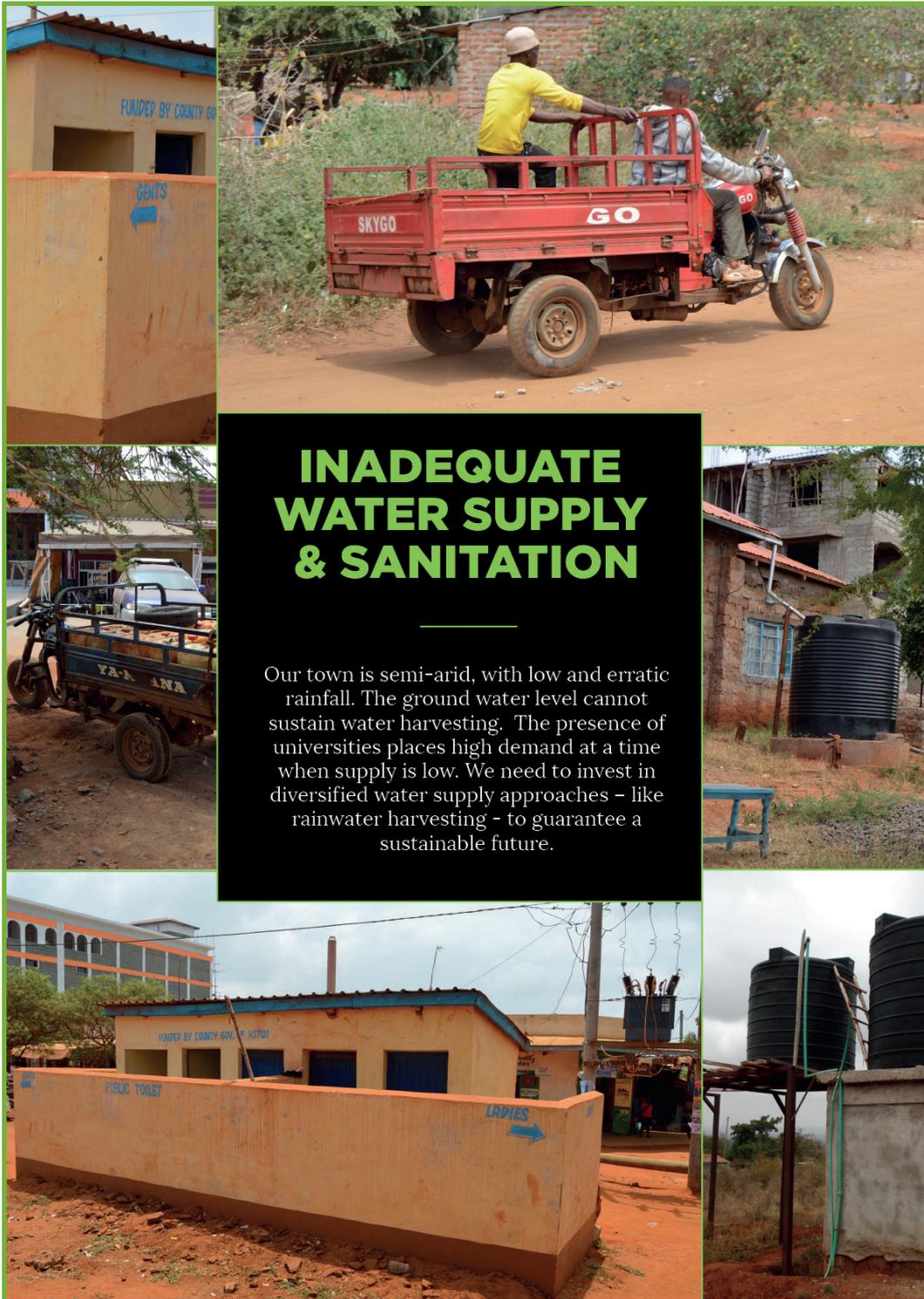
In the following sections, we present our main opportunities and challenges. The first section summarises a ‘Strengths, Weaknesses, Opportunities and Threats’ (SWOT) analysis undertaken by Kwa Vonza stakeholders. In the subsequent section (3.2) we have chosen to present our main sustainability challenges through photos, most of which are a product of the photo survey we conducted with SEKU students in February 2017.

