INSTITUTIONS OF HIGHER LEARNING AS DRIVERS OF URBAN DEVELOPMENT: A CASE STUDY OF UNIVERSITY OF EASTERN AFRICA, BARATON NANDI COUNTY-KENYA

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DECLARATION

I certify that this work is mine and that it has not been submitted previously to quality for any academic award, that the content of this research project is the result of my work which I have carried out since the official commencement date of the approved research program, and that any additional work undertaken by a third party is acknowledged.

Signature…… Date……

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APPROVAL

This research project report has been submitted for examination with our approval as University Supervisors

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DEDICATION

I dedicate this piece of research work to my dear wife Miriam and beautiful daughter Mya Aidah who have missed a great deal of my support and company during the time of pursuit of this degree program.

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ABSTRACT

The Geographic distribution and Demographic expansion of Universities in Kenya exponentially increased during the last two decades. The increasing number of universities invariably alters human settlements and influences urban processes. Following this realization, this study sought to analyze how the institutions of higher learning become drivers of urban development in the areas they are located. To achieve this quest, the researcher adopted three objectives seeking to analyze the policies guiding urban development in Kenya and their application on university and college towns; the trends in land use in areas of university allocation, and the impact of the land use change on the physical infrastructures, sociocultural, economic and environmental spheres. The product of this research is development of a proposed site plan seeking to redesign Baraton centre which is a culmination of the effects of location of University of Eastern Africa, Baraton in Baraton community. To achieve these objectives, this study employed case study and descriptive research designs. Both primary and secondary data were used. Primary data were collected from the field through use of questionnaires, interview schedule, observation and photography. Secondary data involved getting information from literary materials such as books, newspapers, reports, maps, journals and relevant internet websites.

The study found out three main issues with the policies: one, the policies and legislative frameworks governing urban development in Kenya-Urban Areas and Cities Act 2011 and that of establishment of universities in Kenya-The Universities Act 2012 which are the instruments guiding urban development and university formation, have not addressed the chances of formation and development of university towns. This has opened a flood gate for sporadic formation of not carefully planned small urban centres in places of university allocation. Second, these policies are applied in isolation yet they influence each other thereby causing disharmony in operation. Three, the implementing agencies of the policies are not keen to enforcement.

The research established that universities are important impetus for development which do not only provide opportunities for higher education but also influence greatly the physical and the socioeconomic environments around their locations. They form the magnets for local development in the areas in which they are located by pulling large populations which demand commensurate urban structures and services to enhance the livelihoods of the populace.
The land use therefore changes to adapt to the new trends of utilization which are more urban oriented with settlements, market place, garbage dump sites, businesses, transportation services and other utilities.

Baraton centre is one of such upcoming urban areas formed as a result of University of Eastern Africa, Baraton (UEAB). Its locality-Nandi County is basically agricultural zone for both crop and dairy farming, due to increased demand for housing and commercial goods and services, the area experiences increasing built up environment contrary to the earlier land use of grazing and farming. The road network has improved with the main spine road-Chepterit/Baraton Road being upgraded to tarmac road. Piped water is available to the community courtesy of UEAB, telecommunication services have improved, more schools have been constructed, churches, more banking services, business opportunities, health services, security among others have improved. The intercultural interaction has also led to more intermarriage among the university fraternity; the environmental impacts have also been realized with wanting waste management which is a health hazard.

Finally, this research developed a proposed site plan that zoned the specific activities for a signed land uses whose development requires the input of structural developers and physical planners to improve the views and design of the upcoming urban center.

LIST OF ACRONYMS AND ABBREVIATIONS

AIC	African Inland Church
ATM	Automated Teller Machine
Bara C	Baraton centre
CBD	Central Business District
CBD	Central Business District
CUE	Commission of University Education
DEAP	District Environmental Action Plan
EIA	Environmental Impact Assessment
GDP	Gross Domestic Product
HIL	Higher Institutions of Learning
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IMP	Institutional Master Plan
KCC	Kenya Corporative Creameries
NEMA	National Environmental Management Authority
NUDP	National Urban Development Policy
Pri. Sch.	Primary School
PUIB	Public Universities Inspection Board
SDA	Seventh Day Adventist
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for Social Scientists
STI	sexually Transmitted Infections
UEAB	University of Eastern Africa, Baraton
UNCHS	United Nations Centre for Human Settlements
UNEP	United Nations Environmental Program
USA	United States of America
WB	World Bank

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CHAPTER ONE

INTRODUCTION

1.1 Background information

Universities are important impetus for development that by nature of their capacities influence the physical and the socioeconomic environments around their locations. Education services remain one of the biggest magnets to attracting populations to the centers where it is offered. Given that institutions for higher learning in Kenya have not been equally distributed across the country, the key institutions have pulled large populations that influence human settlements around their locations.

The development of the city of Boston in USA for example has been influenced a lot by Cambridge University and Harvard University; these universities have greatly contributed to the development of the communities around them. Harvard University for example, was founded in 1636 by ministers who realized the need for training clergy for the new commonwealth. It provides financial support for local economic expansion, improvement of public health, construction of local roads, meeting-houses, street-tree side walk improvements, schools and other community outreach programs. Burton, (1996). Currently, Harvard is engaging the community in its development programs such as creating a permeable campus that removes existing impediments to pedestrian circulation and includes street-facing, community-activating uses. The second is a program of community benefits tied to the Institutional Master Plan (IMP) process. The third involves creating a "transformative project," which is part of the cooperation agreement for their science building. (http://news.harvard.edu/gazette/story/2013).Through the Allston Brighton community survey/needs assessment Harvard gains an insight into what the community requires and incorporates in the Master plan of the institution. (www.allsotn.harvard.edu) This portrays a univeristy that exists to serve the locality of it location besides other interests.

Universities have played major roles in improving socioeconomic status of several places of location thus enhancing the development through revitalization as of the case of Rowan University of Glassboro town whereby the university growth fuels economic boom for the Glassboro. Through partnership the Glassboro town which was built on the manufacturing of glass is on course of redevelopment with new structuring like the Rowan Boulevard, new

housing, research centre, hotels, and many Small and Medium Enterprises (SMEs) which form the basis of economic development. The other neighborhood transformations include nascent arts and entertainment district where the possible conversion of an old movie theater into a performing-arts center anchors a street vibrant with galleries and cultural spaces. (http://www.newsworks.org)

Universities can be valuable contributors to a city's economy. They are immobile institutions fairly resistant to business cycle fluctuations, making them a steady presence in the community. They tend to attract revenue from outside the immediate area through tuition, endowment income or state tax allocations and to attract significant human capital-students and employees from a national market-that can contribute to the area's economic growth, (Steinacker, 2004)

The activities elicited by universities call for increased demand and supply of goods and services of various kinds all attributed to the exponential growth of human population. As the University expands in its programs and services so does the population and consequently the demand for goods and services mostly of SMEs which form the back born of most economies. It is a fact that the increasing enrolment of students in Higher Institutions of Learning (HIL) has been a major issue in recent times. This trend has attracted attention of practitioners and scholars a like regarding student residential and nonresidential housing provision in higher institutions, (Bondinuba, et al. 2013). For this reason, other educational stakeholders have come in to supplement these needs by solely providing private housing facilities for tertiary students on or off campus. In many developing countries like Ghana, student housing provision in HIL has not only mandated government policy for private participation in developing higher education institutions economy but also the competition has gradually been keen in the provision of residential and nonresidential housing facilities for students.(ibid). This greatly contributes to the urbanization process within the University vicinity.

In the last two decades, university education in Kenya, as it has been in most of African countries, has expanded, both in the number of institutions and student enrollments. This expansion has been driven by a response to social demand and developmental requirements, (Oanda & Jowi., 2012) More particular to Kenya, the quest for higher education has been on the rise due to few and competitive employment opportunities, increased enrollment in primary and secondary schools and the need to improve one's competencies in order to be more relevant to the changing market demands and or to attract better remuneration packages. In addition, the

government subsidies on education especially free primary, subsidized secondary fees and education loans to college and University students in both private and public institutions has made it possible for many to access education. These have caused more demand for higher education calling for both public and private Universities across the country to respond with an equal measure to satisfy the need. This trend has greatly influenced human settlement around institutions of higher learning and this requires adequate planning.

1.2 Statement of the research problem

The number of Universities in Kenya has increased greatly during the last two decades. The first Kenyan higher educational institution-The Royal Technical College of East Africa, opened in Nairobi in 1956 which in 1970 was renamed the University of Nairobi. The second university came in 1984. By 1990, Kenya had about 160 middle-level colleges; by 2000 it is estimated that the country had more than 250 colleges, (Ministry of Education, Science, and Technology, Statistics Section, (2000). The actual proliferation began in 2002. As of May 30th 2013, 22 public universities, 9 public constituent university colleges, 17 chartered private universities, 5 private constituent university colleges, 12 private with letter of interim authority, and 2 registered private universities totaling to 79 Universities were operating in Kenya (CUE, 2013) and more Universities are still in the pipeline for establishment.

Several studies have been conducted about universities such as curriculum development, management and others but no study has been done in Kenya to analyze how these universities affect human settlements or contribute to urban formation in places of their location; their implications on local economy, social aspects or land use. Land use pattern is steadily changing without adequate site planning especially in rural areas and socioeconomic, physical infrastructure, cultural and environmental degradation continue to affect.

UEAB in Nandi County is such a university. It has student population ranging from 1900-2500 in main campus of which near half the population stay off campus in Baraton center-a budding university town; the residential houses are gradually extending into farm lands. Waste management is increasingly becoming a challenge, most of residential houses are never well planned, and urban services are conspicuously inadequate. Like many other university towns, insecurity and other social vices are on the rise, “university slums” continue to develop with the rising numbers of universities contrary to the well-planned university in the neighborhood.

The increasing university programs continue to attract more student population which require more services and social infrastructures which in essence are beyond the provision of the university, this is causing "urban rush" around the university with rapid land use change. As a matter of fact this is increasing the urban population which according to UN-HABITAT (2013) projection, urban population growth around the world between 2000 and 2050 will need to be doubled the amount of urban space in developed countries and expanded by 326 per cent in developing countries to accommodate people. The fact that this population growth will occur largely in intermediate cities, with little human resource capacity and limited budgets, will compound the problem. This gives us more reasons to act when urbanization of the rural land is emerging.

1.3 Research questions

This study was guided by the following research question:

a) What policy and legislative frameworks guide planning for urban centers in Kenya?
b) How has the land use changed in Baraton community since the university was established?
c) What are the impacts of land use change on physical infrastructure, socioeconomic and sociocultural development of the community?

1.4 Research objectives

This study investigated the legal and legislative frameworks that govern the planning of towns but with the focus on university towns, how UEAB has influenced change of land use over time and the impacts of land use change on the socioeconomic aspects of the community.

a) To analyze the policy and legislative frameworks governing urban planning in Kenya and their application on university towns.
b) To investigate the land use changes in Baraton community since the establishment of University of Eastern Africa, Baraton.
c) To analyze the impact of land use change on physical infrastructure, socioeconomic and sociocultural development on the community.
d) To propose a spatial site plan for Baraton Center as a growing University town.

1.5 Research premises

This study was guided by the premises that:

a) The policies and the legal frameworks for urban planning are not adequately addressing the formation and developments of organized towns especially university and college towns
b) Land use patterns of Baraton community have changed greatly since the establishment of the University
c) There are several impacts on physical infrastructure, socioeconomic, and sociocultural spheres realized by the community courtesy of the university and that some of the impacts are yet to be harnessed

1.6 Significance of the study

This study is significant as it points out the gaps in the planning and management of the urban processes brought about by situating universities in rural environments. It points out the knowledge gap in planning for university towns many of which are 'university slums' the study points out weaknesses in policies, legal and institutional frameworks which may provide solution to many random and disordered biophysical and social structures put up in university towns that seem neglected yet serve the interests of the university fraternity and the community at large. Besides, the study also points out how effective planning yields to socioeconomic development of areas where the universities are located. Since many Universities and university towns in Kenya are like UEAB and Baraton centre, this study may be used as a cross-sectional study of a replica of what goes on country wide to inform planning for the university towns through policy and legislative frameworks.

1.7 Justification of the study

The Geographic and Demographic Expansion of Universities in Kenya has been steadily increasing in the rural and small towns attracting large human settlements around their vicinities yet no studies have been undertaken to analyze the impacts of such initiatives which causes spontaneous reaction from social and physical spheres. No study has been done to evaluate the planning and management issues as well as the socioeconomic aspects that come with the spatial location and development of these universities. Considering the significance of universities as social development projects as well as avenue to several entrepreneurship opportunities to the

community of location and beyond, this study emphasizes adequate policy formulations in planning for university allocation and the planning of the areas around them. In the global context, university towns have been seen as comfort zones for retirees and investors and home of many SMEs which contribute to the socioeconomic development of the areas of locality, this study reveals this potentiality it in the Kenyan context to transform them to competitive, efficient and attractive environments to investors. This will make rural development faster and more beneficial to the populace.

Adequate Planning for the university towns will make the planning features and/or structures be spelt out clearly giving form and design of the developing town. Goods and service providence as well as the interconnectivity with the hinterland will be harmonized. This guarantees the environmental sustainability and safety of the dwellers. Besides, if adequate planning is done the socioeconomic aspects will be more enhanced leading to more social integration and economic development. With economic development the urban growth will be faster and the needs of the populace will be addressed locally.

1.8 Scope of the study

This study was done in Chemundu location in Nandi North district in Nandi County. Baraton community and Baraton Center formed the gist of the study as it forms the epicenter of the activities. The research was limited to: analyzing the policy and legislative frameworks governing urban planning in Kenya and their application on university towns, investigating the extent to which land use in Baraton has changed since the inception of the university and to analyze the impact of land use change on physical infrastructure, socioeconomic and sociocultural development of the community. Finally this study developed a proposed site plan for the Baraton center.

1.9 Limitation of the study

This study was done in a multi ethnic diversity with majority being Nandi people, language barrier especially in administering questionnaires and purposive interviews were challenging. Acquisition of maps and satellite imagery for the area across times from before 1980, through 1990; and 2000 showing the change in land use although critical to this study, was not possible to due to the reported policy of the county officials who were categorical that such documents could only be offered to institutions and not individuals. Acquisition, interpretation and accuracy

of satellite images required additional expertise and skills. Since this study is privately sponsored, inadequate resources were a big undoing. Time constrains could not allow for superb site planning for Baraton Center as had been anticipated.

1.10 Operational definitions

University slums: this refers to the haphazard development and sporadic placement of buildings and structures in the upcoming centre without following any planning designs**.** The settlements lack implementation of the housing as required by the physical planning Handbook 1996

Land use change: this refers to the conversion or alteration of the original use of land in a spatial location to some other uses that addresses the needs of the developers.

Land use pattern: this is the appearance and/or the design of development on a given parcel of land in form of structures.

Urban planning: this is the careful designing of urban land use to systematically serve the interests of the people. It sets relating activities in spaces for development and engaging the stakeholders as well.

Urban rush: this is the hurried development of support services to augment the market demands especially housing and other utilities.

University/college town- the urban center that develops around institutions of higher learning

Quick fix: refers to the immediate response to provide urban services like housing, parking, market place or others to address the immediate need.

1.11 Chapter Outlines

Chapter one of this study, discusses the background of the problem, the problem statement, research questions, objectives, the premises, justification, significance of the study, scope, limitations of the study and operational definition. Chapter two contains the literature reviewed based on the study objectives. It discusses the already documented information on urban planning and management in relation to development. It contains theoretical and conceptual frameworks applicable to the study. Chapter three informs about the study area including the physical location and extent, socio/economic and ecological array. Chapter four outlines the methodology for information acquisition e.g. data collection methods, instruments for date collection, sample size and sampling techniques used and data analysis and presentation techniques. Chapter five is about the results and discussions. It reveals the study findings while chapter six is about summary of the findings, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Policies and Legislative Frameworks governing urban development in Kenya

Urban areas continue to play a critical role in national development; it is estimated that they contribute 70% of the Gross Domestic Product (GDP). Therefore, it is important to harness the huge potential of urbanization as a vehicle for growth and development while at the same time fully addressing the challenges. Urban development in Kenya has largely been taking place without a comprehensive national urban policy framework. Past sector policies did not adequately address urbanization as an evolving system that could foster development and economic growth and one that would integrate urban and rural development in a mutually beneficial relationship. (Nabutola, 2012)

Kenya's urban development has been guided mainly by the Local Government Act CAP 265 (now repealed) and the Physical Planning Act of 1996, both of which proved inadequate in addressing the myriad opportunities and challenges facing the nation's cities and towns and in managing rapid urban growth. In order to realize sustainable urbanization, governance and management of urban areas and cities should be streamlined with the implementation of the Constitution of Kenya 2010 and the Urban Areas and Cities Act 2011. (ibid) according to the revised physical planning Act 2012 CAP 286 the preparation of physical development plans is a preserve of the regional or local director without clear reference to the users of such plans.

Inasmuch as there is the new urban areas and cities Act of 2011 in force, urban development has not taken roots based on what the Act envisages. Urban development is supposed to bring about improved opportunities, increased choices of survival, better social infrastructures and services that integrate both rural and urban development. This is not currently taking place more so with regard to the recent proliferation of universities across the country. Planning for the areas in which a university is to be located is largely missing, this contributes to 'urban rush' where urban features of 'quick fix' are developed to tap the overwhelming market demands.

According to NUDP (2011) sustainable urban development in the country should address the following thematic areas: urban economy; urban finance; urban governance and management; national and county urban planning; land, environment and climate change; social infrastructure

and services; physical infrastructure and services; urban housing; urban safety and disaster risk management; and marginalized and vulnerable groups.

The NUDP Policy created a framework for the planning, development and management of education and health facilities, and public open spaces, parks and recreational facilities, including sports amenities. The Policy has prioritized planning and development of the much-needed physical infrastructure and services for sustainable urbanization. Although Universities and big colleges are educational facilities, they are pull factors to urban development. The university and college towns continue to grow without these planning guidelines factored in. In the face of rapid urbanization, informal settlements have come to epitomize urban areas and cities. In response to fast growing demand for appropriate urban housing the Policy recommends mechanisms to deliver affordable housing of acceptable quality.

The Constitution of Kenya 2010, clauses 184 and 176 (2) provide for regulation of urban areas and cities, clause 200(2), outlines the governance of the capital city, other cities and urban areas and the Vision 2030 calls for a nationwide urban planning and development. Based on these instruments, urban planning should be proactive rather than reactive if sustainable urban development is to be achieved.

Kenya is rapidly experiencing urbanization process which is among the highest in the world. The high rate of urbanization is occasioned by natural population growth, migration and arbitrary urban boundary extensions and political processes. Unfortunately, the rapid growth is taking place without corresponding capacity of the city and Town planning and management institutions to guarantee sustainable urban livelihoods. The existing urban planning and implementation tools have failed to provide an orderly and attractive urban environment in Kenya. (Nabutola Op.cit.) This is evidenced by a myriad of environmental problems including, the proliferation of slums, squatter's settlements, incessant collapse of buildings, traffic congestion, poor waste management, competing land uses, ribbon pattern of development and urban sprawls.

2.1.1 Policies on Urban development in Kenya

Kenya embraces urban development control process governed by various pieces of Legislation and Sessional Papers including; the Urban Areas and Cities Act 2011, Land Control Act Cap

302, the Physical Planning Act 1996 Cap 286, the Constitution of Kenya 2010, the Environment Management and Coordination Act 1999, the National Land Commission Act 2012, the Land Act 2012, the Land Registration Act 2012 and the Sessional Paper No.3 of 2009 on the National Land Policy. These legislations needs strengthened application, the current state of affairs in most Kenyan towns is an indication that these requirements may be escaping the attention of the concerned enforcers. Ndegwa (2001) (Cited in Raymond 1978.4) quotes "the reason that physical planning is ineffective is because local government bodies can ignore it. And the reason it can be ignored is that in almost all states, plans are developed by or under the aegis of local governing bodies. It is suggested that there ought to be a legal requirement that the local governing bodies adopt plans. If they are not officially adopted it can be expected that the local governing bodies would be sufficiently communicated to, to make sure that the physical planning are kept up to date and properly administered. If local planning were a continuous, disciplined and accountable process, in time, stakeholders will be educated and the general public will participate effectively in the planning process. "

In their re-assessment of urban planning and development regulations in African cities, UN Habitat (1990), AAK, (2010) concluded that many factors contributes to non- compliance to urban development control regulations as discussed below.

a) Restrictive building regulations: The existing standards, by-laws, codes and regulations pertaining to house and building are restrictive and do not take account of the available local materials. There has been insufficient dissemination of appropriate building technology for low income groups. This has resulted in the mushrooming of squatter settlements and illegal developments

b) Laxity in approving plans: The law requires that all developers must submit their development proposals to Local Authorities for approval. This has been reported to take unnecessary long period of time thus delaying developments in most Local Authorities. Developers have had to go ahead with their developments with no regard for submitted plans. In Kenya, a strategy of fast-tracking a plan approval process has been developed through the use of a Result Based Management (RBM) approach involving adoption of citizen service Delivery Charter and the Rapid Result Initiatives (RRI).

c) Restrictive Planning regulations: Explicit urban development and planning regulations have been adopted in developing countries. The various Acts regulating urban development seem to

be outdated and not conforming to the countries current social, economic and political circumstances. Planning regulations and standards have been considered to be too static and inflexible e.g. the developments control code, the building and zoning regulations.

d) Poor policy implementation: Implementation of urban development policies has been characterized by failures. These have their roots in remote bureaucratic decisions, delays and poor execution of projects and programs by specialized bodies, ineffective local institutions and staff, lack of institutional and inter-sector coordination framework for development planning and the lack of or inadequate participation by beneficiary population.

e) High poverty levels: The proportion of the population living in poverty has increased in most developing countries to as much as 50% of the population in some cases. With a large proportion of urban population in poverty struggling to make a living, compliance to urban development regulations is not in their scheme of priorities. Lack of comprehensive urban development policy that would guide regulations that are in line with the needs of the people and the current social-economic realities such as urban poverty has contributed to the high degree of non-compliance to urban development and planning regulations.

f) Weak financial position: Most local authorities have limited finances for development control.

g) Weak institutional and legal framework: Institutional coordination problems arise between the Ministry of Local Government through Local Authorities and the Ministry of Lands and physical planning in allocation of open spaces and the abuse of the same by the developers in the past that violated planning regulations. There has been weak management in the local authorities as well as failure of the local authorities to attract staff.

i) Lack of political will: There is lack of political will and public support for planning. Planning is viewed as unnecessary interference in private property rights. Obudho (1992), notes that implementation of these plans depends very much on the good will of Local Authority.

j) Poor enforcement machinery: Although most developers tend to comply with planning regulations, there are some violators especially of buildings. This is because fees levied on the offenders are low and affordable hence they are not deterred, when compared to the gains they make from inefficient mode of production.

k) High professional fees: High professional fees charged by various professionals like Planners, Architects, land Surveyors and Engineers have been identified as a serious hindrance to

development within the legal framework in Kenya. These have discouraged developers to engage these professionals in making building plans, thus leaving room for the quacks to ruin the built environment. In Kenya, the effect of this situation is manifested in incessant collapse of buildings especially in the urban areas.

l) Lack of awareness of the existence of urban development and planning regulations

In examining the degree of compliance with the required regulations, the extent to which people are aware of the existence of these regulations is important because it partly determines the extent to which people will comply with the regulations. A large portion of people in the urban areas are not aware of the regulations (UNCHS Habitat, 1999).

