THE CITY - WATER INTERFACE:

EVALUATING LAND USE ISSUES IN KISUMU

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I hereby declare that this thesis is my original work and to the best of my knowledge has not been presented for a degree in this or any other university for an award of a degree or any other purpose.

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To my late Dad and loving family.

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Abstract

Waterfront development has been an issue of wide concern and extensive discussion since the 1970s, especially in the Western countries where waterfront (re)development has been an established practice for decades. Cities in Africa have only recently rediscovered the potential of their waterfronts. Some of the projects have caused drastic social changes, developing the waterfronts from some of the poorest urban neighbourhoods to the most exclusive places in the city.

This study was on Kisumu City - waterfront land use issues because of the significance of the waters of Lake Victoria in the establishment of Kisumu City itself. The specific area of focus was that designated as SPA 1 and SPA 2 in the Kisumu CIDP. SPA 1 is defined by the land fronting the lake, while SPA 2 is the CBD which is also the city's historic core. SPA 2 is bounded by Achieng' Oneko Road, Oginga Odinga Street, Obote Road and Otieno Oyoo Street. The study investigated the urban waterfront land use issues in Kisumu. The study also examined the existing policy, legislative and institutional framework and identified the gaps and challenges that affect land use issues in Kisumu. Data was collected in two sets as per the SPAs mentioned above in recognition of the fact that SPA1 has direct physical contact with the water while SPA 2 does not. A total population of 481 was used in this study with 30 being for SPA 1 and 451 for SPA 2. Through stratified and systematic sampling, sample sizes of 25 and 48 were used for SPA 1 and SPA 2 respectively. The 3 public open spaces and 5 public institutions were all analyzed being in a different category of public purpose land uses. A total of 8 key informants drawn from various government departments were purposively identified.

Primary data was collected through field observations, photography, interviews and structured questionnaires; while secondary data was collected through literature review, base maps and internet sources. The data was analyzed and presented in the form of frequency distribution tables, bar charts/graphs and pie charts.

The results revealed that city is negatively oriented to the lake by turning its back to it. The waterfront is characterized by inaccessibility, is topographically isolated, blocked by highways, cluttered with dirty industrial plants and municipal treatment and waste disposal facilities. Idle cargo handling sheds and warehouses occupy the waterfront. These existing land uses deny the

waterfront the round-the-clock activeness. Further, the building typologies are opaque as opposed to more porous typologies that embrace such concepts as shopping arcades which encourage pedestrian access. The buildings themselves have no connections to the water but instead have blank walls facing the waterfront effectively turning the waterfront in to a backyard. As a result, the city is not realizing the full benefit of its local and regional strategic location by the lake. The port for instance only has a port Manager, a wharf supervisor and a driver, hardly receives any passenger ships and only 2 to 3 cargo ships in a month while the waterfront "dies" as early as 7 p.m. when it should be operating on a 24 – hour basis. It is the recommendation of the study that the city be oriented to the lake by improving access to waterfront land, quality of access routes, enhancing vitality i.e. increasing the diversity of activities and creating a special quasi-public entity to manage the waterfront. This entity will draw the plans and guidelines for the waterfront development.

Finally, a "phased model" is explored as a "prototype" of waterfront development strategy, ideal in realizing the heavy investment required for waterfront developments, which the municipal government lacks. This model shows the government being the main source of initial investment but gradually reducing and private investment rises.

The study therefore provides a basis on which other urban centres and cities can take advantage of their waterfronts to realize their full potential and the possible ways of doing this. Some of the benefits associated with this include reduction in environmental degradation both in the immediate surroundings and on the greater catchment areas, improved health and sanitation, improved public access and amenities, urban regeneration, improved land values in relation to waterfronts, tourism and the economic potential of the urban waterfronts. Specific to Kisumu is the potential to regain its previous position of the transport and trading hub of the western Kenya as well as the great lakes region.

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LIST OF ABBREVIATIONS AND ACRONYMS

AFD	Agence Française de Développement
AKDN	Aga Khan Development Network
AKTC	Aga Khan Trust for Culture
ASP	Afro-Shirazi Party
BEDC	Baltimore Economic Development Corporation
BPCA	Battery Park City Authority
BUA	Built Up Area
C.R.A	Commission on Revenue Allocation
CDA	Coast Development Authority
CIS	Capital Investment Strategy
CoK 2010	Constitution of Kenya, 2010
CUMC	Cathedral of the Universities Mission in Central Africa
CZMA	Coastal Zone Management Act
EAC	East Africa Community
EIA	Environmental Impact Assessment
EMCA	Environmental Management Co-ordination Act
ENNDA	Ewaso Ngiro North River Basin Development Authority
ENSDA	Ewaso Ngiro South River Basin Development Authority
EU	European Union
FAO	Food and Agricultural Organization
FGD	Focus Group Discussions
ISUD -Plan	Integrated Strategic Urban Development Plan
JKIA	Jomo Kenyatta International Airport

JV	Joint Venture
KAA	Kenya Airports Authority
KCDS	Kisumu City Development Strategy
KISIP	Kenya Informal Settlements Improvement Program
KIWASCO	Kisumu Water and Sewerage Company
KMA	Kenya Maritime Authority
KMP	Kisumu Municipality Project
KPA	Kenya Ports Authority
KRC	Kenya Railways Corporation
KUP	Kisumu Urban Project
KVDA	Kerio Valley Development Authority
KWS	Kenya Wildlife Service
LBDA	Lake Basin Development Authority
LDCs	Less Developed Countries
LVCDS	Lake Victoria Cities Development Strategy
LVEMP	Lake Victoria Environmental Program
LVRLAC	Lake Victoria Region Local Authorities Cooperation
MoLG	Ministry of Local Government
MOTCO	Mombasa Old Town Conservation Office
MTEF	Medium Term Expenditure Framework
NEMA	National Environmental Management Authority
NICs	Newly Industrializing Countries
NMK	National Museums of Kenya
NUDP	National Urban Development Policy

PIU	Principles of Intelligent Urbanism
PPP	Public-Private Partnership
RDAs	Regional Development Authorities
SEZ	Special Economic Zones
SIDA	Swedish International Development Agency
SPA	Special Planning Area
STCDA	Stone Town Conservation and Development Authority
SWOT	Strengths, Weaknesses, Opportunities and Threats
TARDA	Tana River and Athi River Development Authority
TTCA-NC	Northern Corridor Transit Transport Coordination Authority
UNEP	United Nations Environmental Program
(UNCHS/Habitat)	United Nations Centre for Human Settlements.

1 CHAPTER 1: INTRODUCTION

1.1 Inttroduction

This chapter depicts the general research background of this study. It also introduces the physical location of the study area. Research objectives and significance are defined and research questions are stated. At the end of this chapter, the overall structure of the research is described.

1.2 Background To The Research Problem

Water has been a major determinant of human settlement from as far back as the history of human settlement itself. The first known civilizations occurred along the edge of water from its role of transportation, food production and security. These include Early Chinese civilization between 7000 and 5000 B.C. along the Yellow and Yangzi Rivers, settlements in Mesopotamia along the Rivers Tigris and Euphrates, and the Egyptian and Nubian civilizations along the Nile, both dating back to 3000 B.C. and Indus Valley which was the location of the first civilization of India about 2500 - 1500 BC.

Today, the significance of water in human settlements remains high with the land around the water being in high demand and intensive use. This demand has led to continued replacement of the traditionally dominant uses of the water's edge to more modern and economically viable uses. (Craig-Smith & Fagence, 1995).

As a result of both private initiative and public prodding, cities have gained valuable amenities such as new parks, walkways and other recreational facilities in private developments that line the public waterway (Craig-Smith & Fagence, 1995). Often, the synergy between private uses, such as retail and entertainment, and public open spaces have reinforced each other and maximized public enjoyment of the waterfront (Vallega, 2001). However, the challenge of realizing this synergy is great arising from these complementary yet competing uses that demand for this unique setting of the urban waterfront.

In response to these challenges, many downtown waterfronts have been transformed from working industrial ports into residential, commercial, recreation and tourism magnets. The intensification of the phenomenon in the last decade or so and the widespread importance of quality water supply to urban areas have led to an increased academic interest reflected in a series of international conferences and major publications focusing on different aspects of the

phenomenon (Hoyle & Pinder, 1992; Torre, 1989; Wrenn, 1983). Some of the areas of focus include the environmental degradation both in the immediate surroundings and on the greater catchment areas, health and sanitation, public access and amenities, urban regeneration, land values in relation to waterfronts, tourism and the economic potential of the urban waterfronts.

And although all these aspects are relevant to the urban waterfront, they have been deliberated upon in isolation without an all-inclusive view of all the aspects and the interrelationships among them. Most important yet noticeably understated is the relationship between the urban land-based activities and its waterfront.

In Kisumu, the types of land uses along the water edge largely remain the old ones which have curtailed the access to the all-important resource and increased the pollution of the water. These old uses include the railway line, warehouses, petroleum products depots, cemeteries and electricity power substation among others. The slow emergence of new functions and activities on the waterfront has gone on without commensurate response in organizing these functions and activities. There are lots of efforts being put to improve the living conditions of the people around Lake Victoria with many players yet they each address specific thematic areas without a coordinated approach. It is important that this transformation of the waterfront is managed to ensure its sustainability. There is therefore need for a comprehensive framework that considers and addresses all these aspects and which coordinates all the efforts.

One way of doing this is by developing a framework that will ensure the current and future land uses of the waterfront enhance the character and functions of the city without economic gains overriding all other considerations i.e. social, ecological, spatial/physical and environmental aspects.

With the proper management tools, Kisumu city can capitalize on private development to achieve the maximum public benefit. Urban planning guidelines can protect the public interest by spelling out basic standards for private development. Carefully-crafted guidelines can clearly define a public vision, ensure public access, establish clear design standards and create consistent procedures for private development. Kisumu ISUD – Plan recognizes this and states that “A consensus exists among all involved in urban development in Kisumu that Lake Victoria is at the same time a unique asset for the third Kenyan city and an undervalued opportunity. The same

consensus exists on two strategic planning aspects for the city, one being to reconnect the city with the lake physically, visually and functionally, the second being to revitalize the transport hub function Kisumu once had."

1.3 Problem Statement

Urban water and related land problems fall into seven general functional categories: These are water supply, sewage disposal, water quality management, flood control and drainage, recreation, ports and harbors and navigation and Waterfront land use.

Considered in the urban setting, however, these traditional categories may be summarized in four general problem headings, covering the most critical interactions of water and the city. These include waterfront land use, water quality management, water-based recreation and open space planning, and metropolitan growth control.

This study focuses on the problem of urban waterfront land use. Planning for Kisumu's development must address a number of inter-related issues.

The Situation:

Sub-optimal utilization of Kisumu's waterfront can be attributed to the types of land uses along Kisumu's water edge. They largely remain the old ones which have curtailed the access and increased water pollution. These old uses include the railway line, warehouses, petroleum products depots, cemeteries and electricity power substation among others. Due to this, Kisumu's waterfront remains deserted most of the day and there is hardly any activity in the evenings. This is in direct contrast with most other cities that have waterfronts. This has elicited a lot of interest among many organizations and groups and led to the formation of various bodies, each trying to make a contribution towards the sustainability of this resource and improvement of living conditions of the inhabitants. Some of them include Lake Victoria Environmental Programme (LVEMP) and those that have been in existence for long like the Lake Basin Development Authority (LBDA). Other interested bodies include Kenya Wildlife Service (KWS), Kenya Airports Authority, (KAA), NEMA, Department of Fisheries, Department of Water and Kisumu City County Government. Kisumu has also attracted a number of multilateral and bilateral donors aware of the city needs and potential. Presently active and potential donors, include, inter alia, the World Bank (KMP/KISIP), the African Development

Bank, UNEP, FAO, SIDA, KfW and other bilateral aid agencies. Coordinating these various initiatives so that they all converge towards the development objectives of a consistent development framework is necessary. In developing the Kisumu City Development Strategy (KCDS), several of these bodies were involved under the direction of UN-HABITAT. The vision of the KCDS is to revamp the identity of Kisumu as the principal transport, communication and commercial hub of the Great Lakes region, while strengthening the service coverage and delivery capacities. Several newspaper reports have recorded the investments, some intended and some actualized to achieve the vision of the KCDS, as well as the challenges to the achievement of the vision.

Poor Access

Access is a major challenge at the Kisumu waterfront. This is both in physical terms and in terms of access to waterfront land for development. Most of the land here belongs to KRC. Despite sitting on the land for a long time without developing, KRC has been unwilling to release the land to potential developers. Historically, access to railways property was controlled and part of them completely prohibited. This was the case and in Kisumu, which like other railway stations is served by a police station, originally meant to deal with trespass among other crimes. The recognition of this challenge is evidenced by the pronouncement by the Kenya Railways Corporation of intentions to redevelop its yards at Kisumu to mixed uses including hotels and conference facilities. According to information available, the project planned by KRCD should include commercial activities with retail (malls, shopping arcades, and restaurants), hotels and conference facilities; offices; a business park for light manufacturing and another one for outsourcing; a new “ultra-modern” railway station, a rail link to the airport and facilities for cruise tourism and water sports are also planned. (ISUD – Plan). This will ensure improved access, vitality and economic rejuvenation of the waterfront.

Appropriate building typologies must however be adopted in this development if access is to be ensured. The existing building typologies on the waterfront are opaque as opposed to more porous typologies that embrace such concepts as shopping arcades which encourage pedestrian access. The buildings themselves have no connections to the water but instead have blank walls facing the waterfront effectively turning the waterfront in to a backyard.

Poor infrastructure

Dilapidated infrastructure has robbed Kisumu of its identity as the principal transport, communication and commercial hub of the Great Lakes region which was the very reason for its establishment in the first case. Several measures are being taken in recognition of the existence of this challenge. The Port Manager reports that Kisumu Port can be an economic hub but is 'underused and understaffed'. The Business Daily of March 06, 2014, reports that "KENYA Ports Authority has set aside Sh100 million to revamp the Kisumu Port to improve trade and communication in East Africa. The KPA chairman said part of the funds will be used as seed money and the rest for a feasibility study. He said the port's revival will help reduce the current congestion at the Mombasa port. The chairman said the government will revamp the Kisumu inland container depot to enhance trade between Kenya, Uganda, Tanzania and Rwanda."

The Kisumu county government has signed a lake transport agreement with investors and the Kenya Maritime Authority to make Kisumu a destination port for goods. According to the agreement, goods to be imported and exported will be cleared in Kisumu before they are dispatched to the East Africa Community. The Lake Transport System launched yesterday at Kisumu Dry Dock will enable ships from EAC to offload goods at the Kisumu port." (The Star Newspaper, October 22, 2013).

The Business Daily of September 3, 2013 reports that, "..the National Treasury invited bids for technical advice on the proposed Kisumu Port and Jomo Kenyatta International Airport Hotel which form part of five infrastructural projects so far identified by the government for roll out under the PPP framework. Consultancy for Kisumu Port will take 24 months …."

The upgrading of the Kisumu Airport is yet another evidence of the interest in the improvement of infrastructure for the development of the city and exploitation of its resources. The first phase of the upgrade is complete and was officially opened by the President of the Republic of Kenya on 2nd February 2012. *(The Daily Nation, February 3, 2012).* In KV 2030, Phase two of the construction of Kisumu International Airport, Rebranding of Impala Sanctuary and Echo Lodge and the rebranding of the Kisumu Ports have been identified as key priority areas to boost Kisumu as the hub of the region.

Governance Structure

Transformation around the city's waterfront such as that described above should take place under careful control, not only to ensure public access to the waterfront but also to address the social, economic and environmental concerns. This is achievable through logical spatial organization of activities and land uses on the waterfront. It is also important to ensure that the uses assigned to the waterfront are not transplants from other places but rather guided by the locally developed framework unique to its own setting. Care must also be taken to allow for the dynamic nature of forces of urbanization and its accompanying demands on the space.

Unfortunately in Kisumu waterfront, development has for a long time lacked clear governance framework for realization due to multiple and competing interests in the resource and have therefore suffered the risk of achieving little success or total failure without being guided and coordinated within a framework that will ensure the connection of the city and its waterfront and the attendant benefits. Kisumu's waterfront is managed within the general urban development control framework without special consideration. The result is that the several efforts made are not coordinated and end up duplicating roles or sometimes even pulling in different directions. It is due to this lack of a framework that Kisumu city turns its back on its waterfront and provision of public utilities as while public access to the waterfront remains a challenge. As Hoyle observes in the Case of Stone Town, "*Confusion, duplication and lack of coordination between different branches of the administration have often hampered (restoration) efforts in the historic area.*"

According to ISUD – Plan, the city's growth pattern has been mainly organic for the last 50 years with only a few new parts of it and a few buildings produced through planned development. This dynamic of growth has hardly been supported by public investments nor kept in check through timely land release and appropriate zoning. The enduring attractiveness of Kisumu has not been at par with livelihood and employment opportunities: major economic actors and activities have either disappeared or became dormant, such as transport and logistics with port and railway business at a standstill for two decades, industry with cotton mill and brewery now closed, sugar striving, rice and aquaculture on a slow take off and tourism hardly developed despite the region's high potential.

This situation has only recently changed with the preparation of the ISUD – Plan. According to ISUD -Plan proposals, developed according to an integrated approach considering the variety of urban sectors and scales, some of the intentions are to:

• Provide for a predicted population growth of around 300,000 people (45% increase) by 2030

• Guide urban growth so as to contain the urban footprint extension, achieve an efficient density and an adequate repartition of services and amenities

• Reconnect the city and the lake to make Kisumu a true lakeside city

• Provide better mobility and accessibility to and within the city

In summary, the Kisumu waterfront is characterized by old land uses that were relevant to the waterfront in the pre-industrial era, whose locations were based on water as the most appropriate means of transport and isolation uses, i.e. activities that needed to be isolated from other human activities and settlements. Commenting on the situation in Dar es Salaam, Brian Hoyle, stated that "*A city that desecrates the essential reason for its growth and development over more than a century needs practical help in resolving the planning and financial issues involved but also needs a programme of public education designed to change the cultural attitudes within which such desecration is accepted*."

This study proposes guidelines and a framework within which the objectives of a waterfront development will be achieved. The most important question to be addressed is therefore that of the land uses around the water resource and how they have responded to the forces of urbanization.

This study seeks to answer the question "How successfully have City-waterfront land use issues on the Kisumu waterfront been addressed?"

1.4 Purpose of Study:

Based on the problem stated, the purpose of this study is to analyze the urban waterfront development and land use in Kisumu. This is to determine how well the waterfront of Kisumu has been used, in light of the tenets of a successful waterfront as outlined in the literature review. The primary purpose of this study is to examine the urban waterfront land use in Kisumu by

applying existing knowledge and frameworks to the policy, strategic planning and administration of its waterfront. A framework to control and manage transformation in future is proposed.

1.5 Research Questions

The following are the questions that the research seeks to answer.

1. How has the Kisumu waterfront developed over time?
2. What factors can be attributed to the transformation of the waterfront?
3. What planning and management challenges emerge from the waterfront development?
4. What planning interventions can lead to the sustainable development of Kisumu waterfront?

1.6 Objectives

The main and overall objective of this study is to seek ways of promoting successful utilization the Kisumu's waterfront. The objective is met through the following specific objectives:

1. To examine the Kisumu's waterfront development and land uses as a specific case.
2. To investigate factors that have led to the transformation of the waterfront.
3. To assess the planning and management challenges of the Kisumu waterfront.
4. To explore the appropriate planning interventions necessary to achieve sustainable development of Kisumu waterfront.

1.7 Study Assumptions

The study is guided by the broad assumption that Kisumu turns its back to its lakefront due to inappropriate land uses on the lakefront. Specific assumptions include:

i. That the old industrial land uses hinder the access to the waterfront and that these challenges need to be addressed.

ii. That the public access to the waterfront is hampered by the quality of access routes and the inadequacy of quality public open spaces.

iii. That sustainable waterfront development in Kisumu is affected by Political, Economic, Social, Technological, Environmental and Legal (P.E.S.T.E.L) factors. These factors if addressed could produce a more successful and sustainable urban waterfront.

iv. That the urban waterfront is environmentally degraded as evidenced by the on-site activities and the heaps of solid waste.

v. That the urban waterfront land use issues can be controlled through urban planning practices and management recommendations proposed by the study.

1.8 Justification and Significance of the Study.

It is no doubt that the water resource has always played a key role in the formation and growth of cities worldwide, and its planning and management have accordingly been important factors in shaping and directing the forces of urbanization. Urbanization in turn has altered the nature of the water resource, degrading its quality, redirecting its flow, and sometimes effectively destroying its potential as a resource for man's unfettered use. The planning and management of the urban water resource has thus posed unique problems for the urban planner, not the least of which has been understanding and achieving a land use framework that is sustainable. Waterfront land uses should ensure access, quality environment and guarantee economic viability.

Kisumu is the third largest urban centre in Kenya, the principal urban centre of western Kenya, the capital of immediate former Nyanza Province and the headquarters of Kisumu County. It is the largest town in Nyanza region and second most important city after Kampala in the greater Lake Victoria basin. Just as elsewhere, Kisumu continues to experience the transformation that other urban waterfronts have experienced. This study provides more insight into the phenomenon of the urban-waterfront interface in Kisumu by applying the existing knowledge to a different social, political and economic context. By applying the principles of successful waterfront developments derived from the literature review, the general guidelines on how to achieve successful waterfront development are suggested.

While there is an immense body of academic literature about waterfront regeneration in Western countries, there is limited literature about Eastern Europe and Africa. Some of the few urban

waterfront redevelopments recorded in Africa include the Victoria and Alfred waterfront and the Stone Town Unguja in Zanzibar.

African Business January 2007 issue reports that the Victoria & Alfred Waterfront in the historic heart of Cape Town's working harbour is South Africa's most-visited destination, having the highest rate of foreign tourists of any attraction in the country.

Stone Town also known as **Mji Mkongwe** (Swahili for "old town") is the old part of Zanzibar City. It has experienced some major restoration projects especially on the seafront which have been done in recent times by the Aga Khan Trust for Culture, AKTC. (AKDN)

Thus, the case study presented in this thesis shall be an attempt to fill the gap in academic literature about waterfront land use issues in African countries and Kenya in particular. The study also explores the possibility if enabling Kisumu to realize its full potential by taking the unique advantage and strategic location on the shores of Lake Victoria. The study may also be considered to inform and be applied in similar environments around and along the Lake Victoria urban waterfronts both in Kenya and the other neighboring countries of Uganda and Tanzania.

1.9 Scope of the Study

Waterfront development presents a myriad of issues. These include more general questions on the way of urban planning, how the town deals with its historical architecture, how it deals with the urban land, if and how it regulates urban development and which role public participation plays in the planning process.

With this research, the aim is to present an analysis of waterfront development in Kisumu as an example of current processes in urban development in Kenya. The main interest is to find out what is done to re-establish a stronger connection between city and water, how these developments are controlled, how the heritage of the project area is taken into account in the planning, and which role the needs of the local inhabitants play in the whole planning process. Physically, the lake shore extends from Dunga to the city administrative border in South West Kisumu (Osiri sub-location). It is divided into a 30 meter wide coastal exclusion zone measured from the shore line and in three distinct areas matching land uses inland. These areas are designated as Rural, Peri-urban and Urban.

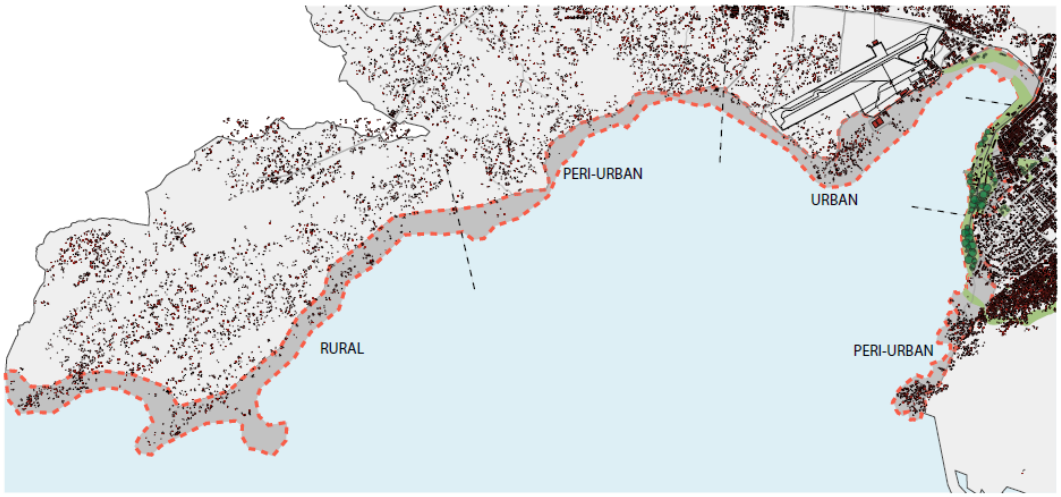


Fig. 1.1: The classification of Lake Victoria waterfront.

Source: Kisumu CIDP

This research focuses primarily on the character of urban-waterfront interface and its interpretation on the socio-economic welfare of the urban dweller. Other aspects like political economy – urban revitalization as a form of capital circulation – would go beyond the scope of this thesis and are therefore briefly discussed but largely left out. They would, however, be very interesting issues for further research.

Spatially, the study limits itself to the section of the shoreline as delineated and mapped to fall under the "urban" defined in the map above and highlighted in the map below.

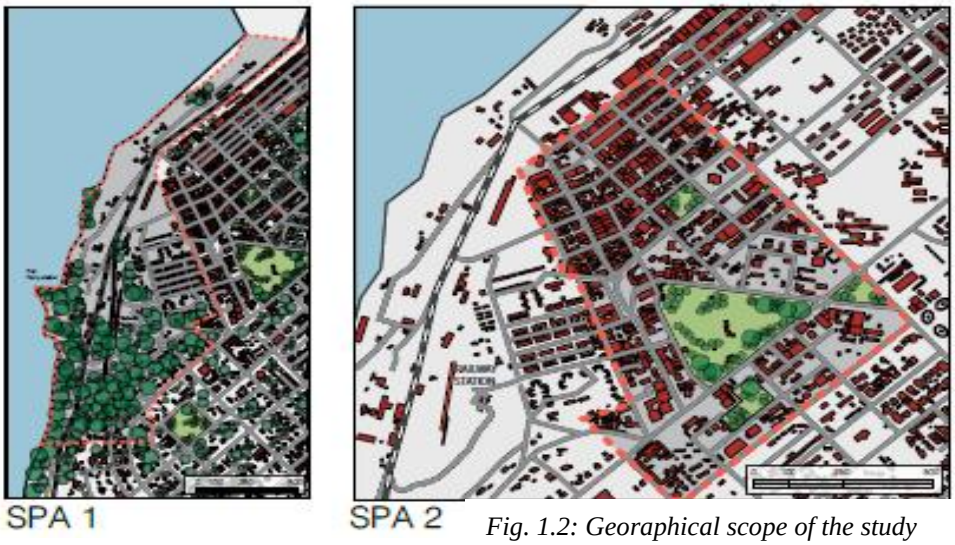


Fig. 1.2: Georaphical scope of the study

Source: Adopted from ISUD - Plan

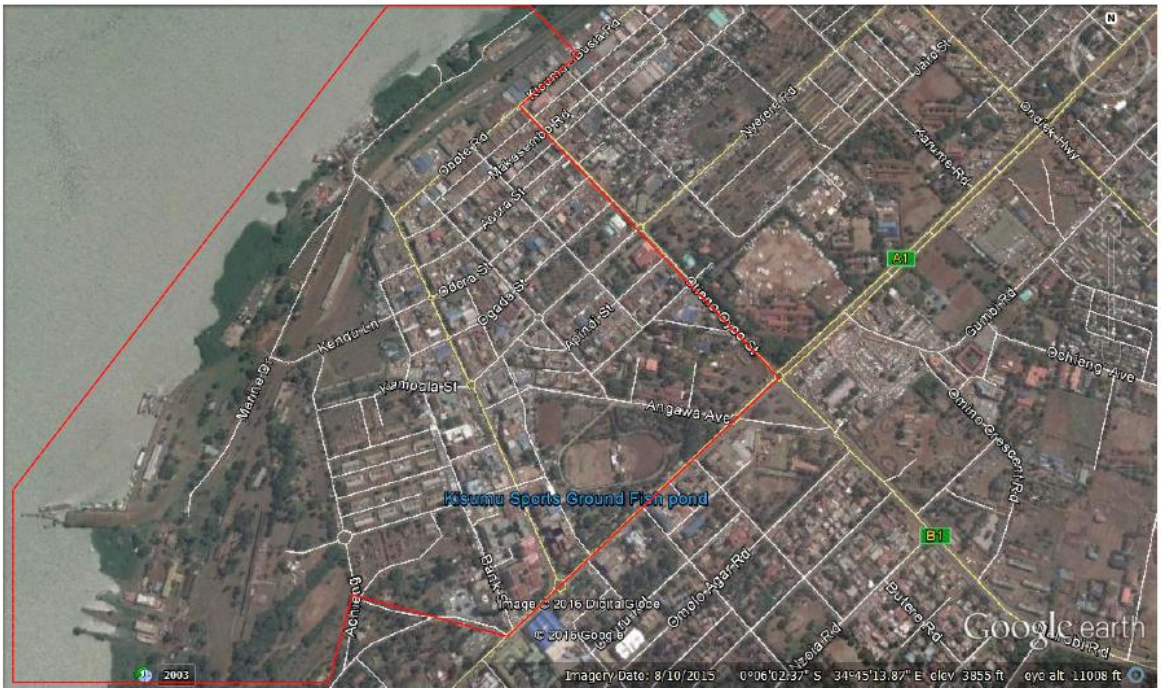


Fig. 1.3: The Spatial Scope of the Study
Source: Adopted from www.googlemap.com

1.10 Definition of Terms and Variables

1.10.1 Waterfront and Waterfront Development

The word 'waterfront' has been used in much literature without an evident definition, probably because the authors assume that the meaning of the word itself is clear – that is, the land fronting the water. At the same time, several other terms are used in place of 'waterfront' to refer to all or part of this particular region. Such terms include cityport, harbourfront and river edge.

According to the Oxford American Dictionary of Current English in English Dictionaries and Thesauruses, waterfront is "the part of a town or city adjoining a river, lake, harbour, etc."

US federal Coastal Zone Management Act (CZMA) which defines the term *urban waterfront or port* as: "any developed area that is densely populated and is being used for, or has been used for, urban residential, recreational, commercial, shipping, or industrial purposes".

The most relevant and befitting definition in the context of this study appears in www.thefreedictionary.com which defines the waterfront as "***the area in the city where land***

meets water, spatially, an area including 200m-300m from the interface to the water side and 1km-2km (that is about a 15min-20min walking distance) to the land side." It is an integrated system consisting of multiple features, of which the water forms the centre, and enclosed by substantial objects.

Waterfront development

In Japan, urban waterfront development is one of the three water-related development concepts that were brought out in the third national development plan in 1977. In addition to the concept of waterfront development, two other water-related development concepts of on different levels were also defined (Table 1.1).

CONCEPTS	FIELD	EXECUTIVE BODY	OBJECTIVE	CONTENT	EMPHASIS
Coastal Development	National Planning	National/ Provincial dept. of planning	To prescribe the character of the city (in the national economy) and development scheme.	Balance of urban functions.	Development strategy and implementation planning
Waterfront development	Urban planning	Provincial/ municipal department of planning	Urban renewal and development	Balance of living, working and recreational functions of the waterfront.	Feasibility study of development projects and spatial design.
Waterside development	Local planning, environmental facility planning	Local planning body or institution.	To create an accessible and enjoyable water environment	Arrangement of water-related entertainment and activities	River-way remedy, water-human relationship design.

Table 1.1: The waterfront use framework
Source: Waterfront development: A case study of Dalian, China

"Waterfront" and "Waterfront Development" in this Study

It is worthwhile and necessary to define the object of this research in the outset.

Summarizing the previous discussions and the characteristics of well documented waterfront development cases, we can find out certain key traits of the waterfront:

- The waterfront area can be a historical port area or an urban area for other uses adjacent to water. It accommodates the interaction between the city and the water and the human settlement and nature;

- It is an urbanized area, a substantial space with water and land as the two important elements. The "water" can be a river, lake or sea.

- It has unclear spatial boundaries, which vary from place to place characterized by particular fabric of mixed land uses.

In this study, the phrase "waterfront development" is used to encompass such terms as "waterfront revitalization", "waterfront rehabilitation" and waterfront regeneration. It is associated with a new opportunity for commercial development of an inner city area (especially for urban waterfronts) associated with the trends of post-industrialization and globalization. In such an opportunity, waterfront (re)development has grown into a tool of economic development. The term "waterfront development" is used to emphasize this trend.

The word "redevelopment" is used to differentiate between the redevelopment of previously built-up lands and new development which is occurring on relatively new sites. The words "land reclamation" are used to refer to new land reclaimed from the sea by any combination of drainage and or infill.

Therefore, waterfront development in this research refers to all and encompassing efforts towards the improvement of the waterfront.

1.11 Structure of the Report

This research report is structured into six chapters.

Chapter One: This is the introductory chapter. It covers the background to the study, problem statement, purpose of the study, research questions, research/study objectives, research assumptions, justification and significance of the study, scope of study, and limitations of the study and defines the terms relevant to waterfront development. Finally, it describes the structure of the thesis.