Our strengths, weaknesses, opportunities and constraints

Exhibit 13: Kwa Vonza SWOT analysis

STRENGTHS	<ul style="list-style-type: none"> • Good road network with a major highway passing through the town • Good communication network • Hospitable local community • Fertile soils • Expansive land • Existence of 2 universities • Availability of labour – skilled and unskilled • Job opportunities • Mineral resources including sand • Local media services in the area • Availability of security • Favorable climate • Solar energy potential • Market for goods and services • Thriving local culture 	<ul style="list-style-type: none"> • Poor infrastructure (drainage, condition of some key roads) • Lack of secondary schools • Lack of adequate hostel facilities • Unqualified bodaboda riders • Poor water supply • No spatial plan for town • Lack of enough security lights • Title deeds for most land parcels not issued • Waste disposal inadequacy • Public toilets not adequate • Moral decay – female students underdressing • Insecurity • Disease outbreak • Bad leadership • Corruption 	WEAKNESSES
OPPORTUNITIES	<ul style="list-style-type: none"> • Roads • Strategic location (between two hills, gateway to Kitui County, Proximity to Kitui town, Nairobi/ Machakos/Kitui road) • Availability of land • Population including students hence labour, a market • Build on universities presence • Good governance • Zoning of Kwa Vonza as a university city in the KIVEST • Potential of solar energy generation • Telecommunication • Natural resources – sand, rocks, copper and iron ore • Fertile soils • Devolution • Open and friendly community 	<ul style="list-style-type: none"> • Insufficient water supply and quality • Unplanned upcoming buildings • Accidents – bodaboda • Poor waste management and disposal • Poor drainage system • Uncontrolled sand harvesting • Increasing immorality and insecurity • High cost of living • Increased land prices • Charcoal burning resulting to desertification • Overpopulation • Poor communication network • Unreliable power supply • Lack of sports/recreational facilities 	THREATS