This kind of analysis resonates with the happenings in the Kenyan scenario concerning compliance.

Process of application to develop a land

The application process to develop a given land entails submission of a drawing or a design which is attached to various prescribed forms which were previously administered by the defunct local Authorities of the City Council, Town Council or the County Council. The Local Authorities collapsed after the 4th March 2013 General elections, and currently urban development control is under the armpit of the 47 County Governments in Kenya. (Opata et al., 2013)

Under the County Government, the Sub-County Administrators receive the application forms from the applicants or proponents with sufficient copies for circulation to various institutions for comments. While making informed decisions on the development applications in Kenya, development control institutions are persuaded by:

a) Existence of an approved urban/regional physical development plan
b) Existing pieces of legislation and regulations
c) Building code and By-laws
d) Physical planning handbook
e) Physical planning liaison committee decisions
f) History of the site and development trends
g) Public interests and environmental considerations
h) Other material considerations (ibid)

Consequences of Non-Adherence to Development control instruments

The Kenya constitution 2010, on the chapter of Land and Environment, Article 42 states that every person has a right to a clean and healthy environment including the right to have the environment protected for the benefit of present and future generations (Kenya, 2010a). If there is no development control, a right to a clean and healthy environment as recognized and protected under the constitution is undermined. The failure to ensure proper development control processes in Kenya has led to rise in disasters such as collapsing of buildings and its attendant losses, fire disasters due to poor circulation networks or equipment, unsightly urban centres, increased vulnerability to hazards, population imbalance with more people tending to move to urban and cities in search of opportunities and due to hard economic situations settle in slums.

2.1.2 The Establishment and Accreditation of Universities in Kenya

The universities' establishment was originally done through the Acts of parliament but with the passing of the Universities Act 2012- Kenya Gazzette Supplement N0. 192 (Acts N0. 42)

The Universities are now established through a charter. Section 13 of the policy says:

(1) Every university in Kenya shall be established by a Charter in accordance with this Act.

(2) A person wishing to establish a University in Kenya shall apply in writing to the Commission in the prescribed manner for accreditation and the grant of a Charter.

(3) An application under subsection (2) shall be accompanied by a draft of the Charter of the proposed university, which shall provide for the following with respect to the university

- governance structures and systems;
- members and staff;
- financial management systems;
- development of the Statutes;
- use of the common seal and custody' of instruments of authority;
- process of voluntary winding up;
- the procedure for vetting of applicants and nominees for the office of Chancellor; and
- the core courses offered at the university;
- the infrastructure in place or proposed infrastructure and the locations thereof, including that of Constituent Colleges and which shall comply with infrastructural standards established by the Commission.

- any other matter required by the Commission.

These guidelines are comprehensive on the university's part for establishing the institution, however, the link between the University and it's environ is missing, adequate planning of a university premise should incorporate the careful planning of the anticipated human settlement that the university will attract.

2.1.3 Land use planning

Land use planning is done to identify alternatives for land use and to select and adopt the best land use options. The main objective of land use planning is to allocate land uses to meet the economic and social needs of people while safeguarding future resources. Land use and physical planning exercises provide a forum in which the interests of multiple stakeholders as well as the physical, social, and economic constraints on land uses can be debated and balanced. Land use and physical planning have an integrative function. Therefore, it should incorporate Infrastructure and Services Delivery; Environmental Planning, Housing Design and Construction Technology; and Cultural Heritage Conservation. (UN Handbook for Reconstructing after Natural Disasters, 2010) All these issues need to be addressed comprehensively during any meaningful planning process. Lack of institutional capacity often discourages decision makers from attempting a planning process. While a planning process usually presumes both the existence of a legal and institutional framework to mandate the process and the professional capacity to implement the prepared plans, these are not absolute prerequisites. Lack of information is frequently put forward as a reason to forgo planning.

According to Zacharias et al. (2013), Studies on the urban village over the past ten years have focused on legalistic and structural aspects, as well as the social outcomes of village-led redevelopment; Studies on the morphology of villages, their spatial and economic linkage with the city, and their internal spatial dynamics…the study of village space focused on the spatial relationships between village space and the surrounding city-the exchange of people and goods, the movement system in relation to commercial activity, and the relationship between the pattern of building and movement networks-forms an introduction to new approaches to physical renewal. Rural development through dispersal of universities to the remote areas should then transform the village locality into a nascent urban centre with improved socioeconomic, cultural, environmental and physical characteristics that impact positively on the village.

The regeneration of urban-village space by the villagers themselves and by educational development projects initiated by the government and private entities needs the attention of academicians, policy makers, and the media. The rapid build-up in the small towns accompanied by substantial population increase transforms local economy, and the extreme densification of inhabited village space. (Ibid)

2.1.4 Urbanization and the natural environment

The impact of urban development upon a natural environment may be divided into direct or primary impacts and indirect or secondary ones, direct impacts involves land use changes, when the land is converted from some rural use to some urban ones, direct impacts refer to the physical growth of the metropolitan area, in terms of factories and offices, schools, colleges, and hospitals, stores and other services, residential element is dominant. In this sense urbanization often leads to vegetation clearance leaving the land bare for some time during the building process, buildings are erected and streets are paved, creating impervious surfaces from which runoffs is 100% and immediate, earth is often removed in a modification of the micro-relief-landscaping, and the natural land is materially modified. (Clawson & Marion 1905) Other impacts on the environment include pollution of air, water and soil with poor management of wastes.

Land use for institutions and institution's type, size, and location play an important role in determining the campus environment in such ways as administration, proximity of residences to campus, and the overall feel of the university. At first glance, the physical environment would be defined as "the classrooms, laboratories, libraries, and other facilities directly connected with student life or with the academic program of the institution" However, on a more specific level, the physical environment includes the university environment (residence halls, classrooms…for example) along with the local community and the surrounding geographical location of the university. (Astin, 1968)

The surrounding geographical area and the town in which the university is situated are of equal importance. The town provides an escape from the university environment and all that it entails: roommates, classes, and studies. Therefore, a town or city that provides opportunities such as museums, shopping, sports, concerts, and the like may be better all-around environments for many students. However, too many distractions can be detrimental to the student as well. A delicate balance must be struck between the university setting and the environment surrounding

it to ensure that students have the best supporting environment necessary to succeed in their pursuits. (Ibid)

2.2 Impacts of land use change on physical infrastructure, Sociocultural and economic aspects of the community of location.

According to Hardoy and Satterthwaite, (1986), the role played by the small and intermediate urban centres in supporting social and economic development in rural areas-providing rural populations with access to, schools and healthcare, agricultural extension services, agro-industry linked to local products is rarely given attention. Nor, is sufficient attention given to the need for publicly funded transport and communications infrastructures within and between these centres and the rural areas yet all these are essential urban components of any successful rural development program. Other reasons touching on socioeconomic impacts of these small towns include their political roles i.e. sub-national and sub-regional levels of government administration are usually located in small and intermediate urban centers. It is through such centres that the needs and priorities of sub-national and sub-regional populations should be channeled to influence policies and resources allocation at higher levels of government. The governments can arrive at a better understanding of real development possibilities and development constraints through a better understanding of existing circumstances and current trends in small centres allowing a realistic assessment of local skills and resources.

According to Bondinuba et al. (2013), housing promotes physical, communal, and economic as well as psychological gratification for the occupants and provides leisure and reflects status. Aside housing being a fundamental human right, adequate housing has the potential of improving the civic, social, economic, and sustainable development goals of the nation. The delivery of housing is so inseparably connected with national socioeconomic development that requires adequate planning is a necessity as urban development is associated with housing and structures.

Culturally, each individual brings to a university setting cultural baggage that has been amended throughout their experiences prior to attending college. Twelve years of earlier education and traditional trends from their tribes has ingrained into them specific learning patterns that, for the most part, need to be unlearned to succeed at the post-secondary level. (Astin. op.cit) Living in the same geographical location with people across multiethnic races, class, and other

socioeconomic factors and cultural divides has isolated the students to high frequency of interaction subsequently cultural integration and intermarriages have been realized. In some cases the community may feel threatened by the cultural erosion of their youthful generations as they adopt the campus lifestyle of the college students.

Economically, universities can be valuable contributors to a region of its location. They are immobile institutions fairly resistant to business cycle fluctuations as they offer a steady market in the community. Annette (cited in Flint, A. 2002), says universities tend to attract revenue from outside the immediate area through tuition, endowment income or state tax allocations and to attract significant human capital that can contribute to the area's economic growth.

In many places like in Europe, the economy of the city is closely related with the university activity and highly supported by the entire university structure, which may include university hospitals and clinics, university printing houses, libraries, laboratories, business incubators, student rooms, dining halls, students' unions, student societies, and academic festivities. Moreover, the history of the city is often intertwined with the history of the university itself. Many European university towns have not been merely important places of scientific and educational endeavor, but also centre of political, cultural and social influence to their respective societies throughout the centuries. (Jaschik, Scott (October 20, 2008). Winnie, Trista. 2007) Examples of these cities include Oxford, Cambridge, Durham, Szeged, Leiden, Heidelberg, Fribourg, Trondheim, graham's town, Stellenbosch among others.

2.3 Urbanization trends in Africa and Kenya

Urbanization in Africa is the fastest urbanizing continent in the world. In 1980, only 28 percent of the African population lived in cities. Today it has risen to about 37 percent. The annual urban growth rate in Africa is 4.87 percent, twice that of Latin America and Asia. Cities and towns in Africa are also growing at twice the 2.5 percent growth rate of the rural population in Africa. In terms of numbers, currently about 300 million Africans live in urban settlements. This number is expected to reach about 500 million by 2015. (Tibaijuka, 2006) UN-HABITAT (2010) estimates that in the next 25 years, 400 million people will be added to the African urban population, this will put tremendous pressure on cities and towns. Urbanization is important in development, and better planning methods are essential to manage the process. Both rapid urbanization process and

the spectacular physical growth of towns have emerged as major development planning issues in Kenya.

In 1962 it was estimated that only one Kenyan out of every 12 lived in urban centres. By the year 1999, the proportion of the urban population had increased to 34.5 per cent which is close to 10 million people. This implies that one out of every three Kenyans lived in urban areas. By the year 2015, the level of urbanization will have reached 44.5% with an estimated 16.5 million people living in urban areas and eventually percentage is set to reach 54% by 2030 with about 23.6 million people living in urban areas (Vision 2030 policy paper).

Urbanization has been accelerated by natural population growth, rural urban migration and boundary extension and expansion. The poor performance of agriculture and rural development is making small trading centres to urbanize faster due to reliance on urban based activities for their livelihoods leading to demands in more urban basic and infrastructure services. (NUDP, 2008) The other unmentioned cause for urban development acceleration is the university expansion to the remote rural and small trading centres. The above unprecedented urban growth has contributed to a myriad of problems faced in our urban centres today, and which can only be addressed through a coherent sustainable urban development based on sound national urban development policy.

Some of the main problems include weak and poor urban management capacities, the growth of slums and unauthorized and uncontrolled development and proliferation of informal settlements and lack of clear tenure, environmental degradation, poor traffic management, congestion and transportation systems, unemployment, crime, inadequacy of clean water, inadequate drainage and sanitation, ill managed informal trading activities, poor location of industries, residential and commercial facilities. Poverty, historically a rural phenomenon, is also becoming an increasingly urban issue in Kenya and is embracing a gender and youth dimension (ibid)

Rapid urbanization in Kenya has also not been accompanied by the necessary growth of infrastructure and services and industrialization. Of particular concern is the inadequate supply of housing for a majority of the urban dwellers that are mainly urban low-income groups, providing themselves with substandard housing in unplanned settlements. In terms of planning, only 30% of urban towns are planned (Kenya Country Report to 4th World Urban Forum, 2008).

The situation is even worse in informal settlements. It is currently estimated that about 50 percent of Kenya's urban population live in unplanned settlements lacking in basic infrastructure provision and services. In Nairobi, three out of every five, or 60 percent of the population live in the informal settlements, occupying only 5 percent of residential land. The problem of "squatters" and "informal" or people's settlements continue to present a challenge for sustainable development in Kenya.

2.4 Theoretical Frameworks

There are several theories of urban development including concentric ring model, central place theory, growth pole theory, multiple- nuclear theory, and the theory of Intelligent Urbanism (PIU) among others. This study will be built around four of these theories namely, central place, growth pole, multiple-nuclear and the PIU to inform its theoretical framework.

2.4.1 Central Place Theory

Central place theory is a geographical theory that seeks to explain the number, size and location of human settlements in an urban system. This theory was created by a German geographer known as Walter Christaller in 1933 who asserted that settlements simply functioned as central places providing services to surrounding areas.

The theory relied on two concepts namely threshold and range.

(a) Threshold is the minimum market (population or income) needed to bring about the selling of particular good or service.

(b). Range is the maximum distance consumers are prepared to travel to acquire goods at some point the cost or inconvenience will outweigh the need for the good.

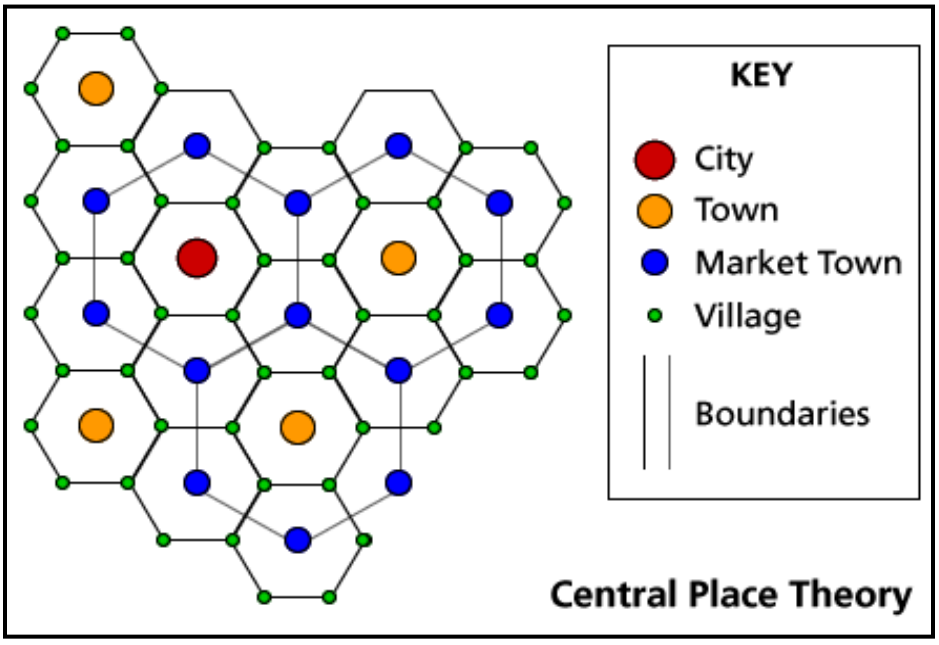
The results of these consumer preferences are that a system of various sizes will emerge. Each center will supply particular types of goods forming levels of hierarchy (hierarchical pyramid).In functional hierarchies; generalizations can be made regarding the spacing, size and function of settlements. At the base of hierarchy pyramid are shopping centers, new agents etc. which sell low order goods services such as newspaper stalls, groceries, bakeries, etc. and these centers are

small. At the top of the pyramid are centers selling high order goods and services e.g. jewelry, large shopping malls etc.

Limitations/ Criticisms of Central Place Theory

The central place theory has been criticized for being static; it does not incorporate the temporal aspect in the development of a central place. Secondly it doesn't explain the existence of urban hierarchy in industrialized economies or post industrialized areas rather it focuses on agricultural areas due to varied distribution of natural resources or diversified nature of various services.

The researcher considers this theory needful and strong to develop a study because the universities are a pull factor to settlements and settlements can never be sustained without services and goods providence. The threshold and range discussed above thus necessitates urban features. In any case the goods and services supplied at these centres are those at the base of the pyramid-low order goods e.g. groceries. The site before location of university could just be a village then with the university demands it becomes a market village then as services and good of higher order become necessary it grows to a town and with more population with strong financial prowess increases demanding expansion of these supplies, it develops to a city.



Source*: (Bairoch, 1988)*

Figure 1: Central Place Theory

2.4.2 Multiple-Nuclear Theory - Chauncey Harris and Edward Ullman

This is a theory of patterns of urban land-use proposed by Chauncey Harris and Edward in 1945. The core of multiple- nuclear theory is the observation that different activities (industries, retailing, and residence) have different location priorities and special needs, such as access to transportation networks, water, power, or residential areas.

It is a model of the internal structure of cities in which social groups are arranged around a collection of nodes of activities. It notes that while a city may have started with a CBD, similar industries with common land use and financial requirements are established near each other. These requirements influence their immediate neighborhood. Example: Hotels and restaurants spring up around airports. The number and kinds of nuclei mark a city's growth.

The theory was formed based on the idea that people have greater movement due to increased ownership. This increased ownership allows the specialization of regional centers (e.g. heavy industrial business park). Distinctive land- use zones develop because some activities repel each other, high quality housing does not generally arise next to industrial areas, and other activities cannot afford the high costs of the most desirable locations. New industrial areas develop in suburban location since they require easy access, and outlying business districts may develop for the same reason.

***Advantages*;** The multiple nuclei model was the first to consider the complexity of the city and its surrounding areas. – presented as alternatives to the concentric zone model, It brought about a realization that the CBD is not the only part of a city that affects land use, a simplification of the urban landscape.

***Limitations*;** The physical landscape is still not entirely integrated, it applies only to the cities in the U.S.A. Cities in Europe have a ringed web-like structure as medieval European towns were typically constructed around a church or a cathedral e.g. the Boston city as relates to Harvard University.

The researcher finds a relation between this theory and the growth of university towns which coalesce around the university following the high population and their demand needs. Given the university, a university town develops, in the proximity other low level institutions develop like college, secondary, and primary schools these also would form a catchment area for their

workers who wish to stay within the work place leading to other mini small canters' growth, demand calls for providers of the goods and services to move closer as they compete for market shares.

2.4.3 Growth Pole Model-Francois Perroux 1950

This model is described by the growth of industries around a central core industry which acts as a catalyst to growth in the area. Growth manifests itself around specific poles in varying intensities. The poles are often characterized by key industries around which linked industries develop through direct or indirect effects. Expansion of key industries results in increased output, employment opportunities, investments and new technologies and industries. The growth pole theory is based on the belief that developing countries can induce economic growth by investing in capital-intensive industries in large urban centers, which will then spread out to rural areas. Free market forces will provide conditions for development causing trickle-down effects which will pull together various economic forces creating a virtuous cycle that spreads economic growth from urban to rural areas.

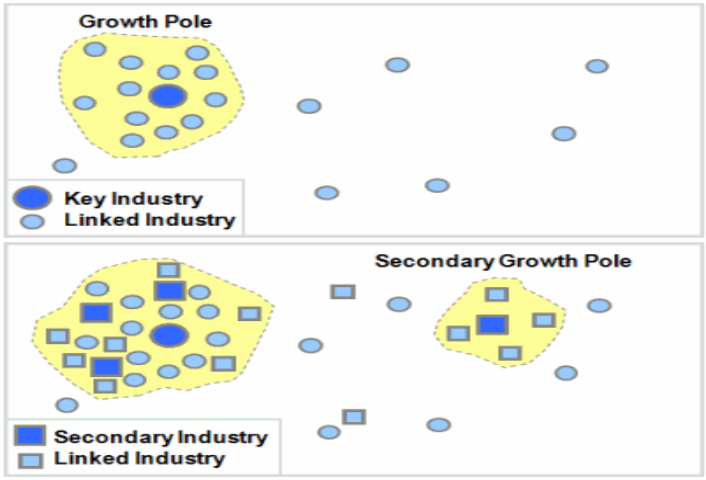
Criticisms of growth pole model

Inasmuch as this model is thought to bring a trickle-down effect of urban development to the rural areas, the researcher argues that the said development does little to improve the lives of the rural people. In most cases the capitalist economy has only made it possible for the investors to reap more while the workers work for sustenance. The urban characteristics change the nature and cost of living to the areas where the urban features extend usually to the rise.