Chapter Two: This is the literature review chapter and involves a critical review of available and relevant literature pertaining to waterfronts, both in general and urban waterfronts in particular. The research/study objectives guided the scope of literature review. It also highlights the tenets of successful urban waterfronts. Theoretical framework to the study which identifies a research gap that forms the critical concern of the research being undertaken is also developed in this chapter. The chapter is then summarized by a Conceptual framework.

Chapter Three: This chapter describes the methodology as used in the study. It covers the research and sampling design, data needs and their sources, data collection methods, analysis and presentation.

Chapter Four: This chapter describes the study area and its characteristics. These include the history, physiographical characteristics such as geographical location, climate, topography and the drainage. Social, political and economic profiles are also discussed.

Chapter Five: This chapter presents the analysis of data and findings of the study. The first section of the chapter presents the data as collected with brief mention of the observations. The second section highlights the findings. It also discusses the existing institutional framework for the waterfront. The chapter ends with a summary of findings in relation to the research questions and objectives.

Chapter Six: This is the last chapter and includes the conclusion from the findings of the study and gives recommendations for sustainable and balanced Kisumu waterfront development. It ends with suggestions for further research.

2 CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In this chapter, literature is reviewed and discussed in order to provide a theoretical context for the research. Study limitations, definitions, issues, trends and principles of waterfront development are covered. Waterfront development research in Kenya is examined in particular in order to identify research achievements and gaps in knowledge.

2.2 Waterfront and waterfront Development

Breen and Rigby (1994) gave the definition of urban waterfronts based on visual or other responses to the water: 'By urban waterfront we mean the water's edge in cities and towns of all sizes. The water may be a river, lake, ocean, bay, creek or canal but then a waterfront will include everything from a wildlife sanctuary to a container port and the full spectrum of uses in between which may be planned as a unified undertaking or it may be a haphazard development overtime with multiple owners and participants. Waterfront projects may include buildings that are not directly on the water but tied to it visually or historically or are linked to it as part of a larger scheme'.

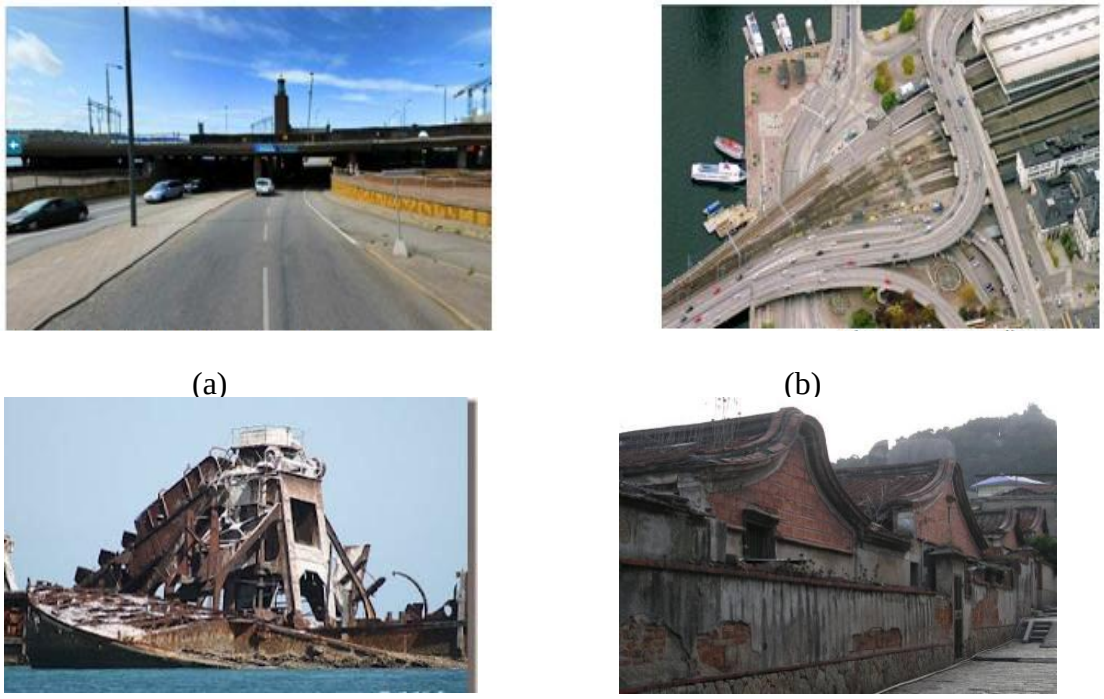
In his introductory chapter of the book *Urban Waterfront Development*, Wrenn (1983) defined "urban waterfront" as "the port areas of large metropolitan regions such as Boston, New Orleans, Baltimore, San Diego, and Seattle. It also refers to small resort towns with active harbors, commercial fishing villages, and many medium-sized industrial cities located along navigable waters."

As most of the waterfront developments occur in the larger context of urban renewal, a number of other expressions are used similar to this phrase but having an emphasis on the regenerating function. Such expressions include "*waterfront regeneration*" (e.g. in Wood & Handley, 1999), "*waterfront revitalization*" (e.g. in Goodwin, 1999), "*waterfront rehabilitation*" (e.g. in Hoyle & Pinder, 1981: 83), and "*waterfront redevelopment*" (e.g. in Gospodina, 2001). Goodwin (1999) regards waterfront revitalization as a process that begins with the desires of a community to improve its waterfront. Goodwin presents a typical scene of what happens in waterfront revitalization:

"Dilapidated structures are razed, infrastructure upgraded, and land parcels assembled for private development. Normally, public walkways and viewpoints, and waterside improvements such as visiting vessel floats or docks, are installed. Leased space is rented in new or refurbished buildings; townsfolk and visitors discover a new amenity at their backdoor; pedestrian counts rise and new businesses respond to the market opportunities they present."

2.3 History and General Land Use Issues of Urban Waterfronts

As already stated, the historical relationship between cities and ports were interwoven, both physically and economically. Many coastal and riparian human settlements owe their origin and prosperity to water transport and trade. From ancient times until recent decades, such urban settlements and their ports were normally intimately related in both functional and spatial terms (Hoyle and Pinder, 1992b).



(a) (b)

(c) (d)

Fig. 2.1: Various waterfronts characterized by uncrossable highways and abandonment
Source: Abt Associates (1969)

The separation of port and urban functions during the second half of the twentieth century is well documented. It was largely brought about by the increasing scale and changing technology of maritime transport and consequent transformation and relocation of port facilities, and by the parallel and sometimes closely associated programs of urban growth, expansion and renewal, particularly in larger, older city centres in advanced countries (Breen & Rigby, 1994; Hoyle & Pinder, 1992; Torre, 1989). Today, it typically remains the single most inaccessible land area of the large city, topographically isolated, blocked by un-crossable superhighways, or cluttered with dirty industrial plants and municipal treatment and waste disposal facilities. As a fact, most waterfront land outside of the commercial waterfront area of the city remains for industrial plant locations yet the attractions of the waterfront to this use have declined, and the waterfront location has become less necessary. Global trends towards the transformation of maritime transport technology became apparent by the 1950s, but the problem of waterfront decline and the demand for revitalization policies did not achieve widespread recognition until 1960s with attention originally centered mostly on North America and Europe, and later spread to other parts of the world.

This has led to a growing amount of waterfront land being abandoned by industry, or simply maintained for a marginal old plant which will likely be closed in the near future, and many of the industries which do remain on urban waterfront land tend to be old and dirty. These changing uses of commercial waterfront areas have left many of the waterfront structures abandoned and in disrepair. Deteriorating piers and retention structures, rotting bulk heading and partially collapsed cargo handling sheds, warehouses, and wharves frequently dot the waterfront, contributing floating debris to the navigational channels, and capturing silt and debris at water level. The periodic dredging of navigational channels poses problems of silt disposal, and increases water turbidity. Polluted water and abandoned or substandard fish storage or processing facilities produce unpleasant odors, while vessel pollution and oil spills degrade the quality of adjacent water in the docking and warehousing area of port cities. (Bruttomesso, R. 2001) Because of their relative inaccessibility and dilapidated state, many waterfront lands such as islands and wetlands have been used for developments from which the urban public wishes to be isolated; prisons, mental hospitals, military installations, municipal dumps and water and sewage treatment plants. These “isolation” uses have not drawn on the inherent specialization of

waterfront land (with the exception of sewage treatment plant uses), but have essentially ignored the potential of the water resource and its implications on adjacent land. Today, like the commercial waterfront and many industrial uses, the isolation uses, too, are passing, releasing waterfront areas for alternative land uses.

In the meantime, the on-going isolation uses, especially for sewage disposal, generally degrade the aesthetic environment, and often the quality of adjacent waters as well.

The traditional transportation, industrial and isolation uses of waterfront land have been single-purpose uses, planned at a time when land scarcity in urban areas was less of a planning constraint than it is today. But under the conditions imposed on planning by the contemporary urban environment, such single-purpose uses are neither efficient nor especially relevant to urban needs. The public demand for open space and recreation resources in the city has risen, for example, as per capita incomes have risen.

The older transportation uses must be relocated for uses which take better advantage of the inherent specialization of the waterfront, or must be made compatible with other uses by the careful planning and design of access. Abandoned or reduced industrial uses must similarly be relocated or controlled to permit concurrent recreation uses of both the land and the water on which some industry still relies. Finally, isolation uses must be reconsidered, particularly where the requirement for isolation has changed with society's preferences, and the waterfront land which they have used-often the most beautiful and naturalistic in the urban area by virtue of its relative inaccessibility-released for more appropriate uses. (Butuner, B. 2006)

Even then, the interactions of the water resource and urban economy still dictate a host of competing uses. As the financial position of the cities deteriorates, revenue becomes an overriding concern of city land use planners and developers. Public development or redevelopment of urban land involves close, if not exclusive, attention to the city's tax base. Thus, many waterfront sites are still zoned for industry, an important traditional source of urban employment and income. As waterfront land becomes available, it is put together in city industrial parks or attractive land packages for prospective industrial tenants. These anticipated industrial uses, however, are in direct competition with recreational and open space uses of

waterfront land; they are effectively isolation uses as far as the contemporary city-dweller, with his reduced tolerance of classic industrial activities, is concerned. (Hoyle and Pinder, 1992b).

The old commercial waterfronts, on the other hand, are being considered for more modern mixed uses, including residential, recreation, and new commercial uses. San Francisco's Fisherman's Wharf suggested a new use for the old city waterfront district which generates revenue and at the same time takes advantage of the unique character of waterfront land. Planners are thus considering the rehabilitation of dilapidated, but structurally sound warehouses and piers as historic and tourist attractions, restaurants and light commercial sites, and walkways and housing sites. The visual interest of open water and waterfront activity has made waterfront housing attractive to the middle and upper-income groups who still live in the city, or who are moving back from the suburbs as the economic character of the inner city changes. In Boston, Detroit, Los Angeles, and Seattle, city planners begun to plan the redevelopment of abandoned waterfronts, often over the objections of narrowly focused water resource agencies.

The high densities and intensive uses which characterize urban areas also lead to intensive competition for water and sewer services, recreation and open space resources, and waterfront land. The very congestion and density of urban activity which generates the demand for recreation and open space relief encroaches on public access and pedestrian circulation. Yet the planning of such systems is usually done without regard to potential recreation and open space uses of waterfront land.

(a) Milwaukee's Museum of Art

(b) Sydney Opera House

(c)Guggenheim Museum

(e) Millenium Park

(f) Cleveland's Rock n Roll Hall of Fame

Fig. 2.2. Landmarks characterizing urban waterfronts
Source: Abt Associates (1969)

In summary, in-city development today generally means redevelopment; land uses compete not only with alternative potential uses, but with existing historical uses. As the scarcity of urban land increases, the competition of uses will increase, and the efficiency, if not possibility, of single-purpose uses-land specialization-will decline.

These conditions determine the future uses of waterfront land in the city. Such land is unique in that it exhibits an inherent "specialization" by virtue of its proximity to water. Thus, the critical

problem of the urban-water interface in planning and managing waterfront land uses is the planning for more compatible uses and the amelioration of incompatible ones.

Priorities among different uses must be assigned, and mixed uses designed, under the tight constraint of growing land scarcity. The changing interactions of the water resource with urban transportation, economic and social systems dictate many different and often competing land uses. The planner's problem is to integrate them. This challenge is evident in Kisumu at the first glance by the continued existence of dilapidated piers and poorly maintained and derelict warehouses turning their back to the lake.

An urban waterfront is part of the public realm and and a gateway to the citywhose image gives the first impression of the city. Most cities have therefore used it for development of their landmarks and which give them identity. It is not an accident that Cleveland's Rock and Roll Hall of Fame, London's Eye, Sidney's Opera House, Milwaukee's new Museum of Art, or Bilbao's Guggenheim all share waterfront settings. Great institutions belong in great settings. That is but the broadening of the first goal that seeks to expand the public realm at river's edge (Abt Associates 1972).

2.4 Waterfront Development And Land Values

Regardless of dependency, there is a relationship between property values and their relationship to water. This is determined by the quality of water, accessibility and the distance. This was illustrated by a study of The Hauraki Gulf, a coastal feature of the North Island of New Zealand with a total area of 4000 km² and lies between the Auckland region, the Hauraki Plains, the Coromandel Peninsula and Great Barrier Island.

The case study evaluated the impacts of the Hauraki Gulf on property land values in the North Shore of Auckland. Results show that views and amenity of the Hauraki Gulf had significant impact on land prices in the study area. On average, a wide water view could increase the mean land value by 50 percent while locations on the coastline could increase land value by 43 percent, if all the other factors are held constant. If the network distance of a property to access the beach doubled, the land price would decline by 17 percent. (www.aucklandcouncil.govt.nz)

2.5 The Triggers Of Waterfront Revival

The revival of many waterfronts has often been attributed to a number of factors which have included the following.

- The growing amount of leisure time available to most residents, with the need for more recreational space and a diversification of activities. This was noted in Kisumu and was one of the factors considered in the preparation of the 1984 Kisumu Structure Plan that sought to increase public open spaces. This social class is associated with increased demand for recreation.
- The need to preserve historical and architectural heritage, a large proportion of which was to be found in the old dockland areas of the first ports. The Kisumu County Government is mulling over plans to conserve the town's old buildings for historical reasons. The governor stressed the need for investment in tourism through the conservation of Kisumu city's architecture and history. The plan, according to the Director of Planning seeks to compel owners of such buildings to maintain their basic architecture even if they wish to expand them. The Director of Planning said they were working on proposals which, if approved, will see owners of such buildings develop the backs of their structures while basically leaving the facades untouched for conservation purposes. Areas considered historical sites such as the Kisumu Port will be earmarked for development. (Daily Nation January 23, 2015)
- The growing environmental and social concerns, especially relating to the ecology of the waterfront. Lake Victoria's pollution, over fishing and ecological destruction have many worried about an environmental catastrophe. Thousands of tonnes of sewage and industrial waste flow into the lake every year. The shallow waters favoured by the Nile perch for breeding have been hard hit by agricultural and industrial run-off, escalated by deforestation. This toxic run-off has triggered the invasion of a plant species known as the water hyacinth. This prolific weed has started to cover the lake, depleting the waters of oxygen and raising the toxicity levels for fish.
- The distressing financial status of the port cities and therefore the need to increase its tax base. Kisumu's total cumulative revenue amounted to Ksh 4.09 billion in the first half of the FY 2014-2015 compared to the target in the in the approved budget of Ksh 11.4 billion. The

local revenue realized in the same period was Ksh 442.8 million accounting for 47.3% of the annual target of Khs 935,307 (revised). Other revenue streams showed a similar trend by falling short of the target for the period. (Kisumu County Fiscal Strategy Paper For Fy 2015/2016)

- Government support through urban regeneration action grants and other development tax incentives (Breen & Rigby, 1998). A number of incentives are anticipated in the Sh60 billion Lake Front Development and Urban Renewal (LFDUR) project whose main sponsor was the French government before it pulled out. The county Government has however committed to its implementation and has signed memorandum of understanding with foreign investors and the Kenya Maritime Authority to ensure that the project is realized.

2.6 Policy, Legislative and Institutional Framework

2.6.1 Policy Framework

During the colonial period, urban and regional planning was left to weak local authorities, which by and large lacked capacity. In the case of Kisumu, these were Municipal Council of Kisumu and County Council of Kisumu with the study area falling under the Municipal Council of Kisumu. Planning focused on developing the agricultural sector as the means for wealth and employment creation, and was segregative in nature. (*Urban and Regional Planning as an Instrument for Wealth and Employment Creation: Proceedings of the National Conference 2005)*

After independence, urban and regional planning in Kenya was characterized by a flurry of initiatives culminating in the Sessional Paper No. 10 of 1965 on African Socialism and its Application to Development. The period between 1963 and 1975 was the era of the Structure Plan as a means of spatially guiding development. In the planning of post-colonial Kisumu two documents were of great importance; the 'Short Term Development Plan' of 1969 that dealt with the long term planning of Kisumu up to the year 2000, and the 'Kisumu Structure Plan 1983-2013' that provided a framework on which the future short-term development plans can be based.

The structural similarities between the two plans were the envisaged expansion northward and westwards along the northern lake shore. Planning during this period focused on enhancing

agricultural productivity, poverty alleviation, and industrial development as the channel for economic growth. There was correlation between the high levels of economic growth experienced during this period and the strong application of urban and regional planning. This was the Golden Era of Planning.

After 1975, a number of interventions such as Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth, which introduced the concept of rural trade and production centres were formulated. New laws such as the Physical Planning Act of 1996 and the Environmental Management and Coordination Act of 1999 were enacted. New instruments to strengthen funding of local authorities, such as the Local Authority Transfer Fund (LATF) were developed and implemented. However, this period witnessed a continuous decline of local authorities as instruments of development. This decline was occasioned by lack of vision; lack of strong political will and commitment; lack of a clear policy framework; lack of a coordinated institutional set-up supportive of integrated planning and implementation; lack of an urban and regional development policy; and severe capacity constraints in urban and regional planning.

Today, planning as captured in the Constitution of Kenya 2010 is largely devolved to the County Governments.

The following are some of the laws and policies that guide development generally in Kenya:

Sessional Paper No. 6 of 1999 on Sustainable Development

The Sessional Paper sets out policy guidelines towards Environmental Action Planning which is a tool that aims at integrating environmental concerns into development planning. Environment Management Coordination Act 1999 provides for the formulation of the National, Provincial and District Environment Action Plans every five years. Of interest are the provisions in Chapter 2, 3 and 7. In Chapter two, it describes the country's Environment and Natural resources of Land, Water, Biodiversity (forest, wildlife, and Dryland biodiversity), wetlands and agriculture, livestock and fisheries. For each resource, major environmental issues, challenges and proposed interventions are identified. Chapter three details the Human settlements and infrastructure in Kenya covering situation analysis, challenges and proposed interventions. Environmental challenges addressed include; waste management, sanitation, pollution, diseases, land use changes in conservation areas, demand for water, energy, materials for construction, land

degradation, policy and legislation, biodiversity loss, land tenure, housing tenure, informal settlements, urban planning and design, and electronic waste. Despite the existence of this policy, Kisumu continues to experience water pollution due to inappropriate agricultural practices in the hinterlands which also serve as the catchment areas for Lake Victoria. The other related challenge is the lack of appropriate technologies for disposal of municipal liquid and solid wastes. Inadequate policy incentives and mechanisms for promoting sustainable management and conservation of water resources including harvesting of surface water is identified as one of the challenges in the policy. Incentives towards this goal as well as penalties for non-compliance should be prescribed by the County Government of Kisumu to address the environmental concerns on the waterfront.

The National Environment Action Plan Framework 2009–2013

The Environmental Management Co-ordination Act (EMCA), 1999 provides a framework for the National, Provincial and District Environment Action Plans every five years. This is part of the National Environmental Action Planning which aims at enhancing the integration of environment into development planning. Further, Part VI Section 58 of the Act provides that the Proponent of a project shall undertake or cause to be undertaken at his own expense an Environmental Impact Assessment (EIA) study which shall be conducted in accordance with the Environmental Impact Assessment Regulations, Guidelines and Procedures and a report shall be submitted to the Authority who in turn may issue a license as appropriate. The Environmental Impact Assessment is conducted in accordance with the issues and general guidelines spelt out in the Second and Third Schedules of the Regulations.

According to Schedule 2, any development on Kisumu waterfront should undergo EIA. This schedule covers issues of Ecological, Social, Landscape, Land Use and Water Considerations. This is because ecologically sensitive wetland areas form the southern part of the Kisumu waterfront. It is also on the waterfront that waste disposal facilities are located. The General Guidelines on Schedule 3 (Impacts and their Sources, Project Details, National Legislation, Mitigation Measures, a Management Plan and Environmental Auditing Schedules and Procedures) will ensure that the environmental degradation on the waterfront is minimized. Reduced turbidity will increase the attractiveness of water as a recreation resource.

Kenya Vision 2030

Kenya's new long-term national development blueprint is Kenya Vision 2030. It covers the period to 2030. It aims to transform Kenya into 'a newly industrializing middle-income country providing a high quality life to all its citizens by the year 2030'. The Vision 2030 is to be implemented in successive five-year Medium-Term Plans, with the first such plan covering the period 2008 – 2012. The economic, social and political pillars of Kenya Vision 2030 are anchored on macroeconomic stability; continuity in governance reforms, enhanced equity and wealth creation opportunities for the poor. The Vision 2030 strategy is to undertake reforms in 8 key sectors that form the foundation of society for socio-political and economic growth.

1. Macroeconomic – Stability for long term development
2. Infrastructure
3. Energy
4. Science, Technology and Innovation (STI)
5. Land reform
6. Human resources development
7. Security
8. Public sector reforms

KV 2030 establishes three Special Economic Zones. The Special Economic Zones (SEZ) are Mombasa, Kisumu and Lamu. The Kisumu SEZ is to occupy 700 Km^2. These special economic zones will include the establishment of agricultural parks, industrial parks, science and technology parks for the development and production of information technology software and hardware products. Under the Social Pillar of the KV 2030.

Kisumu is one of the six metropolitan regions, for an integrated growth and development strategy is to be developed. Other regions are Nairobi, Mombasa, Kakamega, Eldoret, Wajir, Garissa, Mandera, Kitui, Mwingi, and Meru.

In recognition of its tourism potential, Kenya's economic master-plan, Vision 2030, plan to implement three projects that will spur tourism and improve trade opportunities in the Great

Lakes region. Phase two of the construction of Kisumu International Airport, Rebranding of Impala Sanctuary and Echo Lodge and the rebranding of the Kisumu Ports have been identified as key priority areas to boost Kisumu as the hub of the region. As a metropolitan region the planning and governance framework is expected to depart from the current challenged structure to a more effective and responsive one. As a regional hub, there will be plenty of employment opportunities and the living standards are expected to be improved. The improvement of infrastructure shall also play a crucial role in improving access to the waterfront.

Kisumu City Development Strategy 2004 – 2009

The City Vision: The CDS Vision for Kisumu as generated by the urban community is stated thus;

"A leading transportation, communication and commercial hub in the Great Lakes Region offering great tourism and agro-investment opportunities"

The vision blends historical functionalisms with the desired socio-economic growth that would improve on the current undesirable trends of urban poverty against a backdrop of rich natural resource endowment.

The City Mission developed to achieve the city Vision is;

"To mainstream good governance and democratic principles in urban management aimed at empowering the citizenry to singularly and collectively participate in their livelihood and environmental improvement actions for sustained growth and development"

The City Development Strategy (CDS) for the period 2004 – 2009 articulates medium term policies and objectives which are further translated into short term strategies, programmes and projects to be implemented under the Medium Term Expenditure Framework (MTEF). MTEF consists of a top-down resource envelope, a bottom-up estimation of the current and medium-term costs of existing policy and, ultimately, the matching of these costs with available resources in the context of the annual budget process). Key aspects of the CDS are that:

i. It provides a review of the performance of the previous DDP (under the former administration structure of Districts) for the plan period 2002 – 2008 and insights into the major development challenges of and cross-cutting issues to be addressed;

ii. It indicates priorities, strategies, programmes and projects proposed to overcome the development challenges it identifies;

iii. It outlines the institutional framework for monitoring and evaluating the implementation of development programmes, whilst providing a summary of performance indicators.

Access, infrastructure and governance are identified as challenge to the development of Kisumu. It cites the extension of the Municipality boundary which included rural areas as posing land use planning challenges. These lands remain under the national government and in the hands of individuals and therefore enforcing municipal planning guidelines face legal challenges. Of importance to Kisumu's development is the emphasis on participation by the all stakeholders. This ensures complementarity and continuity of interventions.

Regional Development Policy, 2007

In Kenya, the concept of Regional Development Authorities (RDAs) has been adopted to accelerate rural development. The policy revolves around four key pillars, namely;

i. The establishment of a sound institutional framework for implementing the policy;

ii. The formulation of integrated regional plans;

iii. Catalyzing reforms in the legal environment in order to create a more cohesive framework for regional development and a robust monitoring framework that will develop and monitor the achievement of key indicators and milestones of regional development.

iv. Providing a coordination framework that will ensure that each actor contributes meaningfully towards regional development as well as national development.

The overall goal of the policy is to achieve equitable and balanced national socio-economic development through the promotion of sustainable economic utilization of natural resources and the promotion of resource based investments in the six regional development authority areas of jurisdiction. Kenya has six Regional Development Authorities (RDAs) established under specific Acts of parliament. These Authorities include the Lake Basin Development Authority (LBDA), established under Cap 442 of the laws of Kenya and under which Kisumu falls. Kerio Valley Development Authority (KVDA) established under Cap 441 of the laws of Kenya, , Tana River

and Athi River Development Authority (TARDA), Cap 443, Ewaso Ngiro South River Basin Development Authority (ENSDA), Cap 447, Ewaso Ngiro North River Basin Development Authority (ENNDA), Cap 448 and the Coast Development Authority (CDA), Cap 449 of the laws of Kenya are the other authorities.

Kisumu falls under the jurisdiction of LBDA. LBDA has a big potential in attracting investments to achieve sustainability and complement the government's efforts in wealth and employment creation. The functions of LBDA as outlined in the Act are:

i. Carry out integrated sustainable development planning,
ii. Implement development programmes and projects,
iii. Coordinate development programmes and activities,
iv. Promote management and conservation of natural resources,
v. Monitor and evaluate development programmes and projects.

However, a number of constraints inhibit LBDA from achieving its objectives. Some of these constraints include dependency on the exchequer, inadequate development funding for their recurrent and capital requirements, enactment of overlapping Acts of parliament such as Water Act, Irrigation Act, Power Act, EMC Act etc. resulting in the dilution of the mandate and diversion of funds to other institutions for activities meant to be implemented by of LBDA and other RDAs; and. (Arumonyang, Joel L., 2009). It is important that the capacity of this authority is boosted if it is to effectively execute its mandate. This would involve the boost in financial and technical capacity. Just as the authority has aligned its strategic plan with KV 2030, the legal framework needs to be aligned with the constitution and harmonized with other Acts such as those cited above, to avoid conflicts in roles.

National Land Policy

This policy identifies the critical problem facing Kenya's land tenure system as the inequitable distribution of land, rooted in land injustices of the past, in acts that it sometimes characterizes as illegal, at others as illegitimate or unfair. It mandates land restitution or resettlement on new land to remedy those dispossessed in injustices going deep into colonial times, and calls for reconsideration of constitutional protection for the property rights of those who obtained their

land illegitimately. It addresses the conversion of customary land tenure into individual ownership. It calls for the program's systematic land registration (the prime conversion mechanism) to be suspended pending revision and for the reassertion of customary land tenure rights. (MativoJ.M, 2015). While the policy points in many commendable directions, it does have its weaknesses. It is heavily agrarian, and focused more on the need to rectify mistakes made in that sector, to the neglect of the huge shelter needs that will be caused by the pending rapid urbanization that is sweeping the world and has only begun in Kenya. According to Mativo J.M (2015), the policy lays emphasis on:

- Insecure land tenure, in particular, for the urban and rural poor, for women, for HIV/AIDS-affected households, for pastoralists, and other vulnerable groups in both urban and rural areas.
- Poor land administration characterized by limited access to land information due to poor quality records, extended technical processes, lack of transparency, and user friendliness.
- Weak and/or ineffective mechanisms for fair, timely, affordable, transparent, and accessible resolution of land disputes.
- Continued land fragmentation (80 percent of small farms have less than 2 ha).
- Poor governance in land administration, management, and dispute resolution.
- Different land tenure regimes with limited harmonization.

Regarding private land, the policy proposes far-reaching changes. it stresses that it will not be possible for every person to own land; that the "goal of the policy is to facilitate secure access to land, and not necessarily to grant individual freehold rights to land to every person," and that the government must facilitate access to land for many citizens through other means, such as leasehold mechanisms. It also mandates "repealing the principle of absolute sanctity of first registration under the Registered Land Act." It also recommends requiring that every primary right holder "obtain the written and informed consent of all secondary right holders before disposing of the land." Finally, leasehold from the State is endorsed as a private tenure of land. It calls for a maximum lease term of 99 years, but does not indicate a minimum term. This section on land management mandates the filling of a gap: the weak and ineffective system of regulation

of land use to ensure environmental, health, and aesthetic benefits to the public. This area has been seriously neglected in the development of the legal and regulatory framework for land in Kenya. (Mativo J.M 2015) It deals with land sizes, calling for the setting of economically viable minimum land sizes for various zones, and the control of subdivision to avoid parcels falling below those sizes. Such restrictions are unlikely to succeed because even very small landowners, faced with children who lack options other than farming, will often subdivide their land to the extent they feel they have no choice. The provisions on restoration and conservation of land quality, land reclamation, and environmental management principles are solid but quite general. Regarding conservation and sustainable management of land-based natural resources, the policy mandates a number of positive and specific approaches. These include preparation of participatory community action programs by communities living near environmentally sensitive areas, and involvement of local communities in the co-management of wildlife sanctuaries and conservancies. It strongly endorses the "polluter pays" principle, which is entirely appropriate. As Mativo (2015) observes, the introduction of a development levy on undeveloped land is a conceptually attractive measure to prevent land hoarding, but there are serious conceptual problems in defining "undeveloped".

Draft National Urban Development Policy (NUDP)

After its (COK 2010) passage, came the implementation. There were policies and laws to be passed so as to properly and effectively ground the new Constitutional Order. One such policy was the National Urban Development Policy (NUDP). National Urban Development Policy (NUDP) aims to strengthen development planning, urban governance and management, urban investments and delivery of social and physical infrastructure in urban areas throughout the country.

According to Nabutola W.L in the *National Urban Development Policy (NUDP) Making Process: The Kenyan Way: Big Challenges And Some Opportunities,* the NUDP seeks to achieve two main goals.

i) to create a framework for sustainable urban development in the country and addresses 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.

ii) NUDP is guided by the Constitution of Kenya 2010, notably clauses 184 and 176 (2) that provide for regulation of urban areas and cities, clause 200(2), which outlines the governance of the capital city, other cities and urban areas and *Vision 2030,* which calls for a nationwide urban planning and development campaign.

Being a city, Kisumu is managed by a City Board answerable to the governor. The functions of the board as described in section 20 of the Act include controlling land use, land sub-division, land development and zoning by public and private sectors for any purpose within the framework of the spatial and master plans for the city. It is noteworthy that the roles of this board overlap with the Land Boards created under the Land Control Act. The original intentions for the creation of Land Boards were to regulate development, use and subdivision of agricultural land to ensure that agricultural land is used and developed in such a way that good husbandry is not compromised. In practice what has happened is that the Land Control Board for various reasons has drifted away from monitoring agricultural use and has become a body for ensuring that the family is in agreement on whether to sell land. The conflict of role is particularly pronounced in places where the city has extended its boundaries to the rural areas where land is classified as agricultural. Part solution to this problem is that the NUDP policy seeks to create metropolitan areas. Kisumu should take advantage of this to define its metropolis for effective cooperation and management, and develop a spatial framework for metropolitan planning.

The Integrated Strategic Urban Development Plan (ISUD-Plan)

The Integrated Strategic Urban Development Plan (ISUD-Plan) has been developed at the instigation of the Kenyan Ministry of Housing, Land and Urban Development (formerly MoLG) and the Kisumu County Government, previously as Kisumu Municipal Council (KMC) with the support of the Agence Française de Development (AFD). Its purpose is to guide strategic investments in the third city of Kenya, including an AFD's 40 million Euro financing facility. This facility, the Kisumu Urban Project (KUP) is managed separately but in line with the ISUD-Plan Capital Investment Strategy. The purpose of the Integrated Strategic Urban Development Plan (ISUD-Plan) is to provide a framework for Kisumu's growth and development and to

endow those in charge with both knowledge and tools to address the challenges of urban growth and local development. The ISUD-Plan is led by a holistic approach encompassing all key aspects of urban development taking into account : geography and the specificity of Kisumu's unique location on the shore of Lake Victoria ; history and how the modern city was created as a trading post named Port Florence on a site which Luo name, Kisumo, meaning "a place to trade", economy with a city primarily organized as a landing point for flying boats, terminus for the Uganda railway and freight and passenger port serving the whole Lake region. This influential city rapidly grew in size and population after independence in 1963 but its dynamism was severely affected by the collapse of the East Africa Community in 1977. The organisation was revived at the turn of the 20th century and Kisumu has an important role to play as a major urban centre at the heart of the region. The ISUD-Plan aims at contributing to this revival. The Vision according to the plan is "THE CITY ON THE LAKE. A vibrant City, on the shores of the largest fresh water lake in Africa, able to accommodate & control growth while supporting the development of a multipolar city through leveraging its economic assets in Industrial Processing, Knowledge Production, Ultra-Modern Transport System and Green Cultural Tourism."