Sustainability issue 1: WATER SUPPLY



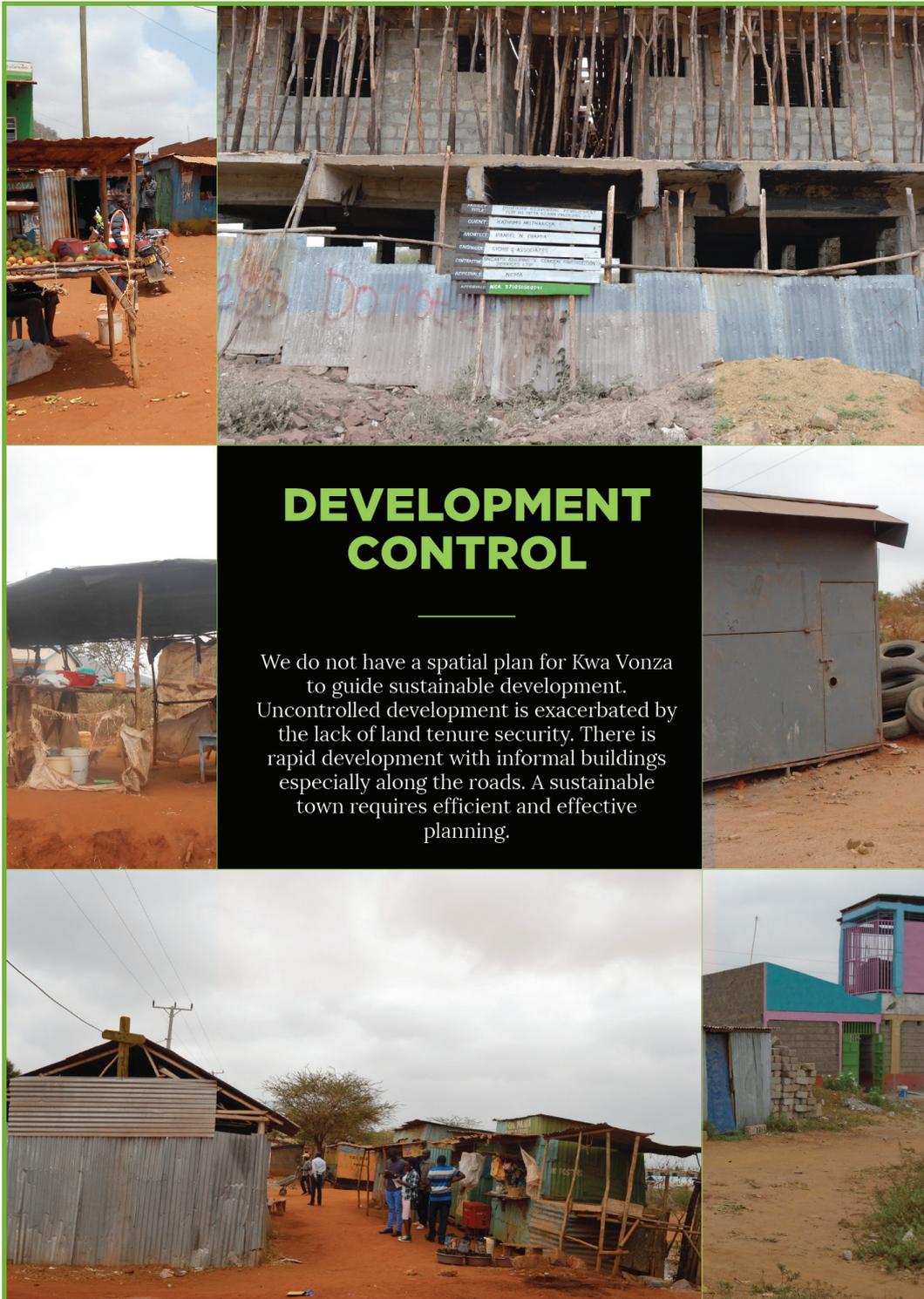
INADEQUATE WATER SUPPLY & SANITATION

Our town is semi-arid, with low and erratic rainfall. The ground water level cannot sustain water harvesting. The presence of universities places high demand at a time when supply is low. We need to invest in diversified water supply approaches - like rainwater harvesting - to guarantee a sustainable future.

Sustainability issue 2: WASTE MANAGEMENT



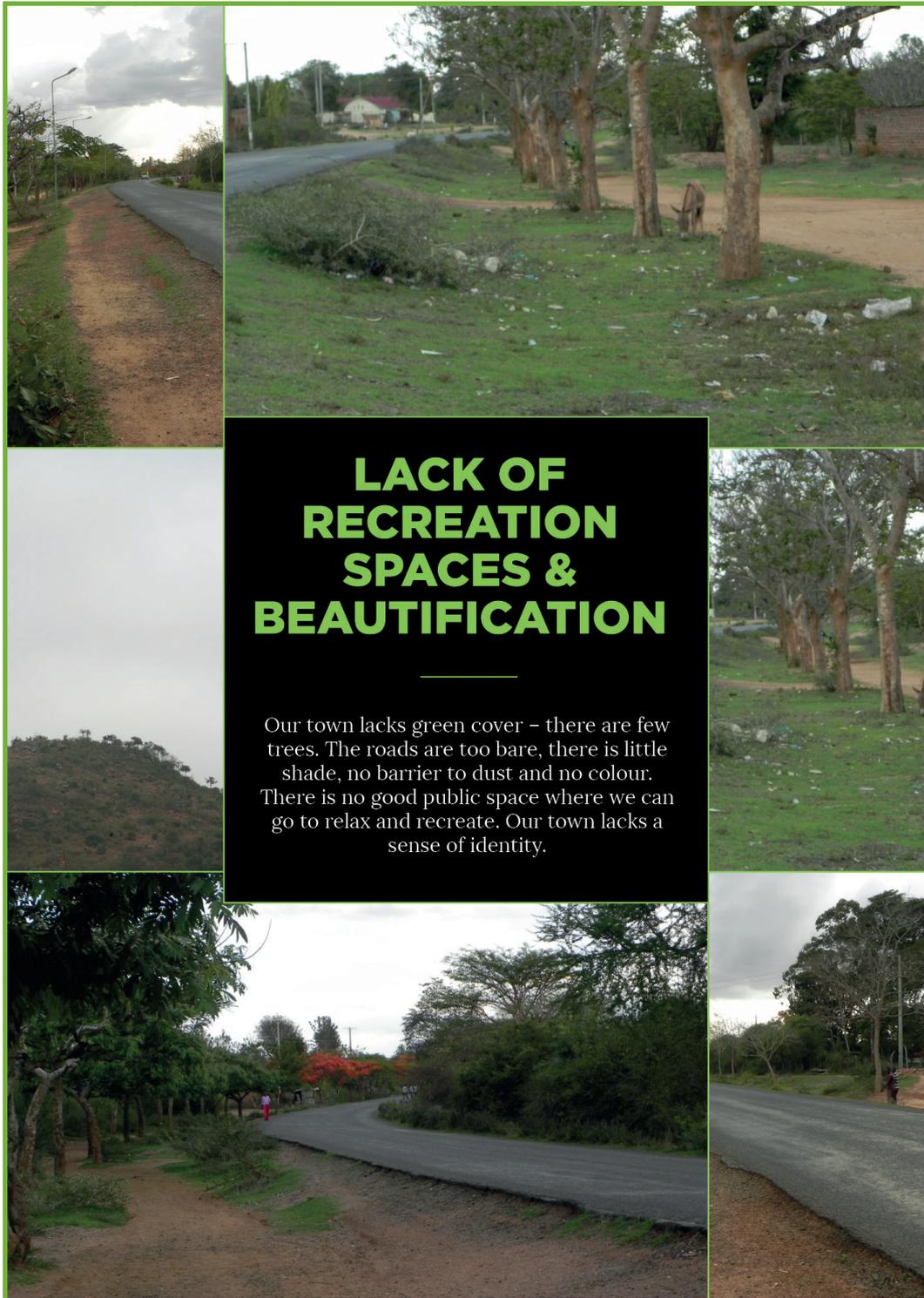
Sustainability issue 3: PHYSICAL PLANNING AND DEVELOPMENT CONTROL



DEVELOPMENT CONTROL

We do not have a spatial plan for Kwa Vonza to guide sustainable development. Uncontrolled development is exacerbated by the lack of land tenure security. There is rapid development with informal buildings especially along the roads. A sustainable town requires efficient and effective planning.