Strengths: Important features of this model are; the positive correlation of socio-economic status of households with distance from the CBD - more affluent households were observed to live at greater distances from the central city, Decentralization of shops, industry and entertainment, urban regeneration- more expensive property can be found in low class housing areas

Weaknesses; the model does not work well with cities outside the United States in particular those developed under different historical contexts. Even in United States due to advancements in transportation, information technology and global economy, cities are no longer organized in clear zones, It assumes an isotropic plan; an uneven or unchanging landscape**,** Physical features like land may restrict growth of certain sectors, Commuter villages defy the theory, being in

commuter zone but located far from the city**,** It does not address local urban politics and forces of globalization**,** The model does not fit polycentric cities.



Source*: (Bairoch, 1988)*

Figure 2: Growth Pole Theory

The belief that universities are catalysts of developments (see PUIB 2006) growth pole model will be relevant to this study as it only requires adequate funding to achieve development goals of research, innovations and creativity or incubation centres upon which community needs and problems can be resolved. These will influence mobilization and effective utilization of resources in the community. In this case the UEAB is the pull factor, and the growth manifests itself around specific poles in varying intensities. These poles include: businesses, low level educational institutions like colleges, secondary and primary schools, transport services, housing settlement among others all linking to the University. Expansion of the University will lead to increased output, employment opportunities, investments and new demands as population increases.

2.4.4 Principle of Intelligent Urbanism (PIU)-Prof. Christopher C. Benninger

PIU is a theory of urban planning composed of a set of ten axioms intended to guide the formulation of city plans and urban designs. According to proponents of this principle, there must be a system of participation by the "Stake Holders" in the preparation of plans. Public meetings, hearings of objections and transparent processes of addressing objections must be institutionalized. Local Area Plans must be prepared which address local issues and take into

account local views and sentiments regarding plan objectives, configurations, standards and patterns. Such plans lay out the sites of plots showing the roads, public open spaces, amenities areas and conservation sites. These axioms include environmental sustainability, heritage conservation, appropriate technology, infrastructure efficiency and effectiveness, place-making, social access, transit oriented development, regional integration, human scale, and institutional integrity. (Nabutola, 2012)

The ten Principles of Intelligent Urbanism are:

Principle One: A Balance with Nature emphasizes the distinction between utilizing resources and exploiting them. It focuses on a threshold beyond which deforestation, soil erosion; aquifer deterioration, silting, and flooding reinforce one another in urban systems, destroying life support systems. The principle promotes environmental assessments of ecosystems to identify fragile zones, threatened natural systems and habitats that can be enhanced through conservation, density, land use and open space planning.

Principle Two: A Balance with Tradition integrates plan interventions with existing cultural assets, respecting traditional patterns and precedents of style. It respects heritage precincts and historical assets that weave the past and the futures of cities into a continuity of values.

Principle Three: Appropriate Technology promotes materials, building techniques, infrastructural systems and construction management that are consistent with peoples' capacities, geo-climatic conditions, local resources, and suitable capital investments. The PIU focus on matching interfaces between the physical spread of urban utilities and services, watershed catchments, urban administrative wards and electoral constituent boundaries.

Principle Four: Conviviality sponsors social interaction through public domains, in a hierarchy of places, devised for personal solace, engaging friendship, romance, house holding, neighboring, community and civic life. It promotes the protection, enhancement and creation of "open public spaces" which are accessible to all.

Principle Five: Efficiency promotes a balance between the consumption of urban resources like energy, time and finance, with planned achievements in comfort, safety, security, access, tenure, and hygiene levels. It encourages optimum sharing of land, roads, facilities and infrastructural networks to reduce per household costs, increasing affordability and civic viability.

Principle Six: Human Scale encourages ground level, pedestrian oriented urban arrangements, based on anthropometric dimensions, as opposed to machine-scales. Walkable, mixed use urban

villages are encouraged, over mono-functional blocks and zones, linked by motor ways and surrounded by parking lots.

Principle Seven: Opportunity Matrix enriches the city as a vehicle for personal, social, and economic development, through access to a range of organizations, services and facilities, providing a variety of opportunities for education, recreation, employment, business, mobility, shelter, health, safety and basic needs.

Principle Eight: Regional Integration, envisions the city as an organic part of a larger environmental, economic, social and cultural geographic system, which is essential for its future sustainability.

Principle Nine: Balanced Movement promotes integrated transport systems composed of pedestrian paths, cycle lanes, express bus lanes, light rail corridors and automobile channels. The modal split nodes between these systems become the public domains around which cluster high density, specialized urban Hubs and Walkable, mixed-use Urban Villages.

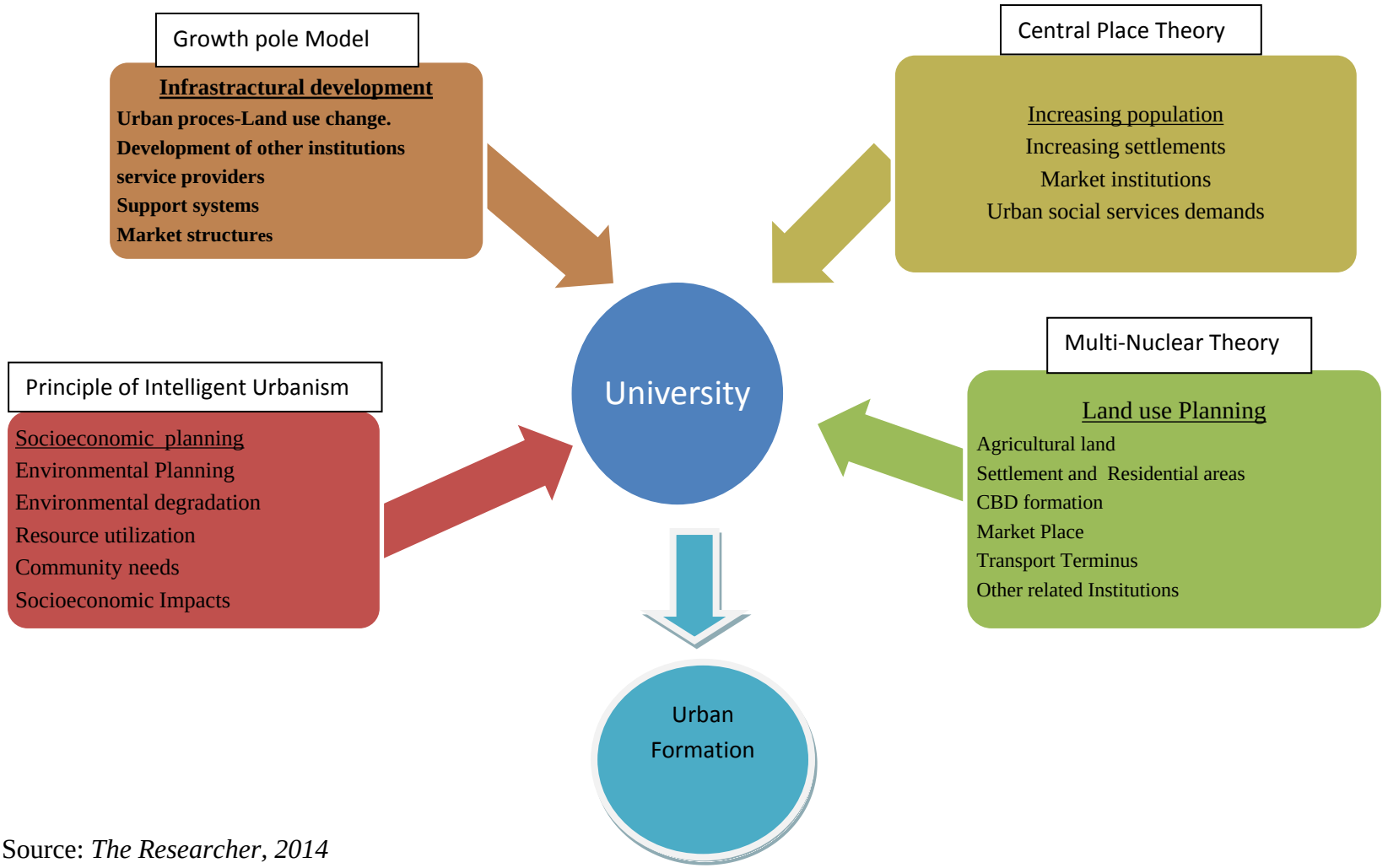
Principle Ten: Institutional Integrity recognizes that good practices inherent in considered principles can only be realized through the emplacement of accountable, transparent, competent and participatory local governance. It recognizes that such governance is founded on appropriate data bases, on due entitlements, on civic responsibilities and duties. The PIU promotes a range of facilitative and *promotive* urban development management tools to achieve intelligent urban practices, systems and forms.

Intelligent Urbanism insists on safety, hygiene, durability and utility in the design and construction of buildings. Where large numbers of people gather in schools, hospitals, and other public facilities that may become emergency shelters in disasters, special care must be exercised. A suitable Building Code is the proposed instrument to achieve these aims, reconcile and integrate diverse urban planning and management concerns.

2.5 The Conceptual Framework

Based on the theories highlighted above, this study will generate its concepts guided by the university premise as the pull factor. Based on the theories that explain the urban development, the university becomes the magnet that attracts the populations to the area of location, when the carrying capacity of the university is overwhelmed; the influx of the extra population finds their way out but near the university. The external community responds quickly by putting up support

structures. In most cases the external support comes in rush to cut into the market share. This often undermines the planning procedures and may lead to haphazard development though if good planning is done there occurs environmental sustainability otherwise degradation, dereliction, pollution and health susceptibility are consequences. Good planning consists of integration of the needs of the community and that of the University in such a way that the existence of the University in a given locality should be able to provide for the solution of the community development needs. The community and the University should consolidate their thoughts such that the programs that the university runs should be helping the community to utilize their natural resources and to ensure environmental sustainability. Based on this thought, the central place theory, the growth pole theory and multiple-nuclear theory wrapped up in the principle of Intelligent Urbanism will form the conceptual framework as follows to spur other developments that influence the growth of the urban by the university premise.



Source: *The Researcher, 2014*

Figure 3: The Conceptual Framework

CHAPTER THREE

THE AREA OF STUDY

3.1 Introduction

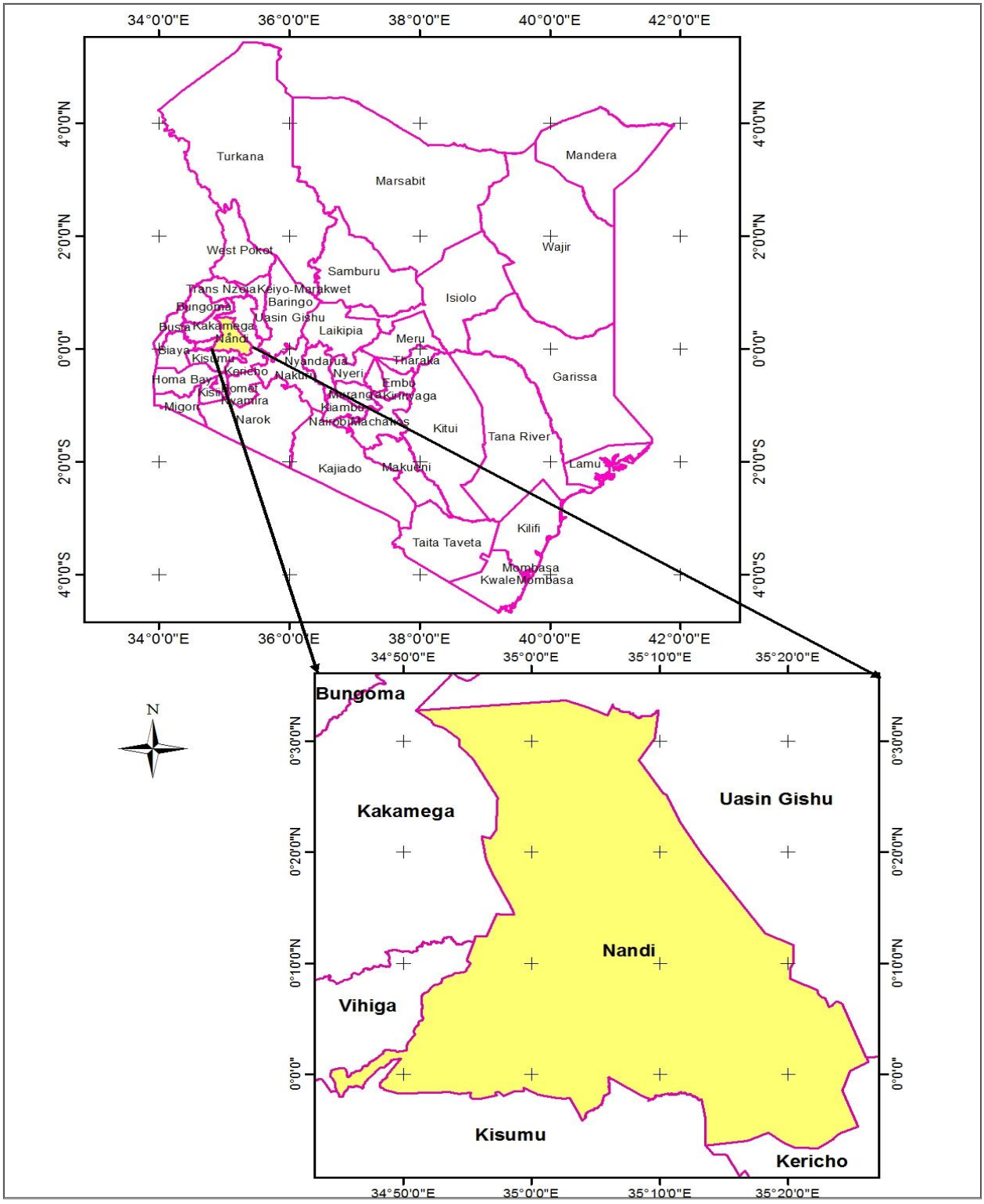
This chapter provides brief background information of UEAB in terms of historical development and then discusses the locality of Nandi County where it is located giving the physical location, size, administrative and political units, and socioeconomic, sociocultural and demographic characteristics besides physical and climatic characteristics.

3.2 Geographic location of Nandi County

Nandi County is located in Western Kenya and constitutes 4 constituencies (Mosop, Aldai, Emgwen and Tinderet). Nandi North, Nandi East, Nandi South, Nandi Central and Tinderet form the administrative districts of the county. Kapsabet is the capital and the largest town in the county, it boarders the the following counties: Uasin Gishu to the North and East,, Kericho to the South East, Kisumu to the South, Vihiga to the South West and Kakamega to the West. It covers an area of 2,884.2.2Km^2

Climate and Weather: The temperatures range from a mean of annual minimum of 12^{0}C to a mean maximum of 23^{0}C with rainfall amounts of between 1,200mm and 2,000mm per annum.

Road network: Bitumen surface 115.1km gravel surface 783.6 km earth surface 765.7km. The population is 752,965 in the ration of 50:50- Male: Female. Main resources in the county include arable land, forests, livestock, pasture, water and medicinal plants. The details of these and other information are discussed here below under the Nandi North District. Figure 4 below shows Nandi County in a national context and the bordering counties. The county has two districts: Nandi North and Nandi South districts as shown in figure 5 below. The county has 774primary schools, 155 secondary schools with student population of 220,000 and 27000respectively. Key institutions of higher learning are University of Eastern Africa, Baraton, Mosoriot Teacher's college and Kaiboi Technical Training Institute.



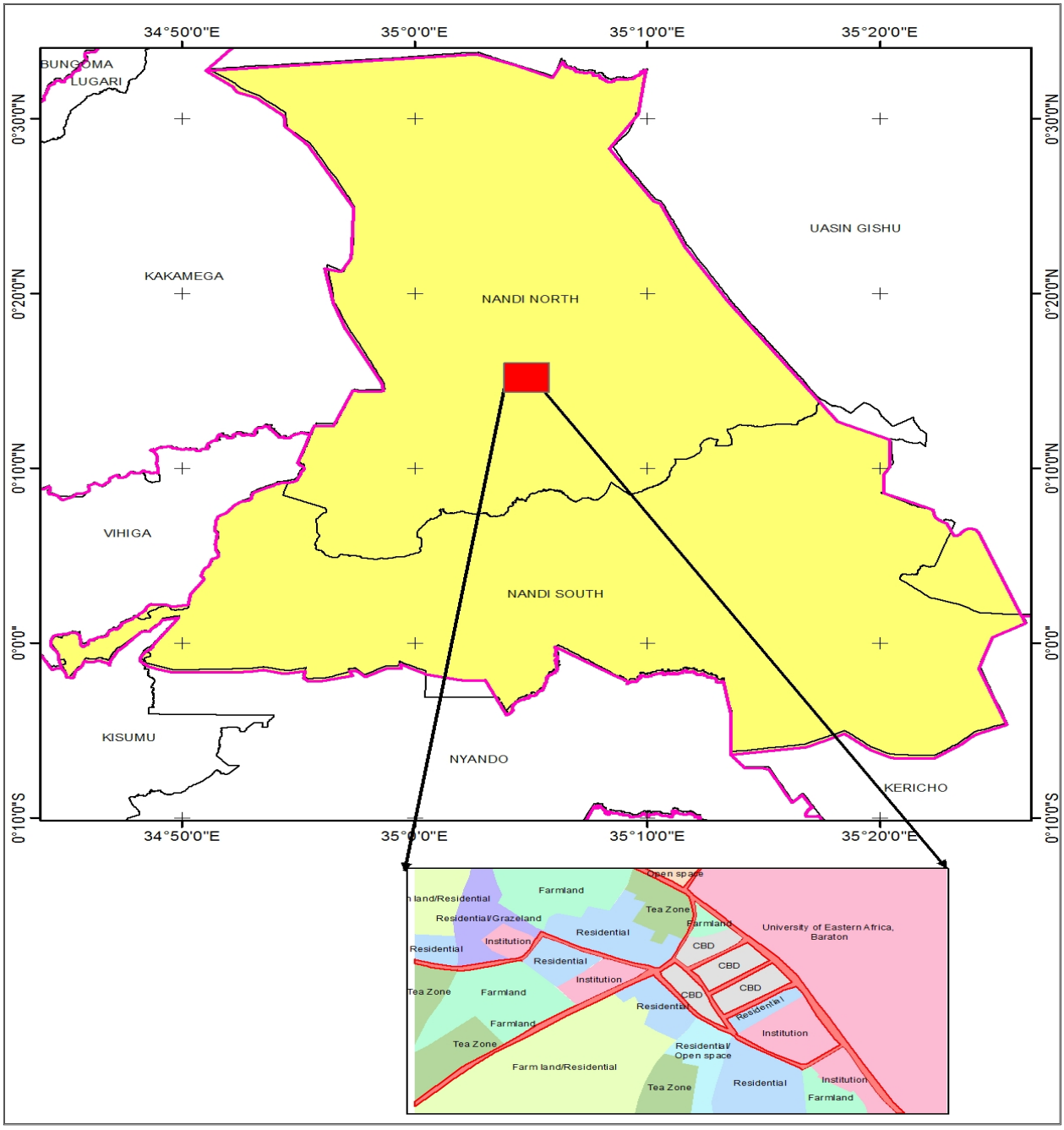
Source: *Extracted from google Earth-Kenya Couties Map*

Figure 4: Nandi County in the National context

3.3 Geographical Location of UEAB

University of Eastern Africa, Baraton is located in Chemundu Location, Nandi North District, Nandi County. It is approximately 60Km from Eldoret town a long Eldoret Kisumu highway. It is situated at 11Km off Kisumu Eldoret road at Chepterit/Baraton road junction and 9 KM from Kapsabet town. The UEAB, is a fully accredited institution of higher learning accredited by the Adventist Accrediting Association of the Seventh-day Adventist Schools, Colleges and Universities, and was chartered by the Government of the Republic of Kenya on March 28, 1991. It is also a member of the Commonwealth Association of Universities, and the Inter-University Council for East Africa. In December 21, 1978: The Kenya Government allotted 339 acres of the then Baraton Animal Husbandry Research Station in Nandi District to the Seventh-day Adventist Church for the purpose of founding what is now known as *the University of Eastern Africa, Baraton*. In September 1979: Classes began in the temporary farm structures. Most of these structures have since been replaced with modern buildings.

The University is owned and operated by the Seventh-day Adventist Church. It is governed by a University Council whose Chairperson, the University Chancellor is the President of the church in East- Central Africa Division of the SDA church. The council does its work through the Administrative Board, chaired by the Vice Chancellor, who is the chief executive officer of the university. It has a student population in the range of 2500-3000 every academic year. Figure 5 below shows the spatial location of Baraton university and Batraton center in the context Nandi County. The spot marked in red and zoomed out the location.



Source: *Extracted from Google Earth, 2014*

Figure 5: Spatial Location of Baraton center and UEAB in Nandi County

Nandi North District is bordered by Nandi Central District to the North-West, Uasin Gishu to the North and East, Nandi South to the South West and Vihiga to the South-West. It lies within latitude Oº and Oº 34" North and longitudes 34º 45" and 35º 25" East. It occupies an area of

1,582 square kilometers with a maximum distance of 90 KM from North to south and 75 KM from East to West.

From the national context of the position of Nandi North district, it straddles counties, which borders four countries i.e. Uganda, Republic of South Sudan, Ethiopia and Tanzania. This puts it at a strategic position of accessing international markets and the rest of the Kenyan hinterlands with varieties of its current and potential products.