The ISUD-Plan, built in three parts, has been prepared primarily for the use of the city planning authority. It is a holistic and practical document including essential baseline data; the Plan itself; a Capital Investment Strategy and; implementation recommendations. It is organized in three parts:

Part 1, Understanding Kisumu, the Urban Inventory shows the results of the sectoral surveys carried out as part of the preparation of the plan. It is the knowledge tool for the use of Kisumu leaders.

Part 2, Planning for Kisumu Future constitutes the ISUD-Plan. It is the reference planning document for the city. The Plan will inform and guide planning and investment initiatives. It supersedes previous planning documents.

Part 3, Implementing the ISUD-Plan, including : a Capital Investment Strategy (CIS), which lists short, medium and long term investments. Investments have been identified and selected based, on the one hand, on findings from the Urban Inventory and, on the second hand on requirements stemming from the Plan.

The plan gives an outlay of how to address issues and which planning decisions should be taken; it provides guidelines leaving by-laws to be prepared by the City management board. This approach allows flexibility and responsiveness for the local government, especially with respect to private investments. Kisumu's development needs should combine several requirements and objectives:

First and foremost the city should take advantage of its natural assets, lake and fertile land to underpin its development and recover a foregone regional role. This has a direct translation into planning with, primarily, reclamation of the coastal area and preservation of farm land through limiting sprawl and of the lake through adequate water and waste management.

Second the city should take control of its shape and expanse through addressing the housing issue in order to curb uncontrolled growth and limit related servicing costs. This implies improving the housing offer through appropriate planning and zoning and viable housing schemes.

Third, the city should improve living conditions for all through adequate provision and repartition of basic services, including in slums where upgrading intervention should also improve accessibility of and through these areas and better connection with the rest of the city. Fourth the city should be able to accommodate in optimal conditions the extension of a number of productive activities and the installation of new ones. Unlike other cities in Africa where development went out of hand due to lack of planning and, mostly, to a huge deficit in housing offer and infrastructure supply, Kisumu is only at a turning point where good decisions can put the city on the right track and avoid further sprawl and environmental damages.

This plan is a major leap in the right direction towards the development of Kisumu. It is however a broad framework that needs to be broken down in to smaller and detailed spatial and implementation plans.

The Kisumu County Integrated Development Plan (CIDP) 2013 – 2017

This is prepared under the provisions of the County Governments Act. It provides that a county government shall plan for the county and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly. The county planning framework shall integrate economic, physical, social,

environmental and spatial planning. The county government shall designate county departments, cities and urban areas, sub-counties and Wards as planning authorities of the county. These designate planning authorities in the county shall appropriately organize for the effective implementation of the planning function within the county. Public participation in the county planning processes shall be mandatory and be facilitated through provision to the public of clear and unambiguous information on any matter under consideration in the planning process, including clear strategic environmental assessments; clear environmental impact assessment reports; expected development outcomes; and development options and their cost implications. Each county assembly shall develop laws and regulations giving effect to the requirement for effective citizen participation in development planning and performance management within the county and such laws and guidelines shall adhere to minimum national requirements. To promote public participation, non-state actors shall be incorporated in the planning processes by all authorities. County plans shall be binding on all sub-county units for developmental activities within a County. The designated planning authority in the county shall appropriately organise for the effective implementation of the planning function within the county. A county planning unit is responsible for:(a) coordinating integrated development planning within the county; (b) ensuring integrated planning within the county; (c) ensuring linkages between county plans and the national planning framework; (d) ensuring meaningful engagement of citizens in the planning process; (e) ensuring the collection, collation, storage and updating of data and information suitable for the planning process, and (f) ensuring the establishment of a GIS based database system. Types of County Plans include Integrated Development Plans, Sectoral Plans, Spatial Plans and Cities and Urban Areas Plans as provided for under the Urban Areas

Kisumu County Integrated Development Plan (CIDP) 2013 -2017 was prepared in accordance with the specific guidelines issued by the Ministry of Devolution and Planning of the National government. The document is the result of inputs and participation of the citizenry of Kisumu County who were extensively consulted in conformity to constitutional provisions.

The plan is divided into eight chapters. Chapter one gives a brief introduction of the county and provides basic county data and economic analysis of the main challenges facing the county. The chapter highlights physiographic and natural conditions, administrative and political units,

demographic features, population distribution and density, human development indications, infrastructure and access, land and land use.

Chapter two highlights the main development challenges and the strategies for addressing the challenges identified. Cross cutting issues such as population growth, poverty, and environment and climate change, HIV and AIDS and gender. These are analysed in terms of the strengths, weaknesses, opportunities and threats (SWOT)

In chapter three, the spatial framework is presented. It shows the development projects and programmes and locates them on specific geographical areas in the county. The special plans also display the necessary coordination between various sectors and zoning of urban-versus rural areas, public facilities and private home developments.

Chapter four defines the linkages of the County Integrated Development Plan (CIDP) with Constitution of Kenya 201, Kenya Vision 2030, MDGs and sectoral plans, urban and city plans. Chapter five outlines the institutional framework and organisational flow to be employed in implementing the plan with clear identification of the roles of various stakeholders. Chapter six indicates the resources that are available for capital projects and the strategies the county will adopt to raise required revenue to fund its operations.

Chapter seven provides a summary of the MTEF sector analysis with each sector vision and mission and the development projects and programmes to be implemented. The key stakeholders in each sector are listed with the roles they may play in the implementation. The county response to the various sector visions and missions, on-going projects and programmes and strategies to mainstream the cross-cutting issues are spelt out. In chapter eight the monitoring and evaluation framework for all the projects are defined. The framework takes into account the county and national government level tracking of the projects and programmes with verifiable indicators to be used to monitor implementation.

2.6.2 Legal Framework

Local Government Act CAP265 (Repealed)

Urban development in the country was guided mainly by the Local Government Act CAP265 (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. Local Government system in Kenya was enshrined in the Local Government Act Cap 265 of the Laws of Kenya. The Act created the three categories of Local Authorities. The categories were Municipal Councils, County Councils and Town Councils. It provided Local Authorities with a distinct structure provided fusing together civic and administrative functions. The civic function was vested in elected and nominated Councilors while Administrative function was performed by qualified technocrats headed by the Town Clerk in Municipality and Town Councils and a County Clerk in County Councils. The supervisory and regulatory role of the councils was performed through the application of by-laws. These were rules and provisions set out through enactment by local authorities to govern the activities of the residents. They were mainly prohibitions of acts or omissions that may injure order and the smooth running of socio-economic activities in society. They broadly covered areas of general nuisance, health, environment and conduct of business. Sections 160 to 181 of the Act spelt out the role of the Local Authorities in matters relating to planning and development including approval of land use and sub-division. The Local Government Act provided immense powers to the Minister for Local Government to the extent that he had to approve virtually all matters relating to Local Authorities.

This framework accounts for the status of the former Local Authorities including the former Kisumu Municipal Council. Local participation was limited and the technical and financial capacities were grossly inadequate. There was high level of political influence and interference that compromised planning issues. Some of these are manifested in the allocation of public land to private individuals. This Act has been replaced by the Urban Areas and Cities Act 2011 which now spells out the management structure of urban areas and cities by Municipal/City Boards answerable to County Governors.

The Constitution of Kenya, 2010

This is the supreme law of the land. Chapter 5 Part 2 and article 69 emphasizes the need for public participation in the management, protection and conservation of the environment. One of the reasons for the poor state of the Kisumu waterfront is poor access and environmental pollution. Chapter 5 Part 2 and Article 69 on Environment and Natural Resources mandates the

state to ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits. It also encourages public participation in the management, protection and conservation of the environment. The state is also mandated to eliminate processes and activities that are likely to endanger the environment; and utilize the environment and natural resources for the benefit of the people of Kenya.

Article 70; Chapter 5 Part 2 recognizes the public interest in water resources. It allows that citizens may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter if a person alleges that a right to a clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed or threatened.

Chapter 4 Part 2 and Article 42 of the Bill of Rights provides that every person has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures. As such, the need to protect our waters cannot be over-emphasized.

Article 70 therefore empowers the citizens to demand for an action by the relevant authorities to improve the waterfront. It is incumbent upon the County Government to be proactive in this regard and ensure that the waterfront meets the expectations of the public.

Public Health Act (Cap 242)

Part IX Section 115 states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge of any nuisance or other condition liable to be injurious or dangerous to health. Local Authorities are mandated in Section 116 to maintain cleanliness and prevent nuisances. Nuisance is defined in Section 115 to include:

Any street, road or any part thereof, any stream, pool, ditch, gutter, watercourse, sink, water-tank, cistern, water-closet, earth-closet, privy, urinal, cesspool, soak-away pit, septic tank, cesspit, soil-pipe, waste-pipe, drain, sewer, garbage receptacle, dust-bin, dung-pit, refuse-pit, slop-tank, ash-pit or manure heap so foul or in such a state or so situated or constructed as in the opinion of the medical officer of health to be offensive or to be injurious or dangerous to health.

Section 115-126 dealing with sanitation and housing is one important section of the Act that would greatly ensure improvement with respect to environmental quality of the waterfront. In Kisumu, it is inadequately enforced and instead section 128 on protection of foodstuff is given emphasis. This is probably because the responsibility of compliance with this section 128 is with the public and it attracts fees. There is concern by the waterfront users that the application of this Act is discriminative to the extent that it is not enforced where the responsibility lies with another government agency. Example cited is that of supply of clean water and sanitation facilities. Section 116 states that "It shall be the duty of every local authority to take all lawful, necessary and reasonably practicable measures for maintaining its district at all times in clean and sanitary condition, and for preventing the occurrence therein of, or for remedying or causing to be remedied, any nuisance or condition liable to be injurious or dangerous to health."

Land Act 2012

This Act applies to all land declared as public land under Article 62 of the Constitution; private land under Article 64 of the Constitution; and community land under Article 63 of the Constitution and any other written law relating to community land. Under Part III and IV the Act provides for the administration and management of public Land in Kenya, previously regulated by the Government Land Act. Under Part V the Act provides for the administration and management of private land in Kenya.

It defines riparian reserve as the land adjacent to the ocean, lake, sea, rivers, dams and water courses as provided under the Survey Act (Cap. 299) or any other written law; while "public land" has the meaning assigned by Article 62 of the Constitution and includes the coast foreshore, river, dams lakes and other reserves under the Survey Act (Cap. 299) or under any other law.

Kisumu waterfront still has pockets of private land that is undeveloped which have been turned to car wash areas while some remain bushy. By this act, private land may be converted to public land by compulsory acquisition; reversion of leasehold interest to Government after the expiry of a lease; and transfers; or surrender. The lands can therefore be converted and put to better and more appropriate use. The need for planning the waterfront is a requirement as per Section 12 Article 7 which states that Public land shall not be allocated unless it has been planned, surveyed

and serviced and guidelines for its development prepared in accordance with section 16 of this Act.

National Land Commission Act, 2012.

Section 11 (1) states that the National Land Commission shall take appropriate action to maintain public land that has endangered or endemic species of flora and fauna, critical habitats or protected areas. Section 17 (1) states that a management body shall, on its own motion or at the request of the Commission, submit to the Commission for approval a plan for the development, management and use of the reserved public land vested in the management body. (2) Before submitting a plan to the Commission under subsection (1) a management body shall:

i. Consider any conservation, environmental or heritage issues relevant to the development, management or use of the public land in its managed reserve for the purpose of that managed reserve;

ii. and Incorporate in the plan a statement that it has considered those issues in drawing up the plan;

iii. Submit an environmental impact assessment plan pursuant to existing law on environment; and

iv. Comply with the values and principles of the Constitution.

Kisumu's waterfront can benefit from this Act through the application of section 16 of the Act. One of the functions of the Commision is to manage public land on behalf of the national and county governments and to ensure that public land and land under the management of designated state agencies are sustainably managed for their intended purpose and for future generations. It is also to ensure that Public land shall not be allocated unless it has been planned, surveyed and serviced and guidelines for its development prepared in accordance with section 16 of this Act.
Article 10 of this Act on Guidelines on the management of public land, the National Land Commission shall prescribe guidelines for the management of public land by all public agencies, statutory bodies and state corporations in actual occupation or use of public land. By these sections, NLC is in a position to prescribe guidelines for the management of the waterfront land

under KRC to ensure that the land is used sustainably for future generations. It can also change the category of parts of the land and allocate it only after it has been planned.

Physical Planning Act (Cap 286)

The act defines what constitutes development and how development is to take place in space. Section 16 (1) provides for the preparation of a regional physical development plan by the Director within the area of authority of a county council for the purpose of improving the land and providing for the proper physical development of such land, and securing suitable provision for transportation, public purposes, utilities and services, commercial, industrial, residential and recreational areas, including parks, open spaces and reserves and also the making of suitable provision for the use of land for building or other purposes.

Section 24 (1) also provides for the preparation of a local physical development plan for the general purpose of guiding and coordinating development of infrastructural facilities and services for an area.

Section 30 (1) states that no person shall carry out development within the area of a local authority without a development permission granted by the local authority. This is a crucial provision for the County Government to determine what kind of developments go on, not only at the Kisumu waterfront but the county as a whole.

The Act also gives the local authority power to compel the developer to restore the land on which such development has taken place to its original conditions within a period of ninety (90) days. If no action is taken, then the council will restore the land and recover the cost incurred thereto from the developer.

Section 36 requires that the applicant of proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity that will have injurious impact on the environment, submit together with the application an Environmental Impact Assessment Report which must be approved by the National Environmental Management Authority (NEMA) and followed by annual environmental audits as spelled out by Environmental Management Coordination Act (EMCA) 1999.

Kisumu waterfront users have the opportunity to participate in shaping the waterfront by provisions in the revised Act. The revised Physical Planning Act has provided room for public involvement in determining the siting of new developments with ample provisions for redress should any one feel aggrieved. Any change of user application for existing development or new applications must be subjected to public scrutiny for a period not less than 30 days.

Urban Areas and Cities Act, 2011

Section 36 provides for every city and municipality established under this Act to operate within the framework of integrated development planning which shall give effect to the development of urban areas and cities as required by this Act and any other written law. Urban Area or City will have Boards with Chairperson and Vice/Chairperson answerable to the Governor. According to the Act, "urban area" means a municipality or a town. The objects and purposes of the Act are:

i. Classification of areas as urban areas or cities.

ii. Governance and management of urban areas and cities.

iii. Participation by the residents in the governance of urban areas and cities.

Fig. 2.3. Management Structures of Urban Areas and Cities
Source: Wafula L.N National Urban Development Policy (NUDP) Making Process

The Managers of the Cities, Municipalities and Other Urban Areas will also be appointed by the Governor. The role of County Executive Members in urban area or city planning include

(a) monitor the process of planning, formulation and adoption of the integrated development plan by a city or municipality within the county.

(b) assist a city or municipality with the planning, formulation, adoption and review of its integrated development plan.

(c) facilitate the coordination and alignment of integrated development plans of different cities or municipalities within the county and with the plans, strategies and programmes of national and county governments. The functions of the board as described in section 20 of the Act include controlling 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.

The table 2.1 below records some of the key legislations that have the significant impacts on development planning:

Title of legislation	***Application of Legislation/Areas of concern***	***Implications on Kisumu's Land Use Planning***	***Gaps***
Sessional Paper No. 10 of 1965 on African Socialism and its application to Planning in Kenya	Provided the main policy framework for development in all sectors of the economy in the country. It spelt out the need to correct development imbalances created by earlier policies, recognizes the role of urban, regional, local and rural levels of development in the national economy and decentralize and redistribute development and planning.	Witnessed phenomenal rural-urban migration due to expanded job opportunities in the urban areas.	Emphasized agriculture and agriculture related industries and did not contemplate the current challenges of urbanization.
Local Government Act, 1963, (Cap. 265) Repealed	An Act of Parliament that provided for the establishment of authorities for local government; defined their functions and provided for matters connected therewith and incidental thereto. Local authorities had powers to formulate bye-laws to regulate zoning in respect of use and density of development; and to reserve and maintain all the land planned for open spaces, parks, urban forests and green belts in accordance with the approved physical development plan. Has been replaced by Urban Areas and Cities Act.	The single purpose uses and clustering of same uses e.g. industries on the waterfront are as a result of zoning undertaken under this Act.	The existing zoning plan is outdated and remains rigid as it were in its nature. There is need to review restrictive, exclusionary and costly legal and regulatory processes, planning systems, standards and development regulations; to re-evaluate, and if necessary, periodically adjust planning and building regulatory frameworks, taking into consideration and balancing their human settlements and economic, social and environmental policies. (KIPPRA)

Lake Basin Development Authority Act, 1974 (Cap. 443)	An Act of Parliament to provides for the establishment of an authority to advise on the institution and co-ordination of development projects in the area of the Lake Basin; and for matters connected therewith and incidental thereto.	Kisumu is seen in the wider context of the Lake Basin which is a large geographical area. Planning therefore is approached from a regional context.	The focus has been so much on the hinterland with concern on environmental impacts of poor agricultural activities. It does not adequately address issues of urbanization.
Forest Act 2005 (Cap 385)	This Act is mainly concerned with forest resource management, administration, and conservation. The Forest Act 2005 provides for the establishment, control and regulation of forests in Kenya. It encourages the conservation of all types of vegetation thus contributing to the greening of urban areas immensely.	The waterfront is home to a variety of types of vegetation. The conservation of this vegetation, and especially the wetlands would improve the touristic value of Kisumu.	It lacks guidelines on how to integrate the natural vegetation into the urban fabric and by and large seen as a constraint to construction projects.
Land Control Act, 2012 (Cap 302)	The Act is concerned with agricultural land transactions. The aim was to control the sub-division of agricultural land and to ensure that rich agricultural land remained under that use. It defined the agricultural and as land that is not within, among others, a municipality or a township; or a market.	Kisumu's urban expansion has continued to invade the land that is classified as agricultural land under this Act.	There are challenges of controlling developments on lands classified as agricultural under this Act especially with regard to subdivisions which are approved by the Land Control Boards created under this Act.

Sessional Paper No. 6 of 1999 on Sustainable Development	The policy aims at integrating environmental aspects to the national development planning process. It gives comprehensive guidelines for achieving sustainable development with regard to the effects of development on the environment. .	Waterfront development should integrate environmental aspects to achieve sustainability. The policy addresses challenges of waste management, sanitation, pollution, diseases, land use changes in conservation areas, demand for water, energy, materials for construction, land degradation, policy and legislation, biodiversity loss, land tenure, housing tenure, informal settlements, urban planning and design, and electronic waste.	Inadequate policy incentives and mechanisms for promoting sustainable management and conservation of water resources including harvesting of surface water is identified as one of the challenges in the policy. There is lack of incentives towards this goal as well as penalties for non-compliance should be prescribed by the County Government of Kisumu to address the environmental concerns on the waterfront.

Environmental Management and Coordination Act, 1999	The act provides legal, institutional frameworks and procedures for management of the environment as well as modalities for conflict resolution. To manage the environment in a holistic manner, the Act establishes two administrative bodies: the National Environment Council (NEC) and the National Environment Management Authority (NEMA).NEC has the responsibility of formulating policies, setting national goals, and promoting cooperation among stakeholders, NEMA's role is to supervise and coordinate all matters relating to the environment. NEMA is the body charged with implementing the provisions of the Act. Environment Management Coordination Act 1999 provides for the formulation of the National, Provincial and District Environment Action Plans every five years.	All developments on the waterfront are subject to environmental impact assessment as they are likely to pose negative environmental impacts. For completed projects, the Act requires that yearly environmental audits be carried out with clear mitigation measures.	Despite the existence of the Act, urban areas in Kenya continue to face serious environmental challenges caused by air pollution, poor garbage disposal, lack of sanitation in some areas or poor sanitation where it exists, noise pollution, ineffective liquid and solid waste disposal methods. In its schedule of projects to be subjected to EIA, it is not clear, for example whether residential flats fall under any category. Its interpretation remains subjective.

Water Act, 2002	An Act of Parliament that provides for the management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water; to provide for the regulation and management of water supply and sewerage services; to repeal the Water Act (Cap. 732) and certain provisions of the Local Government Act; and for related purposes. The Water Act 2002 establishes and regulates the institutions that are responsible for the provision of water and sewerage services as well as those that are in-charge of the development of large-scale infrastructure for harnessing water resources. The framework for water resources allocation and management strategies is outlined in this Act.	The provision of the essential services of water supply and waste water management system is in the hands of semi-autonomous body, KIWASCO which has proved inefficient and lacking in capacity to execute its mandate ate the rate of Kisumu's urban growth. This is because use of water resources demands acquisition of a permit.	The permit system in operation privatizes water rights to a small section of the community, essentially property owners who are able to acquire and use water resource permits. By the same token, communities that are unable to meet the requirements for obtaining a permit – principally landownership – are marginalized from the formal statutory framework by the permit system. The government as a landowner can obtain a water resources permit with respect to its land, but the Water Act, 2002 exempts state schemes from the requirement for a permit. This erroneously assumes diligence on the part of the government. (projects.nri.org)

Agriculture Act, (Cap. 318)	An Act of Parliament to promote and maintain a stable agriculture, to provide for the conservation of the soil and its fertility and to stimulate the development of agricultural land in accordance with the accepted practices of good land management and good husbandry. The Agriculture Act Cap 318 promotes agricultural development through the encouragement of soil and water conservation. By regulating the utilization of different categories of land in Kenya for various agricultural purposes, the Act strives to enhance sustainable utilization of agricultural land in Kenya. It also strives to ensure food security for the rural as well as urban populations.	Promotes the continued practicing of agriculture on lands that are by character, urban. This has caused conflicts in land uses especially with respect to compatibility. Some people keep livestock amidst residential developments.	It does not give adequate attention to the urban agriculture which has serious consequences on urban land. It only recognizes agriculture as agricultural activities taking place on land which is used for the purpose of agriculture, not being land which, under any law relating to town and country planning, is proposed for use for purposes other than agriculture.
Trust Land Act (Cap. 288)	Governs land not demarcated or registered, and land vested in local authorities as trustees of the community. It empowers a council to divide the Trust land vested in it into such divisions as appear to it to be necessary or expedient for the purposes of this Act, or may declare the whole of that land to be a division.	Subdivisions of trust lands into smaller sizes to individuals who have developed the lands without development plans and resulted in to urban sprawl.	The discretion it gives to the Councils to subdivide lands is too wide. There needs to be guidelines on conditions of subdivisions such as minimum sizes. Lease period limits should also be defined to allow for flexibility of land uses according to change in demand.
Registered Land Act (RLA)	An Act of Parliament to make further and better provision for the registration of title to land and for the regulation of dealings in land so registered, and for purposes connected therewith.	Security of tenure is guaranteed to the extent that the registration of title is legitimate and procedural.	It does not define the conditions of development on the land.

Government Land Act	An Act of Parliament to make further and better provision for regulating the leasing and other disposal of Government lands, and for other purposes. Section 17 (1) states that a management body shall, on its own motion or at the request of the Commission, submit to the Commission for approval a plan for the development, management and use of the reserved public land vested in the management body.	New development plans can be drawn for Government Land in Kisumu and submitted to the (National Land) Commission for approval. New development plans for KRC are a possibility.	The approved development plans are subject to other approval agencies like the county physical planning department. There is no institutional structure that clarifies the order of supremacy of agencies.
Public Health Act	The Public Health Act mandates Local Authorities in Section 116 to maintain cleanliness and prevent nuisances, which it goes further to define. It provides that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge of any nuisance or other condition liable to be injurious or dangerous to health.	The maintenance of public health and sanitation is a public responsibility under the jurisdiction of the county public health department.	The department concentrates on inspection and enforcement responsibilities, yet not actively involved in collection or disposal operations.

Physical Planning Act, 1996, (Cap 286)	An Act of Parliament that provides for the formulation and preparation of National, Regional and Local physical planning guidelines, policies and strategies. The Act also empowers the local authorities (substituted by counties in the County Governments Act) to prohibit or control the use and development of land and buildings in the interests of proper and orderly development of an area and to control or prohibit the subdivision of land or existing plots. Provides a structure for the administration and management of physical planning in Kenya and a mechanism for dispute resolution.	By way of formulation of by-laws, Kisumu is able to regulate zoning in respect of use and density of development and; Reserve and maintain all land planned for open spaces, parks, urban forests and green belts in accordance with approved physical development plans.	Master planning and zoning which are features of this Act are rigid, time consuming and lack an implementation framework. Several factors account for this among them the complicated and inflexible legal and regulatory development control requirements and frameworks for urban development, which in many instances have little practical relevance to the prevailing socio-economic realities of everyday living, and therefore difficult to enforce.
Regional Development Policy, 2007	The primary role of the Regional Development Authorities (RDAs) is to integrate and coordinate development agencies to undertake activities that impact on development of the regions. The overall goal of the policy is to achieve equitable and balanced national socio-economic development through the promotion of sustainable economic utilization of natural resources and the promotion of resource based investments in the six regional development authority areas of jurisdiction.	Kisumu falls under LBDA whose mandate is to plan, implement and coordinate development programme in region under their jurisdiction to ensure development through integrated planning and management.	Though multi-sectoral integrated planning is expressly provided for in the policy, it seems to emphasize the extraction of land resources and agricultural practices and their effects on the resource area. It is very subtle on urbanization and urban land uses.

Sessional Paper no. 3 of 2009 on National Land Policy:	The policy objective was *"to guide the country towards efficient, sustainable and equitable use of land for prosperity and posterity"*. It provides the overall framework and defines the key measures required to address the critical issues of land administration, land use planning, restitution of historical injustices, environmental degradation, conflict resolution, proliferation of informal settlements, outdated legal framework, institutional framework and information management. The key principal in the policy is land use planning which is recognized as essential for the efficient and sustainable utilization and management of land and land based resources This policy identifies the inequitable distribution of land, rooted in land injustices of the past as the critical problem facing Kenya's land tenure system. It deals with land sizes, calling for the setting of economically viable minimum land sizes for various zones, and the control of subdivision to avoid parcels falling below those sizes. The introduction of a development levy on undeveloped land is a conceptually attractive measure to prevent land hoarding.	The mandate to repeal the principle of absolute sanctity of first registration under the Registered Land Act makes it possible to repossess any public land that was irregularly allocated to private ownership. (USAID)	Introduction of development levy on undeveloped land faces serious conceptual problems in defining "undeveloped"; It is heavily agrarian, and focused more on the need to rectify mistakes made in that sector, to the neglect of the impacts of rapid urbanization.

The Constitution of Kenya, 2010	This is the supreme law of the land. Chapter 5 is dedicated to land and Environment. Chapter 5 Part 2 and article 69 emphasizes the need for public participation in the management, protection and conservation of the environment. Chapter 4 Part 2 and Article 42 of the Bill of Rights provides that every person has the right to a clean and healthy environment. It creates the Urban Areas and Cities Act which brings the management of Kisumu under City Management Board.	Article 70; Chapter 5 Part 2 recognizes the public interest in water resources.	It has been viewed as being overly emphatic on participation that it stifles decision-making.
Kenya Vision 2030	This is the blue print for Kenya's long term national development. It is anchored on three main pillars: a) Economic Pillar b) Social Pillar and; c) Political Pillar	Kisumu's Development plans must be aligned to the Vision. It identifies Kisumu as one of the SEZs and a Metropolitan region.	The loyalty and commitment to the various programs geared towards the attainment of the vision seems to vary depending on the political regimes.

The County Governments Act	Repealed the Local Government Act Cap 265 which empowered the Municipal, County and Town Councils to prohibit or control the use and development of land and buildings in the interests of proper and orderly development of their areas. All developers under the repealed Act were required to obtain development permission from their respective local authorities. It also empowered the councils to regulate sewerage and drainage construction and connection.	The County Government Act provides *inter alia* that for each city and municipality there shall be the following plans; namely; city or municipal land use plans; city or municipal building and zoning plans; city or urban area building and zoning plans; location of recreational areas and public facilities. The Act further provides that a city or municipal plan shall be the instrument for development facilitation and development control within the respective city or municipality.	Lack of the necessary structures and continued to reliance on the systems that existed, hence the risk of inheriting the inherent weaknesses of technical and financial limitations that have hitherto persisted.

Draft National Urban Development Policy (dNUDP)	Prompted by the anticipated demographic, social and economic changes brought about by urbanization and aims to strengthen development planning, urban governance and management, urban investments and delivery of social and physical infrastructure in urban areas throughout the country. The long-term goal of the Policy is to accelerate economic growth, reduce poverty, promote equity and help the nation realize Vision 2030. dNUDP seeks to create a framework for sustainable urban development in the country and addresses 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.	Support the development of land rental markets that have the potential to provide access to land to those who are productive, but own little or no land.	The taxation of undeveloped land; the conversion of 999 year leases to 99years; and the resolution of land and land-related injustices face challenges of political support and their implementation mechanisms are not stated in the policy.
Urban Areas and Cities Act	Section 3 of the Urban Areas and Cities Act lists the specific objectives of the Act as to establish a legislative framework for classification of areas as urban areas or cities; governance and management of urban areas and cities; participation by the residents in the governance of urban areas and cities; and other matters for the attainment of the objects provided for in paragraphs (a) to (c).	Kisumu CIDP has been prepared to comply with the object of this Act which provides that every city and municipality established under this Act to operate within the framework of integrated development planning.	It is broad in nature without specific directions and its implementation is dependent on many other laws such as the by-laws which are subject to revisions, and may depart from the broader national vision and goals.

Kisumu City Development Strategy 2004 – 2009	Defines the City Vision: "A leading transportation, communication and commercial hub in the Great Lakes Region offering great tourism and agro-investment opportunities". The City Development Strategy (CDS) for the period 2004 – 2009 articulates medium term policies and objectives which are further translated into short term strategies, programmes and projects to be implemented under the Medium Term Expenditure Framework, MTEF. It indicates priorities, strategies, programmes and projects proposed to overcome the development challenges it identifies and outlines the institutional framework for monitoring and evaluating the implementation of the DDP, whilst providing a summary of performance indicators.	Blends historical functionalisms with the desired socio-economic growth that would improve on the current undesirable trends of urban poverty against a backdrop of rich natural resource endowment. To mainstream good governance and democratic principles in urban management aimed at empowering the citizenry to singularly and collectively participate in their livelihood and environmental improvement actions for sustained growth and development. (www.kisumumunicipalcouncil.org)	Does not prescribe a mechanism for addressing underperformance and failure to meet targets. Lacks framework for continuity beyond the 2004-2009 period.

The Integrated Strategic Urban Development Plan (ISUD-Plan)	The purpose is to provide a framework for Kisumu's growth and development and to endow those in charge with both knowledge and tools to address the challenges of urban growth and local development. It provides guidelines leaving by-laws to be prepared by the City management board. This approach allows flexibility and responsiveness for the local government, especially with respect to private investments.	Encourages the city to take advantage of its natural assets, lake and fertile land to underpin its development and recover a foregone regional role; take control of its shape and expanse through addressing the housing issue in order to curb uncontrolled growth and limit related servicing costs; and improve living conditions for all through adequate provision and repartition of basic services, including in slums where upgrading intervention should also improve accessibility of and through these areas and better connection with the rest of the city.	Remains at the level of general guidelines, leaving a lot of leeway to the City Management Board especially with regard to formulation of by-laws, whose fidelity to the Plan may not be guaranteed.
The Kisumu County Integrated Development Plan (CIDP) 2013 – 2017	Necessitated by CoK 2010 requirement that "A county government shall plan for the county and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly." It integrates economic, physical, social, environmental and spatial planning. Kisumu County Integrated Development Plan (CIDP) 2013 -2017 was prepared in accordance with the specific guidelines issued by the Ministry of Devolution and Planning of the National government.	The county must tackle the dichotomy in the current land ownership systems, i.e. cheap and unregulated freehold land outside the town in relation to the expensive controlled and leasehold land in the gazetted towns.	The proposed transition to bottom-up approach will require a significant cultural change between the planning authorities and the citizens and building of trust as capacity grows.

Table 2.1: key legislations on development planning

Source: Author

Due to the multiplicity of laws and regulations guiding planning and building in Kenya, various conflicts have witnessed. There is lack of a mainstream mechanism for physical development planning thus creating a conflict between the national, regional and local levels of planning. Whereas the plan formulation/preparation is undertaken by the central Government, plan implementation is the responsibility of the Local Government.

This has manifested in physical development plans not being informed by local needs thus failing to address local realities.

According to Mativo, (Unpublished Thesis, UoN, 2015)The building industry lacks a comprehensive and integrated framework within which to operate. There are many pieces legislation scattered in many statutes that impact on the industry. The scattered nature of the legislation makes it difficult for developers to understand the requirements and creates ambiguities that make effective enforcement of the law difficult. The collapse of several buildings under construction in various parts of the country, leading to loss of lives has been attributed to lack of proper building laws.