Sustainability issue 4: RECREATION AND OPEN SPACES



Sustainability issue 5: LOCAL ECONOMIC DEVELOPMENT



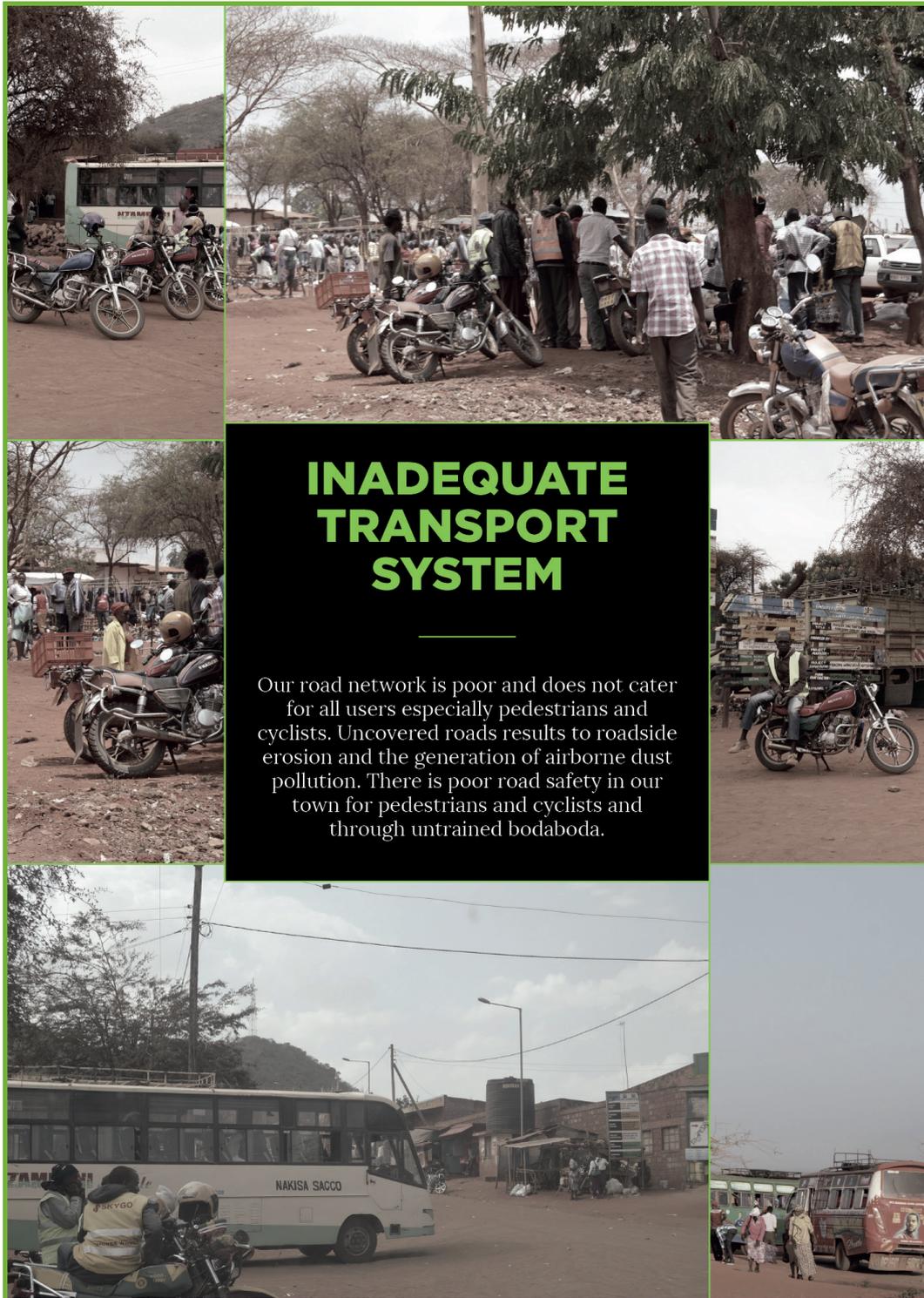
INADEQUATE LOCAL ECONOMIC DEVELOPMENT AND EMPLOYMENT OPPORTUNITIES

We are not realising the full economic potential of Kwa VONZA. We remain dependent on the agricultural sector and the economic driver of the universities producing the need for local services on a seasonal basis. To be sustainable we need to diversify income-generating activities, change attitudes to work, and provide skills based training for local people to enter employment. We need to create a Kwa VONZA where businesses want to invest.