The District has 5 Administrative Divisions, 42 Locations and 125 Sub-locations. Table 1 below shows area and administrative units of the District by division in (KM^2)

Table 1: Area and Administrative unit of the District by Division (KM^2)

Division	**Area**	**N0. of Locations**	**N0. of Sub Locations**
Kapsabet	493.7	8	24
Kabiyet	386.0	6	18
Kilibwoni	373.1	9	30
Kosirai	195	9	24
Kipkaren	315.5	10	28
	1745.3	42	124

Source: Nandi *North District Development plan (2003-2008)*

3.4 Climate and Physical Features

Under Physiographical perspective, the District is divided into 5 distinct features. The rolling hills to the West, the Kapsabet plateau (part of the Uasin Gishu Plateau), the weeded highland and foot hills of Tinderet volcanic Mass to the Southeast, the Kigwal Swamp in the Baraton/Chepterit area, and the dissected Nyando Escapement area at the southern border. The altitude of the District ranges from 1300m to 2,500m above sea level. It is hilly and is underlain by outcrops of the basement rock system, which are distinct to the North giving way to thick layers of red soil covered anthills to the south. This topography is favorable to the growth of natural forests, which serve as watersheds of the five major rivers and the numerous streams that form a good drainage pattern in the rest of the District. These rivers are Kipkaren, Clare, Onyonkie, Kimondi Kingwal, and Yala. The rivers are perennial which ensures availability of water for domestic use as well as for potential commercial and industrial use. However, the

rugged topography of the district inhibits transportation especially in the wet seasons. This terrain also affects farm mechanization particularly in the steep slopes making it unfeasible to realize optimal land exploitation. Nandi north DEAP (2008-2013)

The District has a cool and moderately wet climate. On the average, it receives between 1200 mm and 2000 mm of rainfall per annum. The long rains start in early March and continue up to end of June, while the short rains usually fall from mid-September to end of November. A dry spell is normally experienced between December and March. The district records at least some rainfall every month thus no month is virtually try.

There is a direct relationship between the rainfall regime and the economic activities in the district. The southern and central parts, which receive a minimum of 1,500 mm rainfall per annum, form the tea production belt. The relatively drier areas to the East and Northeast, which receive an average of 1200mm of rainfall per annum, are ideal for maize and sunflower cultivation. The whole District is ideal for dairy farming. The District has the potential to produce a surplus of diverse crops such as tree crops, horticulture, pyrethrum, cereal and fruit trees owing to adequate and reliable rainfall it receives. Most parts of the district experience mean temperatures of between 18^0C and 22^0C during the rainy seasons while higher temperatures averaging 23^0C are recorded during the drier months of December and January.

The coolest temperatures, as low as 12^0C, are experienced during the cold spell of July and August.

These conditions are favorable parameters for urban growth, with the university as the pull factor to the increasing populations of various demands and services, the university can capitalize on these opportunities and potentials in the district to offer industrial courses suited to maximization of the area's potentials. The developers and investors can also put up factories for milk products, meat products, and refined quality tea products not just processing and capitalize on the ready market attracted by the university and beyond. Sunflower farming is another key product of the area that can spur more economic growth for its seed oil. The pyrethrum, horticulture, tree plantations, maize, adequate perennial rivers are all boosting economic growth which, if well planned for can transform the region into an economic hub.

3.5 Population size and distribution

Settlement patterns in the district follow agro-ecological zones with high potential areas having the highest population density in the district.

Table 2: Population distribution in the district

Division	1979 (No)	Density	1989 (No)	Dens	1999 (N0)	dens	2005	Dens
Kilibwoni	29, 343	131	45468	179	37075	225	44334	269
Kosirai	2689	67	18445	147	35383	181	42076	216
Kabiyet	32,956	96	27755	138	43367	162	51569	192
Kipkaren	36,827	101	55979	125	52753	167	62731	199
Kapsabet	64236	213	90044	181	125115	253	148779	301
Total	166,051		237,591		123089		261410	

Source: Nandi North *District Statistics Office (2004)*

This huge population can provide ready market for all goods and services, enough labor both skilled and unskilled and offer other resources such as land and finances if marshaled.

3.6 Social, Cultural, and Economic Characteristics

There is a direct relationship between the rainfall regime and the economic activities in the district. The southern and central parts, with a minimum of 1500mm rainfall per annum, form the tea production belt. The relatively drier areas to the east and northeast receiving an average rainfall of 1200mm per annum are ideal for maize and sunflower. There are no major industrial plants in the District, except one Tea Factory, and a K.C.C. Milk processing plant. Milk produced in this area is sold to Kabiyet Dairies, KCC and Buzeki Dairies.

The expansion of rural electrification program is a problem despite the community raising the required deposit of 10%. There is more deforestation due to demand for firewood than afforestation. Good indigenous trees have been replaced by exotic trees that degrade our soils lowering food production. Gas is beyond reach of many while Biogas Technology is lacking. The road network is poorly maintained with only 15% of the roads being tarmacked. The feeder roads are in the pathetic state of disrepair. Poor roads network has made transportation of goods to markets costly and increased wastage. Only 10% of the population has access to tap water. Most rural communities rely on stream water. Catchment encroachment has led to many springs drying up. Jua kali sector lacks premises. The operations lack basic tools and capital. They also lack access to credit/funding facilities to buy equipment.

Nandi County being the home of hundreds of national and international athletes, the University can exploit this talent by establishing an ultra-modern training facility and instructors for this very important sporting activity which contributes to national income and puts Kenya conspicuous on the global map.

3.7 Land Use Changes

Land uses in the district include agriculture and rural settlements, which are the most predominant. Other land uses are commercial/urbanization and industrialization to a smaller extend. Most land in the district is suitable for agriculture and livestock farming.

There is increased subdivision of land in the district into smaller uneconomical holdings. This is because the rapidly increasing population combined with the cultural practice of land inheritance from fathers to sons. There are significant land use changes in the district due to increased demand for cultivation. There is encroachment of riverine ecosystems and wetlands for cultivation. Wetlands are being reclaimed for settlement and farming activities. The hilltops have been encroached for farming and settlement, which has led to severe land degradation through soil erosion. (Nandi North district DEAP, 2008-2013)

3.8 Agriculture, livestock and fisheries

Agriculture and Livestock are the main sources of livelihoods for rural populations. The three broad Agricultural production systems are Crop Cultivation, Livestock Rearing, and Fisheries. Each of the production system has the potential to affect significantly human and environmental health. (Ibid)

3.9 Agriculture

The district receives enough rainfall and fertile soils which support cultivation of crops such as; maize, finger millet, sorghum, beans, bananas, soybeans, wheat, kales, cabbages, tomatoes, onions, Irish potatoes, carrots, local vegetables etc. Majority of the crops are sold to earn a livelihood. Chewing sugarcane is also grown in the district. Tea and coffee constitute the two major cash crops in the district. Food crops include maize, beans, bananas, groundnuts, sweet potatoes, sugarcane and millet. Minor crops are pineapples; Garlic, Spinach, Mangoes, Local vegetables, Avocadoes, Garden peas, Pumpkins, Paw paws, Passion fruits, Onions, Macadamia

and Citrus fruits. The cropping patterns in the District are closely intertwined with the rainfall patterns. During the long season, (November – May) almost 100% of the farm families go into cropping as compared to 50% - 60% of farm families who go into cropping during the short season (June – October).

3.10 Water Resources

The District has seven (7) permanent rivers, 5,555 wells, 2,770 protected springs, 65 boreholes, and dams. The number of households with access to piped water is 3,500 and those with access to portable water are 30,000. Further, the number of households with roof catchments is 20,000.

According to a baseline survey of the District, on average, households in Nandi North get their water at a distance of 4KM. During the wet season, 70.8% of households spend less than one hour to get water, as compared to 47.9% during the dry season. 1.1% of households spend three to four hours to get water during the wet season compared to 7.4% during the dry season. Only a small proportion of households (0.3%) spend more than five hours during the dry season to get water. (Nandi North district DEAP, 2008-2013)

Table 3: permanent Rivers in the Districts and their discharges

	Name of the river	**Annual discharge 2004**	**Annual discharge 2005**
1	Yala River	94,867 200M^2	85,380,480 M^2
2	Kimondi River	63,244,800 M^2	56,920,320 M^2
3	Mekong River	15,811,200 M^2	14,230,000 M^2
4	Kipkaren River	79,056,000 M^2	71,150,400 M^2

Source: Nandi North *District Water Office (2004)*

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

This chapter describes the methods and/or procedures that will be employed in the study. These methods and procedures will be relevant and reliable towards attaining the set research objectives.

4.1 The research design

Research design according to Orodho (2002) is the scheme, outline or plan that is used to generate answers to research problems. The study employed a descriptive research design to help bring out the challenges of urban development around University premises. The strength of an exploratory design is based in its flexibility, which easily allows different aspects of the problem to be considered (Kothari, 2009). Descriptive design was ideal because of its rigidity as a protection against bias and on the need to maximize reliability. Kombo et al., in (Kerlinger, 1969) quotes that descriptive studies are not only restricted to fact-findings but also may often result in the formulation of important principles of knowledge and solutions to significant problems. This study also took a case study approach. A case study is chosen as it seeks to describe a unit in details, in context and holistically. It allows an in-depth investigation of the problem at hand (Kombo, and Delno Tromp., 2006).

4.2 Nature of data

The nature of data collected and analyzed sought to analyze the policies guiding urban planning and those of the establishment of universities in Kenya, their application on university towns, the land use change and the impact of land use change on the physical infrastructure, socioeconomic cultural and environmental impacts of the community.

Table 4: Nature of data collected under each objective

Objectives	Nature of data /Variables	Attributes	Sources of info	Analytical framework
a) To analyze the policy and legislative frameworks governing urban planning in Kenya and their application on university towns.	-Existing policies	Policy existence, awareness, conformity, non conformity and effectiveness	-Kenya gazette, -Government press -Policy papers -County administrators -Community members, private developers,	Questionnaire analysis -Interview reports analysis
b) To investigate the land use changes in Baraton community since the establishment of the university	-Physical infrastructure -Socioeconomic infrastructures	Existence and increasing number & sizes of -Roads -Buildings -Farms -Market place	-Observations, -Checklist, -Interviews, -Satellite imageries	-Ground photos of different times -Series of satellite imageries
c) To analyze the impact of land use change on physical infrastructure, socioeconomic and sociocultural development of the community.	-Physical infrastructure -Socioeconomic infrastructures Social change-behavior patterns and social structures	-Living standards -Ladies or men -Condition of roads -Environmental condition	-Interviews, -Questionnaires -Observation	-Questionnaires Analysis -Observation reports analysis - Analysis of interview reports from the residents

Source: *Researcher, 2014*

4.3 Types and sources of data

The research used both primary and secondary data to gather information. The primary data were collected from the field to give first-hand information about the extent of the planning issues experienced in Baraton centre while secondary data were obtained from literary materials.

Primary Sources of data

Primary data sources included household heads, business operators and resource persons such as the Physical Planner, County Environment Officer, university administrators and other referred or snowballed personalities of necessity to the study within the community.

Secondary sources of data

Secondary data were obtained from reference books, documented information from government bodies relevant to executing various government policies necessary in the planning and management of urban areas in Kenya, Strategic relevant reference publications-articles and journals; maps, policy papers like the vision 2030, Nandi North DEAP, and data from relevant websites. Sessional papers and government reports and the constitution of Kenya were also used.

4.3.1 Methods and instruments of data collection

This research employed the following methods and instruments to gather data:

a) Observation

The researcher took note of observable features and planning issues as a verification of the information gathered using the questionnaires and interviews from resource persons. Digital camera was used to capture some of the information. Observation was again used to collect data on the current features and state of affairs in Baraton center. As a method of data collection, observation served to increase credibility and reliability of data. The method was employed to assess waste management systems, housing conditions, water sources and views and design of Baraton center. The field notes were taken during the data collection on issues of the urban planning in Baraton Center and UEAB as per the objectives. Areas of prominence were the socio-economic activities, environmental condition, environmental protection practices, state and condition of physical infrastructure and services and living standards of the study sample.

A checklist was used by the researcher to guide on the type of information needed for specific variable and to check on conformity of current state of developments to regulatory policies, and state of environmental condition versus environmental protection.

b) Interviews

Interviews were used to collect primary data in the field through use of both closed and open ended questionnaires and interview schedules as data collection instruments. Questionnaires used included for; household, business and institutions. The household questionnaires were administered to the household heads, as was with the business questionnaires. The interview schedules were applied to gather information from resource persons of relevant institutions including Government departments like the County NEMA officer, County Physical planner, UEAB administrators and administrator of Baraton College. This method of data collection provided a face-to-face interaction with resource people from various institutions and County government departments to allow for clarifications of unclear views and interrogation of ambiguous information or to provide insightful additional information that made this study more beneficial to the users.

c) Photography

This comprised capturing of data using a digital camera. It provided evidence of actual practices that took place in the study area. Photography captured spatial land use facilitated the transfer of the real situation on the ground unto paper for easier understanding. The camera was used to capture the community water collection point, waste dumping sites, pit latrines in relation to water sources in residential compounds among others. This acted as ground-truething for the actual practices on the ground.

d) Literature Review

This study collected and used relevant publications concerning the study from the sources above such as government publications provided information on policies governing urban planning, books and journals provided information about trends of urbanization in Africa and Kenya, environmental challenges of university allocation, economic influences of university on the community of location, site planning among others. The information collected through this method helped to provide a basis for the study which made it possible to do comparison between what has been documented and what exactly is on the ground. Literature review provided a base for criticism and concurrence with the previous studies about the theme of this research project.

4.4 Target group

Target population is an entire group of individuals, events or objects having common characteristics. (Mugenda & Mugenda, 1999) This study targets the Baraton community:

business operators, the UEAB students and administrators, relevant institutions within the area such as Baraton College, secondary schools, primary schools and churches and by extension relevant government departments in Nandi County located in Kapsabet.

4.5 Sample size

Chemundu sub location comprise of a total population of 14,169 persons, it has a household of 3092 according to the 2009 census. According to Mulusa (1990), 10-30% of the accessible population is adequate sample for descriptive survey. The sample size was determined using the formula postulated by Nasiurma (2000) as follows:

$$n= \quad (Nc_v^2)/ (c_v^2 + (N-1)\, e^2)$$

Where n is the sample size

N= population

C_v = coefficient of variation (take 0.5)

e = desired level of confidence take 0.005 at 95% confidence level (Nasiurma 2000)

This formula was applied as follows

$$n = \quad \frac{14169\ (0.5)^2}{0.5^2 + (14169-1)\ 0.005^2)}$$

4.6 Sampling procedures

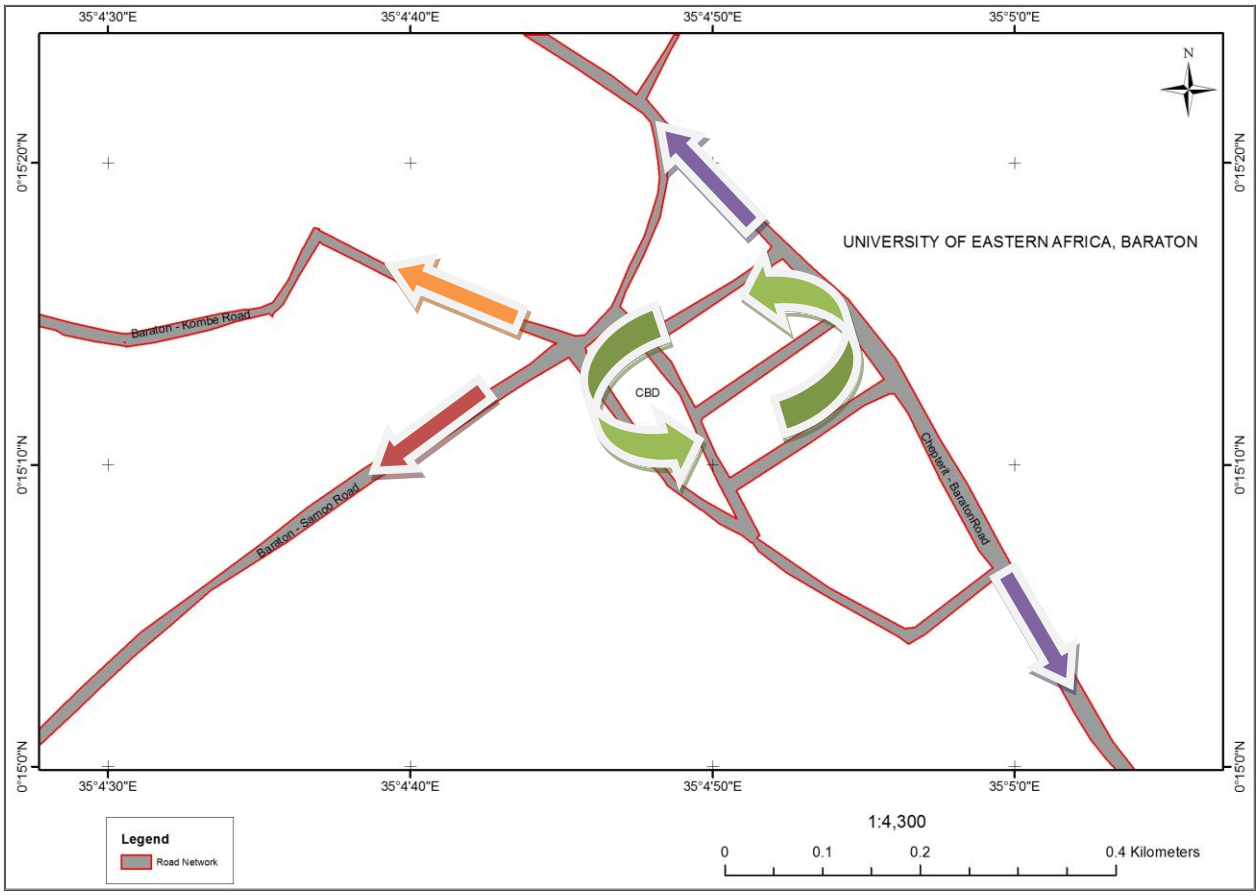
Sampling procedure and techniques is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group. Orodho & Kombo (2002). This research adopted both probability and non-probability sampling techniques.

4.6.1 Probability Sampling Technique

Systematic random sampling

According to Joyce 2006), this method involves drawing n^{th} element in the population starting with a randomly chosen element between 1-n.The n^{th} element is included in the sample. During the administration of household questionnaires, four quadrants were identified; first quadrant followed Chepterit/Baraton Road, second quadrant captured Baraton center, the third traversed Baraton/Samoo Road, and the last quadrant traversed Baraton/Kombe Road. At least ten

questionnaires were administered in each transect. The CBD-Baraton center is composed mainly of traders and UEAB students, Baraton/Samoo road has a combination of the UEAB students and the community members, Baraton/Kombe Road consists mainly of the community members, Baraton/Chepterit road is dominated by the community members but there are some students too. This implied that in each transect, 10 households were sampled using systematic random sampling whereby households along the identified transects were enumerated and the first household chosen using simple random sampling. Subsequent households sampled were arrived at by use of the systematic sampling formula N/n where N-represented the total numbers of households along transect while 'n' represented the number of questionnaires to be administered. A total of 45 household questionnaires were used.



Source: *Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar June 16, 2014*

Figure 6: Sampling quadrants of the study area

Baraton/Chepterit Rd *Baraton center* *Baraton/Samoo Rd* *Baraton/Kombe Rd*

Simple random sampling

This study also employed a simple random sampling technique along varying lanes within the CBD to capture the views of the business operators. Since there are so many similar businesses, the researcher found this procedure convenient as the businesses are scattered along these lanes. A total of 20 questionnaires were administered on the transects identified along the major lanes within the town. In each, five (5) questionnaires were administered. This means that businesses were randomly sampled based on business typology.

4.6.2 Non probability sampling technique

Purposive sampling as a non-probability sampling technique was used to allow researcher to use judgmental tactics based on expertise to locate and sample populations on areas of interest to the study. Convenience or judgment sampling allowed selective sampling to administer questionnaires or interviews.

Convenience sampling

This is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity and resourcefulness to the researcher. In this technique, subjects were selected just because they were approachable, literate and knowledgeable based on the kind of operations they administered. It was preferred because it is time saving, less costly, easy and the subjects are readily available.

Snow ball sampling

Snowball sampling (or chain sampling, chain-referral sampling, or referral sampling is a non-probability sampling technique where existing study subjects recruit future subjects from among their acquaintances. Thus the sample group appears to grow like a rolling snowball. As the sample builds up, enough data is gathered for the research. As sample members are not selected from a sampling frame, snowball samples, are subject to numerous biases. For example, people who have many friends are more likely to be recruited into the sample. However, this study realized none of such biases since knowledge of history is unlikely to be influenced by such parameters as friendship. This study used this method to access more information from those considered more acquainted with the history of Baraton and Baraton centre.

4. 7 Methods of Data Analysis and Presentation

The key areas of focus in analysis were respondents' expressions and perceptions on urban planning and design of Baraton centre. Qualitative description and quantitative methods were used to analyze the information collected from the respondents. The quantitative techniques were done through coding the data from the questionnaires based on broad thematic areas then analysed using Statistical Package for Social Scientists (SPSS) and Microsoft Excel. This facilitated graphical representation in form of pie charts, bar charts and maps. The analysis was descriptive in nature and proportions, graphs, percentages and averages were used to draw up conclusions. A two tier criterion was considered appropriate in selecting the statistical technique, thus, the appropriateness of the technique to the research question and the nature of data.

For the spatial plan generation, the researcher used the ArcGIS for spatial analysis and output generation.