The greatest legislative impediment in the building industry today is the law enforcement procedures. The administration of the various statutes is carried out by several agencies. For instance, the sanitation aspects are the responsibility of the public health officers regulated by the public health Act, fires control regulation is under the fire officers while the construction of the building is by local authorities under the Local Government act. The Multiplicity of institutions in the planning and building industry create conflicts and confusion that inhibits the proper functioning of the industry. (Mativo J. M., 2015)

2.6.3 Governance and Institutional Framework

In Kisumu, waterfront development projects go through the normal approval process as other ordinary projects. A proposal is submitted by a qualified professional in the construction industry. A plan examiner reviews the application. During the review, the plan examiner data enters into BIS any "required items" needed for the construction work being described. The internal process of simplification in the plan examining can take 10 days to obtain the structural approval. The application then gets forwarded to various departments: Physical Planning, Road Department, Public Health, Fire Department, Water Authority, and Electricity Authority. Each department takes at least one week to clear the respective section of the plans and grants separate

permits for the plumbing, sewerage, and electrical activities that applicant will be involved in during the construction. Thereafter, the application is forwarded for approval to the Technical Committee that convenes twice a week and issues the approvals. As a result of the approval of architectural drawings, the applicant will receive the building permit. The building permit is granted only provisionally, until the structural segment is approved. Within 30days of receipt of duly completed application the council shall notify the applicant in writing whether or not the application has been approved.

2.7 Theoretical Framework

This section provides the rationale for conducting this research to investigate the city-waterfront land use issues, and a conceptual model that establishes a sense of structure that guides this research. This is a summary of theory regarding city-waterfront land use issues that is developed through a review of previously tested knowledge of the variables involved. It identifies a plan for investigation and interpretation of the findings.

2.7.1 The Evolution model of the waterfront.

Most of the waterfront land uses have evolved without regard to the water resource, and have failed to take advantage of its proximity and the special character it lends to adjacent land. The second half of the twentieth century has witnessed profound changes along abandoned or underused waterfronts. The trend is accelerating in cities around the globe. It applies to canals, lakes and rivers as well as coasts. In the 1980's it was the "festival marketplace" fad. In the 1990's, it was the "urban entertainment district" and/or stadiums. In a time of pervading sameness and homogenization worldwide, this is particularly dismaying because waterfronts, above all factors, give each community a chance to express its individuality and help distinguish it from others. With this growing popularity comes a tendency by some to look for the quick solution, to adopt a formula that may have worked somewhere else. This unfortunate tendency by some in the design and development fields is what is termed formula approaches — copying something that has worked in one place and transferring it elsewhere, or building projects unsympathetic to their unique waterfront setting. There are also cases of over-building and excessive privatization along urban waterfronts today. It is essential to keep in mind the inherent

public interest in waterfronts as reflected in public ownership of water itself. Creation of widely valued civic amenities is a natural expansion of the principal amenity of the water itself.

Stage	Symbol ○ city ● port	Period	Characteristics
I Primitive cityport		Ancient-medieval to 19th century	Close spatial and functional association between city and port
II Expanding cityport		19th-early 20th century	Rapid commercial and industrial growth forces port to develop beyond city confines, with linear quays and break-bulk industries
III Modern industrial cityport		mid-20th century	Industrial growth (especially oil refining) and introduction of containers and ro-ro facilities require separation and increased space
IV Retreat from the waterfront		1960s-1980s	Changes in maritime technology induce growth of separate maritime industrial development areas
V Redevelopment of the waterfront		1970s-1990s	Large-scale modern port consumes large areas of land- and water-space; urban renewal of original core

Figure 2.4: Hoyle's Historical Model for Port City Development
Source: B.S Hoyle, et al, 1988.

It is no accident that Chicago's newest park, Millennium Park, continues a century-long tradition of gracing its lakefront with a fabulous open space system.

2.7.2 Complexity Theory in Urban Design

This theory views an urban area as a complex system.

A system is complex when it is composed of many parts that interconnect in intricate ways. (Joel Moses, "Complexity and Flexibility"). This definition has to do with the number and nature of the interconnections.

A complex system is one in which numerous independent elements continuously interact and spontaneously organize and reorganize themselves into more and more elaborate structures over time. A system is also complex when it is composed of a group of related units (subsystems), for which the degree and nature of the relationships is imperfectly known. (Joseph Sussman, "The New Transportation Faculty"). The overall emergent behavior is difficult to predict, even when subsystem behavior is readily predictable. Small changes in inputs or parameters may produce large changes in behavior.

Complexity is characterized by: a) a large number of similar but independent elements or agents; b) persistent movement and responses by these elements to other agents; c) adaptiveness so that the system adjusts to new situations to ensure survival; d) self-organization, in which order in the system forms spontaneously; e) local rules that apply to each agent; and f) progression in complexity so that over time the system becomes larger and more sophisticated. The behavior of self-organizing complex systems cannot be predicted, and they do not observe the principle of additivity, i.e., their components cannot be divided up and studied in isolation. Complex systems can naturally evolve to a state of self-organized criticality, in which behavior lies at the border between order and disorder. Again, the same system can display order, chaos, and self-organizing complexity, depending on the control parameters.

Complexity theory attempts to reconcile the unpredictability of non-linear dynamic systems with a sense of underlying order and structure. This theory is useful in understanding the dynamics of urban areas in its development and endeavoring to predict its likely response to changes.

2.7.3 Integrative Theory of Urban Design

In "An Integrative Theory of Urban Design," Ernest Sternberg (2000) describes urban design "as the field that engages the human experience of the built environment across private properties or in the public realm: the sense of understandability, playfulness, security, mystery, congeniality/likeability or awe that lands and built forms evoke." Consequently, Sternberg concludes that urban designers "need principles to recognize, sustain, and reconstitute environmental integrity.

"This theory of Urban Design has five main principles comprising ‘good form’, ‘legibility’, ‘vitality’, ‘comfort’ and ‘meaning’. These are broadly categorized into two; with ‘good form’ and legibility forming the physical dimension while ‘vitality’ and ‘comfort’ form the functional dimension. ‘Meaning’ is the result of the fusion of the two dimensions.

Physical dimension

Good form

Sternberg (2000) explained that good form is an important principle in the integrative theory of urban design citing the work of Camillio Sitte in his book ‘City Planning according to Artistic Principle’. Sitte’s work was written in response to the situation of the nineteenth-century cities,

which were built without consideration of the surrounding area. Most of the developments were built to maximise the saleability of the property through the land subdivision. Bacon (1974), in Stenberg (2000), stated that good urban design was to be based on artistic principles of good form and that good design should interlock and inter-relate buildings across space.

Good form is also related to the proportions of buildings. The proportion meant here need not be related with the 'mystical Pythagoras formulas' but more of the 'beholder's experience of space'. The identified attributes in relation to good form are: i) physical character of the water ii) the building form that is oriented towards the river (fronting or backing the river); iii) difference of width between the building and water, and iv) the proportion: the height of building and its relation to the space between the river and itself.

Legibility

Legibility is also one of the principles in integrative theory that was highlighted by

Sternberg (2000). This significant principle, which was established by Kevin Lynch, is explained as being related to the cities that are easily understood by the user as a quality that makes a place graspable (Bentley et al., 1985). It is important for the environment of the city to be distinctive in order for a person to understand and be able to orient themselves. This will also allow the person to piece different parts of the city into a 'coherent category' and at the same time give them a sense of security of knowing where they are in the city area. Lynch and Hack (1984, p.182) further clarified that the city should be made 'imageable' for the observer to be able to form a mental picture. This is done through the projection of 'distinction and relationship' that the observer would be able to comprehend. Stenberg highlights that the elements of *nodes, paths, landmarks, districts* and *edges* clarified by Lynch are only references to the design elements for the professionals to achieve an 'interrelation of parts into a whole'. It is usually very difficult to achieve when designing in cities without using the elements to link the urban fabric as a 'total visible form' (Nurul Syala, 2011).

One of the most effective means of enhancing legibility of waterfronts is *physical* and *visual access* to the water's edge. Tibbalds (1992) highlighted that in making a particular place responsive for activities to happen, it must allow clarity in the accessibility to the area, event or facilities. According to Boyd (1985), and agreed by Laidley (2007), in many cities the public

accessibility to the water's edge has succumbed to the value of the land that is exclusive for private development due to the waterfront locations.

The benefits of linking the water to the city were identified by Kotval and Mullin (2001) in their discussion on the Waterfront Planning as Strategic Incentives. They stated that it is important for a waterfront area to be integrated with the urban fabric and its community because it will add value to the community. Activities from the urban fabric will flow into the waterfront and the continuity will bring people closer to the waterside. Samant (2004) added that a direct linkage to the city from the waterfront will allow easy accessibility for the urban community to cross between these two places. However, some of the cities encountered problems in doing so. Tunbridge and Ashworth (1992) highlighted that some of the problems were due to the earlier constructions of railways and main roads, which usually took advantage of the linear land along the waterfront and, therefore, created a barrier between the city and the waterfront area. Kisumu perfectly identifies with this situation.

Boyd opined that there would be no impact in the process of design review if the public access is provided just to fulfill the requirement set legally and that can be satisfied with any 'uninviting' pathway without giving it sufficient thought. He further added that if the regulation goal is to maximise public access to and along the coast, the physical and visual accessibility preservation have to become the site planning principle.

Functional Dimension

a) Vitality

This principle is advocated by Jane Jacobs in her book Death and Life of Great American Cities (1992). Jacobs criticised the planning of the mid-century, which neglected the importance of the diversity of urban life through the creation of dead vacant zones, clearing the city through the urban renewal programme and planning to separate uses through the concept of zoning.

In achieving balance, cities should have bustling streets with a mixed use of activities, as well as quieter streets for residential areas (Jacobs, 1992). Through vitality, her ideas promote integration across the property lines and relate well to the integrative theory. This is also accorded by Browser (Nasar, 1998), who highlighted that people do not really want to see

sameness in all parts of the city. They prefer some areas to be restful and others to be full of excitement. In reference to this principle to choose the related attributes for the integration of the waterfront development and the urban river, two main attributes are identified: i) continuous activities at the buildings along the waterfront and ii) the diversity of activities in the area that allow the user to stay longer at the water edge.

b) Comfort

There are five major reasons why people go to public places. These are for comfort, relaxation, passive engagement with the environment, active engagement with the environment and discovery (Carr et al. 1992). He identified comfort as the most basic of the needs.

The context of 'comfort' is vast and includes the environmental factors (such as relief from sun and wind), physical comfort (seating, universal design and lighting) that provides social and psychological comfort (Carmona et al., 2003).

Comfort also includes those aspects that promote the optional and social/resultant activities and allow the users to stay longer at the waterfront area. According to Slater, the definition of comfort comprises a pleasant state of physiological, psychological and physical harmony between a human being and the environment (Sakar, 2002).

c) Meaning

The response of waterfronts to the water can be understood through the human responses towards the place. Three attributes (perception on the use of place, awareness and association of place) are related to the principle of meaning in the integrative theory of urban design. This is because, meaning and connection can only exist through the people in the area because it is their judgment that defines the site's significance and its connection to the wider surrounding (Carmona et al. 2003). Ernest Sternberg (2000) defines meaning as "The engagement of the human experience of the built environment across private properties or in the public realm: the sense of understandability, playfulness, security, mystery, congeniality/likeability or awe that lands and built forms evoke."

The importance of meaning has recently been identified as an important aspect in the practice of urban development. Sternberg identified it as an important principle that explains the integrative

theory. He stated that meaning lies in the capability of an urban environment to portray 'history, tradition, nature, nationality or other themes which solidify identity' of the place. He stressed that design with meaning must originate from the 'indigenous character', which includes 'local land form, local history and local culture' of the place. This principle is significant to avoid the practice of thematisation or McDonaldisation (Mann, 1988) in many types of development in every part of the world including the waterfront.

Only when a space can come from the regional and cultural content and is given a contextual meaning does it become a place (Trancik 1986). It is therefore important to have an understanding of the interaction between the physical and functional dimension of the built environment in order to have a meaningful environment. The four principles discussed earlier (good form, legibility, comfort and vitality) form the physical and functional dimensions.

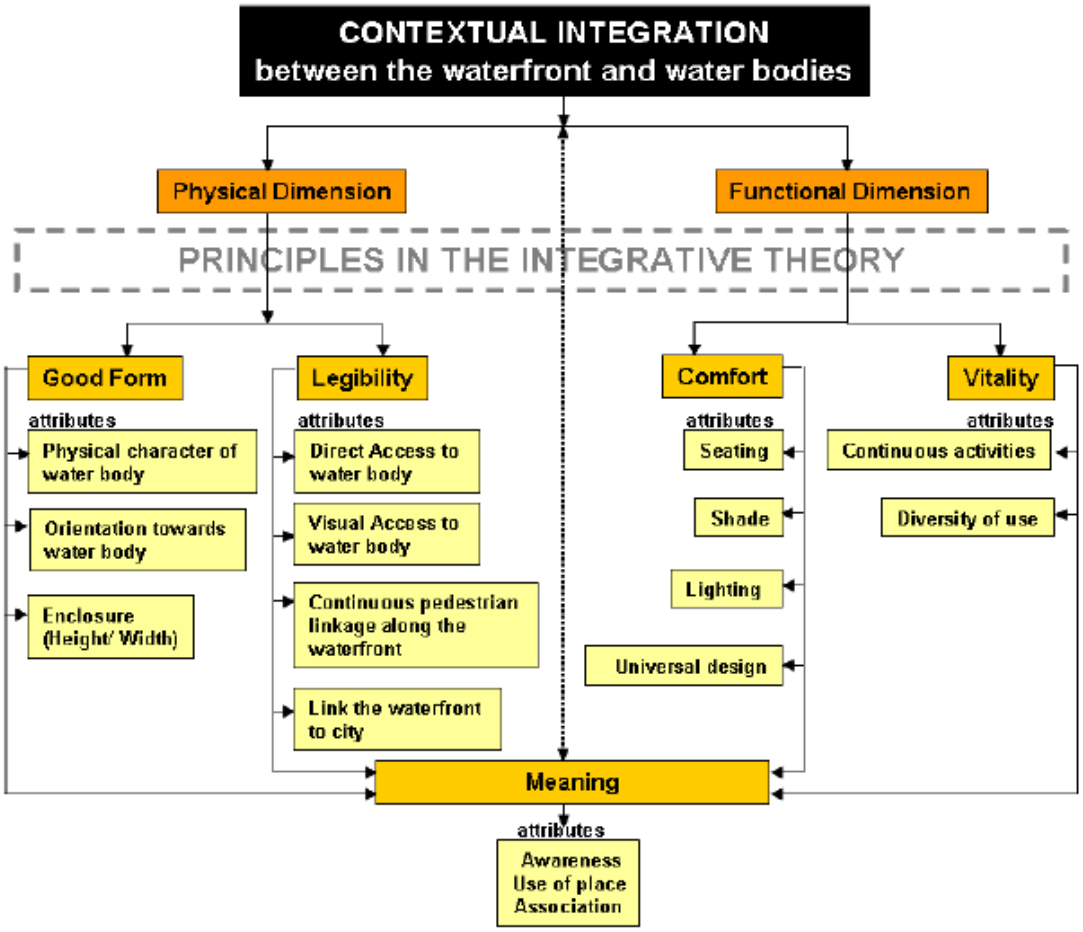


Fig. 2.5: Contextual Integration Framework In Waterfront Development
Source: *Waterfront development: A case study of Dalian, China*

2.7.4 Functional dependency theory

Activities situated on waterfronts can be analyzed on the basis of their dependency on water. The principle can also be used to locate activities on the waterfront. While there are activities that solely depend on water, others can take place even where there is no water or will require high level of technological and financial investments to occur on water. The degree of waterfront dependency also depends on the constituency of the uses, that is, the perspective and the purpose of the user (Wrenn et al., 1983). The constituency can be defined into two categories. The first category is the primary constituency, which consists of people who use the waterside area for residence, place of work or recreation and, thus, related to the waterfront for 'housing, industry, commerce, transport and leisure activities. The second category of constituency is those who view river areas as public resources. They are more concerned about the quality and use of waterside areas even if they themselves may not directly use the resources. The table below is a summary of examples of activities and their relative dependency on water.

Three categories of waterfront dependency (Wrenn et al., 1983)		
Type	**Function**	**Example**
Water dependent	activity that depends on the water without which it cannot function	port, marine construction and repair, ferry and passenger service, marina and moorage and tug and barrage company
Water related	activities that have the advantage of being close to the water but can also function in other areas	lumber mills, seafood processing plants, resorts, park, restaurant and aquariums
Water independent	activities that can function equally in other areas of the city without the water	hotels, apartment buildings, warehouses, residential and retail

Table .2.2: Functional Dependency
Source: Waterfront development: A case study of Dalian, China

2.7.5 Falk's theory - principles of successful waterfronts

All the research efforts in waterfront development lead to the same question in the end. I.e. what are the fundamental principles of successful waterfront development?

To answer this question, two questions have to be answered first. One is what does success look like? And the other is how to evaluate waterfront development or, in other words, how to judge the success of waterfront development?

For the first question, answers seem to be consistent across the literature. The popular sign of success of many waterfront developments is bringing citizens and visitors back to the water's edge, and providing tangible evidence of the continuing vitality of the cities (Hoyle, 2001). Key elements of success include the promotion of the waterfront as a positive element in urban tourism; the development and modernization of infrastructure including, particularly, transport and telecommunications; the development of new flourishing economic activities such as new-technology industries, services, educational functions, arts, crafts and cultural activities; and the careful development of mixed patterns of land and water uses, including leisure activities; and so on.

Fundamental as the second question is to waterfront development, there has been limited systematic work undertaken to answer this question. Evaluations have varied widely in scope, focus, and methods employed. Most have relied on descriptions of processes, case studies, expert opinions, and public perceptions to judge success (e.g. Swanson, 1975; Kinsey, 1985).

There have been limited comprehensive studies of program effectiveness based on a systematic study of program policies and the outcomes of policy implementation. Several exceptional works include those done by Hoyle and Wright (1999), Hershman et al. (1999) and Goodwin (1999).

Almost every author has an implicit set of criteria in their mind when studying a waterfront development issue or discussing a waterfront development case. Hoyle (2001) reckons the success of revitalization is in the bringing back of citizens and visitors to the water's edge and the provision of a tangible sign of the continuing vitality of cities. Other signs of success widely recognized are image improvement, infrastructure upgrades, environmental rehabilitation, tourism opportunity, economic revenue generation and so forth (Wrenn, 1983; Craig-Smith,

1995). Though emphasis and criteria vary from case to case, there seem to be a common ground that success is judged by so-called "on-the-ground" (Hoyle, 2001b) outcomes.

Hoyle and Wright (1999) employed critical analysis of issues and outcomes to propose an evaluative framework for heritage-based revitalization in naval cityports. Heritage assets were discussed in a special context, particularly in relation to tourism potential, but the perspectives adopted were much broader. Rather than adopting an individual case study approach, the research was aimed to develop a broader and, therefore, more representative overview of decline and revitalization on large-scale naval waterfronts, investigating the three leading British naval dockyards: Chatham, Portsmouth and Plymouth. Goodwin (1999) made a notable attempt to employ quantitative methods in his research.

He followed the overall study approach discussed in Hershman et al. (1999) and designed a set of "on-the-ground" outcome indicators to score three dimensions of revitalization: the *extent* of the revitalization; the *stage* of revitalization achieved in each waterfront district; and the *scope* of waterfront improvements, programs, and activities realized. A deeper and more detailed explanation of "on-the-ground" outcome indicators is found in Falk's analysis of a successful waterfront (norcliffe, 1996; goodwin, 1999).

Falk's theory by Dr. Nicholas Falk in his 2002 research project entitled "Turning the Tide: The Renaissance of Urban Waterfront" defines three main principles. These are spirit of place, integration with surrounding area, and resourcefulness. Every waterfront should sustain in these principles in order to be successful. According to Falk, a well thought out waterfront development plan leads to achievement of a certain character unique to the place. The application of certain guiding principles, the basis on which a waterfront development may be judged as either successful or otherwise is critical. These principles of successful waterfronts are:

Spirit of Place (Genius Loci)

a) Looks unique:

"Water is the greatest asset to the waterfront, for it is an irreplaceable resource (Holden)." While planning a waterfront, the water should not be seen as a barrier or a constraint, but as an opportunity to extend use out onto the waterfront. This principle addresses uses of the waterfront that are unique to water, and would not occur if the water was not there. "When we visit a

foreign city, we are visually struck by its particular character, which becomes an important part of the experience." (Norberg-Schulz 1980) Every place has general and local characteristics. The general characteristics are what define the spatial dimensions of the site, and the local characteristics are what make the place unique. The local characteristics of a place are what make it exclusive to other places.

There is no possible way to quantify a value to a place's uniqueness, let alone describe an ideal example of a place that is unique. A successful waterfront successfully reveals its local characteristics. To just look unique is too superficial; the representation must also be unique. Is the place one that will entertain the eye of the viewer, or is there a lack of character in the place that suppresses the composition? A place that is successfully unique is one that represents its spirit in eccentric ways, and offers an experience, unparalleled by any other place (Norberg-Schulz 1980).

b) Provide a continuous/cared for public realm – Public Access

This is the site's physical appearance with respect to its condition. If a place is not used and respected by the public, then the spirit is at the risk of being degraded. A place will be penalized if it is ridden with graffiti, dilapidated sidewalks, broken windows, an excessive amount of weeds poking through cracks, and rubbish on the footpaths. Also, a site should advance the users safety by providing a continuous public realm. This is determined by discerning the quality and clarity of the public realm. Ideally a successful example with regard to this principal would provide a physical connection for the public to the waterfront.

It is generally believed that a municipality should be committed to improving public access to the waterfront, either by adopting basic policies or zoning regulations aimed at protecting and enhancing the waterfront accessibility (Breen & Rigby, 1994, Krausse, 1995, Craig-Smith, 1995). Publicly-owned lands at the water's edge should be accessible to the public except where public access must be controlled for safety concerns or to protect sensitive natural features.

Various cases of successful waterfront development and redevelopment around the world show that public access to the waterfront can be improved through the following measures (Tsukio, 1984; Bruttonesso, 1993; Breen & Rigby, 1994):

1. The acquisition of abandoned or underused waterfront lands and converting them to public open spaces, which provide social, recreational and tourism opportunities.
2. The creation of 'nodes' occurring at reasonable intervals along the waterfront, where opportunities for various forms of public access are provided. They can vary from such things an open-air tea bar, where people can have a drink while enjoying a pleasant view, to simply providing a corridor between buildings to the water's edge.
3. The creation of waterfront pedestrian linkages between public access nodes.
4. The creation of public transit routes that provide easy transit to the waterfront from all over the city.
5. The establishment of a continuous recreational trail along the waterfront.

Some successful cases of urban waterfront trail design showed the following common characteristics:

i. They are located as close to the water's edge as feasible or in a location which provides frequent water views;
ii. They connect with other local and regional trail systems;
iii. They have support systems such as washrooms, seating facilities, and bicycle and car parking; and
iv. They should be compatible with the natural environment.

Waterfront walks are excellent for linkages and the spirit, but if they are separated from the water by railings and physical barriers, water is not being used to its full potential. Finally, the use of colorful lighting features enhances the character of water, giving a waterfront an added value in the evening. If there are obstructions that may cause injuries to those using the site, the place will automatically lose value.

c) Interprets/respects past while avoiding pastiche - Cultural relics and heritage

Many waterfronts are rich in resources of historical and cultural significance. The types and importance of these resources vary depending on the age and location of the city. Some of the

more common ones include: military installations, industrial buildings, markets and trade centres, shipping terminals, warehouses, fishing facilities, and municipal buildings (Wrenn, 1983). There has been increasing public, academic and administrative concern for the protection of natural as well as cultural heritage during urban waterfront development.

Cultural heritage resources are significant human-made features which are indicative of past human activities, events or achievements. Such resources include, but are not restricted to, archaeological sites, buildings, structures and artifacts of architectural or historical significance. Plans and proposals for the use and development of the waterfront should recognize, respect and reflect elements of heritage and local character.

Natural areas and sites of historic and archaeological importance should be considered for protection and enhancement. However, both the favourable contributions and difficulties induced by the symbiosis of heritage-based and mixed-use revitalization exist.

During waterfront development, the spatial organization should be positively evaluated when it is consistent with the cultural heritage, that is, where old settlements and relics are conserved and, in addition, the new facilities reflect the historical heritage of the city. Craig-Smith (1995) recognized the conflict between redevelopment and conservation, and stated that the dispute between the redevelopment forces and the historic preservationists has helped to forge an understanding that has served as a benchmark for subsequent redevelopment along the waterfront. It has helped to ensure that the scale, architectural design, and quality of new developments, as well as restoration projects, are compatible with and further enhance old towns' overall image and historical themes.

These concerns are addressed by this principle which refers to new planning that has taken place since the waterfront's original use. How well does the site fit into its surrounding? Visual context, (meaning scale, style, material, and color of the space), is the most important part of this principle. Does the place stick out like sore thumb, or does it blend into the context? Does the place respect the site's original form, not necessarily the function? Have the facades of the architecture been preserved or altered? Has the waterfront been filled in some places? Is the site completely new, ignoring the past entirely, possibly rejecting it even? Or, are the historic elements emphasized to the point that the place becomes obsolete to today's functional

standards? A pertinent example, which interprets and respects a place's past, is the method of ***adaptive reuse***. This procedure reuses architecture, preserving the structure of a historic building or element, and adapting a new purpose in its redesign.

In this principle, the scale of the site with respect to its surroundings, and how well it fits within the overall concept of the area surrounding the waterfront is critical.

The ideal situation for this section will be a site that maintains its planning and visual precedence that is unique to the place yet achieving a humble balance between the past and the present.

i) Integration with surrounding area

a) Short pleasant walk from the rest of the town or city.

This is paramount, for it can make or break the success of a waterfront. This section takes into account the sheer distance from the main city center and the area in which the site lies. The main concern for this section is the site's location, and its surrounding context. Is it safe for people to access at all the time? The design may be attractive and clean but if it is difficult for people to get to then it will be insufficiently used. The presence of a short pleasant walk will be honored more heavily for waterfronts that have a strong public realm adjacent to the water; one that does not force the user to cross roads that are dense with vehicular traffic, and one that connects spaces to each other in a logical method.

b) Offer attractions for all parts of the community:

A place that offers a variety of activities, on and off the water is a more successful one. Where there is a diversity of use, there is a diversity of people, and ultimately more people. Applying the "string of pearls concept," developed by the Bristol City Council Planning Department, provides a constant string of events that offer an abundant opportunity for entertainment (Holden). An unsuccessful place is one that is a stagnant monoculture of bars and nightclubs, or a housing community that only serves one specific demographic of society. Although providing housing on the waterfront will increase the value of property, it will render the site useless to the public. In this section, the ideal will be a diverse balance of activities offered within the place.

Resourcefulness

a) Make full use of the water for work, pleasure, and living:

Water itself is a resource, and the added value that water provides to a property should be used properly. This principle emphasizes a mixed use planning on the waterfront. As a resource to pleasure, the waterfront should provoke a calm environment that is easily accessed physically and visually by the public. In terms of living, the waterfront should provide spaces for temporary and permanent mooring. Finally, a portion of the waterfront property should be reserved for office space in order to establish a working environment. Has the water been planned for all three of these parts of life, or just one or two? The ideal situation would be a harmonious mix of these three uses.

Attract uses that get extra value from water: Tourism and recreation, "The Third Place"

The use of waterfronts as a leisure resource is a major component of much of waterfront revitalization. It is a long-standing and widely-recognized fact that people find water an innately attractive medium, both aesthetically and as the location for a variety of recreational activities. Restaurants, pubs, aquariums, museums, leisure retailing, festival markets, historic ships, hotels and many related facilities have become inseparably associated with the revitalized waterfront in cities. Recreational land uses form an important component along waterfront boulevards. Leisure activities, ranging from informal strolling and watching to pageants and happenings, have become a dominant part of the waterfront scene. Fagence (1991) summarized two sets of typical tourism and recreation uses on the waterfront.

1. Land side uses which include riverside parks, picnic and barbecue sites, walkways, bikeways, drives, specialized accommodation and vacation units, restaurants, open-air entertainment, leisure attractions, cultural attractions, commercial (retail) development and pedestrian piazzas, open-air markets, and ferry terminals.
2. Water side uses include river cruises, water sports (with some restrictions on location, noise levels, frequency, and duration), ferry services, and floating restaurants.

Tourism is a suitable economic use for many redundant waterfront areas. However, it should be remembered that tourism is only a part of the answer. International experience and literature point out that mixed uses are key factors in the success of urban waterfront redevelopment schemes. The greater the variety of uses for the developed sites, the better. Tourism should not be seen as the only legitimate use. A wide use mix ensures less economic vulnerability to the

vicissitudes of visitor preferences or downturns in discretionary spending. The principle guides on the composition and juxtaposition of activities and land uses assigned to various zones and specific areas of the waterfront. For example, are restaurants given priority of views over performance theatres?

b) Protects/improves the water quality, and with it natural life - Environment and ecosystem

New opportunities have been discovered to establish a new relationship between human use and natural environments in waterfront redevelopment and planning processes.

After reviewing and comparing major approaches to ecological design, Baschak and

Brown (1995) applied naturalistic, ecosystem science, and landscape ecology approaches to the development of an ecological framework for the planning, design and management of urban river greenways (Kim, Fabos & Gross, 1991). In their research, they maintained that the diversity and productivity of ecological system should be protected and restored through measures to preserve the genetic diversity of indigenous plants and animals; restore healthy natural habitats and communities; and maintain natural ecological processes.

With activity and development along the waterfront, has the quality of the water and the quality of life been protected and enhanced? Are drainage patterns channeling runoff into the water? Is the water quality good enough to swim in or drink? An ideal situation would be a waterfront that provides specific zones for the flora and fauna to live with a low disturbance from human impacts. This is the most difficult principle to observe successfully, especially in an urban environment where the potential for contamination is higher and can only be realistically fulfilled on larger scale waterfronts.

2.7.6 Principles of Intelligent Urbanism (PIU)

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. The term was coined by Prof. Christopher Charles Benninger. These axioms include environmental sustainability, heritage conservation, appropriate technology, infrasctrure efficiency and effectiveness, place-making, social access, transit oriented development, regional integration, human scale, and institutional integrity. It is against these that we can score how well or otherwise a city or other urban settlement is performing and meeting citizens' expectations.

Principle one: A balance with nature

The principle promotes environmental assessments to identify fragile zones, threatened ecosystems and habitats that can be enhanced through conservation, density control, land use planning and open spaces design (McCarg: 1975). This principle promotes life cycle building, energy consumption and pollutant emission analysis. This principle states that there is a level of human habitation intensity wherein the resources that are consumed will be replaced through the replenishing natural cycles of the seasons, creating an environmental equilibrium.

Principle two: A balance with tradition – Vernacular Architecture

Balance with Tradition is intended to integrate plan interventions with existing cultural assets, respecting traditional practices and precedents of style (Spreiregen: 1965). This urban planning principle demands respect for the cultural heritage of a place. It seeks out traditional wisdom in the layout of human settlements, in the order of building plans, in the precedents of style, in the symbols and signs that transfer meanings through decoration and motifs. This principle respects the order engendered into building systems through years of adaptation to climate, to social circumstances, to available materials and to technology. It promotes architectural styles and motifs designed to communicate cultural values. The principle calls for orienting attention toward historic monuments and heritage structures, leaving space at the ends of visual axis to "frame" existing views and vistas. Natural views and vistas demand respect, assuring that buildings do not block major sight lines toward visual assets.

Principle three: Appropriate technology and Infrastructure systems

Appropriate technology emphasizes the employment of building materials, construction techniques, infrastructural systems and project management which are consistent with local contexts. People's capacities, geo-climatic conditions, locally available resources, and suitable capital investments, all temper technology. Where there are abundant craftspeople, labour intensive methods are appropriate. Where there is surplus savings, capital intensive methods are appropriate. For every problem there is a range of potential technologies, which can be applied, and an appropriate fit between technology and other resources must be established.

Principle four: Conviviality

The fourth principle sponsors social interaction through public domains, in a hierarchy of places, devised for personal solace, companionship, romance, domesticity, "neighborliness," community and civic life (Jacobs:1993). According to proponents of Intelligent Urbanism, vibrant societies are interactive, socially engaging and offer their members numerous opportunities for gathering and meeting one another. The PIU maintain that this can be achieved through design and that society operates within hierarchies of social relations which are space specific. The hierarchies can be conceptualized as a system of social tiers, with each tier having a corresponding physical place in the settlement structure. A place for the individual; A place for friendship; A place for householders; A place for the neighbourhood; A place for communities.

A place for the city domain

The Principles of Intelligent Urbanism call for city level domains. These can be plazas, parks, stadia, transport hubs, promenades, "passages" or gallerias. These are social spaces where everyone can go. In many cities one has to pay an entrance fee to access “public spaces” like malls and museums. Unlike the lower tiers of the social hierarchy, this tier is not defined by any biological, familiar, face-to-face or exclusive characteristic. One may find people from all continents, from nearby districts and provinces and from all parts of the city in such places. By nature these are accessible and open spaces, with no physical, social or economic barriers.

Principle five: Efficiency and Effectiveness

The principle of efficiency promotes a balance between the consumption of resources such as energy, time and fiscal resources, with planned achievements in comfort, safety, security, access, tenure, productivity and hygiene. It encourages optimum sharing of public land, roads, facilities, services and infrastructural networks, reducing per household costs, while increasing affordability, productivity, access and civic viability.

Intelligent Urbanism promotes a balance between performance and consumption and efficiency in carrying out functions in a cost effective manner. It assesses the performance of various systems required by the public and the consumption of energy, funds, administrative time and the maintenance efforts required to perform these functions. A major concern of this principle is transport. While recognizing the convenience of personal vehicles, it attempts to place costs

(such as energy consumption, large paved areas, parking, accidents, negative balance of trade, pollution and related morbidity) on the users of private vehicles.