Sustainability issue 6: SOCIAL SERVICES PROVISION



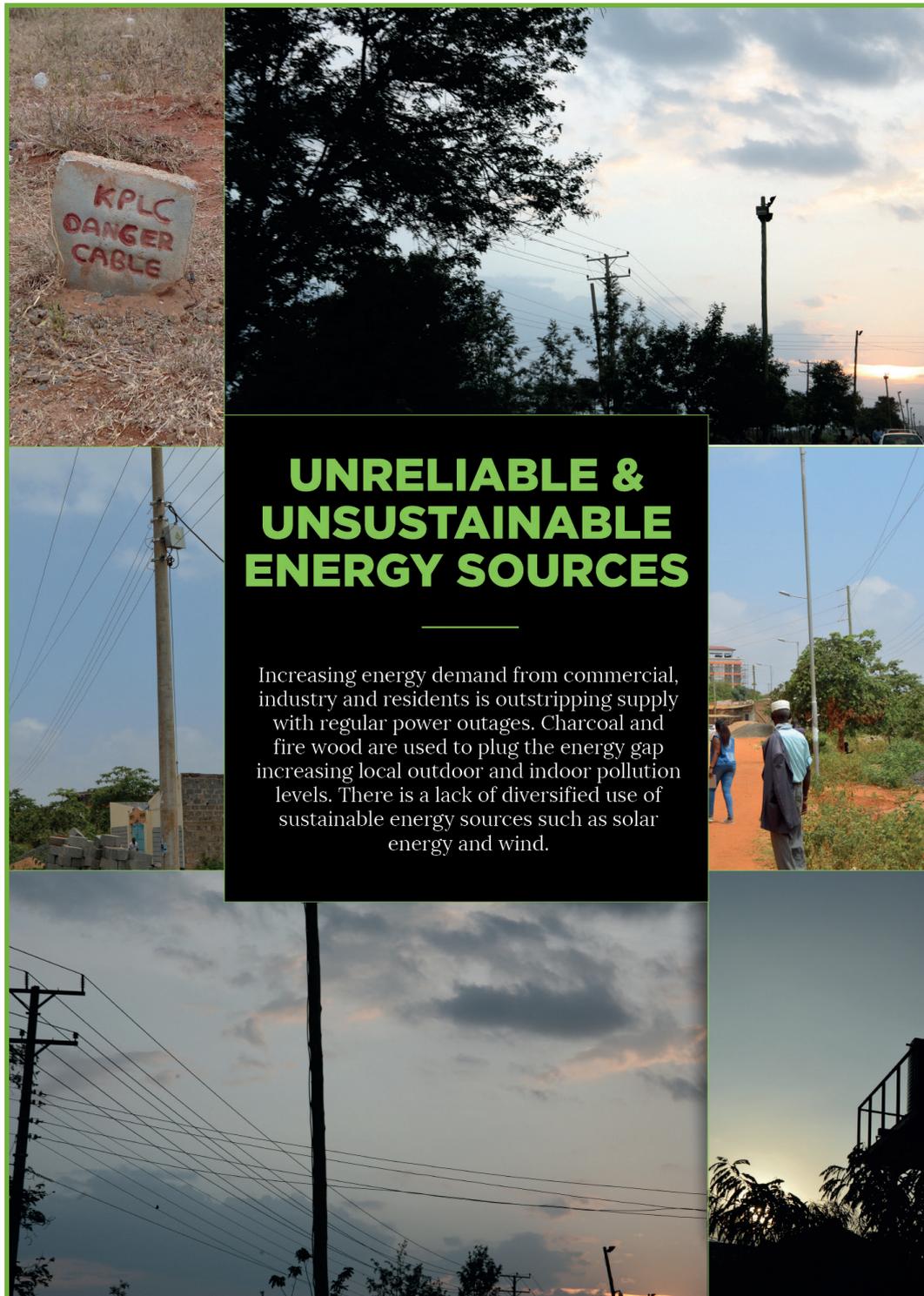
Sustainability issue 7: TRANSPORT AND INFRASTRUCTURE



INADEQUATE TRANSPORT SYSTEM

Our road network is poor and does not cater for all users especially pedestrians and cyclists. Uncovered roads results to roadside erosion and the generation of airborne dust pollution. There is poor road safety in our town for pedestrians and cyclists and through untrained bodaboda.