Limitations of data analysis

- Low literacy levels among some respondents impaired communication especially on language and handwriting. This consumed a lot of time straining to capture what the respondent communicated.
- The researcher had Low command of knowledge in SPSS. This delayed data analysis process but it was overcome through tutorials which made the researcher conversant.
- Varied responses from many respondents made coding process difficult and time consuming thus imposing strains.

CHAPTER FIVE
RESULTS AND DISCUSSIONS

5.1. Policies and legislative frameworks governing urban planning

Urban growth in Kenya is guided by the new urban areas and cities Act 2012 which purposes to regulate urban development and initiatives. The Act however is only effective once a municipal town has been conferred with a charter under section 9 (3a). A town is eligible for the conferment of municipal status under this Act if the town satisfies the following criteria:

(a) has a population of at least two hundred and fifty thousand residents according to the final *gazetted* results of the last population census carried out by an institution authorized under any written law, preceding the grant;

(b) has an integrated development plan in accordance with this Act;

(c) has demonstrable revenue collection or revenue collection potential;

(d) has demonstrable capacity to generate sufficient revenue to sustain its operations.

(e) has the capacity to effectively and efficiently deliver essential services to its residents as provided in the First Schedule;

(f) has institutionalized active participation by its residents in the management of its affairs;

(g) has sufficient space for expansion;

(h) has infrastructural facilities, including but not limited to street lighting, markets and fire stations; and

(i) has a capacity for functional and effective waste disposal.

This criterion is well thought of however, in the researcher's opinion it is a reactive approach rather than a proactive one. The municipal urban areas must begin from somewhere as they develop; the secret of well organized cities and urban areas in is planning from scratches. This is what is lacking in most of our small towns. The universities and urban centres developing around them need to be planned alongside the university plans. Since universities are social institutions which are supposed to spur developments in the areas of location, the supposed urban centre should have a proposed integrated development plan for its development however slow it might be growing. The integrated plan should factor in the needs of the community and those of the residents.

The management of Municipalities according to Urban Areas and Cities Act Section (20) is based on the municipals board whose functions among others include:

(a) oversee the affairs of the city or municipality;

(b) develop and adopt policies, plans, strategies and programs, and may set targets for delivery of services;

(c) formulate and implement an integrated development plan;

(d) control land use, land sub-division, land development and zoning by public and private sectors for any purpose, including industry, commerce, markets, shopping and other employment centres, residential areas, recreational areas, parks, entertainment, passenger transport, agriculture, and freight and transit stations within the framework of the spatial and master plans for the city or municipality as may be delegated by the county government;

(e) as may be delegated by the county government promotes and undertakes infrastructural development and services within the city or municipality;

(f) monitor the impact and effectiveness of any services, policies, programs or plans;

(g) establish, implement and monitor performance management systems;

(h) promote a safe and healthy environment; and

(i) facilitate and regulate public transport among other roles.

These functions have not been observed in Baraton Centre as a municipal satellite town of Kapsabet municipality. The drainage system is poor making the earthen roads impassable during rainy seasons; there is no sewer connection for liquid waste and sluice. This is posing a potential health hazard given there is no piped water to the center. The danger here is that the location of water source and the pit latrine used by 99% of the Baraton Centre residents lies within less than 25m distance. There is no zoning or an interface separating the agricultural land and the residential areas, the tea zones in some cases form the fences of some residential plots. This is in contravention of the function (d) (e), (h). Lack of an effective master strategic plan for the University town has left the community with no option but to do what they know best-service delivery without long term plans. This has leads to urban rush and university slums sprawl.

According to Part V of this Act an Integrated Development Planning should be done following the following Objectives:

(1) Every city and municipality established under this Act shall operate within the framework of integrated development planning which shall:

(a) give effect to the development of urban areas and cities as required by this Act and any other written law;

(b) strive to achieve the objects of devolved government as set out in Article 174 of the Constitution;

(c) contribute to the protection and promotion of the fundamental rights and freedoms contained in Chapter Four of the Constitution and the progressive realization of the socio-economic rights;

(d) be the basis for:

(i) the preparation of environmental management plans;

(ii) the preparation of valuation rolls for property taxation;

(iii) provision of physical and social infrastructure and transportation;

(iv) preparation of annual strategic plans for a city or municipality;

(v) disaster preparedness and response;

(vi) overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management; and

(vii) the preparation of a geographic information system for a city or municipality;

(e) nurture and promote development of informal commercial activities in an orderly and sustainable manner;

(f) provide a framework for regulated urban agriculture; and

(g) be the basis for development control.

(2) In addition to the objectives set out in subsection (1), an integrated urban or city development plan shall bind, guide and inform all planning development and decisions and ensure comprehensive inclusion of all functions.

(3) A county government shall initiate an urban planning process for every settlement with a population of at least two thousand residents.

Now, this is a noble approach to development that if only fulfilled would lead to developments of beautiful urban centres where services and needs of the residents are fulfilled. University centres are potential centres to meet this thresh hold and should be included in the integrated

municipal plans since their populations are determined by programs university offers and the capacity of the university to contain their student population and the workers.

Physical planning is a design exercise that uses the land use plan as a framework to propose the optimal physical infrastructure for a settlement or area, including infrastructure for public services, transport, economic activities, recreation, and environmental protection. A physical plan may be prepared for an urban area or a rural area. A physical plan for an urban region can have both rural and urban components. University towns should be more of built in the neighborhood concept; the Planning objectives at the neighborhood scale can be grouped under four main themes:

(a) Provision of community facilities;

(b) Efficient use of resources;

(c) Amenity/quality of life issues; and

(d) Conservation of the built and natural environment

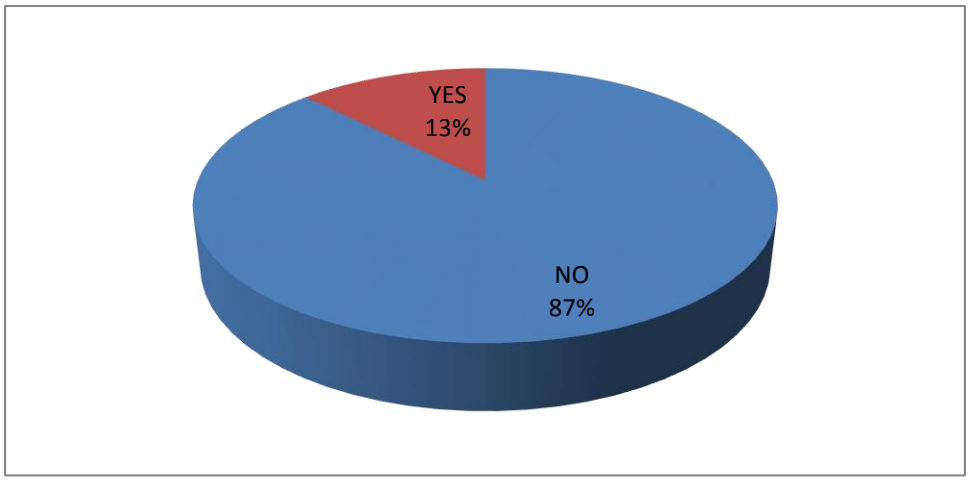
In rural areas, the settlements and associated built-up areas form a relatively small part of the larger landscape. Land values are lower, and, while ownership and titling issues exist, they can often be resolved relatively easily through participation. The sense of ownership is higher in rural areas, and the social structure plays a major role in the dynamics of reconstruction. However, community participation is fully achievable in a rural context. Other features of rural planning include the following.

- Land use plans need to respond more significantly to natural features, such as geology, topography, hydrology, and ecology. Beer, A. (1990) The classification of uses within a settlement will assume less significance while in the larger landscape will reflect the diversity of uses in agriculture, animal husbandry, forestry, and other related activities.
- Institutional arrangements for regulating development are nonexistent in rural areas of most developing nations; there may be no designated planning agency whatsoever.
- A land use plan in a rural area may not dramatically change land values, but can still have a significant impact on the sustainability of development.

- Physical planning may be limited to a basic road network and essential services within the settlement. However, there may be planning required to support agriculture and other rural livelihoods.
- Housing is usually designed and built by owners themselves or by local masons. It is important that building regulations are responsive to the local cultural context.

The Universities Act 2012 has adequately addressed the establishment and placements of Universities as well as programs, managements, financial issues but fell short of addressing the impact of the establishment and how it might cause urban development and possible planning measures to be put in place to ensure sustainable urban development.

The physical planning of Baraton centre has a case to study following the development of the center without adequate planning. Several factors stipulated by the physical planning Handbook of 1996, Urban Areas and Cities Act and other planning laws have remained largely unknown as per reported by residents of Baraton community. Among the traders and community members interviewed 87% reported lack of knowledge of planning policies or planning regulations. This partly explains why the center is not developing in an organized manner. Figure 5 below shows the response on the awareness of planning policies.

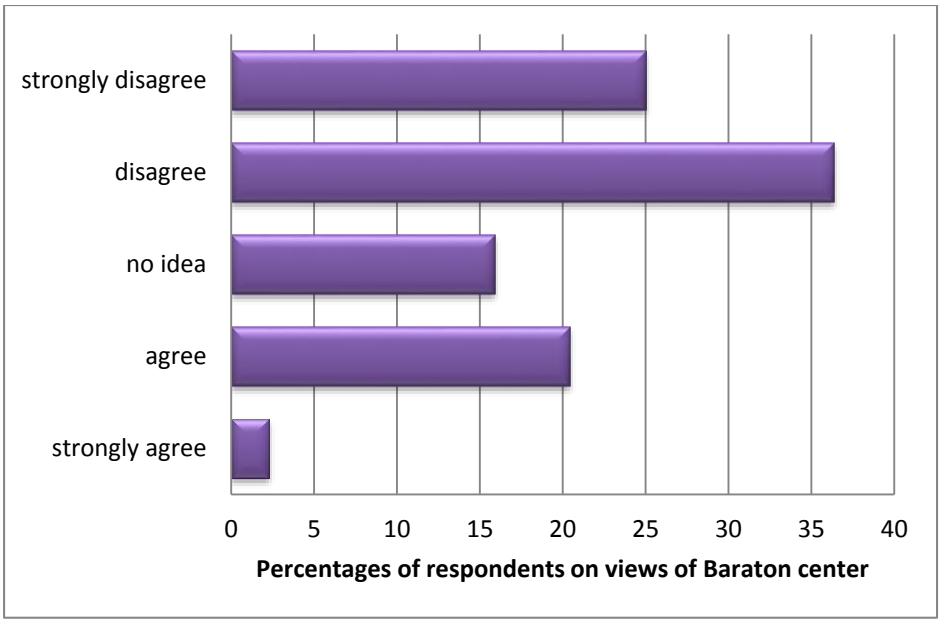


Source: ***Field Survey, 2014***

Figure 7: Responses on awareness of planning policies

Lack of awareness of the existence of urban development and planning regulations coupled with traditional; and cultural practices have largely contributed to poor plans, this is a confirmation of the report by (UNCHS Habitat 1999) that examining the degree of compliance with the required

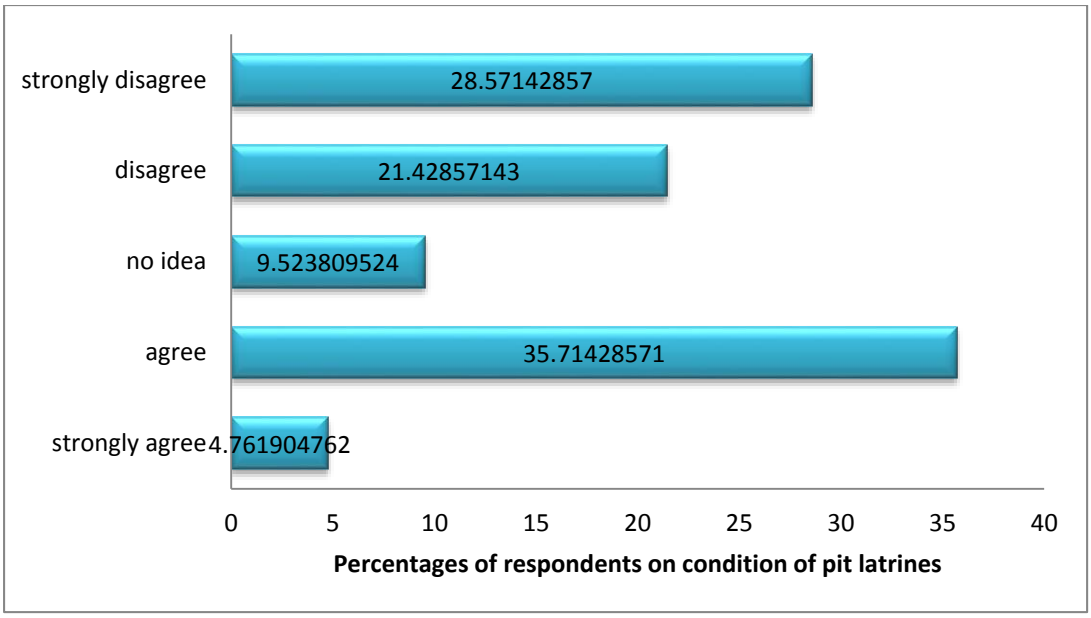
regulations and the extent to which people are aware of the existence of these regulations is important because it partly shows the extent to which people comply with these regulations. A large portion of people in the urban areas are not aware of the regulations. Most of the developments in the centre are owned by the natives of the place, the free hold ownership has restricted development in this place i.e. the land owners are not willing to sell land to people from other communities. This has curtailed the development of the place. Most of the buildings are dilapidated and requires redevelopment, the urban centre requires urgent planning, not only is this a concern of the researcher but also the respondents who attested to the poor physical design the center portrays. Figure 6 below shows the varied responses about the views of the centre. As outlined by UNEP, Poor urban planning and management can have grave results for the urban economy, the environment and society. Poorly managed urban settlements will be unable to keep pace with urban expansion, and un-serviced slums will proliferate, bringing with them poor health, poverty, social unrest and economic inefficiency (UNEP, 2008). University of Eastern Africa, Baraton like many other universities influence human settlements and urban processes in their location, provision of urban services like water, sewer, security, housing, waste management and others are inadequate. This calls for urban site planning (Beer, 1990) which enables development to happen with the least possible adverse effects on the environment as a whole. The more people there are, the more food will be needed, more food means more land under agriculture, displacing natural habitats and forests, more people means more demand for water, more energy hence more pollution from energy sources. (Turner et, al., 1994)



Source: ***Field survey, 2014***

Figure 8: Response on the design and views of Baraton centre as appealing

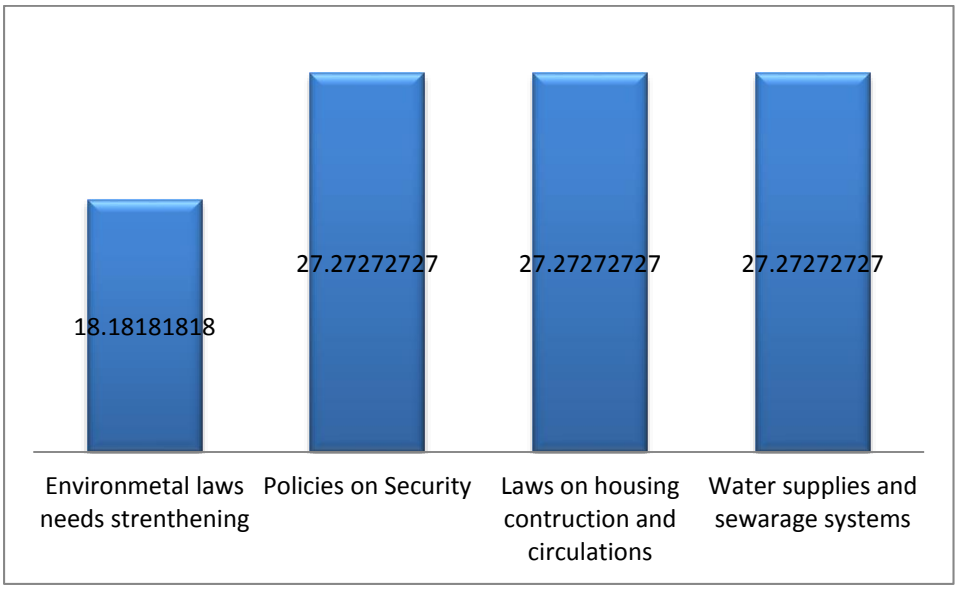
Most of the residential do not meet the health standards of housing and settlement as stipulated in the physical planning handbook of 1996. Some of the houses lack proper ventilation, the water sources are so close to the pit latrines below the recommended 30M. (See plate 1a and 1b below) Most of the houses face each other very closely thus limiting the open space in front of a house, the water well is at the center of the compound and the pit latrines are located at the end of the building providing part of the perimeter wall between the buildings facing each other. All the residential houses within the centre lack sewer line connections. The use of pit latrine is dominant. The conditions of such pits vary from plot to plot. Figure (7) shows the responses on the condition of the pit latrines in different plots.



Source: *Field survey, 2014*

Figure 9: Response to 'if the latrine is in good condition

Fig. 8 below shows the various concerns on areas that require immediate improvements especially as relating to the policy formulation and implementation and/or strengthening



Source: ***Field survey, 2014***

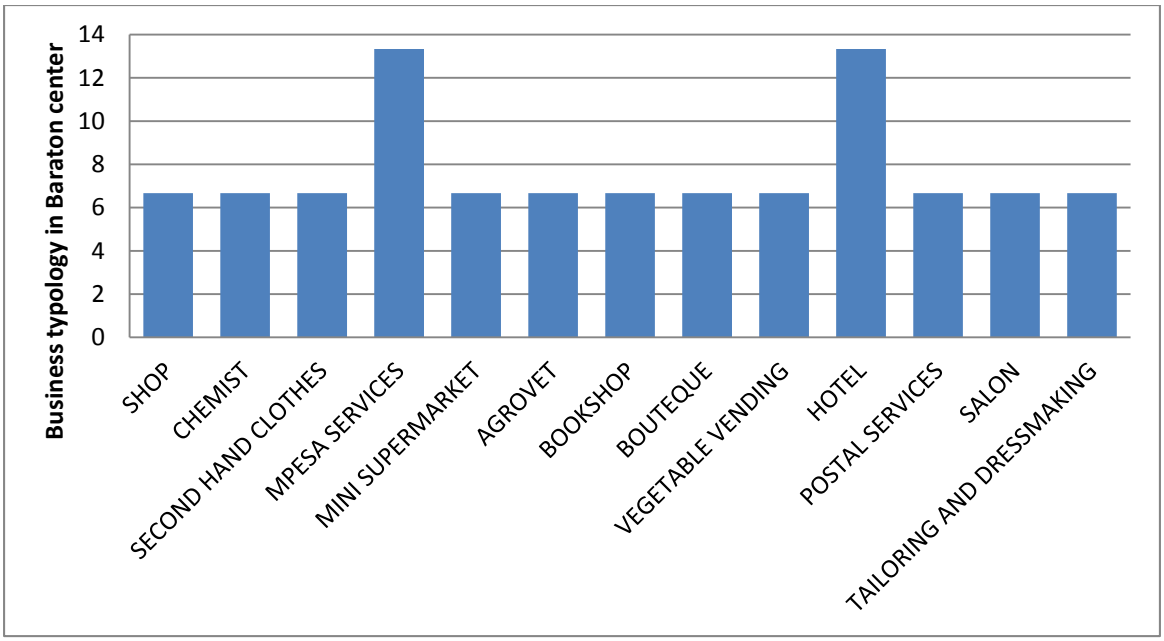
Figure 10: Areas for policy strengthening

5.2 Land use changes in Baraton area since the university's establishment hitherto

Baraton centre according to the Public Relations Officer of UEAB who is one of the longest serving employees, did not just occur without the anticipation of the university but had a plan whose implementation was pegged on the funding by the Africa Development Bank as a university town. The plan envisaged to have an organized land use with designed residential areas, commercial zone, proper circulations, Bus Park, and a recreational park. The University purposed to have it serve as a service centre to complement the needs of the populace and to enhance an economic link with the community. It remains unclear how the project flopped and the design plan not traceable and unimplemented.

However, the centre has grown from scattered scanty tin-roofed houses, small basic goods, very few residential houses, small localized hotels, minimal social services, no security and law enforcers officers besides the chief to a more socially structured service provider systems which supplements the university needs, however, the structuring needs to be better planned and more modern facilities put in place to make it even better.