Good city planning practice promotes alternative modes of transport, as opposed to a dependence on personal vehicles. It promotes affordable public transport. It promotes medium to high-density residential development along with complementary social amenities, convenience shopping, recreation and public services, in compact, walkable mixed-use settlements. These compact communities have shorter pipe lengths, wire lengths, cable lengths and road lengths per capita. More people share gardens, shops and transit stops.

Principle six: Human Scale

Intelligent Urbanism encourages ground level, pedestrian oriented urban patterns, based on anthropometric dimensions. Walkable, mixed use urban villages are encouraged over single function blocks, linked by motor ways, and surrounded by parking lots. An abiding axiom of urban planning, urban design and city planning has been the promotion of people friendly places, pedestrian walkways and public domains where people can meet freely. These can be parks, gardens, glass-covered gallerias, arcades, courtyards, street side cafes, river- and hill-side stroll ways, and a variety of semi-covered spaces.

Intelligent urbanism promotes the scale of the pedestrian moving on the pathway, as opposed to the scale of the automobile on the expressway. Intelligent urbanism promotes the ground plan of imaginable precincts, as opposed to the imagery of façades and the monumentality of the section. It promotes the personal visibility of places moving on foot at eye level. Intelligent urbanism advocates removing artificial barrier and promotes face-to-face contact. Proponents argue that the car, single use zoning and the construction of public structures in isolated compounds, all deteriorate the human condition and the human scale of the city.

Principle seven: Opportunity matrix

The PIU envisions the city as a vehicle for personal, social, and economic development, through access to a range of organizations, services, facilities and information providing ***a variety of opportunities*** for enhanced employment, economic engagement, education, and recreation. This principle aims to increase access to shelter, health care and human resources development. It aims to increase safety and hygenic conditions. The city is an engine of economic growth. This is

generally said with regard to urban annual net product, enriched urban economic base, sustained employment generation and urban balance of trade. More significantly this is true for the individuals who settle in cities. Moreover, cities are places where individuals can increase their knowledge, skills and sensitivities. Cities provide access to healthcare and preventive medicine. They provide a great umbrella of services under which the individual can leave aside the struggle for survival, and get on with the finer things of life.

Principle eight: Regional Integration

Intelligent Urbanism envisions the city as an organic part of a larger environmental, socioeconomic and cultural-geographic system, essential for its sustainability. This zone of influence is the region. Likewise, it sees the region as integrally connected to the city.

Intelligent Urbanism sees the planning of the city and its hinterland as a single holistic process. Proponents argue if one does not recognize growth as a regional phenomenon, then development will play a hop-scotch game of moving just a bit further along an arterial road, further up valleys above the municipal jurisdiction, staying beyond the path of the city boundary, development regulations and of the urban tax regime.

The region may be defined as the catchment area, from which employees and students commute into the city on a daily basis. It is the catchment area from which people choose to visit one city, as opposed to another, for retail shopping and entertainment. Economically the city region may include the hinterland that depends on its wholesale markets, banking facilities, transport hubs and information exchanges. The region needing integration may be seen as the zone from which perishable foods, firewood and building materials supply the city. The economic region can also be defined as the area managed by exchanges in the city. Telephone calls to the region go through the city's telecom exchange; post goes through the city's general post office; money transfers go through the city’s financial institutions and internet data passes electronically through the city’s servers. The area over which “city exchanges” disperse matter can well be called the city’s economic hinterland or region. Usually the region includes dormitory communities, airports, water reservoirs, perishable food farms, hydro facilities, out-of-doors recreation and other infrastructure that serves the city.

Intelligent urbanism sees the integrated planning of these services and facilities as part of the city planning process.

Principle nine: Balanced Movement

Intelligent Urbanism advocates integrated transport systems comprising walkways, cycle paths, bus lanes, light rail corridors, under-ground metros and automobile channels. A balance between appropriate modes of movement is proposed. More capital intensive transport systems should move between high density nodes and hubs, which interchange with lower technology movement options. These modal split nodes become the public domains around which cluster high density, pedestrian, mixed-use urban villages occur. (Taniguchi:2001).

Principle ten: ***Institutional Integrity***

Intelligent Urbanism holds that good practices inherent in considered principles can only be realized through accountable, transparent, competent and participatory local governance, founded on appropriate data bases, due entitlements, civic responsibilities and duties. The PIU promotes a range of facilitative and promotional urban development management tools to achieve appropriate urban practices, systems and forms (Islam:2000). None of the principles or practices the PIU promotes can be implemented unless there is a strong and rational institutional framework to define, channel and legalize urban development, in all of its aspects. Intelligent Urbanism envisions the institutional framework as being very clear about the rules and regulations it sponsors and that those using discretion in implementing these measures must do so in a totally open, recorded and transparent manner.

Intelligent Urbanism facilitates the public in carrying out their honest objectives. It does not regulate and control the public. It attempts to reduce the requirements, steps and documentation required for citizens to process their proposals. Intelligent Urbanism also promotes furthering of the interests of the public in their genuine utilization of opportunities. It promotes site and services schemes for households who can construct their own houses. It promotes up-gradation of settlements with inadequate basic services. It promotes innovative financing to a range of actors who can contribute to the city's development. Intelligent urbanism promotes a limited role for government.

It recognizes that there are developers and promoters who have no long term commitment to their own constructions, and their only concern is to hand over a dwelling, gain their profit and move on. For these players it is essential to have Development Control Regulations, which assure the public that the products they invest in are safe, hygienic, orderly, durable and efficient. For the discerning citizen, such rules also lay out the civil understanding by which a complex society agrees to live together.

The PIU contends that there must be a cadastral System wherein all of the land in the jurisdiction of cities is demarcated, surveyed, characterized and archived, registering its legal owner, its legal uses, and the tax defaults against it.

The institutional framework can only operate where there is a Structure Plan, or other document that defines how the land will be used, serviced, and accessed. The Structure Plan tells landowners and promoters what the parameters of development are, which assures that their immediate investments are secure, and that the returns and use of such efforts are predictable. A Structure Plan is intended to provide owners and investors with predictable future scenarios. Cities require efficient patterns for their main infrastructure systems and utilities. According to PIU proponents, land needs to be used in a judicious manner, organizing complementary functions and activities into compact, mixed use precincts and separating out non-compatible uses into their own precincts. In a similar manner, proponents argue it is only through a plan that heritage sites and the environment can be legally protected. Public assets in the form of nature, religious places, heritage sites and open space systems must be designated in a legal plan. Intelligent Urbanism proposes that the city and its surrounding region be regulated by a Structure Plan, or equivalent mechanism, which acts as a legal instrument to guide the growth, development and enhancement of the city.

According to proponents, 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. Intelligent urbanism promotes Public Participation. 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. Land Pooling assures the beneficiaries from provision of public infrastructure and amenities proportionally contribute and that a few individuals do not suffer from reservations in the plan.

Intelligent Urbanism also promotes furthering the interests of the public in their genuine utilization of opportunities.

It promotes innovative financing to a range of actors who can contribute to the city's development.

It promotes a limited role for government, for example in "packaging" large-scale urban development schemes, so that the private sector is promoted to actually build and market urban projects, which were previously built by the government.

According to proponents, there must be a system of Floor Area Ratios to assure that the land and the services are not over pressured. No single plot owner should have more than the determined "fair share" of utilization of the access roads, amenities and utilities that service all of the sites. Floor Area Ratios temper this relationship as regulated the manner in which public services are consumed. According to PIU proponents, Transfer of Development Rights benefits land owners whose properties have been reserved under the plan. It also benefits the local authorities that lack the financial resources to purchase lands to implement the Structure Plans. It benefits concentrated, city centre project promoters who have to amortize expensive land purchases, by allowing them to purchase the development rights from the owners of reserved lands and to hand over those properties to the plan implementing authority. This allows the local authority to widen roads and to implement the Structure Plan. The local authority then transfers the needed development right to city center promoters. Intelligent Urbanism supports the use of Architectural Guidelines where there is a tradition to preserve and where precedents can be used to specify architectural elements, motifs and language in a manner, which intended to reinforce a cultural tradition. Building designs must respect traditional elements, even though the components may vary greatly to integrate contemporary functions. Even in a greenfield setting Architectural Guidelines are required to assure harmony and continuity of building proportions, scale, color, patterns, motifs, materials and facades. 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. PIU proponents state that those who design buildings must be professionally qualified architects; those who design the structures (especially of more than ground plus two levels) must be professionally qualified structural engineers; those who build buildings must be qualified civil engineers; and, those who supervise and control construction must be qualified construction managers. Intelligent Urbanism promotes the professionalization of the city making process. While promoting professionalism, Intelligent Urbanism proposes that this not become a barrier in the development process. Small structures, low-rise structures, and humble structures that do not house many people can be self-designed and constructed by the inhabitants themselves. Proponents maintain that there must be recognized Professional Accrediting Boards, or Professional Bodies, to see that urban development employs adequate technical competence.

Finally, there must be legislation creating Statutory Local Authorities, and empowering them to act, manage, invest, service, protect, promote and facilitate urban development and all of the opportunities that a modern city must sponsor.

Intelligent Urbanism insists that cities, local authorities, regional development commissions and planning agencies be professionally managed. City Managers can be hired to manage the delivery of services, the planning and management of planned development, the maintenance of utilities and the creation of amenities.

Intelligent Urbanism views plans and urban designs and housing configurations as expressions of the people for whom they are planned. The processes of planning must therefore be a participatory involving a range of stakeholders. The process must be a transparent one, which makes those privileged to act as guardians of the people’s will accountable for their decisions and choices. Intelligent Urbanism sees urban planning and city governance as the most salient expressions of civility. Intelligent Urbanism fosters the evolution of institutional systems that enhance transparency, accountability and rational public decision making.

2.8 Conclusion

An analysis of the theories stated above seems to point towards the achievement of integration between the urban fabric and the water as a means of addressing land use issues in the city waterfront. This integration must be both physical and functional and must achieve a balance of social, economic and ecological aspects of a waterfront development. These are in line with the concepts used in guiding and analyzing the success of a waterfront. It implies that this balance remains the ultimate goal and the concepts and theories discussed here are tools of guidance and measurement of this balance. This thesis is therefore premised on the theory that as a system, an urban waterfront integrates water and urban functions, by taking people back to the water, creating tangible evidence of continuous vitality and ensuring sustainability. By applying the principles of successful waterfront development, this thesis analyses the Kisumu waterfront and proposes the guidelines that should be applied in attempting to qualify it as a successful waterfront. The final product of this thesis is a theory that city-water interface is successful if it integrates urban and water functions, takes people back to the water's edge, characterized by continuous vitality and achieves ecosystem conservation, economic efficiency and cultural heritage conservation.

2.9 Conceptual Framework

Urban water and related land problems fall into seven general functional categories: These are water supply, sewage disposal, water quality management, flood control and drainage, recreation, ports and harbors and navigation and Waterfront land use.

Considered in the urban setting, however, these traditional categories may be summarized in four general problem headings, covering the most critical interactions of water and the city. These include waterfront land use, water quality management, water-based recreation and open space planning, and metropolitan growth control.

Waterfront land use is a serious planning problem-area in many places including Boston, Chicago, Detroit, Los Angeles, New Orleans, Pittsburgh and Seattle, principally by virtue of its neglect by urban planners. Comparatively little attention has yet been paid to the need for and possibilities of urban waterfront redevelopment in many port cities in Newly Industrializing Countries (NICs) and Less Developed Countries (LDCs) (Hoyle, B., 2002).

In a trend of transforming their once-industrial waterfronts into vibrant zones of leisure, commerce and housing by waterfront development (Bruttomesso, 1993; Breen & Rigby, 1994, 996), projects have followed a number of conventional approaches, which have largely been considered to be indicators of successful urban waterfront development. Various concepts have been applied in analyzing and formulating guidelines in the development of waterfronts worldwide. Some of these include waterfront as tourist destination (Baltimore's Inner Harbour, Sydney's Darling harbour and Barcelona's Port Vell); as extension of the financial district (New York's Battery Park City and London's Canary Wharf); as a new residential district (Battery Park City and Rotterdam's Kop Van Zuid); and, more recently, as a platform for ecologically sensitive and sustainable development (plan for the entire Toronto waterfront under the Waterfront Regeneration Trust). In the context of waterfront land use issues, the following aspects are crucial.

Resilience to Natural Hazards and Climate Change is highly dependent on waterfront land use planning. Waterfront communities must consider a common set of overarching issues when managing growth and development. Planning with smart growth principles can help communities make efficient investments in buildings and other infrastructure, protect and restore critical environmental areas, and protect public health. Communities need to explicitly consider natural hazards, including the potential impact of climate change. Resilience to natural hazards, such as storms and storm surges, sea-level rise, and shoreline erosion, is strongly linked to the siting and design of development, as well as to the built and green infrastructure that supports it. Well-planned and well-maintained natural systems can help protect communities in many ways. For example, natural floodplains can act as protective buffers that absorb floodwater, reducing the speed and amount of flooding, controlling erosion, protecting drinking water supplies and water quality, and insulating buildings and roads from damage. (National Oceanic and Atmospheric Adminstration, 2009).

Competing uses: A growing population creates a greater demand for land for housing, placing pressure on coastal and waterfront industries, recreation, and public access to the water. Non-water-dependent uses, such as residential waterfront development, can compete with water-dependent uses like commercial and recreational fishing and port commerce. The balance between these uses is complicated by the incompatibility of these competing land uses.

Waterfront land use planners must find ways to balance these uses along the water's edge. After all, it is the diversity of land uses that produce waterfronts with necessary vitality. (coastalsmartgrowth.noaa.gov)

Public Trust Doctrine: Development plans must consider the public's right of access to the water when making development decisions. The public trust doctrine establishes that all navigable and historically navigable waters, including the lands beneath and resources within are held in trust by the state for the public's benefit and use. Public participation is not only a major principle in the Constitution of Kenya 2010 but is also a major factor that affects acceptability of waterfront development plans, projects and programmes. This doctrine is a key factor affecting coastal and waterfront development and must be considered in all land use decisions involving the waterfront. The ownership of waterfront land therefore comes in to focus under this doctrine.

Policy and Legal Framework: Regulatory issues along the water are complex, with laws and regulations beyond the environmental, land use, and transportation rules for inland development. Some policies and laws are specific to waterfront lands while other laws give broad planning and regulatory authority to state agencies. In addition, a variety of state agencies have regulatory authority over resource areas, wetland protection, forest protection, etc. Given this complicated web of regulations, coastal and waterfront land use and development planning must coordinate with many agencies and make development decisions in a process that is clear and predictable. These approaches in one way or another have been advocated for based on certain overarching ideas which can be accurately considered as concepts. (coastalsmartgrowth.noaa.gov)

2.9.1 Classification of Waterfront Development Plans

Another author, Tsukio (1984), in his classification of a waterfront plan, classified it into three categories:

i) Development

The first type is “development”, which tries from the outset to create a waterfront which will meet the present needs of the city by reclaiming land in such places where there has been no waterfront up till now. Foster City, which has materialized at the southern end of San Francisco, falls into this category.

ii) Redevelopment

The second category is "redevelopment", which is characterized by an attempt to resurrect harbours as important areas for urban life, converting the neighbouring facilities for use in a different capacity. London's St. Katharine's Dock provides an example for this category.

iii) Conservation

The third is "conservation". Whether by chance or design, this type of plan aims at using the site of an old waterfront, which still exists even today, and restores it for the people by making as many radical improvements as possible on the one hand and withdrawing any disused facilities where necessary on the other. However, some waterfronts developed without clear and deliberate direction perceived upfront. Tools of analysis have later been used to facilitate an understanding of the forces behind their developments.

The following is a view of some of the concepts that as used both for guiding and analysis with regard to waterfront development.

2.9.2 The waterfront use framework

An examination of relevant literature reveals a variety of approaches to the interpretation and classification of waterfront land uses (Lynch, Spence & Pearson, 1976; Acosta, 1990; Sykora, 1998; Goodwin, 1999; Vallega, 2001; Campo, 2002). Among existing research, the work of Vallega (2001) is probably the most comprehensive (Table 2-3). Although comprehensive, the land uses outlined by Vallega as necessary framework in a waterfront development can still be classified as falling within the three main objectives of waterfront development as described in the concept of sustainability, and specifically the economic, social and environmental pillars of sustainability.

Ecosystem conservation	Economic efficiency	Cultural heritage conservation
1. Ecosystem enjoyment	3. Tourism	5. Entertainment
1.1. Land parks	3.1. Hotels	5.1. Concert hall
1.2. Marine parks	3.2. Restaurants	5.2. Theatres
1.3. Aquariums	3.3. Luxury housing	5.3. Discotheques
1.4. Marine museums	3.4. Shopping centres	5.4. Pubs
1.5. Submarine exploration	3.5. Shopping streets	5.5. Night spots
1.6. Submarine settlements	3.6. Tourist agencies	5.6. Clubs

and plants 2. Fishing 2.1. Fishing harbour 2.2. Fishing terminals 2.3. Technical assistance facilities 2.4. Shops 2.5. Fishing clubs	4. Recreation 4.1. Sunbathing 4.2. Swimming, diving 4.3. Snorkeling 4.4 Wind surfing 4.5. Sailing 4.6. Yachting	6. Congresses 6.1. Congress centres and facilities 6.2. Hotel conference facilities 6.3. Satellite conference facilities
7. Media 7.1. Book publishers 7.2. Magazine publishers 7.3. Newspaper publishers 7.4. TV stations 7.5. TV production centres 7.6. Media services 8. Transport and navigation 8.1. Naval terminals 8.2. Ro–ro terminals 8.3. Cruise terminals 8.4. Heliports 8.5. Airports facilities 8.6. Yachting facilities 8.7. Sailing facilities	9. Trade and finance 9.1. Business district 9.2. World trade centre 9.3. Banks 9.4. Insurance 10. Research areas 10.1. Oceanography 10.2. Climatology 10.3. Coastal ecology 10.4. Marine ecology 10.5. Coastal archaeology 10.6. Submarine archaeology 10.7. Coastal management 10.8. Urban and waterfront planning	11. Education and training 11.1. University facilities 11.2. Extra-university facilities 11.3. NGOs 12. Cultural heritage 12.1. Naval museums 12.2. Indigenous culture museums 12.3. Seaport and navigation 12.4. Science parks 12.5. Planetariums 12.6. Historical buildings 12.7. Archaeological remains

Table 2.3. The waterfront use framework
Source: Vallega (2001)

2.9.3 Sustainability as a Waterfront Development Concept

While the concept of sustainability is increasingly discredited as a useful concept by itself, it appears to be serving some purpose when preceded by a delineating modifier like “ecological” or “agricultural” or “economic.” Efforts have been made by members of various professions to give meaning to the term within the context of those respective professions. Sustainability is the ability to endure. The principle is best understood in the context of sustainable development. Sustainable development is the use of resources to meet the needs of the present generation without compromising the ability of the resource to meet the needs of future generations. (Brundtland Commission of the United Nations, 1987). At the 2005 World Summit on Social Development it was noted that this requires the reconciliation of environmental, social equity and economic demands - the "three pillars" of sustainability.

Sustainability plans illustrate how economic, social and environmental factors were considered in the planning process, and consider things like green buildings, green municipal services, integration of active transportation, and consideration of eco-tourism/sustainable tourism as well as awareness and appreciation of natural resources.

Sustainable development also addresses the social and cultural impacts of the proposals and the economic attributes.

Environmental Sustainability

This entails, low impact construction on forested sites enhancement of marsh habitat interpretation of sustainability story of the site, engineering of wetlands, reducing costs of pipe and sewage processing, orientation of buildings for solar gain, adaptive reuse of existing structures, higher density buildings and more open space, Bio-fuels for storm water collection, forest restoration among others. Environmental sustainability emphasizes ecological balance out of which ecological sustainability has developed as a concept. "Ecological Sustainability as a Conservation Concept has been defined as "meeting human needs without compromising the health of ecosystems." Ecologists will seek to preserve minimum levels of environmental assets in physical terms.

Social Sustainability

Though social sustainability is about people, many non-human elements have an influence. So how can design be used to create socially sustainable cities, and are we seeing developments designed with community-building in mind? Do features like internal courtyards and shared outdoor space contribute to the development of sustainable communities? Are modern developments embracing such features? (thisbigcity.net)

An area with strong transport links can improve integration with the wider neighbourhood and introduce economic and cultural opportunities to those who use the facilities, but is transport alone enough of a contributor to social sustainability? And how might the design of our streets contribute? Accessible streets and transportation are both obvious positive contributors, but what kind of role do the less tangible elements like local character and identity play, and how do we go about measuring them?

It is widely agreed that social sustainability is about people's quality of life, but what kind of human factors influence this? Do those who have good relationships with their neighbours live more fulfilled lives and contribute to the development of a sustainable community? If we feel safe and secure, regardless of whether we actually are, are we in a more secure social position? And how critical is the perception of ability to influence a local area? Can it affect someone's willingness to act to improve their neighbourhood, creating better spaces that everyone in the community benefits from in the process? So what is social sustainability?

Social sustainability is one aspect of sustainability or sustainable development. Social sustainability encompasses human rights, labor rights, and corporate governance. In common with environmental sustainability, social sustainability is the idea that future generations should have the same or greater access to social resources as the current generation ("inter-generational equity"), while there should also be equal access to social resources *within* the current generation ("intra-generational equity"). (thisbigcity.net)

In "Social Sustainability: towards some definitions," McKenzie identifies several attempts to define social sustainability and concludes it generally to be, "a positive condition within communities, and a process within communities that can achieve that condition." This definition is supplemented with a list of corresponding principles, including:

• equity of access to key services

• equity between generations

• a system of relations valuing disparate cultures

• political participation of citizens, particularly at a local level

• a sense of community ownership

• a system for transmitting awareness of social sustainability

• mechanisms for a community to fulfill its own needs where possible

• political advocacy to meet needs that cannot be met by community action

Cultural amenity and showplace, public gathering places, public ownership and access to resources, and places to live constitute elements of cultural sustainability.

Economic Sustainability

In economic terms, Environmental sustainability is about making responsible decisions that will reduce your business' negative impact on the environment. It is not simply about reducing the amount of waste you produce or using less energy, but is concerned with developing processes that will lead to businesses becoming completely sustainable in the future. (jansh.weebly.com)

According towww.environmentalmanager.org, Economic Sustainability and the preservation of environmental assets requires that current economic activity does not disproportionately burden future generations. Economists will allocate environmental assets as only part of the value of natural and manmade capital, and their preservation becomes a function of an overall financial analysis.

2.9.4 Principles for a Sustainable Development of Urban Waterfront Areas

In the context of the initiatives for the Global Conference on the Urban Future (URBAN 21) held in Berlin in July 2000 and in the course of the EXPO 2000 World Exhibition, 10 Principles for a Sustainable Development of Urban Waterfront Areas were approved. The value of these 10 principles remains well-founded and their contents may help to understand and evaluate many different projects of waterfront development and revitalization.

Principle 1 - Secure the quality of water and the environment

The quality of water in the system of streams, rivers, canals, lakes, bays and the sea is a prerequisite for all waterfront developments. The municipalities are responsible for the sustainable recovery of derelict banks and contaminated water.

Principle 2 - Waterfronts are part of the existing urban fabric

New waterfronts should be conceived as an integral part of the existing city and contribute to its vitality. Water is a part of the urban landscape and should be utilized for specific functions such as waterborne transport, entertainment and culture.

Principle 3 - The historic identity gives character

Collective heritage of water and city, of events, landmarks and nature should be utilized to give the waterfront redevelopment character and meaning. The preservation of the industrial past is an integral element of sustainable redevelopment.

Principle 4 - Mixed use is a priority

Waterfronts should celebrate water by offering a diversity of cultural, commercial and housing uses. Those that require access to water should have priority. Housing neighbourhoods should be mixed both functionally and socially.

Principle 5 - Public access is a prerequisite

Waterfronts should be both physically and visually accessible for locals and tourists of all ages and income. Public spaces should be constructed in high quality to allow intensive use.

Principle 6 - Planning in public private partnerships speeds the process

New waterfront developments should be planned in public private partnerships. Public authorities must guarantee the quality of the design, supply infrastructure and generate social equilibrium. Private developers should be involved from the start to insure knowledge of the markets and to speed the development.

Principle 7 - Public participation is an element of sustainability

Cities should benefit from sustainable waterfront development not only in ecological and economical terms but also socially. The community should be informed and involved in discussions continuously from the start.

Principle 8 - Waterfronts are long term projects

Waterfronts need to be redeveloped step by step so the entire city can benefit from their potentials. They are a challenge for more than one generation and need a variety of characters both in architecture, public space and art. Public administration must give impulses on a political level to ensure that the objectives are realized independently of economic cycles or short-term interests.

Principle 9 - Re-vitalization is an ongoing process

All master planning must be based on the detailed analysis of the principle functions and meanings the waterfront is concerned with. Plans should be flexible, adapt to change and incorporate all relevant disciplines.

To encourage a system of sustainable growth, the management and operation of waterfronts during the day and at night must have equal priority to building them.

Principle 10 - Waterfronts profit from international networking

The redevelopment of waterfronts is a highly complex task that involves professionals of many disciplines. The exchange of knowledge in an international network between contacts involved in waterfronts on different levels offers both individual support and information about the most important projects completed or underway. Whether one considers sustainability to exist as a three-legged table consisting of the environment, the economy, and society, or as a dualistic relationship between human beings and the ecosystem they inhabit, it is a basic principal that ensures the balance in resource utilization within the current generation or between the current and future generations. (www.environmentalmanager.org)

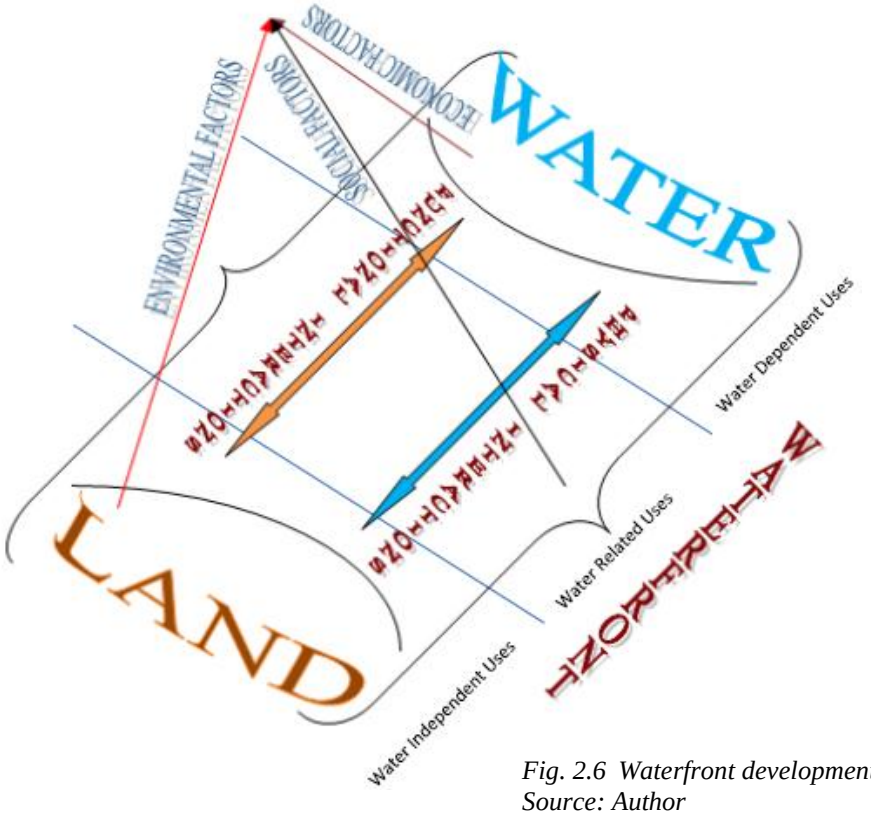


Fig. 2.6 Waterfront development conceptual framework
Source: Author

2.10 Summary

There is good literature and scholarly articles written on urban waterfront redevelopment. The Remaking of the Urban Waterfront 2 outlines ten principles of waterfront development which summarize waterfront development. These include:

1. The transformation along the urban waterfront is a recurring event in the life of a city, and tends to occur when major economic or cultural shifts lead to conflicting visions of contemporary urban life.
2. The aura of a city largely resides and endures along its waterfront, allowing substantial changes to occur without inevitably harming its enduring qualities of place.
3. Despite periodic and sometimes rapid change, a waterfront preserves for its bordering city some inherent and unalterable stability.
4. As valuable and often contested realms, urban waterfronts bring forth the opposing, though reconcilable, human desires to preserve and to reinvent.
5. Even though a waterfront serves as a natural boundary between land and water, it must not be conceptualized or planned as a thin line.
6. Waterfront redevelopments are long-term endeavors with the potential to produce long-term value. Endangering this for short-term riches rarely produces the most desirable results.
7. Underused or obsolete urban waterfronts come alive when they become desirable places to live, not just to visit.
8. The public increasingly desires and expects access to the water's edge. This usually requires overcoming historic barriers—physical, proprietary, and psychological— while persuading new investors that there is merit in maintaining that valuable edge within the public domain.

9. The success and appeal of waterfront development is intrinsically tied to the interrelationship between landside and adjacent waterside uses—and to the environmental quality of both the water and the shore.
10. Distinctive environments, typically found at waterfronts, provide significant advantages for a city's competitiveness in its region or in relation to its rival cities.
11. Waterfront development is long term in nature and typically takes place in five stages namely, *Pre-start-up, Start-up, Early Development, Mega Projects and Maturity stages.*

2.11 Case Studies

2.11.1 Lessons from the West

North American is known as the cradle of waterfront regeneration. Cities like Baltimore, Boston and New York are cited as the models of waterfront regeneration. Their approaches to redeveloping the waterfront have been well documented (de Jong, 1991; Millspaugh, 1993; Tunbridge, 1993; Gordon, 1996,1997; Marshell ed 2001).

Baltimore

Baltimore has been seen as the earliest example of urban renewal, especially the area of the inner harbour. According to HUD (1985), Baltimore waterfront revitalization process can be divided into three stages, corresponding with different projects and approaches to development.

The first project stage (Charles Centre) may be charaterised as 'assistant development', the second (Inner Harbour) as 'directed development', and final one (market centre) as 'collaborative development'.

Fig. 2.7 Aerial View of Baltimore Waterfront
Source: Andrew J. (1998)

Baltimore's success was underpinned by the following aspects. The networking enabled both public authorities and private organizations to come to an agreement on development goals (de Jong, 1991). de Jong also claimed that the powerful public leader was able to execute the whole

process. Both de Jong (1991) and Millspaugh (2001) pointed out that the innovation of quasi-public agency led to the success of Baltimore waterfront renewal. The quasi-public agency was evolved from Charles Management Office to Charles Centre / Inner Harbour Management Inc then Market Centre Development Corporation and finally the Baltimore Economic Development Corporation. Although these agencies were directly responsible to municipal government, their distinctive characteristics allowed them to have discretion in execution and implementation under the contract with municipality.

Fig. 2.8 Panoramic View of Baltimore Waterfront.
Source: Andrew J. (1998)

According to Millspaugh (1993, 2001), Baltimore was an example of using public investment to lever a private one. For instance, by 1984, a total investment of $180 million had been realized, of which $35 million (20 per cent) was public funding (including subsidies from federal and state), and $ 145 million (80 per cent) was provided by private sector. de Jong (1991) argued that a variety of approaches were adopted to attract private investors, such as financial incentives. In order to change the city image, three methods of design control were adopted, namely, establishing Architectural Review Board, holding design competition and obligating private developer to meet the design parameters set by public authority.

Despite its success, Baltimore waterfront renewal was criticized from a social aspect. This was because the net job growth was absorbed by the suburban residents rather than the low-income groups (de Jong, 1991). As a result of prosperity brought by tourism, existing working class population had to face the increase of living cost and pressure of massive gentrification.

This case study illustrates waterfront development as phased, implemented through multi-agency coordination spearheaded by special agency and involves public-private partnership.

Boston

Boston's waterfront development consisted of four projects, i.e. Charlestown Navy Yard, Harbour Point, Rowe's Wharf and South Seaport District. They have built up a reputation on reintegrating city fabric with waterfront and maximising public benefit (Mambro, 1993; Gordon, 1996). Mambro (1993) argued that the underlying factors of success were substantial public landownership, interagency cooperation and a development plan. A similar conclusion was drawn by Cook al (2001). They claimed that the Boston's success was underpinned by strong public leadership and partnership, and recodification of Chapter 91 – the ancient legal doctrine with regard to tidelands.

Three public authorities – Massport, Boston Redevelopment Agency (BRA) and Commonwealth of Massachusetts involved in the Boston waterfront redevelopment. In particularly, BRA played an important role in the redevelopment process. As a development agency, it was the largest landowner on the downtown. Being a planning agency, BRA took the responsibility for zoning the waterfront as well as the local projects. (Cook, al 2001).

Fig. 2.9 Map of Boston
Source: www.googleearth.com

Moreover, the recodification of Chapter 91 was approved through the cooperation with those public agencies and others representing maritime, environmental, development and legal interest on the waterfront renewal. This amendment was intended to promote harmony – both procedural and substantive – among three main public authorities. Cook al (2001) implied that the amendment helped to address the conflicts between different sectors and ensure the public benefit. Hall (2002) pointed out that it was difficult for British cities to duplicate the redevelopment model approved to be success in both Baltimore and Boston. This was because both cities were long-established commercial centers. In particular, Boston was a major home for financial institutions. (Hall, 2002, p.384). He claimed that this distinctive characteristic gave the advantage to both cities to allocate new land uses of retailing, residential and leisure facilities. Also, the same agent – James Rouse led a pro-growth coalition, which skillfully marshaled public support and combined federal and private funds to promote large-scale commercial redevelopment.