Sustainability issue 8: ENERGY SUPPLY



4. CHAPTER FOUR

OUR VISION AND OBJECTIVES

»A thriving university town with vibrant economy and sustainable green environment whose people delight in its habitability.«



- A Thriving local community occasioned by the opportunities from the rapid growth that is experienced in Kwa Vonza.
- Kwa Vonza designated as a university town as per the aspirations of the people captured in the Kitui Vision for Economic and Social Transformation (KIVEST) for all major institutions of higher learning to set up in the area. The centres for excellence form the foundation of the town.
- All the economic activities in the town, attracted by the thriving nature would create a Vibrant Economy with an appealing business environment for future investors.
- The change that is desired in the town to have a Sustainable Green Environment must start with the transformation of the townscape from 'arid' to 'green', in a manner that is economically and socially viable.
- Ultimately, a habitable Kwa Vonza will be experienced by the residents as a result of improved standards of living, enhancing its livability.

<p>Objective 1 </p> <p>To promote: a) adequate, safe and fairly distributed water for domestic, industrial and agricultural use, b) hygienic sanitation</p>	<p>Objective 2 </p> <p>Adopt an effective, sustainable and efficient waste management system Kwa Vonza</p>
<p>Objective 3 </p> <p>A well-planned town and strengthen development control process and enforcement</p>	<p>Objective 4 </p> <p>Develop an attractive urban landscape with recreational opportunities</p>
<p>Objective 5 </p> <p>Develop a diversified economy by providing access to business opportunities and support business development</p>	<p>Objective 6 </p> <p>Enhance the capacity, accessibility, affordability of main public social services</p>
<p>Objective 7 </p> <p>Enhance safe local mobility for all users through a strengthened local road network</p>	<p>Objective 8 </p> <p>Ensure reliable, efficient and sustainable energy sources</p>

CORE SUSTAINABILITY ISSUE 1: INADEQUATE WATER SUPPLY AND SANITATION			
OBJECTIVE 1: Promote: a) adequate, safe and fairly distributed water for domestic, industrial and agricultural use, b) hygienic sanitation			
TARGET(S):			
<ul style="list-style-type: none"> • 50% of households adopt a rain-water harvesting system (by 2021), 80% (by 2023) • 75% of buildings have access to a conventional waste water and/or drainage system • 60% of households to have access to clean and drinkable water (by 2020) 			
Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Six 10,000 litre water tanks, guttering and base at Kwa Vonza Primary School (2 no.) and Kwa Vonza Dispensary (2 no.) and St. Paul Secondary School (2 no.)	Promote and popularize all households to install a rain water harvesting system	Raise awareness on water conservation	Repair and increase capacity of the existing water supply and distribution system
	Roadside drainage installed on primary ('model') roads to capture and store rainwater	Plant roadside trees that will be irrigated by the storm water Establish kitchen gardens and nurseries along the roads to be irrigated by the storm water	Elaborate storm water drainage system for all major roads
	Rally all households to adopt a septic tank/cess pit for waste water management	Purchase land for sewage treatment plant	Build and operationalize sewage treatment plant Connect all household to a conventional sewer system
	Regulate the water extraction from the two main rivers	Re-afforestation of major catchment areas and hilltops	
		Install hand washing facilities in all public institutions and promote it as a culture	
	Raise awareness on water, sanitation and hygiene in schools among key stakeholders at county level		Install toilet facilities in all public spaces and institutions

**CORE SUSTAINABILITY ISSUE 2:
DEFICIENT WASTE MANAGEMENT**

**OBJECTIVE 2: Adopt an effective, sustainable and efficient waste management system
Kwa Vonza**

TARGET(S):

- 60% of all waste generated within Kwa Vonza is well disposed (by 2020)
- 10 environmental ambassadors recruited and trained (by 2018)
- 80% use of all organic waste generated is used (by 2023)
- 90% of Kwa Vonza residents receive awareness on proper waste management and creating the 3Rs (reduce, reuse, recycle) (by 2021)

Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Community-led clean-up activities	Develop an achievable Town Waste Management Strategy Develop an achievable Town Waste Management Strategy	Purchase land for a landfill	Establishment and operationalization of an integrated waste management plan
Enhance community capacity for waste management through community awareness training (3 Rs) and group formation	Monthly (half day community clean-up) programme introduced	Establish waste separation and recycling plant	
Basic waste management equipment (bins and secondary collection points (2) installed at strategic points	Installation of bins and communal receptacles	Encourage and support the use of waste minimization practices for business, government agencies, and the public by distributing information on the availability of waste minimization options	Encourage and support backyard composting for business, residences, and government agencies by providing information and technical assistance
	Provide access to residential recycling programs for all households, including single-family, multi-family, and hostels, that subscribe to garbage services	Support and encourage source reduction, recycling and composting activities at large events and other major venues by providing information and technical support	Encourage separation of materials for use in appropriate composting or reuse programs by setting differential disposal fees when feasible
	Provide convenient drop-off opportunities for recyclables, and encourage and support school recycling	Adopt purchasing policies for buying recycled materials to support markets for recycled materials	Provide and administer a regional composting facility