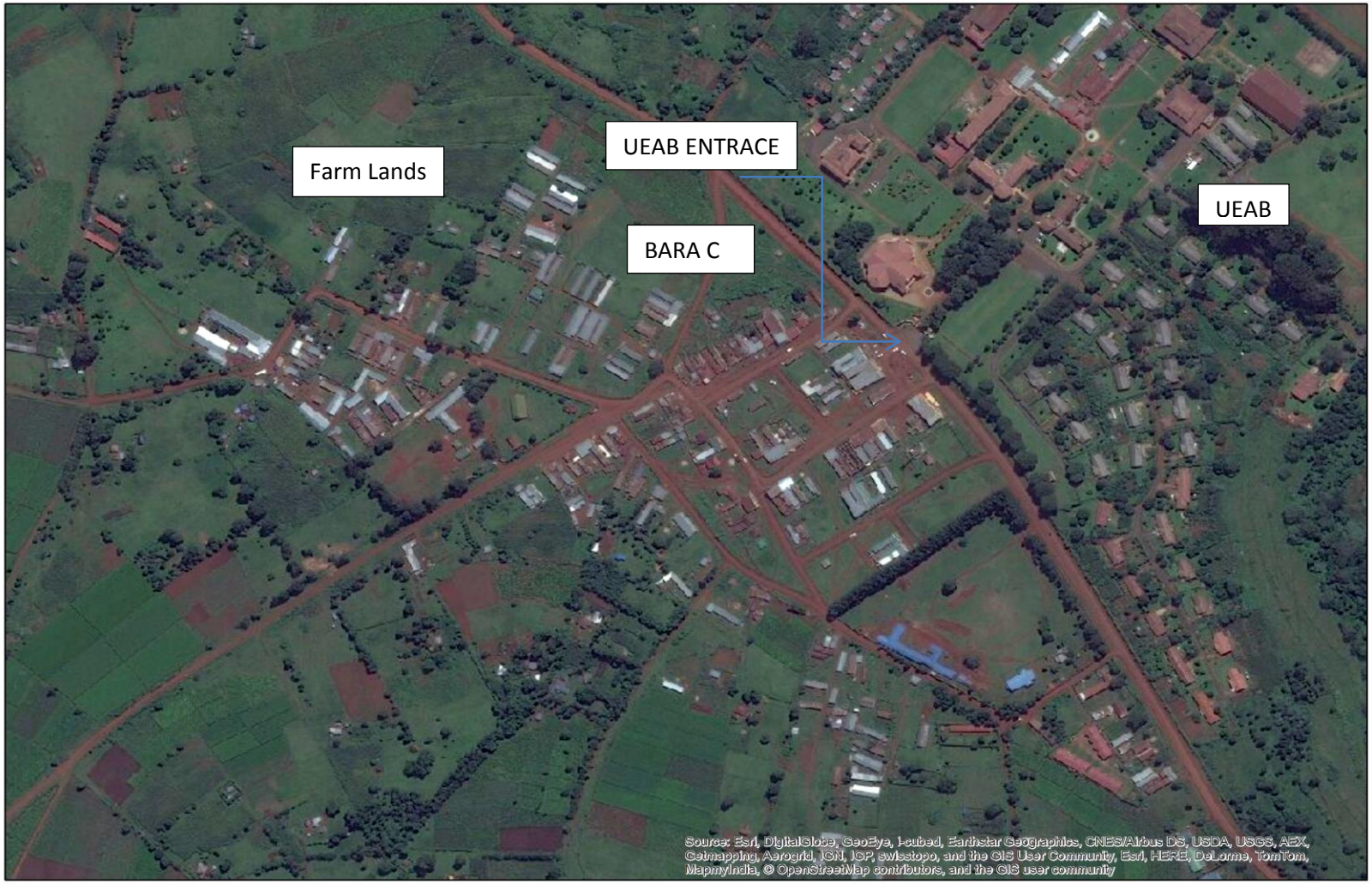
UEAB has influenced change of land use which was basically agricultural to a more business and a residential oriented one thereby creating Baraton center. The students and workers population dominate the population of the centre, visible land use change is concentrated on the center within a radius of about 2Km on the foreground of the university. In the rural location the mixed intensive farming dominates. The land use change according to the community has proved to be more beneficial to them as they readily sell their vegetables and milk to the market provided by the university. Figure 9 below shows sample of businesses operated in the centre.



Source: ***Field survey, 2014***
Figure 11: Business typology in Baraton Centre

Although the physical infrastructural development is slow there has been change in the way land is used. The area currently occupied by the centre had only some few buildings and graze land and tea farms but now embraces more urban features. There are more residential houses constructed as the demand increases. Among those interviewed, sixty two per cent reported improved living standards while 37% reported improved infrastructure in the community. This has been made possible through the expanded market which offer the community quick money to meet their daily needs and make investments besides meeting their daily expenses and educational fees. This is due to the ever present university population which offers a relatively stable market for goods and services as highlighted by (Flint, 2002).

Figure 10 below shows how UEAB has influences the development of Baraton center, the farm lands are gradually turning into student residential houses, developments of more learning institutions and churches and market place among other uses.



Source: *Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Jan 2002*

Figure 12: The Satellite imagery of land use in Baraton center as of 2002

The area has since increased some buildings and more so for residential and institutions such as for a college and schools. The current satellite imagery shows a more developed area with more buildings concentrated in the CBD and in the far flung of the northwest part of the image where the college is located. This signifies a continued change of land use which is gradually extending into farm lands.

Source: *Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar June 16, 2014*

Figure 13: Satellite imagery of a more changing land use of Baraton center

5.2.1 Spatial planning for water

Water planning for Baraton Center might require a closer scrutiny as the centre is served majorly with wells, as earlier stated the centre has no sewer line connections and the use of pit latrines is dominant. This can lead to high chances of ground water pollution. Planning for water therefore is urgent to safeguard ground aquifers. UEAB's effort to supply the community with water is not adequate as it is only one point for water collection and it is only few meters from the university gate. Only few plots have managed to install piped water drawing from that source. Water plays a vital role in public health, economic growth and environmental sustainability but only about 0.01% of the earth's water is usable. (UNDP, UNEP, WB AND WRI 2000 and United Nations Division 2001) in UN-HABITAT (2013) the principal sources of water for human use, lakes, rivers, soil moisture, and relatively shallow ground water basins, are unevenly distributed, and in general, are far from urban areas. This therefore acts as a basis for proper planning for the protection of our water sources through an integrated water management and spatial planning. The spatial planning should incorporate the water cycle and current future supply and demand as a key driver. The urban water plans should keep development away from key water catchment and storage areas, minimizing impervious surfaces to favor water retention and aquifer recharge. (UN-HABITAT 2013)

Plate 1 below illustrates one of the cases of water source proximity to pit latrine in a residential plot which is below the required 30m.

Plate 1: Water source in relation to pit latrine

Source: ***Field survey, 2014***

5.2.2 Spatial planning for housing infrastructure

Planning urban centers brings about organized developments. The plates (2) and (3) below illustrates two scenarios, in plate (2) more socioeconomic developments can be seen with good housing infrastructure, power lines and a maintained access road. (Plate 3) on the contrary is poorly developed housing structures inrush to provide accommodation to the population, this added to the cultural attachments to land has led to poor structures and slower rate of development as the owners lack the financial capacity to put up nice structures. Most of the buildings are dilapidated and requires immediate redevelopment especially along Baraton/Samoo Road which is the main spine road through Baraton Centre.

Plate 2: Section with better commercial infrastructure
Source: ***Field survey, 2014***

Several buildings are in the condition of plate 3 below, this portrays the center as retrogressing and almost experiencing urban decay even before it establishes. Plates 4a and 4b stresses the need for renewal and redevelopment of some of the housing structures and available open spaces

Plate 3: Old and Poorly developed structures
Source: *Field Survey, 2014*

Plate 4a: Informal structures by road sides **Plate 4b: Outdated structures**
Source: *Field Survey, 2014*

The center has several open places and so many informal structures which can be consolidated and be redeveloped respectively to adequately provide for housing within the proximity of the university rather than extending to the rural farm lands. Plate 5 below illustrates this scenario

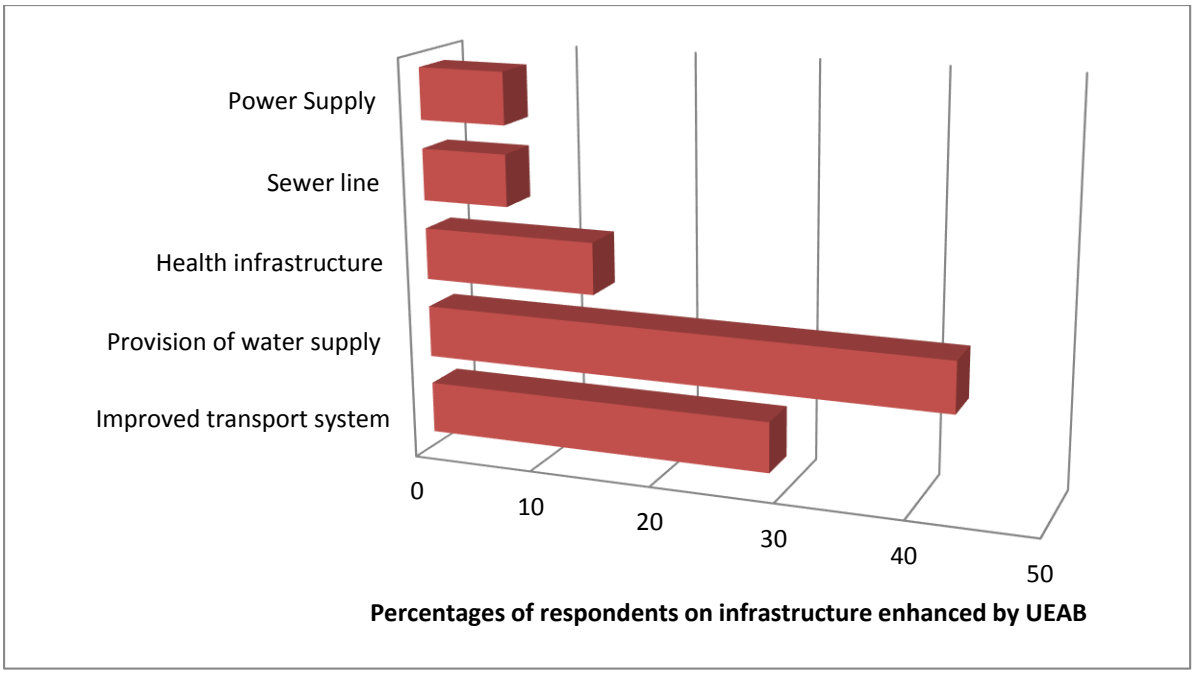
Plate 5: Dilapidated houses and section of open space

Source: *Field Survey, 2014*

This study also established as reported by the county Physical planner that there is no close relationship between the university and the county government in as far as charting the County development plans is concerned. The political class never consults the university resource persons on any issues this only serve as under utilization of the university. According to Nandi County physical planner, there has never been a common standpoint for incorporating the university in any political or development agenda. However, the university takes part in county programs such as agricultural shows, clean up programs and county education programs. The University on the other hand operates on a non political stand point but a religious platform; this seems to lock out the political class from actively being involved in any meaningful engagement. This has created a non complementary approach to development or in addressing community needs since neither of the entities consults each other.

5.3 Impact of land use change on the physical and socioeconomic infrastructure

The land use change has been beneficial to the community especially to the investors on housing and settlement. Several traders have also benefited from the readily available market for their products. The most notable impacts on physical infrastructure include improved connectivity in the road network, power supply to the remote areas, sewerage system enjoyed by the university and some community members, water supply to the community which is serviced by the university through it water treatment plant. The university has also made health services accessible to the community. The infrastructural developments have led to more positive changes to the community than before. Improved road network facilitates faster connectivity between the community and the nearby towns such as Kapsabet, Eldoret, Kakamega and Kisumu. Figure 12 below illustrates the response of the community members on the beneficial gains the land use change has made possible. Other than the cited benefits, institutions of higher learning just like Allston Brighton community needs assessment and Harvard University's case, the unoversity and community needs assessment can enhance opportunity through which the community problems can be addressed by the university

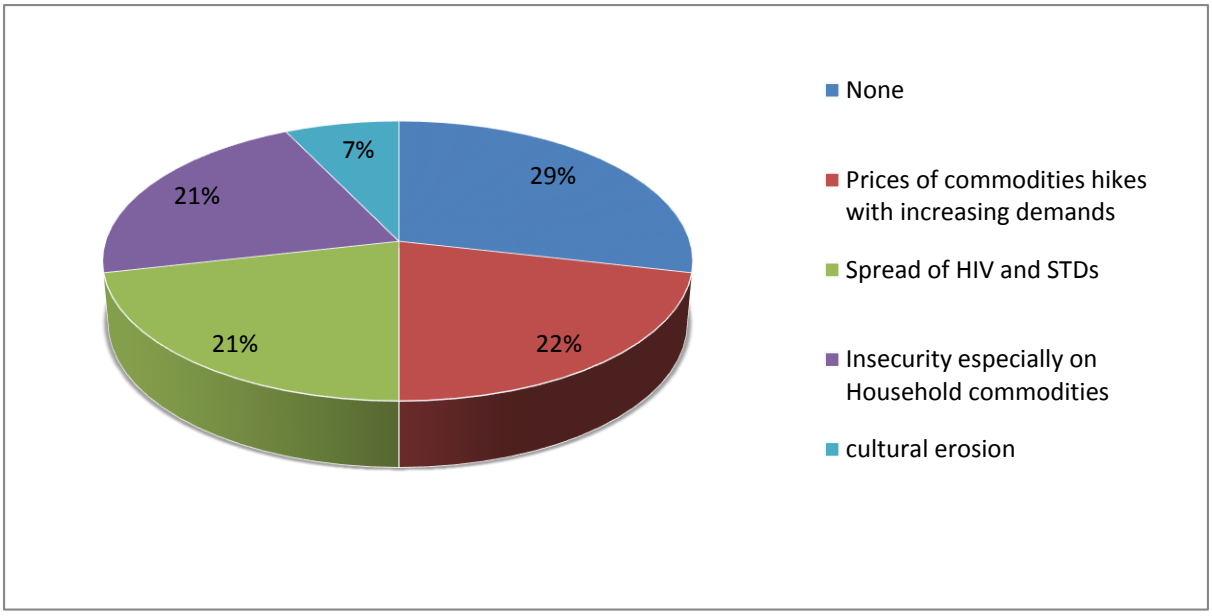


Source: *Field survey, 2014*

Figure 14: Infrastructure attributed to UEAB

5.3.1 Social and cultural impacts

The social and cultural impacts resulting from land use change have been noted on the culture of the Nandi especially among the student population where intercultural marriages continue to take place. Multi-ethnicity and rich cultural diversity of the population that has migrated to the area has made it possible for cultural compromises, 'new' fashions and dress codes have also been noted courtesy of the multi-ethnicity and international composition of the UEAB fraternity. Other social impacts observed and reported include HIV/AIDS, STI'S, insecurity, higher rents and high cost of food stuffs as shown in figure 13 below. The community also reported an environmental challenge coming from the management of the university's sewer treatment plant where their main issue had been the odor. The University however has put up a buffer zone of a forest and modernized the sewer treatment plant.



Source: ***Field survey, 2014***

Figure 15: Social problems associated with the change of land use

The trends have also brought with them beneficial changes which far outweigh the negative impacts. Those interviewed reported the benefits as follows.

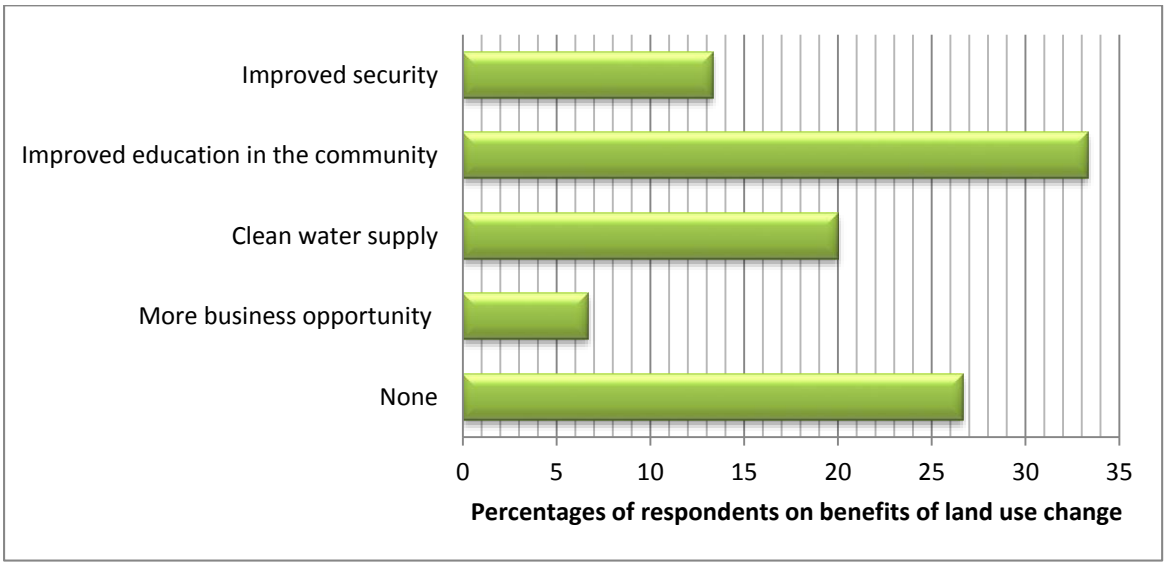
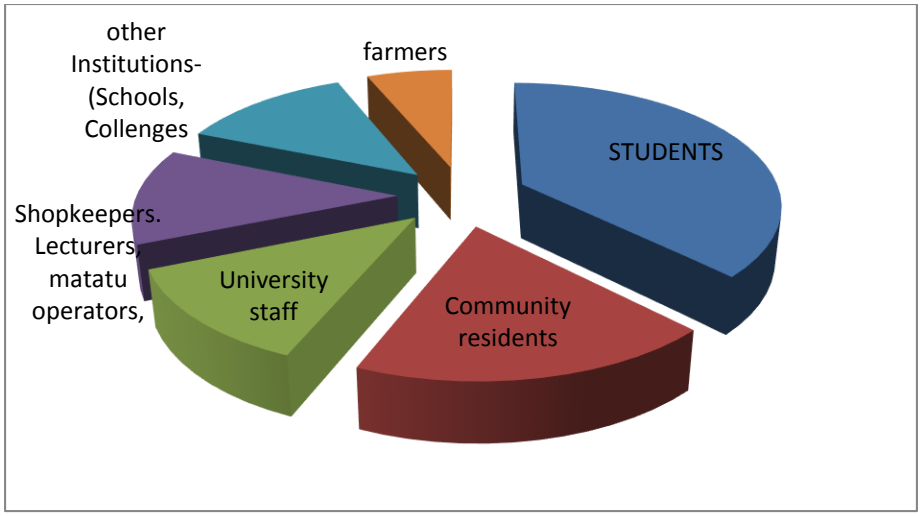


Figure 16: Social benefits associated with the change of land use

Source: ***Field survey, 2014***

On economic impacts, the community is now enjoying a ready market to their products which according to the data collected, the main consumer of the traders products are the university

students. The centre is served with several M-Pesa operators and ATM services besides the postal money transfer services.



Source: *Field survey, 2014*

Figure 17: Consumer distribution of products

Other notable impacts on change of land use to the community have been characterized by increased population and urban features. A part from business or market opportunity, road development and educational services, the community has been able to access health care, improved security, clean water supply, rural electrification, and a motor garage operated by the university but accessible to the general public. The community also benefits from the university by collecting fodder for their cattle as the university mows its lawn as observed in plates (6a) and (6b) below.

Plate 6a: A farmer loads mowed grass

Plate 6b: A UEAB worker mowing lawn

Source: *Field survey 2014*

Besides these combined benefits the University has established a Community Training and Research Centre- plate 7a and 7b below, where the community and the University meets to address non political interests of the community, seminars and trainings on various issues are conducted here. This embraces a symbiotic relationship between the community and the university. A strong political goodwill is required to strengthen such ties through funding.

Plate 7a: Community Training & Research Centre. **Plate 7b: Section of the compound for the centre**
Source: *Field survey, 2014*

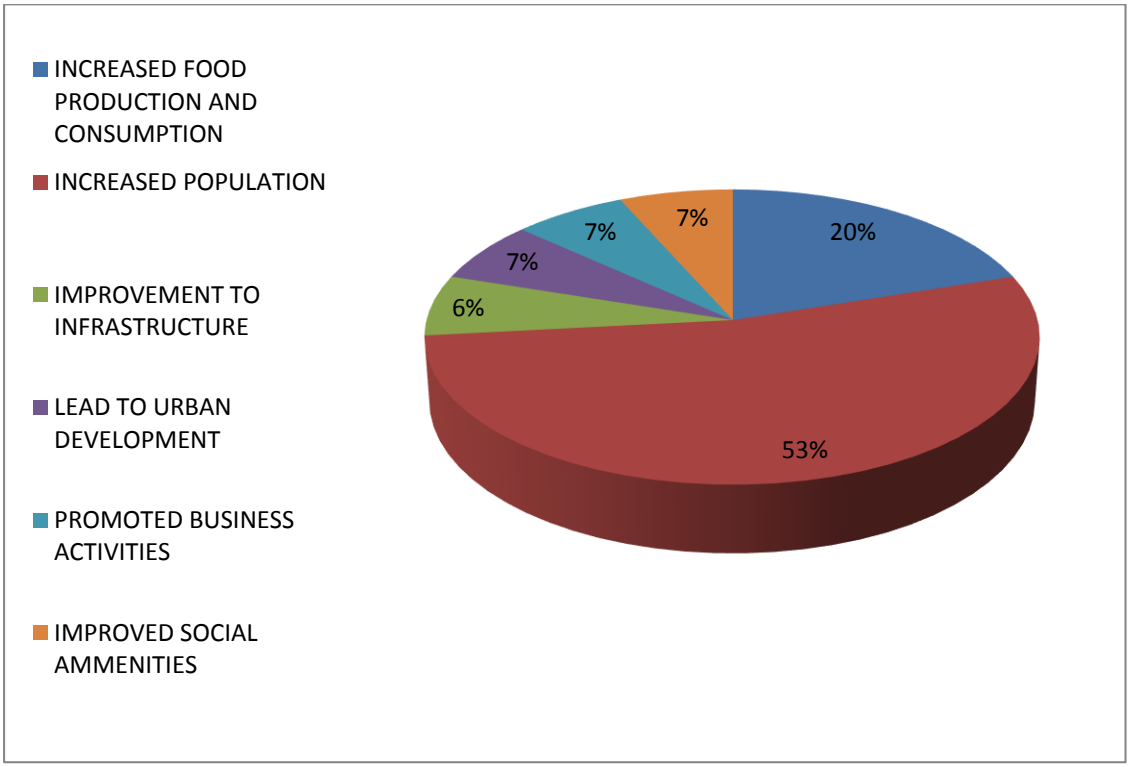
5.3.2 Social and economic impact

Institutions of higher learning are viewed not only as increasing higher education opportunities, but also as magnets for local development in the areas in which they are located. A report by the Public Universities Inspection Board in Kenya (PUIB, 2006) documents the clamor and demand for the establishment of universities in each province and region of the country and argues that higher education development has the potential to foster equitable growth, national cohesion and solidarity. The demand for regional universities is based on the belief that the geographic location of the institutions is a means to spur economic, infrastructural and social development and to strengthen the human capital of the regions. This is reflected in the response given by those polled. The sampled population reported increasing population as the biggest impact and this has had its economic benefits to them community. More food produced is consumed locally by the population, increased business for taxi operators, and other merchandise.