Fig. 2.10 Panoramic view of Boston
Source: Andrew J. (1998)

This case study points to the need for public land ownership of the waterfront and that sometimes review of statutory framework is necessary to achieve waterfront development.

New York City

Battery Park City was built on landfill adjacent to the former World Trade Centre. The project was driven by a speculative imperative to accommodate financial services restructuring; was managed by globalised developer (Olympia and York); was designed by an international entourage of architects; was commissioned by local and central government, which offered public subsidy and support; was attempted to create a 'Complete Urban Community' by fusing the 'best' dimension of 'city' and 'country-town' life into a stimulating new urban life style (Crilley, 1993, p.128).

In the comparative studies of waterfront redevelopment implemented in New York City, London, Boston and Toronto, Gordon (1996, p.265) deduced that each waterfront development agency had to meet the requirements of changing the image of the waterfront. This goal has been achieved in developing the project of Battery Park City. The development agency, Battery Park City Authority (BPCA) took an active part in controlling the quality of physical environment. A series of approaches were adopted, i.e. developing the physical strategy, making the master plan, multiplying the sites, using urban design guidelines, selecting developers and managing the public open space.

Fig. 2.11 Map and axonometric view of Battery Park City
Source: Breen A, and Rigby (1996)

In the history of developing Battery Park City, two master plans were approved in succession. The 1979 Plan was severely criticized for intending to control the project by building the megastructure spine. On the contrary, the 1979 Plan was appreciated for using infrastructure to shape the public open space (Gordon, 1996). According to Seymour, the 1979 Plan was also physically integrated new development with urban context. Streets were mapped to protect view corridor, provide access and define development parcels (Gordon, 1997). Both Gordon (1996, 1997) and Mayer (1999) indicated that incrementally building high quality public space was a model for other waterfront redevelopments. They argued that the city has been reconnected with the waterfront by a series of public open space.

However, Gordon (1996, p.287) implied that it was difficult for other cities to reproduce the approaches applied in the project of Battery Park City. This was because an independent authority – BPCA took the place of City Authority in controlling public space and regulating individual projects, in which the authority has executed superbly (Fisher, 1988, p.82) as well as its tradition of insisting first-rate design even close to bankruptcy.

The United Kingdom

UK's interest on waterfront started from 1970s. In UK, national and local authorities have been relatively slow to take up the chance of waterfront redevelopment (Clark, 1985). Three major cityports – London, Liverpool and Bristol have achieved considerable transformation of their abandoned docklands. Other redevelopment took place in a variety of cities, including Cardiff, Dundee, Edinbourgh, Glasgow, Hull, Manchester, Newcastle, Portsmouth, Southampton and Swansea. Hoyle (1988) argued that the current practice of waterfront in UK did not meet its social, economic and political objectives. For instance, the redevelopment of London Docklands was the counterexample of waterfront regeneration, in which planning and design intentions were subverted by concerns of power and capital (Malone, 1996). Therefore, it was important to learn the lessons from the planning and development process of London Docklands programBrownill (1990) provided a holistic picture of the redevelopment of London Docklands. She indicated that London Docklands failed to achieve its development objectives both

physically and socially. The government lost the control on the quality of public realm, failed to provide support of infrastructure and neglected the social impact.

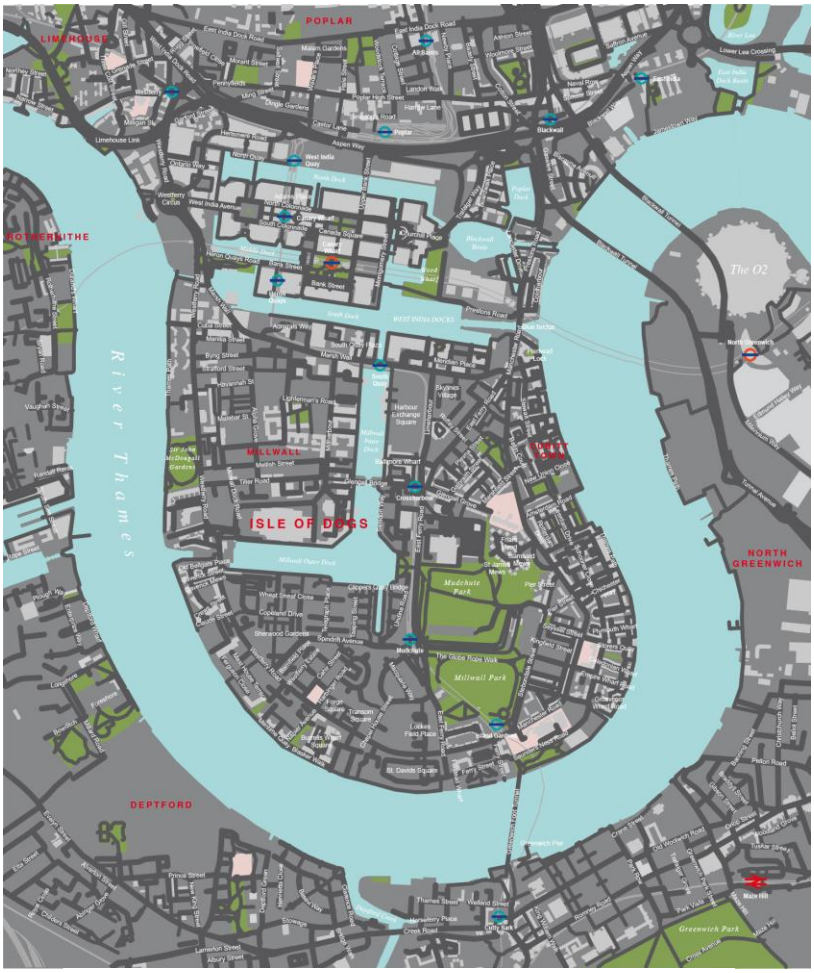


Fig. 2.12 Map of London's Docklands
Source: Van N.R, (1989)

London's docklands are clear evidence that the quality of public open spaces depends on the scale, continuity and accessibility.

2.11.2 Other European countries

The wave of waterfront redevelopment in Continental countries started in the 1980s. Cites like Barcelona, Amsterdam and Berlin have been involved in this spread. In Berlin, the government district is being built on the riverfront. As mentioned before, relatively small amount of research examined the regeneration approaches applied in these cities. This situation has changed. Researchers like Hoyle and Pinder (et al.1992), Jauhianien (1995), McCarthy (1996), Jones

(1998), Meyer (1999) and Marshall (ed. 2001) have provided comprehensive understanding of Continental reclamation of waterfront, which included urban planning policy, development strategy, land use pattern and partnership.

2.12 Lessons From Africa.

Introduction:

Although national and international tourism are quite well developed in Kenya and Tanzania, the essential focus is on the spectacular scenery and wildlife of inland national parks and, at the coast, on extra-urban beach hotel complexes. (Okech R.) At Mombasa, Moi International Airport handles substantial numbers of tourists, but few stay in the town although many visit Fort Jesus and other parts of the Conservation Area. In mainland Tanzania, Kilimanjaro Airport in the north of the country is more important as a tourist transport node than the international airport at Dar es Salaam, and as at Mombasa many tourists who visit the city do so only as an incidental excursion associated with a beach-focused holiday. At Lamu and Zanzibar, however, the urban area in general, and the waterfront in particular, are themselves major tourist attractions. Both towns present a small-scale, pedestrian-friendly environment; and Zanzibar, in particular, offers a range of buildings of considerable interest to many cultural tourists. In both cases, however, extra-urban beach-related hotel complexes already offer attractive alternative accommodation, albeit to a limited extent.

Waterfront conservation:

The conservation of waterfront buildings (or other structures within traditional urban areas) gives rise in this context to cultural dilemmas and requires a culture-dependent approach. At one level, this involves some appreciation of history and particularly of cultural interactions over time. At another level, a culture-dependent approach to building conservation, on the waterfront involves some measure of integration between the perceived value of inherited structures and the practicalities of social change and economic development. Writing about Lamu in the 1970s, Andrew Ligale identified the essential dilemma as being "*how to ensure that the people ... can continue to have an interest in the conservation of their unique houses and culture while at the same time participating in socio-economic changes which may not always be in harmony with existing patterns*" (Ligale, 1978; cited in Group 5, 1993).

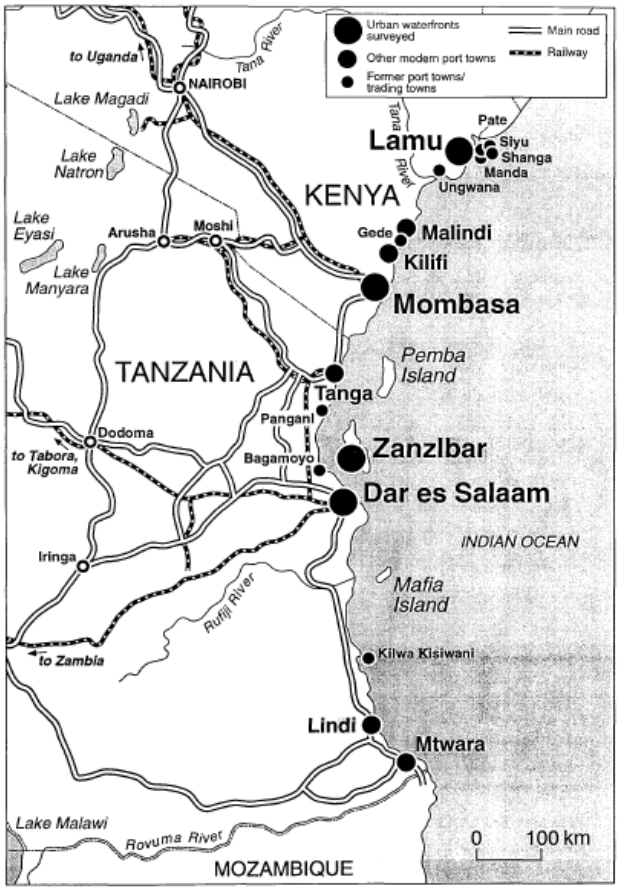


Fig. 2.13. The coastal zones of Kenya and Tanzania and their hinterlands.
Source: Hoyle B, 2000

In both Kenya and Tanzania, many historic buildings occupy very valuable sites. Development is often perceived as a way of generating large sums of money, and long-term cultural resource management strategies are not seen in this context as a priority. The conservation and redevelopment of old port cities and their waterfronts on the Kenya coast depend essentially on the National Museums Act (19) and the Antiquities and Monuments Act (1983) under which all sites and monuments founded or built before 1895 automatically receive protection.

2.12.1 Lamu

Positive orientation to water: For virtually its entire length within the Conservation Area (some 800 m) the waterfront buildings give onto a causeway of variable width and quality which is bounded and protected by a seawall.

Access and quality infrastructure: Two jetties extend from the waterfront to serve larger vessels (naval, passenger and commercial craft); smaller sailing vessels can land or take on board goods or passengers at many other points along the shore. The twice-daily arrival at the Town Quay of a passenger ferry from the mainland road terminus at Mokowe, or of passenger ferries from the airstrip on Manda Island give rise to a higher than normal level of waterfront activity.

Diversity of activity/Vitality: Elsewhere the loading of mangrove poles for export, or the activities of fishermen lend colour and character to the daily scene. The daily traffic flows along the waterfront, and between the waterfront and the main urban market around the Fort, have changed relatively little for many years. There are today more foreign visitors, attracted by the town's character and reputation. City ports associated with the ancient Greeks, provided a traditional functional gateway to the wider world of maritime trading systems and thus formed a critical and sensitive component of the urban fabric in functional and morphological terms.

The waterfront at Lamu is accessible, lively, and consistently interesting due to accessibility, orientation to the water and the variety of activities along it.

2.12.2 Mombasa

Orientation: Unlike Lamu (and, for that matter, Zanzibar and Dar es Salaam), the Old Town is mostly orientated inwards towards itself and towards the central business district of the modern town, and so to a large extent turns its back to the harbour and the sea. At Mombasa, however, where the essential focus of modern port activity began to move away from the Old Harbour to the new developments at Kilindini on the other side of the island in the 1890s, the growing town had effectively turned away from its medieval core and gateway by the beginning of the 20th century. Old Mombasa's maritime facade, the town's original front door to the world of the Indian Ocean and its trade networks, became during that century a back door through which the garbage is put out.

Topography: Part of the reason for inward orientation is that here, as is the case in most of the East African coast, raised coral reefs dating from the Pleistocene period are much in evidence. Much of Mombasa Island, including the area occupied by the Old Town, is composed of coral reef and coral breccias which provide a somewhat uneven plateau surface bordered along the Old

Town waterfront by steep, often almost vertical cliffs between 7 and 10 metres high (Caswell, 1953; Hoyle, 1983, 35-9).

Inaccessibility: There is no waterfront causeway, not even a footpath, along most of the maritime perimeter of the urban Conservation Area. Public access to the Old Harbour is available only at certain points such as Fort Jesus and the Leven Steps. Although certain functional access points such as the Old Port obviously provide clear exceptions to this general lack of water-orientated activity, many properties, public and private, appear to turn their backs to the water and also, regrettably, to use the sea cliff and the foreshore as a garbage dump. While this practice is in some respects understandable, as the municipal garbage collection and disposal service requires substantial improvement, it leads to much visual pollution and to insanitary conditions, and demonstrates that in the eyes of local inhabitants the Old Town urban waterfront is often perceived as a negative area of little interest. Some attempt has been made to re-landscape the small waterfront garden near the Mombasa Club, but maintenance is minimal. All these factors deny Mombasa its full potential as a waterfront.

The first substantial steps towards the conservation of Mombasa Old Town date from the 1980s. The table 2.4 below is a summary of milestones made towards its planning.

Year	**Highlights**
1981	• the National Museums of Kenya (NMK) sponsored a pilot study
1985	• a conservation planning study set up by NMK (with some help from the Mombasa Municipal Council) • Designed to provide a legal and technical framework for the preservation and development of the Old Town. • To promote a better understanding of the area's historical and architectural heritage • to generate employment through restoration and rehabilitation activity • funding by the UNDP and technical assistance provided by UNESCO.
1985-1989	• Detailed studies carried out including an inventory of buildings.
1991	• gazetting of a 31-hectare Conservation Area • roughly corresponding to the 16th century Portuguese walled town • inhabited by about 7000 people including about 700 buildings • the establishment of a Mombasa Old Town Conservation Office (MOTCO) • the preparation and publication of a detailed Conservation Plan • The implementation of the plan involves monitoring construction activity,

	advising on adaptive re-use of buildings and the improvement of public open spaces, and implementing public awareness programmes. • Specific objectives include the rehabilitation of sites of special interest including the waterfront zone.
1997	• delayed approval of recommended by-laws designed to control building developments by the Municipal Council • Municipal Council announced a 50% remission of rates on Old Town plots.for its part.
1994	• A European Union programme for the revival and development of Swahili culture on the Kenya coast started. • aiming to safeguard historical sites and monuments, and to define institutional frameworks. • to strengthen capacity to carry out conservation and to disseminate knowledge through training
1995	• Swahili Cultural Centre established close to Fort Jesus and in Lamu. • supported by the NMK, the ILO and the UNDP • Training is provided in traditional masonry, woodcarving, leatherworking, needlework and other crafts considered important in the context of the revival of Swahili culture. • Aimed to provide employment for young people, maintain knowledge of traditional skills, and enhance general awareness of and positive attitudes towards the Swahili cultural revival policy.
1996	• Establishment of a Conservation Trust Fund • Designed to provide grants to assist home-owners to rehabilitate or restore historic buildings within the gazetted conservation areas of Mombasa and Lamu Old Towns. • Provides 75% of the restoration costs of buildings, owners to provide 25% of the costs.

Table 2.4 Planning milestones on Mombasa Old Town
Source: Author

2.12.3 Dar es Salaam

The modern cityport of Dar es Salaam originated in the early 1860s as an Arab settlement, close to the site of a Swahili village named Mzizima, when Sultan Majid of Zanzibar decided to try to exploit the commercial potential of the mainland harbour. He built a substantial palace towards the western end of the waterfront zone, but this fell into decay after his death in 1870; the site was later used by the German authorities for railway and port developments

Orientation: At Lamu and Zanzibar the waterfront remains a principal thoroughfare and focus of commercial and social maritime-related urban activity. This is also still the case at Dar es Salaam, despite signs that alternative non-port urban areas are acquiring supremacy. The idea of an attractive waterfront facing onto the harbour was central to the original design and layout of the city, as conceived by its Arab founders and German planners, and as maintained during the British mandate, but does not seem to be part of the current urban culture. Throughout the greater part of the city's history, the harbour has formed the essential focal point, and port traffic the *raison d'etre* of the cityport's existence. As cityports grow, however, there is normally a gradual separation of port-related and urban functions, as the latter become more complex and as the former serve more extensive hinterlands. This process is now happening at Dar es Salaam; as the urban economy develops new focal points away from the shoreline, the city begins to turn away from the sea and to regard the harbour as a backwater rather than as the front door it has traditionally been.

Topography: Like those at Mombasa, the harbour at Dar es Salaam is based on a drowned river valleys or *rias*, and along the northern shore the urban area stands on a series of raised coral reefs derived from Pleistocene changes in sea level (Hoyle, 1983, 41-3; Temple, 1970).

Architectural Heritage: Casson remarks that "German architecture in Dar es Salaam, as elsewhere in Tanzania, seems to portray the heavy hand of German officialdom, modified in some cases by Islamic features and the use of simple materials such as corrugated iron for roofs. It was built to last in a solid manner befitting the administrative purposes of the new German Colonial Empire. Although these purposes were defeated by the 1914-18 war, the buildings, because of their solidity and coolness, coupled with the stringent economy practised during the period of the British Mandate, are still used largely for their original purposes. (Casson, 1970, 183).

Today, the architecture of the Dar es Salaam urban waterfront is diversified by a number of modern buildings as well as by the adaptation, revitalization or neglect of those inherited from earlier eras in the city's growth. Concern has been shown in Dar es Salaam by local authorities and external observers at the demolition of older buildings that are part of the city's architectural heritage, and at the extent of financial corruption inherent in the urban expansion and

development process now being experienced. The essential problem, as always, is how to fund the rehabilitation of older buildings when financial support for new buildings may be less difficult to obtain. Dar es Salaam is in danger of losing its unique identity for the sake of modernity, and is not yet doing enough to enhance the character of its urban heritage.

Infrastructure: The overall condition of the urban waterfront zone between the harbour's edge and Kivukoni Front is variable but generally poor. The Dar es Salaam urban waterfront road was known later in the German period as Wilhelms Ufer and in the British period as Azania Front (Gillman, 1945). After political independence in 1961 it came to be known as Kivukoni Front. Focal points in terms of urban mobility and traffic generation are the Kigamboni Ferry and the Fish Market near the harbour entrance; and, closer to the city centre, the bus station. Both these sub-zones create substantial visual and noise pollution and create or exacerbate traffic circulation problems along the waterfront zone. Between these two points, the junction of Azikiwe Street and Kivukoni Front, marked by the New Africa Hotel the War Memorial Gardens and the Lutheran Church is the key intersection point in terms of traffic and transport in this part of the city.

Physical Environment: The beach around the northern side of Dar es Salaam harbour is littered with rubbish and with several abandoned, rusting ships which clearly constitute not only an eyesore but also a risk to health and security. The steep slope between the beach and the urban area (between 5 and 10 m wide) is occupied by rough grass, a few trees and a considerable amount of garbage. Above this slope, numerous good trees along the urban waterfront provide shade for informal street sellers, but the absence of a proper paved walkway with modem street furniture means that a harbourside walk is unattractive and potentially hazardous. As at Zanzibar and Mombasa, there are occasional relics of stairways (as at the junction of Luthuli Street and Kivukoni Front) that once led from the waterfront buildings to the beach. There are no paved sidewalks along much of the waterfront, on either side of the road, and those that exist are often in very poor condition.

Restoration: The attitude of the Tanzania Harbours Authority towards the rehabilitation of the waterfront zone on the north side of the harbour at Dar es Salaam is constructive, and the Authority is particularly concerned about the removal of abandoned, obsolete rusting vessels that

now litter the foreshore and provide not only environmental pollution but also physical dangers. The view of the Authority is that the essential problem is a legal one, in that when ship owners (sometimes uninsured) fail to pay port charges or repair bills, their crews are repatriated and the vessels impounded. Legal action against the owners usually proves unproductive; although a scrap market exists for such vessels, legal problems as well as logistics delay solutions and it is not always clear which Ministry accepts responsibility for the problem. Additional dredging and straightening of the entrance channel is already in hand, and the fish market is scheduled to be moved to a different location.

Interventions: In this context, ideas on the cohesive redevelopment of the waterfront zone are generally welcomed. In detail, there is widespread agreement that the waterfront needs a thorough clean up, with the removal of garbage, wrecks, unsightly kiosks and unwanted vegetation, the relocation of the fish market and the bus station, and the re-creation of an attractive, paved and shaded urban walkway linking the city and the harbour, sheltered by a new seawall.

Issues such as road improvements, the privatization of urban cleansing operations, the rationalization of urban transport (with a new bus station on the edge of the city centre rather than on the waterfront), and urban traffic management are all under consideration by the city's planning authorities.

Governance: Dar es Salaam is one of several cities in developing countries chosen by the United Nations Development Programme in 1992 for attention within its Sustainable Cities Initiative, and by 1997 the Sustainable Dar es Salaam (SDSM) project had become involved and integrated within the overall planning of the city, albeit as a quasi-independent element. In the words of an anonymous spokesperson for the project, "this means enhanced cooperation and involvement, with everyone singing from the same hymn sheet". (Haughton and Hunter, 1994)

The SDSM Project was essentially conceived as a think tank to identify and promote urban sustainability in a context of rapidly rising population totals, widespread unemployment and underemployment, and infrastructural weakness. At Dar es Salaam there are, not surprisingly, internal disagreements between government departments and authorities – for example between Urban Development, Antiquities, and the Port Authority - all of which have different

perspectives and priorities. A critical area of debate is the drive for modernization rather than the conservation of the urban cultural heritage. In an ideal world, the goal should be the appropriate revitalization of specific zones and localities within a wider context of planned overall urban renewal and growth.

An encouraging sign is a growing awareness that Dar es Salaam needs to preserve the idea of a city that looks to its harbour (which is, after all, the basic reason for its existence on this site) and treasures the relationship between city and port rather than as at present beginning to turn its back on the water's edge, using the foreshore as a garbage disposal site, a public lavatory, a low-order retail sales strip for food and basic consumer goods, and a haunt of thieves and drug-pushers. A city that desecrates the essential reason for its growth and development over more than a century needs practical help in resolving the planning and financial issues involved but also needs a programme of public education designed to change the cultural attitudes within which such desecration is accepted. (*Brian Hoyle, 2000*)

2.12.4 Zanzibar – The Stone Town

Because the new port facilities, opened in 1929, radically altered the shape of the northern section of the waterfront, several old Omani houses along the original shoreline in the Malindi quarter were demolished after losing their waterfront location and finding themselves obscured from view behind the enlarged and relocated facilities. In the late 1990s, however, the most spectacular of these houses was renovated. Today at the northern end of the urban waterfront zone, on the margin of the Malindi and Forodhani quarters, there stands the Stone Town Cultural Centre, formerly known as the Old or Ithna'sheri Dispensary.

History

The history of the Stone Town (Unguja) goes beyond 19th Century when the island was the most vital trading center in the Indian Ocean. Former capital of the Zanzibar Sultanate, and flourishing centre of the spice as well as the slave trade in the 19th century, it retained its importance as the main city of Zanzibar during the period of the British protectorate. (www.advenafrica.com)

Its architecture, mostly dating back to the 19th century, reflects the diverse influences underlying the Swahili culture, with a unique mixture of Moorish, Arab, Persian, Indian and European elements. For this reason, the town was designated as a UNESCO World Heritage Site in 2000.

Due to its heritage, Stone Town is also a major visitor attraction in Tanzania, and a large part of its economy depends on tourism-related activities.The first stone houses in Stone Town were probably built in the 1830s, gradually replacing an earlier fishing village.

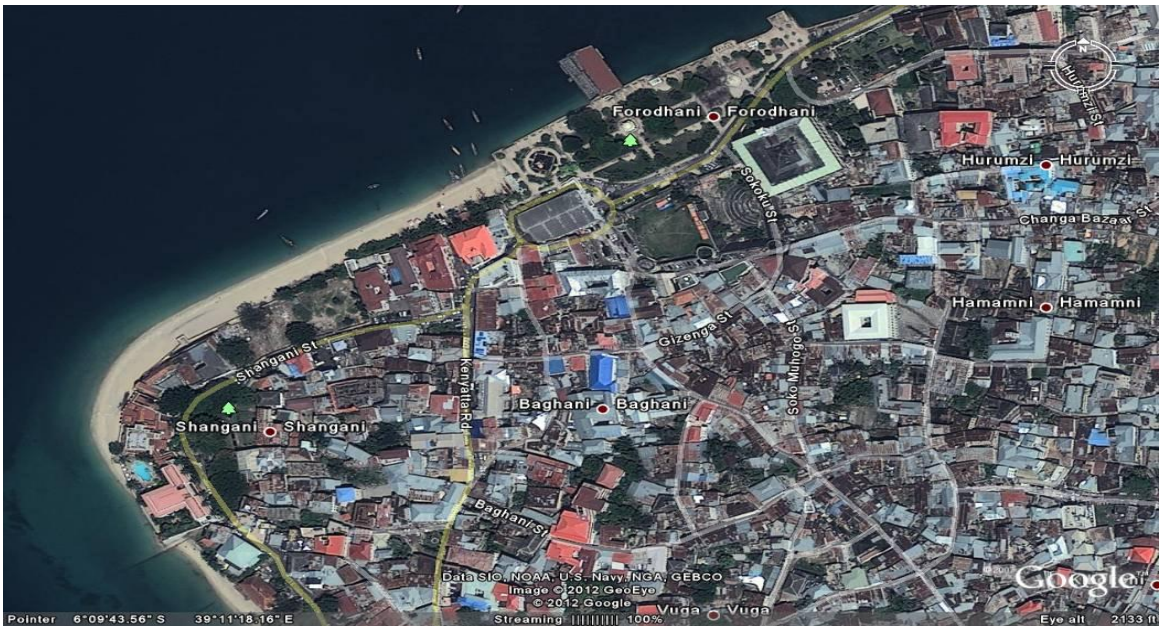


Fig: 2.14 (a) Aerial view of Stone town layout

b) Panoramic view of the stonetown.

e) Left: The Old Dispensary in 1900, then known as the "Khoja Haji Nasser Nur Mahomed Charitable Dispensary".
Source: http/www.utalii.com

At the time, the Zanzibar Archipelago was controlled by the Sultanate of Oman. In 1840, Sultan Said bin Sultan moved his seat from Muscat, Oman, to Stone Town, which thus entered an era of quick development as the new capital of the Sultanate of Oman and Zanzibar. (Hoyle B., 2000)

Geography

Stone Town is located roughly in the middle of the west coast of Unguja, on a small promontory protruding into the Zanzibar Channel. The closest major settlement on the Tanzanian coast, opposite to Stone Town, is Bagamoyo (to the south-west).

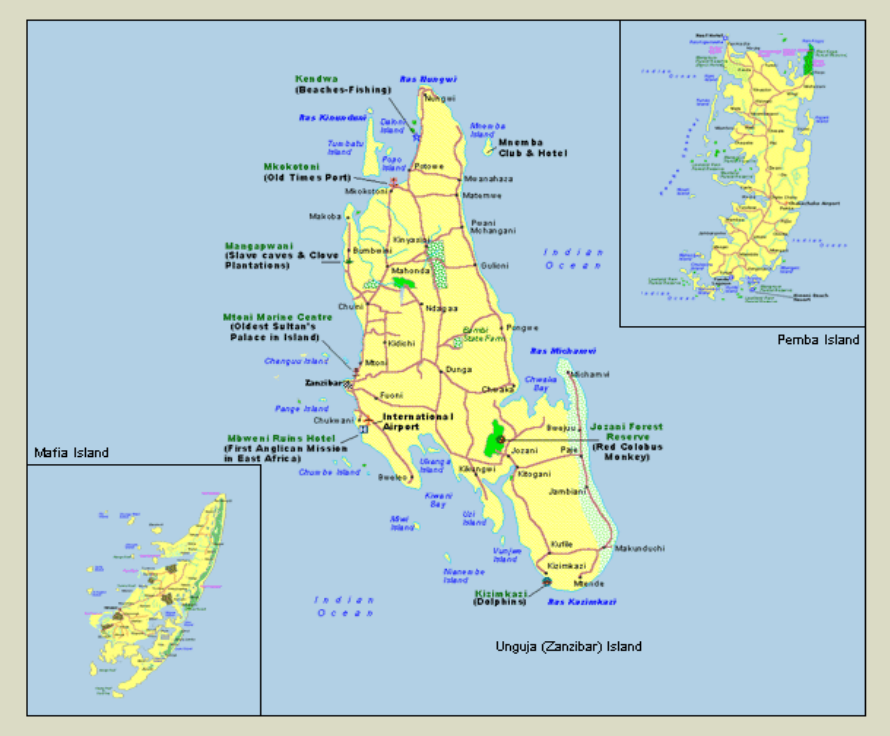


Fig.2.15 Map of Zanzibar Island
Source: ***http://wikimapia.com***

Stone Town also known as Mji Mkongwe (swahili for "old town") is the old part of Zanzibar City. Stone Town also comprises the "New City" of Ng'ambo ("the Other Side"), which mostly extends in the interior of Unguja to the south-east. The ideal dividing line between Stone Town and Ng'ambo is Creek Road. (Hoyle B., 2000)

Development planning milestones:

While the Tanzanian government has until very recently appeared to take relatively little interest in the conservation of historic buildings in Dar es Salaam, there has been considerable interest in urban redevelopment in Zanzibar where the establishment of the Stone Town Conservation and Development Authority in 1993 was a notable landmark.

Below is a table of planning milestones on the Stone Town.

Year	**Highlights**
1923	• Drawn by Henry Vaughan Lanchester • Triggered by corrective improvements to the fabric of Zanzibar town. • Proposed grand waterfront projects including a central hotel, a post and telegraph office, and shipping offices. • Witnessed enormous infrastructural improvements • *laissez-faire* and piecemeal building development and improvement • Was never realized.
1958	• Was especially concerned with road transport problems in and around the Stone Town including a seafront promenade and road around the tip of Shangani Point
1964	• Drawn by East Germany. • Triggered by decline and deterioration of Stone Town due to physical and socio-economic changes introduced by revolution and rapid transformation of Ng'ambo as population growth. • Recognized the need to maintain Stone Town buildings.
1979	• six historic structures gazetted;
1980-82	• Chinese Masterplan drawn up and still forms the legal basis for urban planning in Zanzibar. • proposed that government functions be removed from the historic area and vacated buildings converted for tourist use.in
1982	• A detailed study made in 1982 by the United Nations Centre for Human Settlements (UNCHS/Habitat);
1985	• Stone Town Conservation and Development Authority (STCDA) created as an outcome of 1982 study.
1988	• Stone Town was gazetted as a conservation area by the Ministry of Water, Construction, Energy, Lands and Environment.
1992	• A further detailed field survey of the Stone Town was conducted by the Historic Cities Support Programme of the Aga Khan Trust for Culture • Formed the basis for a conservation plan
1994	• Approval of 1992 conservation plan. • The plan identifies a 'seafront action area' - between the Zanzibar Cultural Centre and the Orphanage - as the most visible and significant public open space in the town, which during the 20th century acquired more and more social and recreational significance.

Table 2.5 Planning milestones on Stone Town
Source: Author

In 1994 the Zanzibar Government approved the Stone Town Conservation Plan which provides an overall planning framework and identifies action areas for detailed attention. Again, one of these is the waterfront, with its outstanding buildings and generous open space where deterioration should be stopped and space reorganized for the benefit of everyone.

In the 19th century Stone Town also flourished as a trading centre. It was especially renowned for the commerce of spices (mostly cloves) and slaves. When Tanganyika and Zanzibar combined to form Tanzania, Stone Town kept its role as a capital and government seat for Zanzibar, which was declared to be a semi-autonomous part of the new nation. The waterfront was a major element in early planning schemes introduced under the British administration.

Fig.2.16 The House of Wonders
Source: www.akdn.org /AKTC

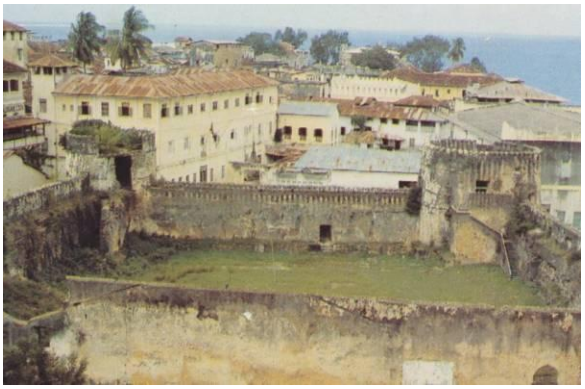


Fig. 2.17. The Old Fort
Source: www.akdn.org /AKTC

Fig 2.18 Ruins in Tumbatu Island
Source: http/www.utalii.com

These outcomes reflect a close focus of planning attention on the Stone Town and within that on the special character and potential of the waterfront. *Architectural Heritage:* Above all this is the only remain of early Swahili coastal trading towns of East Africa, which maintains its urban fabric and townscape.