CORE SUSTAINABILITY ISSUE 3: PHYSICAL PLANNING AND DEVELOPMENT CONTROL			
OBJECTIVE 3: A well-planned town and strengthen development control process and enforcement			
TARGET(S): <ul style="list-style-type: none"> Develop and adopt an Integrated Spatial Urban Development Plan (ISUDP) by June 2018 			
Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Development of a Kwa Vonza Spatial Plan	Citizen awareness campaign on planning regulations	Preparation of a mid-term spatial development plan for Kwa Vonza	Digital mapping for Kwa Vonza
	Develop standards and regulations for development control	Establishment of a functional development control and enforcement unit	Digitize and Automate plan approval system
	Initiate land adjudication processes	Roll out land tenure security (titling) program	Digitization of land records

CORE SUSTAINABILITY ISSUE 4: INSUFFICIENT RECREATION SPACES AND BEAUTIFICATION			
OBJECTIVE 4: Develop an attractive urban landscape with recreational opportunities			
TARGET(S): <ul style="list-style-type: none"> • 500 trees (assorted species) grown per year up to 2022 • Access to street furniture (shaded benches) at key locations by 2025 			
Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Initialization of the tree seedling nursery to be distributed to institutions and households during tree planting seasons OR Purchase of seedlings to be distributed to institutions and households during tree planting seasons	Develop Kwa Vonza hill into a recreational space	Establish green belts to separate zones/ activities	Promote green buildings in Kwa Vonza town
	Undertake town-wide tree planting campaign	Protect riparian lands	
	Prepare a proposal for the dual use of the market space on non-market days	Purchase of land to be used as a recreation space	Provide street and recreational furniture at vantage positions

CORE SUSTAINABILITY ISSUE 5: INADEQUATE LOCAL ECONOMIC DEVELOPMENT AND EMPLOYMENT OPPORTUNITIES			
OBJECTIVE 5: Develop a diversified economy by providing access to business opportunities and support business development			
TARGET(S):			
<ul style="list-style-type: none"> • 50% increase in agricultural output (by 2025) • 40% increase of employment in light-industrial employment (by 2020) • 40% land zoned for economic activity in the Kwa Vonza Spatial Plan 			
Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Conduct monthly workshops to sensitize agri-business.	Promote agri-business as an entrepreneurial venture, and partner with agri-business community to provide subsidized farming inputs	Promote ease of access to the target market in the county by lowering taxes for farm produce	
	Conduct workshops to create awareness on the 30% procurement rule for the youth, women and person with disability and make sure that 30% of all their contracts will be given to these groups	Set up a Community level infrastructure program that provides contracts to the local contractors to undertake community led projects	Establish tertiary institutions and encourage enrollment
	Enhance local training opportunities in trade skills (electricians, plumbers) through the polytechnic	Promote Kwa Vonza as a commercial hub	Set up a tailor-made Youth infrastructure saving and investment programs.

**CORE SUSTAINABILITY ISSUE 6:
INADEQUATE SOCIAL SERVICE DELIVERY (EDUCATION,
HEALTH AND SECURITY)**

OBJECTIVE 6: Enhance the capacity, accessibility, affordability of main public social services

TARGET(S):

- 5% per year increase in the transition rate at all levels (by 2020)
- 100% staffing levels in all ECDEs (by 2018)
- 100% promotion to preventive health care to all citizens (by 2018)
- 100% citizens participating in community policing (by 2018)

Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Electricity connection established for Kwa Vonza Dispensary	Increase the staff at Kwa Vonza Dispensary	Equip the dispensary with essential and specialized facilities including a theatre, mortuary, and wards	Upgrade the existing dispensary into a level 4 status
Install 16 solar security lights at Kwa Vonza	Formation of local community policing cohorts	Street Lighting programs in the residential areas and commercial alleys	
Renovation of kitchen / cooking area at Kwa Vonza Primary School	Encourage self-sustainability of the school by planting and maintaining a garden	Support the school feeding program by construction an ultra-modern kitchen	
Repainting of Primary School classes	Enhance a better learning environment by creating a visually appealing façade	Equip the public schools with well-stocked library facilities	Construction of modern education facilities

CORE SUSTAINABILITY ISSUE 7: INADEQUATE TRANSPORT SYSTEM			
OBJECTIVE 7: Enhance safe local mobility for all users through a strengthened local transport system			
TARGET(S):			
<ul style="list-style-type: none"> • 500 roadside trees growing (by 2018) • 50% of primary local roads provided with all-weather surface and roadside drainage (by 2025) • 80% of main town Centre roads provided with separate high quality pedestrian walkways and cycleways (by 2022) • 80% reduction in road user accidents 			
Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Provide free boda-boda training and protective gear at subsidized prices	Provide roadside drainage on primary roads	Re-modeled integrated 'sustainable' bus terminal, matatu stage, bodaboda pick up	Formulate and implement an integrated urban transport system supporting modal split and NMT
	Ensure all primary roads are provided with roadside plantings	Fit all major roads with guard rails to increase safety	Provide bodaboda lanes on the major roads
	Install all roads with adequate signage	Provide separate pedestrian and cycleways on most important town roads	