The community has been able to rip from the benefits that accrue to them from the presence of the university including improved infrastructure with the main road Chepterit/Baraton road which is on course to upgrading to tarmac road. Several feeder roads are also being rehabilitated. Other notable benefits appreciated by the community include Jeremic health facility run by UEAB. Other businesses are also doing well all these help to boot the socioeconomic structures.

The presence of the university has made it possible for the community to access financial institutions which otherwise would be found as far as Eldoret town about 60Km away.

The business community indicated the presence of UEAB provides them with opportunity to carry out unrivaled businesses like restaurants, the university has a strict vegetarian diet for the students on campus and this makes the freelance hoteliers rip from this provision among the students who are not strictly observing vegetarian diet. Figure 16 below reflects some of the socioeconomic benefits that have been prompted by the presence of UEAB in the community.



Source: *Field survey, 2014*

Figure 18: Socioeconomic impacts of land use change

Plate 8 below illustrates a section of Baraton Centre with various activities going on including a financial service provider, market place, taxis plying Baraton/Chepterit road, hotel services, indication of fight against HIV/AIDS and commercial buildings

Plate 8: Section of Baraton Centre indicating socioeconomic effects
Source: Field survey 2014

5.3.3 Learning and social institutions arising as a result of the existence of UEAB

The presence of UEAB has influenced establishments of other institutions such as churches, primary schools, secondary schools and a teacher's training college, these institutions especially educational institutions have influenced more populations to the small centre of Baraton. Some the academic institutions which operate in the location include Chemundu secondary school, AIC boarding primary school, Tilalwa Primary School, Baraton Adventist Secondary School, Baraton International School, Father Martin Boyle and Baraton Teacher's Training College. All these institutions have provided need for more housing in the Center. Market place has also come up which run every Friday of the week trading on various goods. More food cafés have sprung up and other service provider businesses. See plates (8a and 8b) for examples of institutions.

Plate 8a: Fr. Martin Boyle Pri. Sch Plate 9b: Baraton Teacher's Training College
Source: ***Field survey, 2014***

Other than the market benefits, the University has provided employment opportunities to the community, the farmers in the community regularly visit the University's demonstration farms for dairy and crops seminars organized by UEAB. Besides, several schools also visit the University for Motivational Programs in academic works. UEAB has had profound impacts on the community as shown in figure 19 below. Plates 9a and 9b below, shows the market place and community water collection point provided by the university.

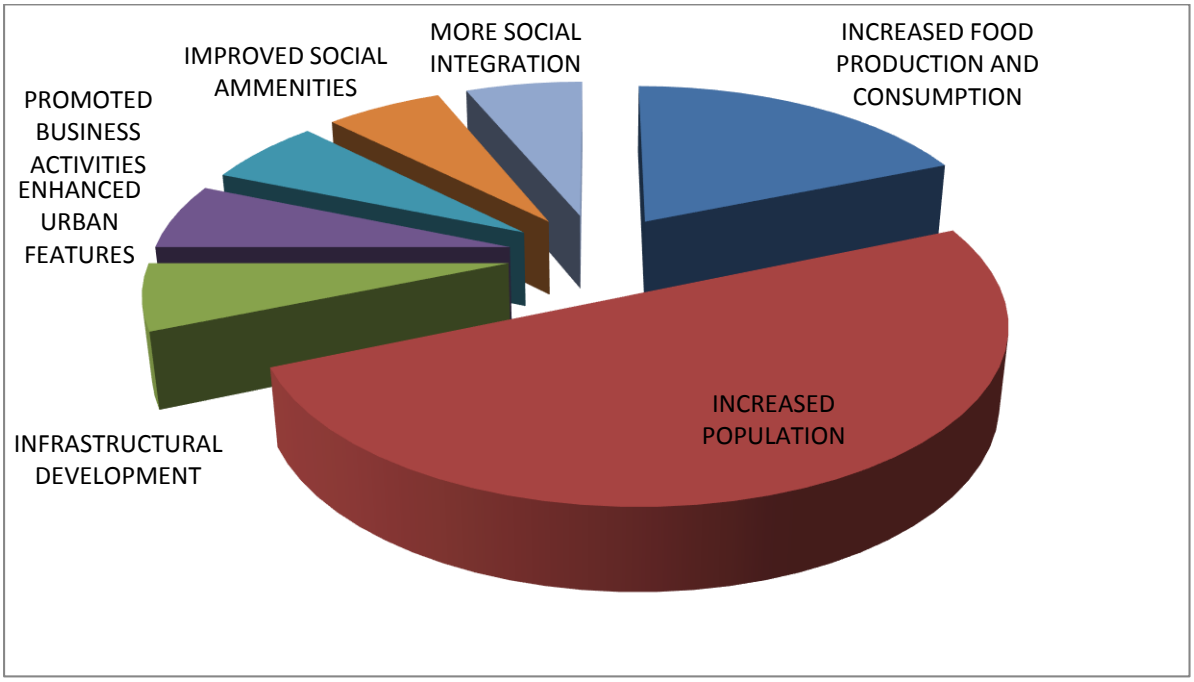
Table 5 below shows the learning institutions that surround UEAB either as an establishment of the university or due to the increasing population in the community.

Table 5: List of schools around UEAB

SN0.	School name	Year Established	Current Student's population
1.	AIC Boarding Primary School	2000	600
2.	Baraton Adventist Secondary School	2006	570
3.	Baraton International School	1982	210
4.	Baraton Teachers' Training College	2007	1200
5	Chemundu Primary School	1984	567
6	Chemundu Secondary Schools	1993	456
7	Fr Martin Boyle Primary School	1991	589

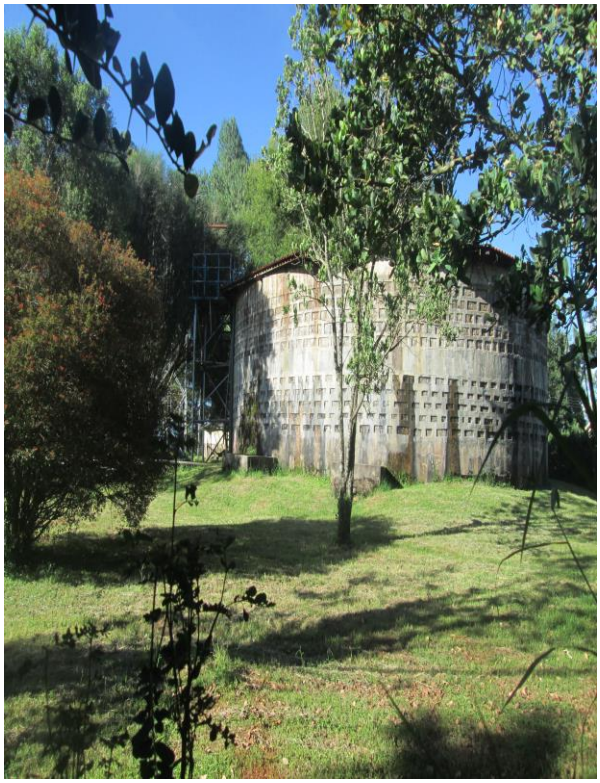
8.	Kapkechui Girl's Secondary School	2004	520
9	Kaptildil Primary School	1987	557
10	Kaptildil Secondary School	1995	423
11	Kombe Secondary School	1987	631
12	Samoo Primari School	1988	705

Source: Field survey 2014



Source: ***Field Survey, 2014***

Figure 19: Impacts of UEAB on the community



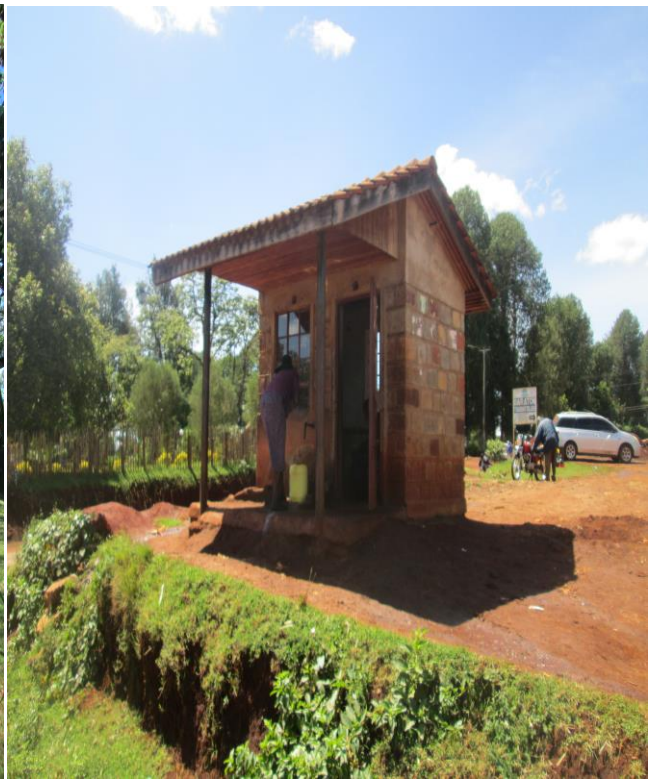


Plate 9a: UEAB water treatment plant **Plate 10b: Communal water supply point**

Source: *Field survey, 2014*

5.3.4 Solid waste management

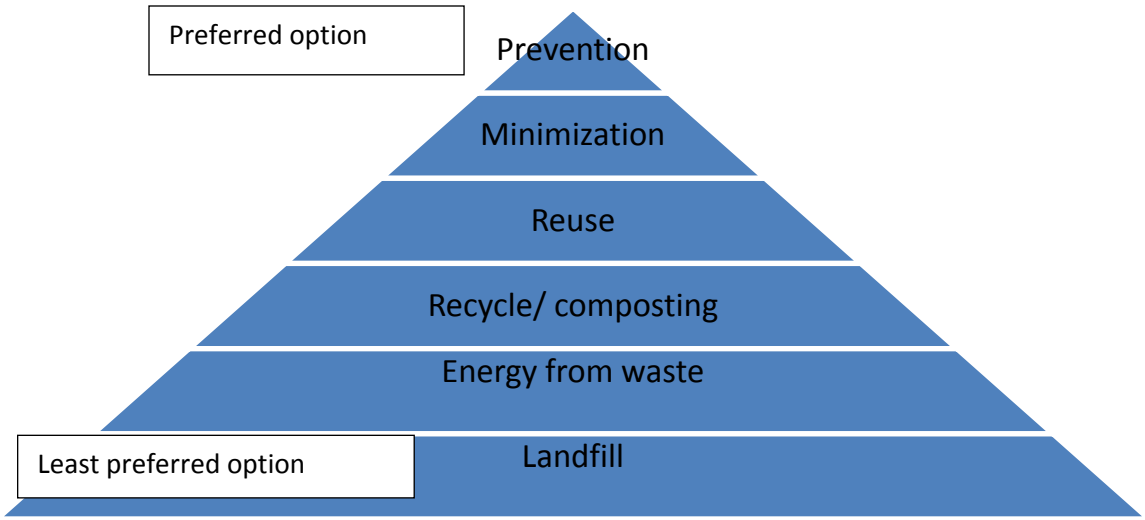
Residents of Bara C have adopted four main waste management strategies i.e. burning, municipal collection, open dumping, bin collection, and dumping in a garbage pit. The open dumps are eyesore to the public. The open pits in most cases are located within or by the residential compounds. The municipality of Kapsabet is reportedly reluctant on regular waste collection. Besides, there is no central pool where garbage on transit is collected. The local provision is that every residents of a plot should manage their own wastes. This has enhanced the types of waste management cited above. In the cases of open pit dumping, the tenants have complained of increased rodents and roaches who invade their houses, the foul smell from the pits is also an issue they have to contend with. In some wider pits, children from the village jump in to recover beneficial wastes to them! See Plate (10) below. Plate 11 shows open air dumping adopted by a neighboring plot to the one on plate 10

Plate 11: A child is scavenging in an open pit dump site
Source: *Field Survey, 2014*

Plate 12: Open air dump site near residential building

Source: Field survey, 2014

Solid waste management should be incorporated in the spatial planning of an urban center just like water. Effective waste management is essential for healthy and competitive cities and thus should be integrated with spatial planning to ensure pre-arranged management strategies, besides; more awareness should be created to sensitize the public on the 4R's of waste management thus Reuse, Recycle, Reduce and Recover.



Source: ***Eco2city***

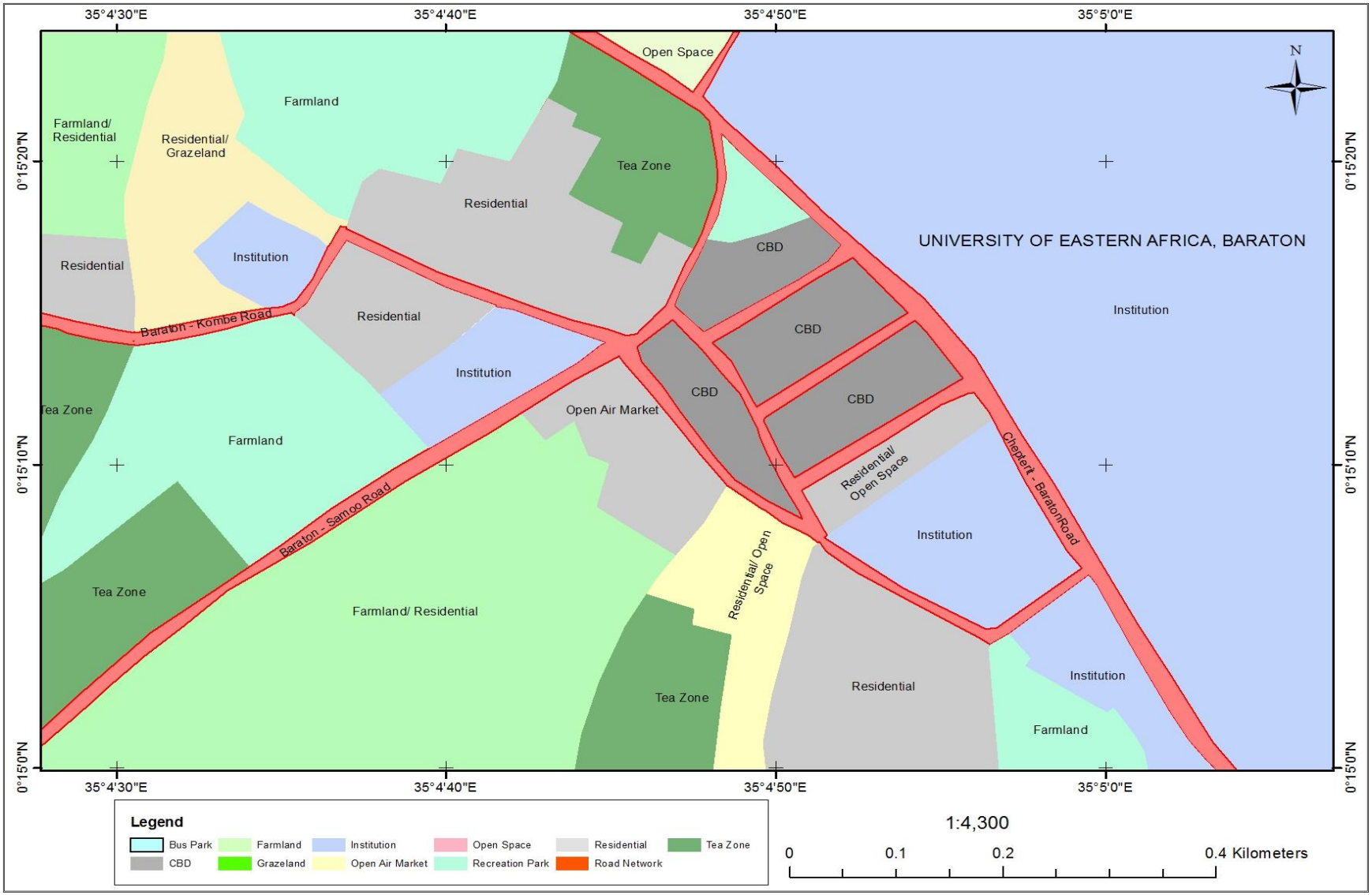
Figure 20: Waste Management hierarchy

According to the Nandi County NEMA officer, there is high possibility of unapproved projects developed in Baraton center following the low human resource in the department this makes it difficult to make a follow up especially in the satellite centres. Approval of the reported projects has also been hit by a serious challenge following lack of serious commitment among the arms of the approval teams to read and critique EIA documents. This leaves the office (NEMA) with a huge backlog and almost unilateral decision making on EIA reports which lacks the input of relevant line ministries and the other departments such as the county physical planner, forestry department, agricultural department, roads and housing, among others.

5.4 A proposed site plan for Baraton center

The site for Baraton center currently is a mixture of various land uses which are not ordered. This project proposes a review of the land use especially within the built environment and the open spaces available in the centre. Figure (21) below shows the current land uses where residential, commercial and agricultural land uses are randomly located. A review of the site plan

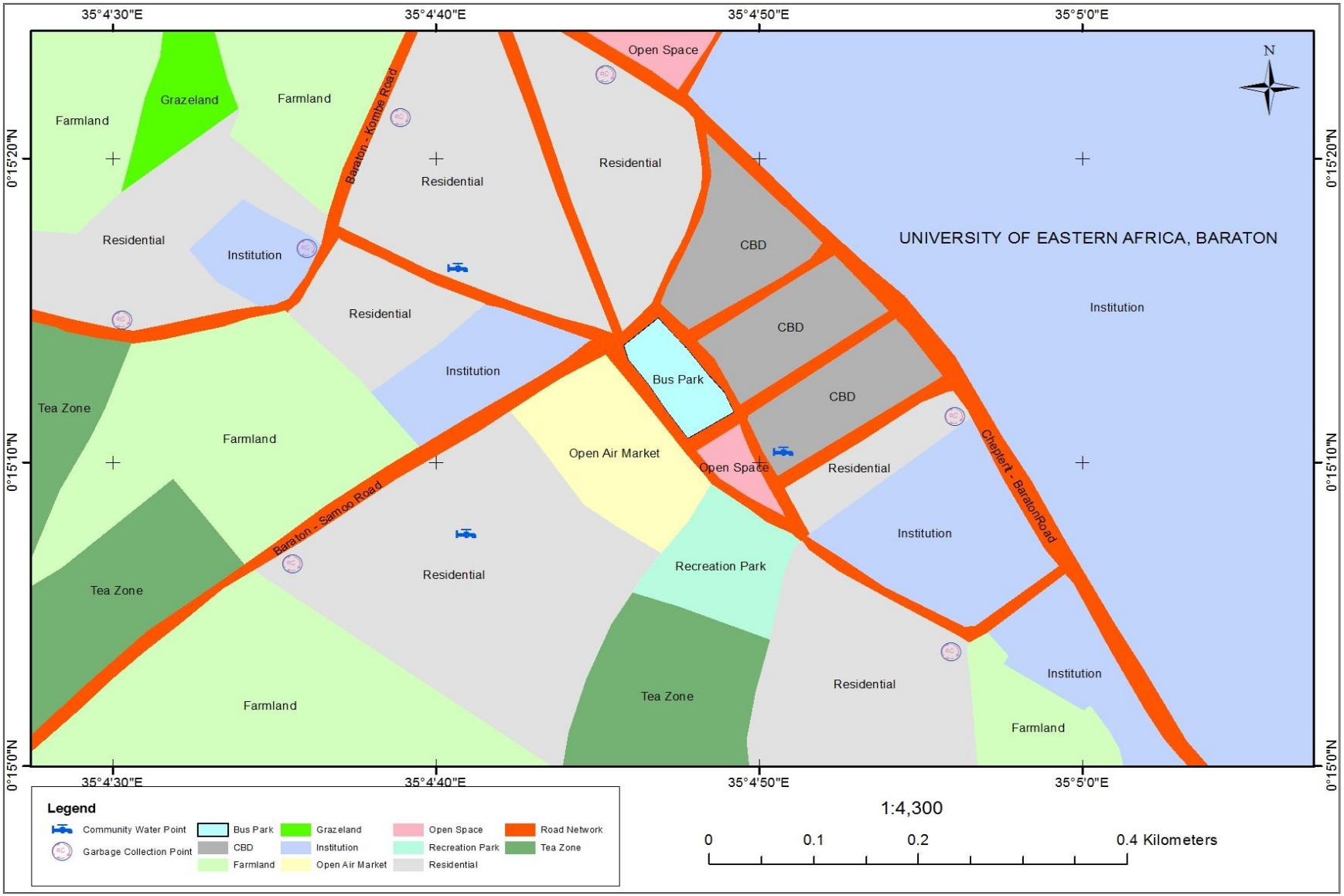
is recommended by this project which should be undertaken by all stakeholders. However, the researcher has generated a proposed site plan which can be reviewed by all stakeholders to ensure the best productive land use for the consumers and land owners as well as appealing to investors.