The evidence can be seen from historical buildings in the heart of town; among them *House of Wonders* (Bait-el-Ajab), *The Palace Museum, Dr. Livingstone's House, Arab Fort, Maruhubi Ruins, Anglican Cathedral , slave trade market and Malindi Minaret Mosque* and *narrow alleys*.

Zanzibar Museum, which was built in 1925 preserves the relics and documents of Sultan, slave traders and European Explorers. There are displays of historical pictures, local arts and crafts.

Conservation:

Of the four "action areas" presented in the Stone Town Conservation Plan, the sea front is perhaps the most representative quarter. It is here that a sequence of formal and informal open spaces emerged and still constitutes, today, the open-air "living room" and the most prominent focus of the growing city.

Adaptive re-use as a concept in waterfront conservation:

Mbweni Ruins is the remnant of St Mary's Girls School. The School was used to educate orphans whose parents died in slave trade or girls whose parents were freed from slave trade. Within the compound there is a hotel (Mbweni Ruins Hotel), a beach, and botanic gardens. The place is also suitable for bird watching, diving and snorkeling. It is worth observing that while the functions have changed to more economically viable ones, the broader purposes still remain a place of learning with accommodation. An application of the concept of adaptive re-use.

Anglican Church of Christ Cathedral was built in 1887 to commemorate the end of Slave Trade in East Africa. The site chosen for the cathedral was formally the location of the main slave market.

Fig 2.19 Anglican Cathedral in Zanzibar
Source: www.akdn.org /AKTC

Cathedral's altar stands at the site of a tree where slaves used to be tied and beaten. The adjoining St Monica's Hostel has a notorious pit in the cellar, where slaves were kept before being auctioned. (www.utalii.com)

This is another case of application of the principal of adaptive reuse. The church is a symbol of redemption from slave trade.

Restoration as a concept in waterfront conservation:

In the 1990s there was substantial renewed interest in the conservation of the Stone Town on the part of government and international aid organizations, and this led to the renovation and adaptive re-use of several waterfont buildings. The sea front became the focus of the Trust's endeavours, which include not only the restoration of the Old Dispensary, but also assistance to convert an important but abandoned structure, telecommunications building. Identifying appropriate new uses for old buildings is a key issue in the revitalization of historic districts.

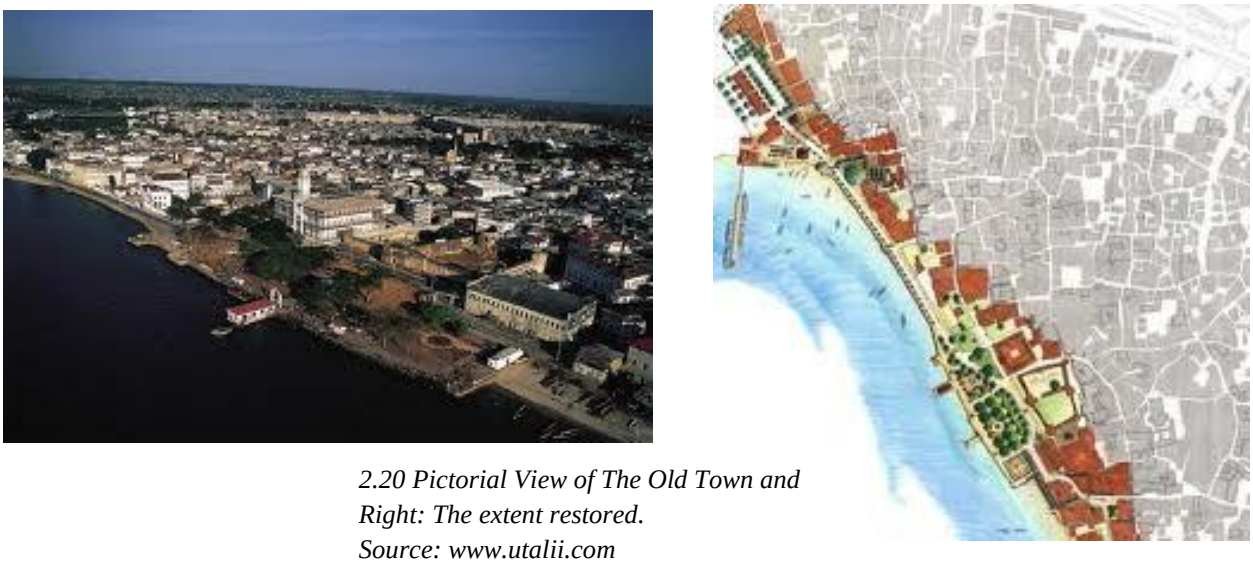
The former *telecommunications building* was erected on a highly visible and strategic site on the sea front in the 1930's. A grant was provided to Tourism Promotion Services, another institution of the Aga Khan Development Network, thus enabling the transformation of the building into a viable hotel facility, the Zanzibar Serena Inn, sensitive to its urban and cultural context. The conversion and adaptation of the telecommunications building ensured the survival of this abandoned structure which, if permitted to further fall into disrepair or if replaced by a less appropriate new building, would have threatened to become an eyesore in the old city.

In the late 1990s, the most spectacular of these houses was restored; The Stone Town Cultural Centre, formerly known as the Old or Ithna'sheri Dispensary.

The *Old Dispensary* in Zanzibar is the second major historic building after Baltit Fort in Northern Pakistan restored by the Aga Khan Trust for Culture since its establishment of the Historic Cities Support Programme in 1992. The Zanzibar restoration project was complemented by a wider urban planning and conservation effort, with a view to guiding and controlling future development in the sensitive area of the Stone Town. The structure of the Old Dispensary, though almost entirely brought back to its original state, had to allow for new uses which ensured its social and economic viability. It now plays host to various important cultural events and

houses a restaurant and exclusive shops and offices; and one of Zanzibar's finest architectural landmarks.

Open spaces: Between the two buildings, which lie at each end of the main sea front, is a series of important public open spaces, including the Banyan Tree Square, the waterfront promenades, Forodhani Park, and Kelele Square. Considering their value for the local community, their attraction for visitors to the island, and their interaction with the landmark buildings facing the sea, the Trust has attached specific importance to the design and enhancement of these open spaces within the master planning concept. For one of them, Kelele Square, the Trust has developed and implemented a detailed beautification project, as this open green space was intimately linked to the conversion of the former telecommunications building into a hotel and might have suffered from this change, if not handled in a sensitive manner.



2.20 Pictorial View of The Old Town and
Right: The extent restored.
Source: www.utalii.com

All of the existing trees were preserved, and landscaping details were developed which could be replicated in other places in Zanzibar. For the other public open spaces, such as Forodhani Park, design concepts have been proposed and await funding from donors interested in the rehabilitation of the Stone Town.

Governance: Considerable progress was made, but in legal and inter-institutional terms many difficulties remained. "Confusion, duplication and a lack of coordination between different branches of the administration has often hampered efforts in the historic area" (Siravo, 1996).

The Trust's Conservation Plan has tried to achieve a common framework for defining, coordinating, and monitoring future development, while its restoration and public space improvement projects, now completed, have set examples for future implementation.

Fig 2.21 Extent of Forodhani Park and b) Pictorial view Forodhani Park. Part of the restoration project
Source: www.akdn.org/AKTC

Fig. 2.22 (c)More views of Forodhani Park after restoration with quality public open spaces that are well maintained attracting 24-hour activities.
Source: www.akdn.org/AKTC

Summary of Lessons from Case Studies

From the case studies, the urban waterfront has experienced three phases in its evolution. The establishment phase, which was characterized by the extensive use of water for establishment of settlements and as a means of integration between communities and their neighbours. The second phase was the decline of the waterfront when the urban functions turned away from their waterfronts and activities became intensive on the landside, facing away from the water. This was strongly influenced by the technological advancement in the transport industry from water-based to land based, i.e. road transport. This led to abandonment of the waterfront and its deterioration. The third phase is the waterfront revitalization which is associated with the current trends of redevelopment of the urban waterfronts. The major driving force behind the redevelopment is to take the citizens back to the waterfronts while achieving social, economic and ecological balance. These have been the parameters of judgment on the level of success of any waterfront development.

While the developed world has led the way in the waterfront revival in their urban centres and cities dating back to the 19th century, the less developed countries have only recently, in the mid to late 20th century started paying attention to their waterfronts. In the western countries, waterfront developments were thematic in nature. Some were developed as extension to the commercial districts, others as tourist destinations, while some focused on ecological conservation. In recent times, the concept of sustainability has been adopted to ensure a balance between social, economic and ecological considerations.

In the East African cases the urban waterfront, remains at the phase two, i.e., the decline phase. Limited attention has been paid to reorient the cities to their waterfronts and to reap the full benefits associated with the synergy between the water and the urban functions. Lamu and Zanzibar are the East African Coastal towns whose waterfronts have been developed to benefit from their waters. Although the inaccessibility of the Mombasa Old town waterfront is explained by the high coral reefs of 7 to 10 meters, the dumping of waste is not justifiable. It is ecologically unsustainable. The same undesirable state prevails in Dar es Salaam and Kisumu where the cities' waterfronts have no challenges of access associated with natural geographical landforms as is the case with the Mombasa Old Town, yet remains abandoned in disuse and for garbage

dumping. The neglected state of Kisumu's waterfront is much more related to the access to the land which is largely owned by KRC and not the topography. Kisumu is advantaged by its gentle topography to enhance access to the waterfront. There is need to progress to the stage of revitalization of the waterfronts and especially in the African cities with waterfronts.

Of the case studies undertaken, the Stone Town in Zanzibar provides the most relevant lessons to the Kisumu situation with specific reference to similarities in the following as existing conditions and interventions. The historic building, The Old Dispensary, was restored by the Aga Khan Trust for Culture. The same organization operates in the Kenya and therefore similar framework can be adopted for restoration project within Kisumu waterfront.

The Zanzibar restoration project was complemented by a wider urban planning and conservation effort, with a view to guiding and controlling future development in the sensitive area of the Stone Town. This principle is applicable in the case of Kisumu for its sustainable development. A restoration project for Kisumu waterfront should be structured in a way that it is not in isolation but rather be complemented by the wider urban planning and conservation effort, with a view to guiding and controlling future development in the sensitive area of the waterfront.

A cosmopolitan city which developed and flourished in the context of Arab and European marine trade, Zanzibar has now become an attractive tourist destination, and the Stone Town is subject to increasing pressure as a result of modern development. Similarly, Kisumu emerged as a transport and trading hub for the East African region and is also subject to increasing pressure from modern development at the expense of conservation of the old buildings. Kisumu also lies at the centre of the western tourist circuit. With restoration, Kisumu has the potential to become an attractive tourist destination. This will provide the much needed employment opportunities and a boost to the local economy.

The larger restoration plan was designated into four action areas just as Kisumu ISUD – Plan has identified SPAs. Of the four "action areas" presented in the Stone Town Conservation Plan, the sea front is perhaps the most representative quarter. It was the point of convergence for exchanging merchandise and thus contributing to the cosmopolitan character of Zanzibar. It is here that a sequence of formal and informal open spaces emerged and still constitutes, today, the open-air "living room" and the most prominent focus of the growing city. These characteristics

are accurately evident in Kisumu's SPA 1 and SPA2 which constitute its waterfront. The difference, and which needs to be addressed in Kisumu is the lack of public open spaces along the waterfront.

The sea front became the focus of the Trust's endeavours, which included assistance to convert an important but abandoned structure located at the south-eastern edge of the Stone Town, the former telecommunications building erected on a highly visible and strategic site on the sea front in the 1930's into a viable hotel facility, the Zanzibar Serena Inn, sensitive to its urban and cultural context. This approach is considerable for intervening in the railway abandoned port facilities in Kisumu.

Identifying appropriate new uses for old buildings is a key issue in the revitalization of historic districts, and the structure of the Old Dispensary, though almost entirely brought back to its original state, had to allow for new uses which will ensure its social and economic viability. The existence of industrial activities on Obote Road needs to be reevaluated with respect to this principle.

On the main sea front, is a series of important public open spaces, including the Banyan Tree Square, the waterfront promenades, Forodhani Park, and Kelele Square. Considering their value for the local community, their attraction for visitors to the island, and their interaction with the landmark buildings facing the sea, the Trust has attached specific importance to the design and enhancement of these open spaces within the master planning concept. A series of continuous public open spaces should be created on the Kisumu waterfront to ensure access and enhance its interaction with landmark buildings.

The restoration achieved the two main objectives of waterfront development of improved access and continuous vitality of the waterfront, making it a 24-hour zone of activity which Kisumu badly needs. It also includes an example of conservation and restoration of the old dispensary building. An example that could be borrowed for Kisumu.

The Trust's Conservation Plan has tried to achieve a common framework for defining, coordinating, and monitoring future development, while its restoration and public space improvement projects have set examples for future implementation. Stone Town Conservation and Development Authority (STCDA) was created as a semi-autonomous entity with the

mandate of managing the conservation of the area as a way of addressing inter-agency coordination of development on the waterfront. In recognition of its waterfront as an area with special needs, Kisumu needs a similar entity to manage the development of the waterfront with the responsibility of guiding, coordinating and managing all development activities on the waterfront.

3 CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the methodology used in this research, including the process of research design, methods of data collection and data analysis and the sources of the secondary data are then specified. It is structured in five parts.

1. The scope of the study – both geographical and theoretical scopes.
2. Methodology – briefly describes the research problem and explains choice of methodology based on the reviews of the previous methodologies employed in similar studies
3. Techniques employed & their suitability for the research.
4. Research procedures and the data collection process
5. Conclusion.

3.2 Selection of the Study Area

Kisumu was selected as the place to carry out the case study for a number of reasons. The first reason is the importance of Kisumu in terms of its physical and strategic location.

It is the third largest urban centre in Kenya, the principal urban centre of western Kenya, the immediate former capital of Nyanza Province and the headquarters of Kisumu County.

Kisumu has developed progressively from a railway terminus and internal port in 1901, to become the leading commercial/trading, industrial, communication and administrative centre in the Western Region of Kenya, an area that traverses three former provinces of Nyanza, Western and western Rift Valley. In addition, Kisumu is the second most important city after Kampala in the greater Lake Victoria basin, serving as the communication and trading confluence for the Great Lakes region - Tanzania, Uganda, Rwanda and Burundi.

Like other cities of the world, Kisumu too is experiencing the pressures of urbanization with most of the development defying the existing planning regulations. It has a high rate of urbanization of 52.4% compared to national average of 32.3%. (*Kenya: County Fact sheets, C.R.A, 2012)*

In this regard, the town planner, Mr. Absalom Ayany reports (Daily Nation; January 15, 2009) that the council is also reviewing the zones to take cognizance of realistic planning standards that will ***enhance development control*** and provide a smooth functional city. According to the town planner, the council will also conduct tourism planning and environmental protection for Lake Victoria which will include a 150-metre stretch from the lake being reserved for the development of five-star hotels and resorts. (ibid).

The most important reason for the choice of the study area is its relationship with Lake Victoria, a major water body shared among three neighbouring East African countries of Kenya, Uganda and Tanzania. As part of urbanization, Kisumu city continues to experience the transformation that other cities with urban waterfronts have experienced. In Kisumu, the transformation of the waterfront has continued very slowly but still, without commensurate response, from the planning point of view.

In some urban waterfronts, the transformation is guided and land uses deliberately planned to integrate and enhance the urban-water relationship. There seems to lack any evidence that the transformation of Kisumu waterfront is taking place within a guided framework that deliberately aims at integrating and strengthening the relationship between the urban space and its waterfront, a relationship that is evidently lacking. Cities with waterfronts have leveraged on this opportunity to improve their image and financial positions. The land use planning issues of Kisumu urban waterfront is the subject of investigation in this research.

3.3 Stakeholder Analysis

Various stakeholders were identified as interested parties in the Kisumu waterfront development. The table below is a summary of the stakeholders and their roles in the waterfront development.

Stakeholder	Primary Role	Role in the waterfront	Challenges	Potential
National Government	Provide and coordinate national government functions.	Formulation of national policies on water resource development and management. Approval of developments affecting waterfront as an ecological zone.	Diversity of water resources and the strong cultural mindset of communal and private ownership of water resources as opposed to national ownership.	Effective implementation of water resource development and management through the various agencies such as NEMA.
County Government	The main functions of the Kisumu City County are to provide and manage basic services to residents in Nairobi. These services include basic education, housing, health, water and sewerage services, refuse and garbage collection, urban planning and development control among other services	Urban planning and development control on the waterfront as well as other parts of the county. Approval of proposed developments.	Lack of waterfront development planning guidelines.	Development of by-laws specific to waterfront development in Kisumu to guarantee a sustainable urban waterfront.
Lake Basin Development Authority	To ensure equitable and balanced socio-economic development through the promotion of sustainable economic utilization of natural resources and the promotion of resource	To integrate and coordinate development agencies to undertake activities that impact on development of the waterfront.	Inadequate allocation of financial resources. Conflict of roles with other agencies like NEMA.	Coordination of multi-agency interests on the waterfront. LBDA has a big potential in attracting investments to achieve sustainability and complement the government's

	based investments in the area of jurisdiction.			efforts in wealth and employment creation.
Kisumu Water and Sewerage Company (KIWASCO)	KIWASCO is the Water Service Provider in charge of water services in Kisumu area.	Installation of water and sanitation infrastructure.	Financial and institutional capacity. Provision of associated services by related agencies such as large scale installations by The Lake Victoria Services Board.	To supply water and sewerage disposal services coverage.
Kenya Railways Corporation	Provision of railway transport services.	Control of most of the waterfront land and the developments thereon.	Decline in railway transport which has seen the decline on financial capacity to undertake development projects.	Development of waterfront land. Improving the railway transport services to revive the critical role it played in Kisumu.
Private Sector	Keeping the government under checks and balances and holding it accountable.	Advancing the right to water and sanitation and infrastructure development.	Limited cooperation from government agencies.	Investment in infrastructural development.
International Community	Offer financial and technical support to the projects to be implemented.	Offer financial and technical support to the projects to be implemented.	Compliance with strict conditionalities by the donor nation.	Heavy capital investments in technical and infrastructural development.

Table 3.1: Major Stakeholders on Kisumu's waterfront.

Source: Author

3.4 Research Methodology

The research consists of four stages, namely (1) literature review, (2) research design, (3) fieldwork and data collection, and (4) data analysis.

The review of literature was largely done at the University of Nairobi libraries and the internet.

A research proposal was completed as the course requirement in which a large part of research design is complete with objectives, methodology and anticipated results briefly stated. The further specification of study sites and interview design (including key informant selection and design of interview questions) is completed after preliminary field work and consultation with local residents.

Fieldwork and data collection are carried out in Kisumu including interviews, on-site observations, secondary data searching and collection.

The final stage begins after the completion of fieldwork. The analytical framework is developed, which is applied to Kisumu. Results and conclusions are then presented on these bases.

3.5 Justification of Methods Used

In selecting the method to evaluate the land use issues in Kisumu, an evaluation of physical and functional integration between the water and the urban land-based activities was found to be the appropriate entry point. In this regard, two main approaches have been adopted by previous research in physical evaluation. Many of the contextual studies focused on visual compatibility or continuity with the surrounding development (Childs, 2009; Groat, 1994; Stamps, 1994; Cullen, 2004;Edwards, 1946). Another is using the qualitative method, such as Lynch et al. (1976), Groat (1994), and Trancik (1986). Lynch evaluated the degree of integration in land use between the waterfront and the water along the Parramatta River using a scale comprising three levels of integration (high, medium and low). He categorized the land use into working, commercial, living, recreational and special areas. Each category has its own indicator to describe the level of integration for easy identification on site. The evaluation was based on personal judgment referring to the scale of measurement as indicators, which describe, in general, the criteria of each level. Studies to measure the functional aspects of the contextual integration that employed the qualitative method were done using the direct observation technique. Based on Lynch and Hack (1984), to make direct observation more efficient, it is

better if we determine the particular behaviour or activity of interest. This is to avoid having unreliable data that encompass many activities but provide little information related to the spatial setting or intended purpose of research. Through selective observation at regular intervals, we can determine the pattern of use. The significance of the activity can also be understood through their regularized activity.

A study by Porta and Renne (2005) measured several dimensions that are related to the sustainability aspect of a city. The link to sustainability was done qualitatively based on personal judgment. Comparing two cities, they quantified each of the physical dimensions measured, and through the analysis, they identified the detractors (negative factors that did not contribute to the sustainability).

They employed photo documentation and field observations and measurements of the dimensions in AutoCAD. The results of the level of 'performance' of each dimension were then plotted on maps and tabulated in table form and charts for comparison between the two cities. This study provided a more comprehensive measurement of each of the dimensions involved compared to Lynch et al. (1976).

The other type of approach for physical and functional evaluation is through the user's perception, which uses quantitative methods, as adopted by Stamps (1993), in validating techniques in photo protocols on visual compatibility for public design review. Others evaluated the dimensions through a public survey or questionnaire to evaluate the image of the city (Nasar, 1998) and users' perceptions concerning the nature, to name a few (Kaplan and Kaplan, 1989). This shows that there are two ways of conducting this research – qualitative and quantitative.

3.5.1 Qualitative and Quantitative techniques

By and large, this research adopts case studies as a qualitative approach. This is informed by literature review of methods used in similar studies. It is determined by the nature of the subject. The subject is an international phenomenon and there are not many local situations of major urban areas at the level of Kisumu fronting major water bodies at the level of Lake Victoria. Further, there is limited awareness and information on the subject. According to Yin (2003), when references concerning the subject matter are limited it is particularly useful to use qualitative inquiry.

The significance of qualitative research, in general, is to explore new phenomena and to understand complexities that focus on the provision of in-depth information. While qualitative methods have the strengths of being flexible, innovative, exciting and rich in information, it has been criticized that their findings cannot be extended to wider populations with the same degree of certainty that quantitative analyses can. So some techniques of quantitative approach such as guiding hypothesis are used to compromise the draw backs of qualitative research. Strauss and Corbin (1998, p.17) stated that in the qualitative method, the research findings produced are not through the statistical or quantification means. Although some data may be quantified, the analysis is still qualitatively done. He further added that the qualitative method is used when the purpose of study is to '*uncover and understand what lies behind a phenomenon about which little is yet known*'. Because of these reasons, the qualitative method of analysis is found to be appropriate for this research.

The emphasis of the case study approach, in particular, in this research is to examine guidelines from successful waterfront developments. Muir (2008) stated that in order to understand the urban environment, case study is very effective for six reasons – 'spatial focus, the importance of context, flexibility of research design, use of multiple research methods, the experience of multiple perspectives on the case; and the depth and richness of data that can be obtained. It however has two disadvantages, which are 'generalisability and the validity of the case'.

However, Yin explained that the challenge of generalisability is addressed by comparisons between case studies through the general principles and points, for example, by 'theoretical framework or perspective'.

The other disadvantage is that of validity of case studies, which have to be ensured by a rigorous approach to testing the research design and method. Yin (2003) highlighted four main criteria to address the validity and reliability of case study. She stressed the importance of 'construct validity' in which the methods chosen should be appropriate; where there are multiple sources of evidence and the 'chain of evidence established'; 'Internal validity', which is the establishing of the causal relationship, whether or not the dependent variables are changed due to changes in the independent variables; 'external validity' where the result is subjected to 'analytical

generalization'; and, finally, the 'reliability', which is the repeatability of the study in producing results that are the same.

Further according to Yin (2003, p.1), '*…case studies are preferred when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon with some real life context'*.

This study depends largely on desktop case studies due to financial and time constraints which could not allow for physical visits to the cases referred to herein.

The use of multiple methods within a single study offers wide perspectives and more extensive results through the combination of a variety of data sources (Tashakkori & Teddlie, 2003, p. 16).

A mixed methods research strategy that comprises a qualitative approach, followed by a quantitative approach, is to be employed in this study. The qualitative phase in this study includes case studies, followed by survey questionnaires in the second phase (quantitative approach).

3.6 Data Needs and Sources

Both primary and secondary data were needed for the research. Primary data was collected from the field in terms of both interviews and actual physical observations. Secondary data was extracted from physical development plans, published papers and journals, policy and strategy papers, Acts of parliament and other documents. Worthy of specific mention are the ISUD plan, Kisumu CDS, and the Kisumu CIDP. Several internet publications on waterfront development were also reviewed.

3.7 Target Population:

The key target population was made up of users of the lakefront and the neighbouring residential and business community. Several government officials were identified as key informants. These included officers from Kisumu County Planning Office, Lake Victoria Environmental Program (LVEMP), Lake Basin Development Authority (LBDA), National Environmental Management Authority (NEMA), Kisumu Water and Sewerage Company (KIWASCO), Kenya Railways Corporation (KRC).

3.8 Sample Frame:

The Lake Victoria shoreline is classified into rural, peri-urban and urban waterfronts. The lake makes up about of one third of the city territory with a coast line within Kisumu's boundary of 47.33 kilometres. The CIDP identifies strategic areas selected for their high intrinsic value and the unique influence they can have on Kisumu's development.

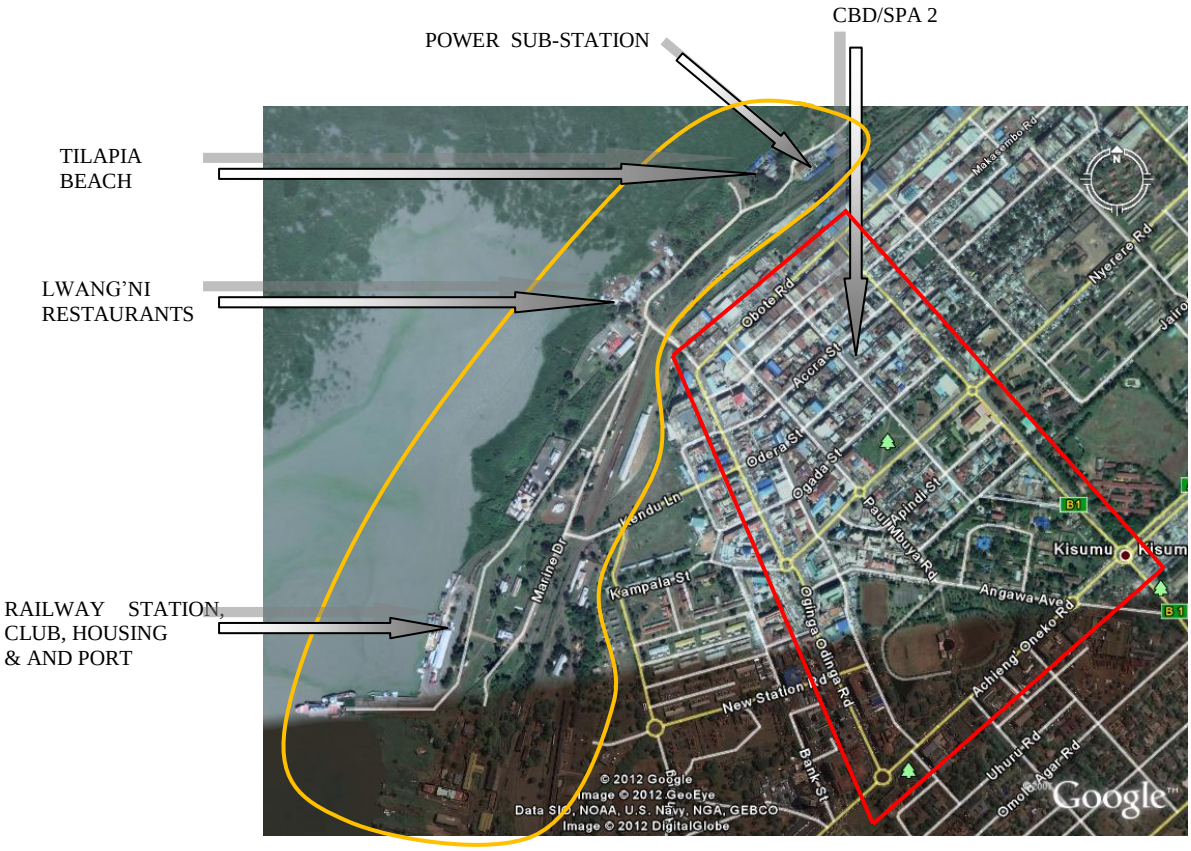


Fig 3.1: Sampling units.
Source:Adopted from Googleearth.com

Zoned as Special Planning Areas, these four areas include the CBD for its heritage value, the KRC lakeside holding for its strategic location and multiple development potential, the slum belt (Nyalenda,Manyatta A and B) for its strategic location and great intervention requirements, the lake shore for the decisive role it is called to play in the city development.

The whole Waterfront classified as "Urban" in the ISUD plan formed the sampling frame. This study covers the area falling under urban waterfront and designated as Special Planning Areas

(SPA 1 and SPA 2) in the CIDP. This is the area under the greatest pressure from urban activities.

SPA1 consists of the land immediately fronting and directly in contact with water. This area is largely under the ownership of the Kenya Railways Corporation except a few pockets. It was divided into three clusters. The first cluster was the Tilapia Beach Restaurant. This area is treated in its own cluster due to the scale of operation of this facility, the land size and the land ownership. The restaurant has a liquor licence and therefore sells alcohol apart from food. The establishment covers an area of about 2 acres owned by an individual.

The second cluster was the Lwang'ni Restaurants which are much smaller and occupy land owned by Kenya Railways Corporation. Each restaurant is approximatyely 6 mteres wide and 36 meters long. There are however a few of the restaurants that have differentiated themselves by not only building right into the lake but also constructing multi-level structures. The third cluster in **SPA 1** is the area occupied by the Port and the Kenya Railways station and housing.

SPA 2 is the Central Business District bounded by four main streets of Oginga Odinga, Obote Road, Otieno Oyoo Road and Achieng' Oneko Road.

Urban waterfront development is a factor of two main parameters, i.e. access and vitality, spatially expressed in terms of streets and plots. Principle number 6 of Intelligent Urbanism encourages ground level, pedestrian oriented urban patterns, based on anthropometric dimensions. Walkable, mixed use urban villages are encouraged over single function blocks, linked by motor ways, and surrounded by parking lots. An abiding axiom of urban planning, urban design and city planning has been the promotion of people friendly places, pedestrian walkways and public domains where people can meet freely. These can be parks, gardens, glass-covered gallerias, arcades, courtyards, street side cafes, river- and hill-side stroll ways, and a variety of semi-covered spaces. It promotes the scale of the pedestrian moving on the pathway, as opposed to the scale of the automobile on the expressway. Intelligent urbanism promotes the ground plan of imaginable precincts, as opposed to the imagery of façades and the monumentality of the section. It promotes the personal visibility of places moving on foot at eye level. On these bases, the units of analysis were identified as plots and streets and functions and activities on the ground floor.

To establish the target population therefore, the number of plots was physically counted against a base map acquired from the Google Earth website. This was the best way after it emerged that there was no data that was strictly representative of the boundaries of the study. The following is a table of number of plots

Zone	Cluster	No of Plots
SPA 1	Tilapia Beach	1
	Lwang'ni Restaurants	28[1]
	Port	1[2]
SPA 2	Oginga Odinga Street Obote Road Otieno Oyoo Street, Gor Mahia Street	443
	Public Purpose	8
TOTAL		481

Table 3.2: Sample Frame.
Source:Author

[1] *Each individual restaurant is assumed to occupy a plot.*
[2] *The port is assumed to occupy 1 big plot*

3.9 Sample Size:

According to Mugenda O. and Mugenda A, **n= (Z^2pq)/d2**

Where:

n = the desired sample size > 10,000.

Z = the standard normal deviate at the required confidence level

p = the proportion in the target population estimated to have characteristics being measured

q = 1 - p

d = the level of statistical significance set

Since the sample size is 481 the formula below applies.

nf= n/ {1+ (1+n)/N}

nf = the desired sample size

N = the estimate of the population size < 10,000.

In this case still, the value of *n* must be known. Therefore the formula **n= (Z^2pq)/d2** is used to compute the value of *n.*

For this kind of research, the standard normal deviate at the required confidence level is at 95% (standard value of 1.96), the standard deviation at 0.5 and margin of error at 7% (standard value of 0.07).

Thus

n= (Z^2pq)/d2 = {1.96^2 X 0.5(1-0.5)}/0.07^2 = 196

For SPA 1,

nf= n/ {1+ (1+n)/N} = 196/{1+ (1+196)/30} =196/(7.6) = 25

Because of the nature of composition of SPA 1, Tilapia Beach and the Port were isolated due to their uniqueness and functions that are not replicated. The remaining 23 units were proportionately distributed between the 8 double – storeyed structures and the 20 single level structures.

No. of double – storeyed structures = (8/28)X 23= 6.

No. of single – level structures = (20/28)X23= 17

Because of the homogenous nature of the operations of these restaurants, a 50% sample of each category was found to be adequate to give reliable data for the research. Furthermore, most of them were members of a welfare group, Ngege Self Help Group, whose officials were interviewed. An interview with the officials helped to verify the information given by the individual members.

For SPA 2

nf= 196/{1+ (1+196)/443} =196/(1.44) = 136

It was observed that SPA2 is dominated by commercial activities with 8 public purpose land uses. The streets found to be of critical importance were those that orient in South East – North West direction. This is because they have the opportunity of direct visual and physical access to the lake, as opposed to those running South West – North East which are parallel to the lake.

They provide for a sense of movement up from the Lake and into the urban core as well as function to convey rainwater. The study therefore focused on the character of these streets. The only exception was Obote road which was included in the study by the virtue of it being the last street that borders the lake and forms the edge between the urban functions and the water.