CORE SUSTAINABILITY ISSUE 8: UNRELIABLE AND UNSUSTAINABLE ENERGY SOURCES			
OBJECTIVE 8: Ensure reliable, efficient and sustainable energy sources			
TARGET(S):			
<ul style="list-style-type: none"> 80% of citizens with awareness raising in sustainable use of energy by 2018 			
Quick Win Action	Short-term Action (1–2 years)	Medium-term Action (3–5 years)	Long-term Action (5 years +)
Solar security lights installed at key public areas and facilities locations	Citizen's awareness-raising on sustainable energy sources	Provision of energy saving stoves to households at subsidized prices	Establishment of wind energy farms at the two hills at Kwa Vonza
	Enter into citizen-government arrangement for the establishment of micro bio-gas plants at the household level	Training of youths on the necessary artisan skills required to make the energy saving stoves and ovens.	Establish a substation at Kwa Vonza to provide a steady supply of electricity to light industry
		Encourage the use of galvanized transparent corrugated iron sheets in public institutions to curb the high cost of electricity	Pass legislation regulating charcoal burning and trade

5. CHAPTER FIVE

OUR PRIORITIES

Kwa Vonza is a small, but rapidly growing town. As our USR sets out, our basic infrastructure services are rudimentary and there are many competing needs to get Kwa Vonza to the modern university town that we aspire to, and as set out in our vision. Through successive stakeholder workshops and discussions the priority concerns consistently expressed are objectives 1 to 4, namely: water supply and sanitation, solid waste management, uncontrolled development, and recreational opportunities and beautification. The highest priority for ensuring the sustainable development of Kwa Vonza – by a considerable margin – is water supply. As the discussion in this USR emphasizes, in the absence of a safe, reliable and sufficient water supply, it will be impossible to attain our vision.

Stakeholders identified ideas for addressing the priority areas – this is the broad scope of what integrated proposals once developed may look like. Three project clusters were discussed by stakeholders and are presented in the tables below. There are ideas that appear in more than one proposal cluster and this provides the basis for us to move towards developing integrated urban proposals. In combination, the three clusters indicate stakeholder support for an integrated environmental improvement programme.

QUENCHING KWA VONZA'S THIRST: DIVERSIFIED WATER SUPPLY AND WISE WATER USE PACKAGE	
QUICK WINS	CHANGE PROJECT
<ul style="list-style-type: none"> Hygienic sanitation Creating awareness on the importance of harvesting rainwater and sustainable conservation Demonstrating rainwater harvesting at schools, the dispensary, churches and other institutions for social and environmental sustainability Creating awareness on hygienic sanitation in schools, local communities and amongst local stakeholders for sustainable development and management of health services Construction of pit latrines in public institutions 	<ul style="list-style-type: none"> Tapping water from River Mwitasiyo through the building of a dam Digging a borehole near a dam which serves as a catchment area Diverting surface water run off e.g. hill-tops, roadside run off and channeling it into a dam

CLEAN KWA VONZA: ENSURING GREEN SUSTAINABILITY AND HABITABILITY THROUGH SOLID WASTE MANAGEMENT	
QUICK WINS	CHANGE PROJECT
<ul style="list-style-type: none"> • Create awareness on sustainable waste management • Distribution of collection bags at the household level • Formulate and implement waste management policies • Initiate and ensure regular environmental clean up events • Regular maintenance of the drainage system • Provision of litter bins at commercial centers • Allocate a designated dumpsite • Establish a tree nursery and train people in tree growing 	<ul style="list-style-type: none"> • Establish a water treatment plant • Establish a solid waste recycling facility • Production of renewable energy from biodegradable waste • Growing of trees to promote gaseous waste management • Creation of a sanitary landfill to hygienically manage waste • Creation on incinerators • Construction of proper drainage systems • Facilitate establishment of decomposition pits

HABITABILITY FIRST: RECREATIONAL AND BEAUTIFICATION IN KWA VONZA WITH A STRENGTHENED PLANNING SYSTEM	
QUICK WINS	CHANGE PROJECT
<ul style="list-style-type: none"> • Develop a spatial plan • Townscaping at a community and/or household level • Tree growing throughout Kwa Vonza • Naming of streets and street addressing • Community supervision of established programs to enforce change • To develop the market area to make it suitable for other purposes • Create pockets for neighbourhood communities 	<ul style="list-style-type: none"> • Recreation park • Approval of planning units • Developing playing ground for schools kids • Designate Kwa Vonza Hill for a recreation area with adequate facilities i.e. stairs and dustbins • Zoning of agricultural activity in an urban set up



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