Source: *Field Survey, 2014*

Figure 21: The current land use of Baraton Center

Site planning is essentially about trying to get good fit between the needs of the people and the environment. It is about ‘right things in right places to establish what is right’ in a particular area. Beer (1990); Beer (Cited in Lynch and Hack (1984) says the site planners role is to make the spaces people inhibit fit for habitation and to make them livable. The proposed plan tries to enhance this idea by suggesting distinct residential areas, defined commercial area with a bus terminus, a strategically located open air market place, and secluded garbage collection points for waste on transit, zoned agricultural land, adequate circulations, open spaces, more water collection points and a recreational square. Figure 20 shows the new proposed plan for the centre. However, this proposal will just be a land use zoning. The physical planners, landscapers and other stakeholders in construction should take up the zoned land uses to develop the physical infrastructures.



Source: ***The Researcher, 2014***

Figure 22: Proposed Site plan for Baraton Center

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of findings

The residents of Baraton community especially the developers and investors in Baraton centre are not aware of planning policies; this has largely contributed to haphazard development of the centre. Most of the residential houses do not meet the standards set forth by the physical planning Act 1996 Cap 286, over 90% of the isolated residential plots supply the tenants with borehole water which is located only between 15 to 25 meters contrary to the recommended 30m this can cause serious waterborne diseases outbreak in case of contamination.

Land use for Chemundu location has not changed drastically, the community still is largely agricultural rural environment but with an increased production on vegetables that serve the population of Baraton centre. The centre has however showed increasing number of residential houses, businesses and premises which are predominantly belonging to the native members. The buildings both for commercial and residential have increased and improved as per compared to the early 1980s and 1990s. The then structures were few tinned cottages that served as mini hotels and mini shops. Currently the center has grown to a radius of about 2Km with many permanent houses and some few two to three-level houses at the CBD. The centre has attracted an open air market running every Friday of the week. This increasingly provide the community with a coveted opportunity to sell their products of assorted varieties, the market provides the residents with alternative goods that the University does not provide especially to the residents within the University premise. The landlords enjoy the ready market for their houses which earn them rent on monthly basis with minimal expenditure as compared to the agricultural income.

The establishment of the university has made it possible for the transport network to be improved. More traffic on the road which adequately increases the earnings of the taxi operators, boda boda (motor cycle operators) and other road users. Besides, the educational levels of the community has been enhanced as many of their children have been able to progress to attain university degree, the university has attracted several other institutions from pre-school, primary and secondary to college. Some of these include Baraton International School (Pri) and Baraton Adventist Secondary School. These institutions have increased the populations and need for

more infrastructural development especially housing. In general the community has reported improved living standards.

6.2 Recommendations

- A policy on location of any university, whether private of public should be enacted to ensure that anticipated human settlements and support services are planned alongside the university plans, even though it is not the mandate of the university to plan for the center, the government while approving location a university should ensure that the land around the university is planned to adequately prepare grounds for the anticipated urban center. The plans in question should ensure a well organized urban centre that fulfills the needs of the community as well as the environmental interests.
- University of Eastern Africa, Baraton should expand its relationship with the community to capitalize on the potentialities of the community such as establishing an ultra modern training facility for athletes being in the locality of main athletes in Kenya. This is at the core of the university's motor of mental physical and spiritual development of the society. Besides, UEAB is strategically positioned in a partially remote area where it can capitalize on dairy products from the community and its own farm to create a milk factory. The university's bakery only serving the university population this can be expanded to serve the whole community and beyond.
- An integrated plan on the urban services, environmental concerns and the needs of the community in terms of social infrastructure should be incorporated in the master plan of the University. This should be in line with the political development plans of the county as well. For this to culminate in effective plans, the political class, technocrats and the university dons should plan together for the university and its environs.

6.3 Conclusion

Lack of knowledge of urban planning policy and Urban Areas and Cities Act 2011 is the biggest challenge of urban planning. This confirms findings of the report by the UN Habitat (1990a), AAK, (2010) which pointed out weak institutional and legal frameworks, lack of political goodwill, poor enforcement machinery, poor policy implementation, restrictive building regulations, laxity in approving plans, weak financial position by the municipal and /or county governments, and high professional fee as the main causes of poor policy implementation.

In order that the citizens actively observe these policies, awareness and enforcement must be pronounced. The county government must put structures on the ground that ensures policy observance. This should not just be in terms of human resources but also financial resources. The government should ensure planning is done for all university towns and all satellite centres so as to nip nascent urban sprawls rather than waiting until the mess is created to react.

University of Eastern Africa, Baraton has influenced urban processes in Baraton community where originally agricultural has now been transformed to an urban centre. The growth of the university is directly influencing the growth of the centre. The more the programs the university offers, the more the population attracted to the centre. This in turn influences human settlements that increase the demand for urban services.

The uncontrolled service providence in a budding University urban centre can easily plunge into a university slum which like many other slums present myriad challenges to the environment and on the peoples' health. UNCHS (1982)

Land use change has positively impacted on the lives of the community members with increasing opportunities and social amenities. This has improved the living standards of the people. Universities are immobile institutions fairly resistant to business cycle fluctuations; making them a steady market in the community…they contribute to the area's economic growth. (Steinacker, 2004) However, so far the community has not reaped the full potential of the university as the community resources are not fully utilized especially on marketing for the abundant milk produced from the community and the several athletes who hail from the community but train very far away from their community or train locally without adequate training facility. As pointed out by

6.4 Areas for further study

- Underground water flow of Baraton Center and the possibility of contamination by use of pit latrines
- A spatial structural site plan involving all the stakeholders to Redevelop and redesign Baraton Center
- How political exclusion from UEAB render the University irrelevant to socioeconomic development of the Baraton community.

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LIST OF APPENDICES

APPENDIX I: HOUSEHOLD QUESTIONNAIRE
Kenyatta University

Department of Environmental Planning and Management

I am a student from Kenyatta University pursuing a Master's Degree of Environmental Planning and Management in the school of Environmental Studies. As required of this degree program, I should undertake a research project. I am therefore conducting a Study On "**Institutions of Higher Learning as Drivers of Urban Development: A Case Study of University of Eastern Africa, Baraton- Nandi County.**

In order that I achieve this need, your voluntary participation in providing information the study is looking for is necessary. The information collected is basically for academic purposes and will be treated with a befitting confidentiality.

Name of interviewer_____

Name of residential area _____

Date of interview _____

SECTION A BIO DATA

A1 – Please indicate your age.

a. 15 – 20 [ ]
b. 21 – 25 [ ]
c. 26 – 30 [ ]
d. 31 and above [ ]

A2 – Please indicate your gender.

a. Male [ ]
b. Female [ ]

A3 a) Are you a native member of Baraton community? Yes [ ] No [ ]

b) If no where did you come from? _____

c) What was your reason for migrating to Baraton center? _____

_____

_____

d) For how long have you lived in Baraton Center?

1-5 years [ ]

6-10 years [ ]

11-15 years [ ]

16 and above [ ]

SECTION B – House Hold Characteristics

B1. Please fill in the table below.

Hse Hold Member	**Gender**	**Age**	**Level of Education**	**Occupation**	**Source of Income**	**Ave Monthly Income**

B2 Planning and Management issues occasioned by UEAB

1) What problems do you experience as a result of having UEAB in this locality?

_____

_____

_____

2) Does the increasing population (students, teaching/support staff and traders affect you in any way? Yes [ ] No [ ]

ii) If yes please briefly explain how? _____

_____

3. Please indicate by ticking [✓] to what extent you agree with the statement of service providence of the following basic social amenities by Nandi County government in Baraton center?

Select from **Strongly Agree 1, Agree 2, No idea 3, Disagree 4 and Strongly Disagree 5**

	QUESTION	**1**	**2**	**3**	**4**	**5**
(a)	Health facilities are available					
(b)	Water supply is reliable and adequate.					
(c)	Power supply is reliable.					
(d)	There is an efficient drainage system for surface run offs.					
(e)	Sewer system, Toilets and pit latrines are in proper condition.					
(f)	There is sufficient recreation space for the dwellers in Bara C.					
(g)	Roads and Footpaths for circulation are provided and well maintained.					
(h)	Security of the residents is adequate and guaranteed.					
(i)	The Plan and design of Baraton center is appealing.					
(j)	There is demarcation and land use plans separating farmlands from urban features.					

B3. Socioeconomic and Sociocultural impacts

1. What socioeconomic benefits do you get as resident of Bara C. _____
   _____
   _____
2. In your opinion, what possible economic ventures do you think exists or are potential to UEAB and Baraton community but are yet to be tapped? _____
   _____
   _____
3. Please comment on UEAB as a social institution and its impact on the traditional culture of the native residents and the settlers. _____
   _____
   _____

C. Perception on policies and regulatory frameworks governing urban planning and management

1. Do you think development policies, legal and/or regulatory frameworks governing urban planning and development are effective? Please comment on your response

_____

_____

2. What specific areas of urban management do you think need improvement?

_____

_____

3. Please suggest any improvement mechanism you may recommend for adoption _____

_____

_____

D) Environmental issues (Water, sanitation and solid waste management and energy)

1) What are your sources, use and supply of your water? (Please fill in the table below)

	Water Sources	Uses	Affordability	Supply Reliability
A	Piped			
B	Communal water kiosk			
C	Water vendors			
D	River			
E	Well			
F	Boreholes			
G	Roof catchment			
H	Any other, specify			

2) If you get your water from ‘f’ or ‘g’ above is it in the same residential compound?

Yes [ ] No [ ]

ii) If yes how far away is it from the pit latrine? _____

3) What mechanisms do you use to dispose of wastes? (Please fill in the table below)

Liquid waste disposal			**Solid waste disposal**		
Means	Yes	No		Yes	No
a). Sewerage connection			1. Burning		
b). Public toilet			2 Nearest open dumping place.		
c) Own pit latrine			3. Collected by council,		
d) Shared pit latrine			4. Collected by a company,		
e) Septic tank			5. Pit damping		
f) Outdoor open drains			7. Anywhere in the outdoor		
g) Others (specify			8. Any other, specify		

4. i) What problems do you encounter with liquid waste management? _____

_____

_____

ii) In your opinion, how can liquid waste management problem be solved? _____

_____

_____

5. i) Which problems do you face with solid waste management? _____

_____

_____

ii) In your opinion, how can solid waste management problem be solved? _____

_____

6. What observable environmental issues/problems can you identify as a consequence of the growing population in Baraton community? (On Land, water, air) _____

_____

7. **Energy** (please fill the table below)

Energy sources	Uses	Affordability	Reliability
1. Charcoal			
2. Firewood			
3. Paraffin			
4. Electricity			
5. Solar			
6. LPG			
7. Others (specify)			

8. Which problems do you encounter with accessing and use of the above mentioned energy sources? _____

_____

9. In your opinion, how can the above mentioned problems be solved)? _____

_____

_____

Thank you for your time and contributions

ANNEX II BUSINESS QUESTIONNAIRE
Kenyatta University

Department of Environmental Planning and Management

I am a student from Kenyatta University pursuing a Master's Degree of Environmental Planning and Management in the department of Environmental Planning and Management. As required of this degree program, I should undertake a research project. I am therefore conducting a Study On "**Institutions of Higher Learning as Drivers of Urban Development: A Case Study of University of Eastern Africa, Baraton- Nandi County.**

In order that I achieve this need, your voluntary participation in providing information the study is looking for is necessary. The information collected is basically for academic purposes and will be treated with a befitting confidentiality.

Name of interviewer_____

Business location _____

Date of interview _____

A) Business characteristics and Information

1. What type of business do you run? _____

2. For how long have you been in this business?

A) Less than a year [ ]

B) 1-5 years [ ]

C) 6-10 years [ ]

D) Over 10 years [ ]

3. Do you have employees? Yes [ ] No [ ]

ii) If yes please fill in the table below

N0. of employees	Gender	Age	Educational level	Monthly income

4. Who are the main consumers of your goods and services? _____

_____

_____

B. Physical Planning of Bara C

1. Which type of business premise do you occupy?

   Owner occupier [ ] Rented [ ]

   Others (specify) _____ _____ □

   ii) If renting, how much rent do you pay per month (exclusive of water and electricity)? A. below 5000 [ ]

   B. 5000-10000 [ ]

   C. above 10000 [ ]

2. Looking at the current design and structure of Baraton center, does it appeal to your sense of beauty? Yes [ ] No [ ]

   ii) If No, what physical planning changes would you recommend for the planners?

_____

_____

3. Is the location of your business convenient to you and your customers? Yes [ ] No [ ]

   ii) If No, what do you suggest should be done to make it convenient _____

   _____

   _____

4. What is the condition of your business premise? (ventilation, safety, cleanliness, structural stability and beauty) (Tick ✓where appropriate)

   a) Very good [ ]

   b) Good [ ]

   c) Fair [ ]

   d) Poor [ ]

   e) Very poor [ ]

5. What problems can you cite has been brought about by the operations of UEAB and the increasing populations in Bara C to your business and welfare? _____

_____

_____

C Socioeconomic and Sociocultural impacts

1) How has the location of UEAB influenced your business? _____

_____

_____

2) Does the existence of UEAB influence nature of good/services and the market price of your business? Yes [ ] No [ ]

ii) If yes briefly explain how _____

_____

_____

3) How does the cultural diversity brought about by UEAB play about in the business and or cultural goods in the community? _____

_____

C. Knowledge of policies, legal and regulatory frameworks governing urban planning

1. Are you aware of planning and management policies and legislative frameworks governing the development of urban centres? Yes [ ] No [ ]

If yes which ones _____

_____

b) Do you consider urban planning policies beneficial to the residents?_____

_____

_____

2. In your opinion, which laws, regulations or policy do you think should be enacted to improve the operation and development of Bara C? _____

_____

_____

D) Environmental issues (Water, sanitation and solid waste management and energy)

1. What kind of waste does your business produce? _____

_____

2. How do you manage the wastes your business produces? Please fill in on the table below.

Liquid waste disposal			**Solid waste disposal**		
Means	Yes	No		Yes	No
a). Sewerage connection			1. Burning		
b). Public toilet			2 Nearest open dumping place.		
c) Own pit latrine			3. Collected by council,		
d) Shared pit latrine			4. Collected by a company,		
e) Septic tank			5. Pit damping		
f) Outdoor open drains			7. Anywhere in the outdoor		
g) Others (specify			8. Any other, specify		

ii) What challenges do you experience with the method (s) you have selected above in managing the wastes?

_____

_____

3. What are your sources, use and condition of water supply? (Please fill in the table below)

Water Sources	Sources [✓]	Uses	Reliability
Piped			
Public stand pipe			
Communal water kiosk			
Water vendors			
Spring			
River			
Well			
Boreholes			

Roof catchment			
Any other, specify			

ii) What problems do you experience with the water supply, use and reliability? _____

4**. Energy Supply** (please fill the table below)

Energy sources	Uses	Affordability	Reliability
1. Charcoal			
2. Firewood			
3. Paraffin			
4. Electricity			
5. Solar			
6. LPG			
7. Others (specify)			

5. Which problems do you encounter in accessing and use of the above mentioned energy sources? _____

_____

6. In your opinion, how can the above mentioned problems be solved)? _____

_____

ANNEX III INTERVIEW SCHEDULE FOR UEAB

Kenyatta University

Department of Environmental Planning and Management

I am a student from Kenyatta University pursuing a Master's Degree of Environmental Planning and Management in the department of Environmental Planning and Management. As required of this degree program, I should undertake a research project. I am therefore conducting a Study On "**Institutions of Higher Learning as Drivers of Urban Development: A Case Study of University of Eastern Africa, Baraton- Nandi County.**

In order that I achieve this need, your voluntary participation in providing information the study is looking for is necessary. The information collected is basically for academic purposes and will be treated with a befitting confidentiality.

Name of interviewer_____

Business location _____

Date of interview _____

A. Policy and Legislative frameworks governing the spatial location of Universities and their environs

1. What are your roles and or mandate as the physical planner of UEAB? _____
   _____
   _____
2. Are there design plans for the UEAB? If yes, has it ever been reviewed?
   _____
3. Does the UEAB community and the neighborhood especially Bara C share any complementarities? (mutual interests) if yes please highlight _____
   _____
   _____

4. What legal and institutional frameworks were followed in development and/or site location of UEAB? _____

_____

_____

5. Do you know of any existing policy, legal and/or regulatory considerations on urban planning and management in Kenya? Yes [ ] No [ ]

ii) if Yes please identify and briefly comment as guided by the table below

POLICY	STRENGTHS	WEAKNESSES
LEGAL FRAMEWORK		
REGULATIONS		

6. Please comment on your assessment of the plan of Baraton centre as a neighborhood of a carefully planned University? _____

_____

B. Planning and management issues associated with spatial location of UEAB vis a vis the population

1. Universities are seen as development boosters in whichever location they are situated, in line with this view, how does UEAB contribute to the development of Nandi County in which it is the only University? _____

_____

_____

2. How do the University and the county government work to ensure an upbeat social and economic development of the county considering the resources available in the county? _____

_____

_____

3. Population growth is always accompanied by certain environmental degradation, how do you assess the environmental situation within and around Baraton? _____

_____

_____

4. What social and cultural issues can you highlight as have been brought about courtesy of UEAB's operations? _____

_____

_____

5. During the planning and designing of UEAB, were there accommodation plans for the anticipated populations who would not be accommodated by the University? Please consider the anticipated additional programs the university intends to introduce as well. _____

_____

_____

_____

6. Please comment on any planning issues (problems) you may recommend improvements on in as far as planning and development of Universities and their environs is concerned. _____

_____

_____

Thank you for your time contributions

ANNEX IV INTERVIEW SCHEDULE FOR NANDI COUNTY PHYSICAL PLANNER

Kenyatta University

Department of Environmental Planning and Management

I am a student from Kenyatta University pursuing a Master's Degree of Environmental Planning and Management in the department of Environmental Planning and Management. As required of this degree program, I should undertake a research project. I am therefore conducting a Study On "**Institutions of Higher Learning as Drivers of Urban Development: A Case Study of University of Eastern Africa, Baraton- Nandi County.**

In order that I achieve this need, your voluntary participation in providing information the study is looking for is necessary. The information collected is basically for academic purposes and will be treated with a befitting confidentiality.

Name of interviewer_____

Business location _____

Date of interview _____

B. Policy, Legal and Legislative frameworks governing the spatial location of Universities and their environs

1. What policies, legal and regulatory frameworks guide the planning and allocation of universities in Kenya. _____

   _____

   _____

   _____

2. Are there policies, legal or regulatory frameworks guiding the planning of the towns coming up as a result of a university premises or institutions of higher learning?

   Yes [ ] No [ ]

   ii) If yes please identify it or them and highlight their strengths and weaknesses.

POLICY	STRENGTHS	WEAKNESSES
LEGAL FRAMEWORK		
REGULATIONS		

3. Please comment on the awareness and utilization of the policies and regulatory frameworks governing urban planning by the Baraton community members, landowners and private developers. _____

_____

_____

4. What measures are there in place to take care of urban sprawl especially in the rural environments where institutions of higher learning are located? (See Baraton centre)

_____

_____

_____

5. Bearing in mind Nandi County is dominantly a rural county with more agricultural activities than urban. However, the urban features steadily encroach into the agricultural farms, are there County plans for the urban-rural inter-phases?

_____

_____

_____

C. **Planning issues associated with the spatial location of UEAB**

1. As the county physical planner, what planning issues have you identified with the spatial location of UEAB with regard to the growth of Baraton Centre? And whatplans are there to address them?

   _____

   _____

   _____

2. Do the county development planners exploit the existence of University of Eastern Africa, Baraton as a social institution being the only university in the county, to chart way for the county development? Yes [ ] No [ ]

   ii) If yes, briefly describe how _____

   _____

   _____

   _____

3. What environmental management and sustainability measures does the county have in place to ensure Nandi County contributes to the sustainable development in line with the vision 2030? _____

   _____

   _____

4. Please comment on any planning issues (problems) you may recommend improvements on in as far as planning and development of Universities and their environs are concerned._____

   _____

   _____

Thank you for your time and contributions.

ANNEX V INTERVIEW SCHEDULE FOR NEMA OFFICER NANDI COUNTY
Kenyatta University

Department of Environmental Planning and Management

I am a student from Kenyatta University pursuing a Master's Degree of Environmental Planning and Management in the department of Environmental Planning and Management. As required of this degree program, I should undertake a research project. I am therefore conducting a Study On "**Institutions of Higher Learning as Drivers of Urban Development: A Case Study of University of Eastern Africa, Baraton- Nandi County.**

In order that I achieve this need, your voluntary participation in providing information the study is looking for is necessary. The information collected is basically for academic purposes and will be treated with a befitting confidentiality.

Name of interviewer_____

Business location _____

Date of interview _____

D. Policy, Legal and Legislative frameworks governing the spatial location of Universities and their environs

6. Please comment on your mandate as an environmental officer. _____
   _____
   _____
7. Are there Environmental policies, legislative frameworks guiding the planning and situation of universities in Kenya? _____
   _____
   _____
8. As a body charged with ensuring environmental safety of all citizens, how is urban sprawl which is a major contributor to environmental pollution as dealt with, being a contributor to poor waste management and improper housing conditions?
   _____
   _____
   _____
   _____

9. What strengths and weaknesses of environmental regulatory frameworks can you comment on concerning university set ups vis a vis urban growth. Please fill the table below.

Policies, laws and regulatory frameworks	STRENGTHS	WEAKNESSES

10. In relation to policies, legal and regulatory frameworks, please comment on any planning issues (problems) you may recommend improvements on in as far as planning for University towns are concerned. _____
_____
_____
_____

APPENDIX VI OBSERVATION CHECKLIST

Type of service	**Available**	**Not available**	**Adequate**	**Inadequate**	**Remarks**
Drainage system					
Secure Waste collection point					
Sewer line service					
Clean water supply					
Circulations					
Quality housing					