3.9.1 Sampling

A judgmental sampling method was adopted for non-key informants while purposive sampling was used for the key informants as a sampling procedure for selecting respondents in the qualitative phase (interviews) in this research. This is because the primary consideration in judgmental sampling is the judgment of who can provide the best information in order to fulfill the objectives of the research. Therefore only those people who are likely to have the required information, knowledge and willingness to share it will be interviewed. Using this method, hawkers, visitors and motor vehicle users, a sample of 5 was taken on each of the five streets, Tilapia Beach, and Lwang'ni and set as the maximum number to be interviewed. Otherwise, the interviews were stopped as soon as repetition of responses was detected. Purposive sampling of the key informants was on the basis of their technical knowledge and possession of specific information on the aspects under investigation. A total number of 8 key informants were identified from various government and semi-autonomous bodies.

A stratified sampling procedure is used as part of probabilistic sampling. This sampling procedure is considered to be the most popular procedure in survey research, allowing the researcher to group the sample based on specific variables such as financial status and scale of operation. The percentage of each sub-group in the entire population is maintained in the sample. Furthermore, a stratified sampling technique is a more representative, time saving and economic means to obtain a sample from the population (Newman & McNeil, 1998).

Stratified sampling was used to select samples from non-homogenous groups. The groups were stratified into smaller sub-populations of more homogenous units. For example, the business operators were stratified based on the nature (formal or informal), size of the business premises, and the scale of operation. The same applied for means of transport used. This is discussed in details under sample size for the SPA1 and illustrated in the summary table (Table 2.4) of the sample population.

Systematic sampling was used in the study of main streets that connect the CBD and the waterfront. In identifying the streets, only those that traversed the whole CBD and running towards (not parallel to) the lake were taken. The only exception was Obote road which was included in the study by the virtue of it being the last street that borders the lake and forms the edge between the urban functions and the water.

According to Lynch, nodes are not only principal points from which the character of the street or a section of a street is summarized but also provides the street with a point of visual access of the whole street. It also captures the response of the street at its point of contact with another element which can either be another street or any other element of urban design. (Lynch et al. 1976). This implies that any junction of two streets can be considered as a node. The number of plots at the junctions of the principal streets was found to be 86. Any two plots that are at the same junction and opposite each other capture characteristics of the same streets. For this reason, only one plot at each of the junctions was sampled on alternate sides of the streets as illustrated in fig.3.1. This gave a sample size of 43. A sample size should neither be excessively large, nor too small but should be optimum.

Fig. 3.2: Street sampling.
Source:Adopted from.www.googleearth.com

An optimum sample size is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility (Kothari, 2004). Mugenda O. and A. Mugenda, (2003) opine that a sample size of 30 is good enough for a scientific research.A sample of 43 was therefore adequate. Using these assertions as the basis of determining the sample size, then a sample of 125 was appropriate for this study. A figure of 130 was adopted to take care of non-response situations during the actual field study. The table below shows the distribution of the sample population.

Sampling Unit	**Type of Sampling**	Group	**Sub - Group**	**Sample Size**	
Lakefront (SPA1)	Stratified	Water - dependent	Car washers	1 FGD	34
			Boat riders		
		Water - independent	Boda-boda (FGD)	1 FGD	
			Hawkers		
		Restaurants	Single level	9	
			Multi-level	3	
		Visitors		15	
CBD (SPA2)	Stratified	Transport	Boda-boda	5	83
			Bicycle	5	
			Vehicle	5	
	Systematic	Business	Formal	43	
			Hawkers	15	
		Visitors		25	
Key informants	Purposive	Planning office		1	8
		Land valuer		1	
		Public health office		1	
		KIWASCO		1	
		LBDA		1	
		LVEMP		1	
		NEMA		1	
		KRC		1	
TOTAL					**125**

Table 3.3: Sample Distribution.
Source:Adopted from.www.googleearth.com

As for the other dynamic part of the population which included pedestrians and customers at the beach restaurants, a number was not fixed. The interviews continued until the responses became repetitive. This happened at the seventh interview of customers at the waterfront and thirteenth for the pedestrians.

Only plots at the street junctions were considered for reasons discussed under sample size and in determining the number of plots in the sample. A total number of 8 key informants were identified from various government and semi-autonomous bodies.

3.9.2 Data collection procedure and techniques

Data are considered reliable when consistent in at least two ways. The converging technique strategy, allows the strength of one technique to support the other technique, which may have certain weaknesses. (Friedman et al, 1978).

Reconnaissance

A reconnaissance site visit to the study area preceded the study. This was key in familiarization with the local conditions and in defining the geographical scope of the study. The study was planned in two zones.

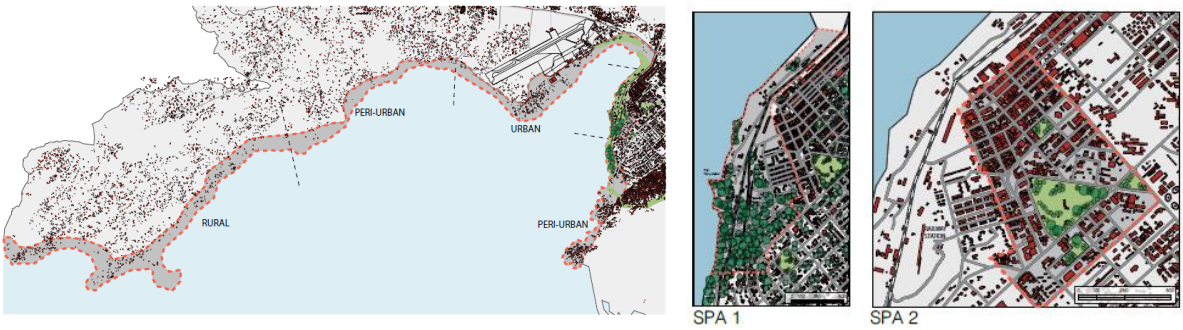


Fig. 3.3: Geographical Scope of study
Source:Adopted from.www.googleearth.com

(i) the area in direct contact with the water, and (ii) the urban area that is not in direct contact with the water but whose activities closely affect and are affected by the lake. This is the area designated as SPA 2 in the ISUD plan and also in line with the definition of the term "waterfront" in the urban context.

SPA 1

SPA1 was further divided into 3 smaller clusters as described in detail under the sample frame. This was based on the *nature* and *scale* of operations. Cutting across this zone was the information on type of activities and the vitality of the area. What is the range of activities that go on in the area and what times of the day do they go on?

SPA 2

This is the CBD and is defined by Achieng' Oneko Road, Oginga Odinga Street, Obote Road and Otieno Oyoo Street. In this area, the specific interest was in the character of:

i. The streets.

These included the design and ability to accommodate different means of transport, quality, and activities on the streets. Not all the streets were studied but rather those that were running towards and not parallel to the water. This is because of the potential of these streets to directly connect the city to its waterfront. More fundamentally is the visual access to the lake that they afford. Obote road was the only exception but its study was justified by its being the last major street bounding the city and forming a great edge between the city and its water.

ii. Public open spaces.

These were analyzed for their scale/size, accessibility and the existence of support facilities such as seating areas, sanitation facilities, lighting, among others.

3.9.3 Pilot Study

A pilot study which followed the reconnaissance visit enabled the study to test the administration of the data collection instruments and therefore improve the instruments and procedures; and also to test the reliability and validity of the instruments.

3.9.4 Inventory

A spatial inventory was taken in the form of maps and photographs of the study area. This included the plotting of elements onto the base map and additional notes that pertain to the inventory recorded as and when necessary. A collection of perspective thumbnails are drawn over the course of the study in order to show any interesting vistas or sequencing within the area. Occasionally and when necessary, cross sections are drawn in order to graphically represent the

sites different ratios of horizontal to vertical. The data collection also included the analysis of documents related to the selected case study areas. Documentary evidence act as a method to cross-validate information gathered from interviews, which is sometimes different (what people say is sometimes different from what people do). Thus, the integration of multiple qualitative techniques from the case study research enhances the validity and reliability of the findings from this research.

Information gathered from the interviews and the identified attributes are then included in a survey questionnaire. The purpose of the quantitative approach (questionnaire) in this research is to confirm statistically the interview results. These results are then used to give recommendations for best practices for waterfront developments in Kenya and beyond. For this reason the strengths of both qualitative (identification of new considerations) and quantitative methods (confirmation of the statistical significance of newly identified considerations) are combined in order to provide more robust and comprehensive results. (Newman & McNeil, 2009)

3.9.5 Urban morphology

To gather information and have a better understanding of the existing Kisumu waterfront, the study first analyzed the urban morphology, which involved the physical and historical evolution of the city itself in relation to its waterfront. Much of the information for the morphological study is gathered from the archival data, the available secondary data and personal interviews with experts.

3.9.6 Field Observation

A visual survey is useful to analyse the visual characteristics and elements of the urban fabric. Much of the research evaluating the built environment employ field observation. (Reeve et al. 2007).

Parameters to be examined were identified through literature review and organized in various forms including checklists and tables where recordings were done. Photographs were taken and related to the maps sourced from secondary sources. These were later combined for ease of comparison and analysis within and between areas of study. Both negative and positive dimensions were identified.

Rutledge from Friedman et al. (1978), opine that direct observation method may lead to the biasness of the observer. The record of specimen is more objective using the narrative method compared to the anecdotal method because in the narrative method all the activities are recorded and no pre-choices or categorization is required. The method may increase its objectivity by describing the activity in simple terms and separating the recording from theory and assumption. In conducting the study, recording the activities that are not dependent on only one observer must be assured. It should be commonly agreed upon and recorded by two observers simultaneously and the result tabulated. A minimum agreement of 70-90% is acceptable. He further stressed the importance of the reliability of the data collected in determining the validity of it. For this reason, two research assistants were engaged to independently collect the data in these areas.

3.9.7 Focus Group Discussions

The main advantage of focus groups is the ability to have a dynamic interaction between the participants on a particular topic within a certain time limit, which is controlled by an observer. The controlled situation is also the only major disadvantage because the settings of these sessions are not in their natural condition (Morgan, 1988). Nevertheless, group discussions and hearing others give their own opinion is more realistic (Krueger, 1994). According to Krueger (1994, p.14), '*focus groups techniques are valid if they are used carefully for a problem that is suitable for focus group inquiry'* and very much depend on the procedures and context.

According to Morgan (1988), focus groups are useful to supplement the quantitative and qualitative method or as self-contained data. The objective of using this technique is to examine the land use issues on Kisumu waterfront according to the public through the attributes used to evaluate the physical and functional dimensions. It is one of the most useful tools to know *'why people feel the way they do'* as well as gathering their interpretations of results from any earlier studies (Krueger, 1994). As for this research focus groups are used as supporting findings for the result from the physical visual observation. This technique is opted for in obtaining information from the public rather than in-depth interviews because of the nature of the tools, which allow for dynamic interaction between the participants and is able to stimulate discussion through the sharing of information and creating a bond with the place (Carr et al., 1992). Through this the

"***meaning"*** of a place can be understood better (Carr et al., 1992). The initial design was to hold FGD for only the Boda-boda operators and hawkers. This is because the reconnaissance had revealed that they always congregate at one place while waiting on their potential customers. Further, according to Morgan (1988), the number of groups has to be more than one. Two would be safer especially if they are highly similar. The size of group usually implemented is between 6 to 10 people (Morgan, 1988) to allow each participant the opportunity to give their opinion. For the car washers however, it came by coincidence that during an interview with an individual, a number came, out of curiosity, to find out what the engagement with one of them was about. It therefore turned from individual interviews to an FGD by default. Realizing the opportunity, the researcher changed to the same strategy (FGD) for boat operators who were initially to be interviewed individually. The two groups formed the second FGD. Therefore, for this research the two focus groups were formed with the hawkers and boda-boda operators forming one while the car-washers and the boat-riders formed the other. These groups were formed based on the fact that the activities of the hawkers and Boda-boda riders were water-independent compared to car washers and boat riders whose activities are water - dependent.

According to Greenbaum (1998), it is better to have a homogeneous group or of similar status and values because the participants may be able to relate to each other better, and the quality of the inputs they provide will be higher. Knodel (1984) and Krueger (1994) also mentioned that the similarity is important because if the topic of discussion concerns sensitive issues, they would be able to facilitate each other and perceive the situation as perspective sharing. The main focus of the FGD was to establish the "meaning" of the waterfront as discussed under Integrative theory.

3.9.8 Interviews

Primary data was collected through semi-structured questionnaires and interview schedules due to their flexible nature. While the interviewer generally has guidelines to explore, new questions were brought up during the interview as a result of what the interviewee said.

Interviews are one of the four basic types of data collection in qualitative study, the others being focus groups, surveys and observation. They may involve unstructured and generally open-ended questions that are few in number and are intended to elicit views and opinions from the

participants (Creswell, 2003). Interviews in this research include key informant interviews, especially of government officials, and casual interviews with researchers, local residents and business people to provide supplemental information.

The objectives of key informant interview are (1) to get first-hand information on the rationales, concerns and process of local government in waterfront development, which might be unavailable in publications; (2) to understand the administrative structure of Kisumu's waterfront; (3) to get insiders' views of waterfront development; and (4) as a means to acquire government documents from the interviewees.

It was decided in advance how many key informant interviews would be conducted and who exactly would be interviewed. Through snowballing, the interview continued until sufficient information had been gained and responses became repetitive.

Several features were taken into consideration during the design of interview questions.

Firstly, many interviewees are not familiar with the term "waterfront". This might be because of the relatively late emergence of the waterfront development phenomenon in Kenya. So an explanation of the meaning of "waterfront" is introduced at the very beginning of the interview. Secondly, since the interviews were aimed to explore rather than to get some simple answers on a limited number of points, it was not structured as a list of questions. Instead, most questions began with a contextual statement, in which the background of the question is described. The interviewees are then asked to give comments concerning the statement. The interview questions are adjusted a little according to the different backgrounds and positions of the interviewees. An interview typically lasted half an hour to one hour. In addition, notes were taken with pen and paper. A sample of interview questionnaires is given in the annex. Most appointments with interviewees were made through the facilitation of and reference from the local officers.

3.9.9 Case Studies

The case approach has proven to be particularly fruitful in decision making and planning processes. Cropper sees case study as a research strategy which can be likened to an experiment, a history, or a simulation. He points out that it does not imply the use of any particular type of evidence or data collection technique. It can draw both on quantitative and on qualitative evidence and make use of fieldwork techniques, verbal reports, and observations, either

separately or collectively. It was also indicated that the formulation of an analytical framework and guiding hypothesis through literature review will prevent the case study from being a completely open-ended intellectual excursion.

Two categories of case study areas were selected; namely, the Western Experience and the African Experience. A few cases have been briefly analyzed under the former category with a more in-depth analysis of Stone Town of Zanzibar under the latter category due to its contextual relevance to the selected area of study.

3.10 Limitations of The Study

Some of the limitations encountered in the course of the study included the following:

1. **Selective and cautious release of information by some informants:** Some respondents cautiously gave information for fear of the possible use of the study for purposes that may affect them negatively. This is despite the assurance that the study was academic.
2. **Lack of will to get interviewed**. Other respondents felt that they have participated in several studies yet they have never seen any positive outcome from the studies.
3. **Financial demands:** Some respondents demanded to be induced financially as compensation for their time in order to give information.
4. **Financial constraints:** The constrained financial resources limited the study in its methodology, especially in case studies. The case studies were all taken from secondary sources as visiting similar waterfronts would be too expensive.
5. **Institutional challenges:** Some of the institutions and key informants were not available for interviews and did not return the questionnaires left in their offices. In some instances, those available in the offices were unwilling to give any information on the basis that they were not authorized to do so.

3.11 Research Design Framework

Objective	Data need	Data source	Variables	Measurement	Expected output
To document Kisumu's waterfront development as a specific case of land issues on urban waterfront.	-Land use patterns -landform -settlements -flora and fauna -geology -cultural associations, history and memories	- Existing Maps - Satellite images - Ground observations - Focus group discussions - Existing literature	- Open spaces - Ground activities. - Building orientation in relation to the Lake. - atmospheric conditions, e.g. climate - human use of the coast and sea - coastal features - surface water features - coastal processes	- Quality of open spaces - Indices. - Negative (away from) or positive (towards) orientation to the Lake. - Variety of flora and fauna. - Texture - Colour - Pattern	- Maps - Photos. - Report/narrative. - Sketches
Examine the evolution and trends in land uses on Kisumu's waterfront and their implications on form and function of the city	- Activities over time. - Land uses over time. - Connectivity between the city and the water	- Interviews - Key informants - Ground observations. - Government offices - Satellite images. - Maps. - Focus group discussions	- Number and types of businesses over time. - Continuity and quality of access routes. - Pedestrian walkways. - Vehicular access.	- Change in number and types of businesses - Open vs. built-up area. - Spatial texture over time. - Active times of the waterfront. - Visual and physical access of the Lake.	- Tables and graphs. - Maps - Photos. - Report/narrative. - Sketches
To investigate the factors that have led to the transformation of the waterfront.	- Chronology of events/ activities on the waterfront. - Review of planning regulations. - Land and real estate market dynamics, - policy and legal, institutional framework - governance, - demographics; socio-	- Interviews - Key informants. - Existing literature. - Field observation. - Government offices - Focus group discussions	- Historical sites - Cultural artifacts. - New/ contemporary developments	- Existence of historical sites. - Existence of cultural artifacts. - Response to cultural/historical character.	- Maps - Photos. - Report/narrative.

	economic, cultural				
To establish the citizen's vision for the Kisumu waterfront.	- Zoning plans. - Development regulations. - Institutional structure	- Interviews - Key informants. - Existing literature. - Existing maps.	- Densities - Building heights. - Plot coverages	- Developments approval procedure. - Indices.	- Maps - Photos. - Report/narrative. - Organogram.
To evaluate the accessibility of the waterfront	- Legislation - Street characteristics - Institutional framework	- Interviews - Key informants. - Existing literature. - Existing maps.	- Planning and Implementing agencies - Street widths, furniture, lighting	- Amenities - Street widths - Lighting - View of the water - Connectivity with other public places - Modes of access - Signage - Access to parking	- Maps - Photos. - Report/narrative. - Organogram.
To determine the appropriate planning interventions necessary to achieve sustainable development of Kisumu waterfront.	- All the above	- Review of study findings	- Summary and conclusions on all the above.	- Synthesis of findings.	- Sustainable Kisumu waterfront development plan.

Table. 3.4: Research Design
Source: Author

4 CHAPTER 4: THE STUDY AREA

4.1 Introduction

This chapter defines the study area. The aspects discussed include the geographical location, the demographic profile, the urban morphology, the geophysical context, the economic structure, and the socio-political structure.

4.2 The Study Area

Kisumu, the third largest city in Kenya, is the principal urban centre of western Kenya, the immediate former capital of Nyanza Province and the headquarters of Kisumu County.

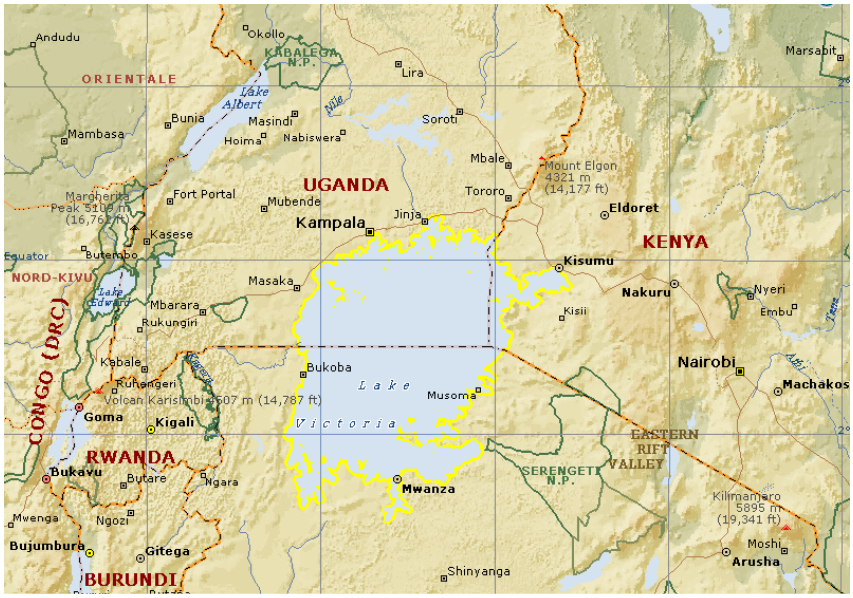


Figure 4.1 A map of the Great Lakes Region, L. Victoria in the context.
Source; Kisumu CDS

It has developed progressively from a railway terminus and internal port in 1901, to become the leading commercial/trading, industrial, communication and administrative centre in the Western Region of Kenya, an area that traverses three former provinces of Nyanza, Western and western Rift Valley. In addition, Kisumu serves as the communication and trading confluence for the Great Lakes region – Tanzania, Uganda, Rwanda, Burundi and Democratic Republic of Congo.

Lake Victoria occupies a shallow depression in Africa and has a maximum depth of 84 metres (276 ft) and an average depth of 40 metres (130 ft). Its catchment area covers 184,000 square

kilometers (71,040 sq mi). The lake has a shoreline of 4,828 kilometres (3,000 mi), with islands constituting 3.7% of this length, and is divided among three countries: Kenya (6% or 4,100 km^2/1,600 sq mi), Uganda (45% or 31,000 km^2/12,000 sq mi) and Tanzania (49% or 33,700 km^2/13,000 sq mi). The lake has a total shoreline of 3,440km in length. The town was declared the first Millenium City of the world by the then UN Special Advisor on Millennium Development Goals, Mr. Jeffrey Sachs on January 11, 2006. Kisumu is a city that has been advantaged by its location on the shores of Lake Victoria which is the second largest fresh water lake in the world. However, the city has not been spared from the universal challenges facing other port cities. It has continued to urbanize and the accompanying effects of this urbanization are evident. (Kisumu CDS)

4.2.1 Location of the Study Area

Geographic coordinates are Latitude: -0.10221 x Longitude: 34.76171

Figure 4.2. Kenya Counties map
Source: http://herstorycentre.org

4.2.2 Administrative boundaries

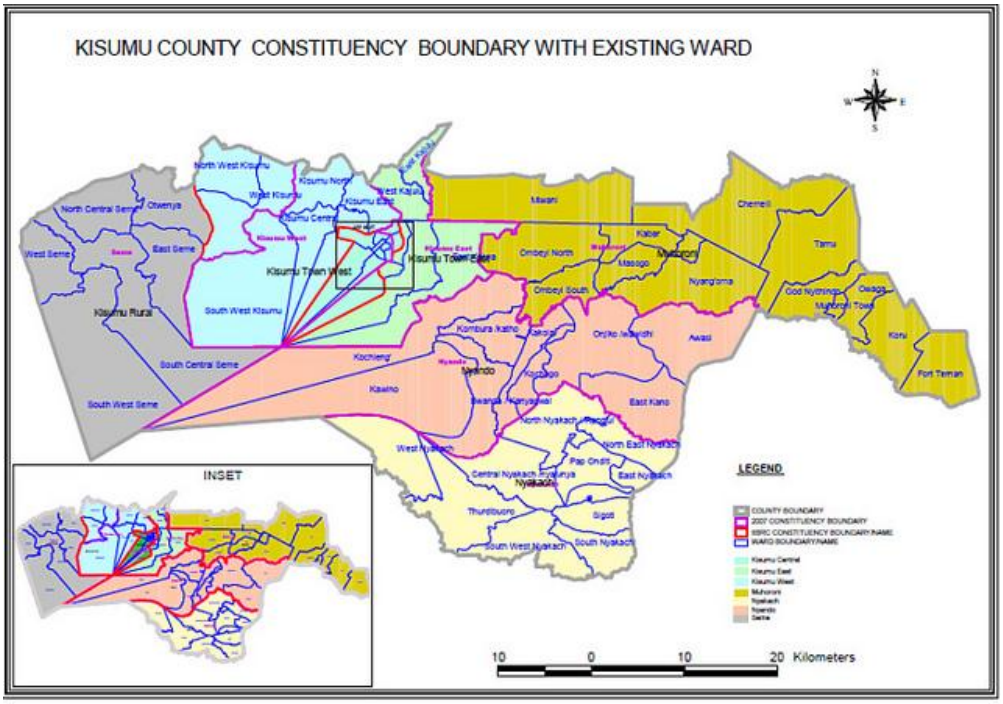


Fig: 4.3 Kisumu County Constituency boundaries with existing ward.
Source: www/flickr.com

4.2.3 Demographic profile

General Information (2009)	Kisumu	Rank[a]	Kenya[b]
Population	968,909	12	821,491
Surface area (km²)	2,086	40	12,368
Density (people per km²)	465	8	
Poverty rate, based on KIHBS (%)	47.8	21	66
Share of urban population (%)	52.4	4	47.2
Urban population in largest towns			29.9
- Kisumu	388,311	3	
- Awasi	93,369	24	
- Ahero	50,730	46	
- Oyugis	35,451	68	
- Muhoroni	34,457	70	
- Kendu Bay	14,747	105	
- Chemelil	7,888	136	
- Maseno	5,103	170	

Table 4.1 Kisumu County data Sheet
Source; https:opendata.go.ke

Age Group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	TOTAL
0–4	80,511	80,098	160,609	85,751	85,311	171,062	91,327	90,859	182,186	95,250	94,762	190,012
5–9	67,083	67,779	134,862	71,449	72,191	143,640	76,095	76,885	152,980	79,364	80,187	159,551
10-14	62,706	63,359	126,065	66,787	67,483	134,270	71,130	71,871	143,001	74,186	74,958	149,144
15-19	55,597	56,742	112,339	59,216	60,435	119,651	63,066	64,365	127,431	65,775	67,130	132,905
20-24	47,281	57,649	104,930	50,358	61,401	111,759	53,633	65,394	119,027	55,937	68,203	124,140
25-29	40,964	40,614	81,578	43,630	43,257	86,887	46,467	46,070	92,537	48,463	48,049	96,512
30-34	30,412	27,515	57,927	32,391	29,306	61,697	34,498	31,212	65,710	35,980	32,552	68,532
35-39	21,251	20,611	41,862	22,634	21,953	44,587	24,106	23,380	47,486	25,141	24,384	49,525
40-44	15,145	16,894	32,039	16,131	17,994	34,125	17,180	19,164	36,344	17,918	19,987	37,905
45-49	13,361	15,298	28,659	14,231	16,294	30,525	15,156	17,353	32,509	15,807	18,099	33,906
50-54	11,251	12,504	23,755	11,983	13,318	25,301	12,763	14,184	26,947	13,311	14,793	28,104
55-59	8,718	9,175	17,893	9,285	9,772	19,057	9,889	10,408	20,297	10,314	10,855	21,169
60-64	7,054	7,597	14,651	7,513	8,091	15,604	8,002	8,618	16,620	8,345	8,988	17,333
65-69	4,163	5,402	9,565	4,434	5,754	10,188	4,722	6,128	10,850	4,925	6,391	11,316
70-74	3,777	4,757	8,534	4,023	5,067	9,090	4,284	5,396	9,680	4,468	5,628	10,096
75-79	2,392	3,356	5,748	2,548	3,574	6,122	2,713	3,807	6,520	2,830	3,970	6,800
80+	3,021	4,872	7,893	3,005	4,915	7,920	3,200	5,235	8,435	3,337	5,460	8,797
Total	**474,687**	**494,222**	**968,909**	**505,370**	**526,116**	**1,031,485**	**538,231**	**560,329**	**1,098,560**	**561,351**	**584,396**	**1,145,747**

Table4.2: Population Projection by Age Cohort
2009 (Census) 2012 (Projected) 2015 (Projected) 2017 (Projected)
Source: Kenya National Bureau of Statistics, 2013

Table 4.2 above indicates that in 2012, the categories between 0-4 and 5-9 age groups had the largest populations of 171,062 and 143,640 respectively. Based on projections, the county's total population will increase by 13.4 per cent from 968,909 in 2009 to 1,145,747 in 2017.

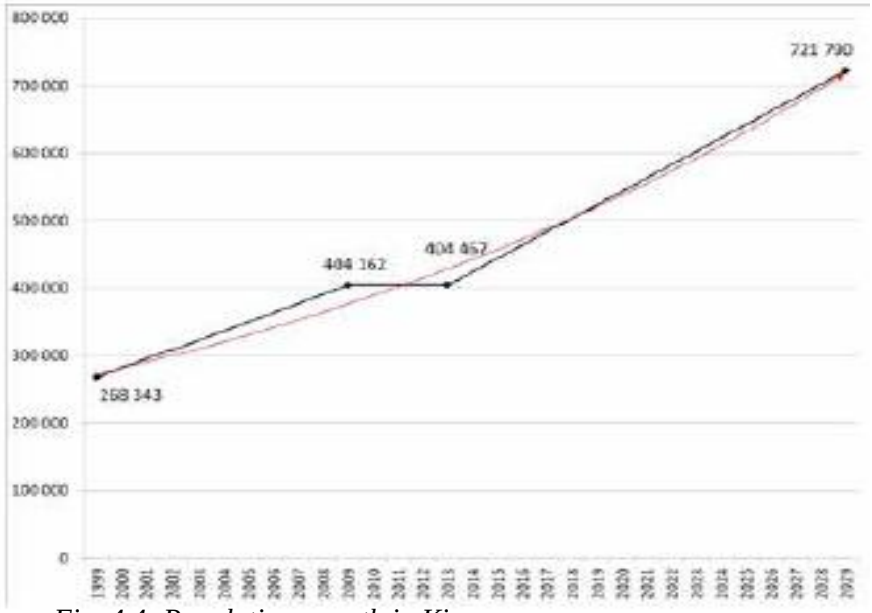


Fig. 4.4: Population growth in Kisumu
Source;https://opendata.go.ke

4.2.4 Population and settlement

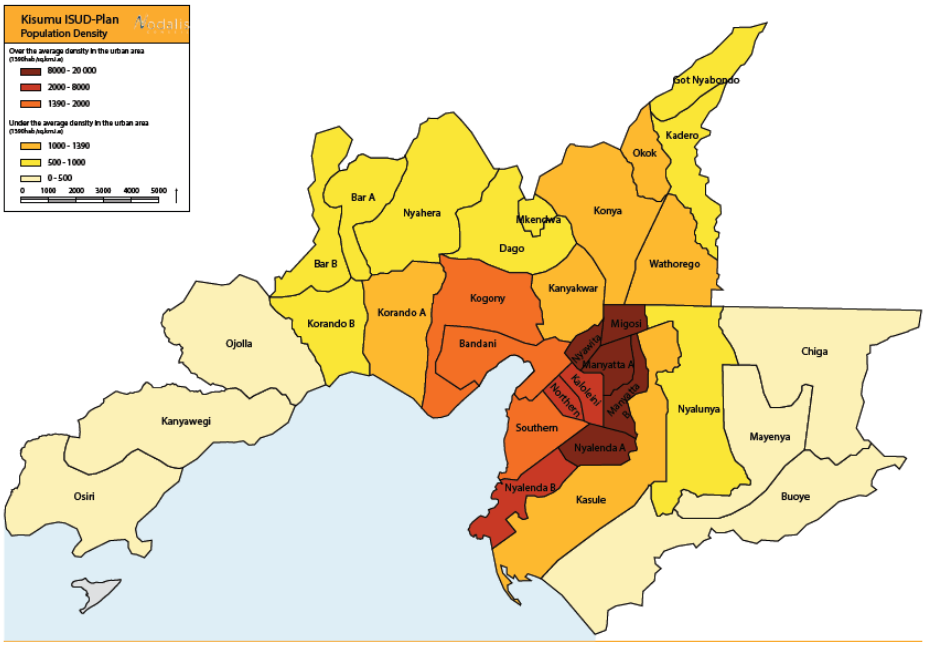


Fig. 4.5: Population growth and distribution in Kisumu
Source;Kisumu ISUD - Plan

4.2.5 The County Government Structure

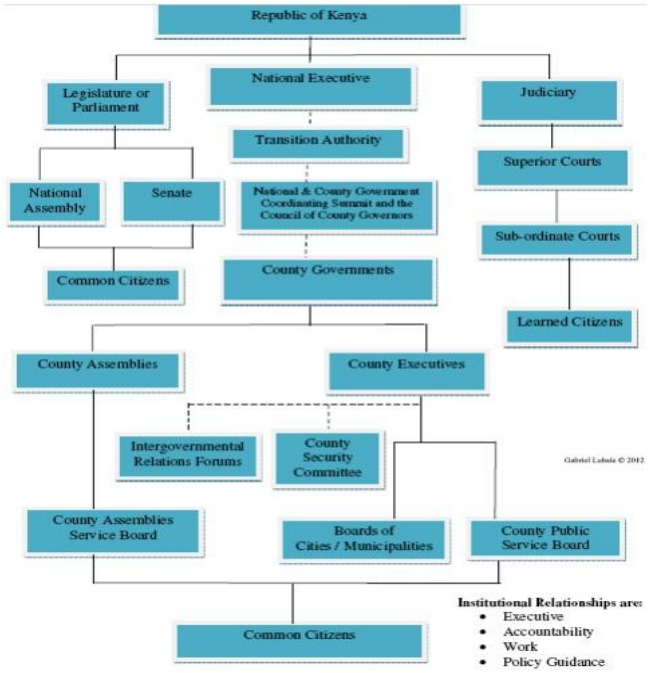
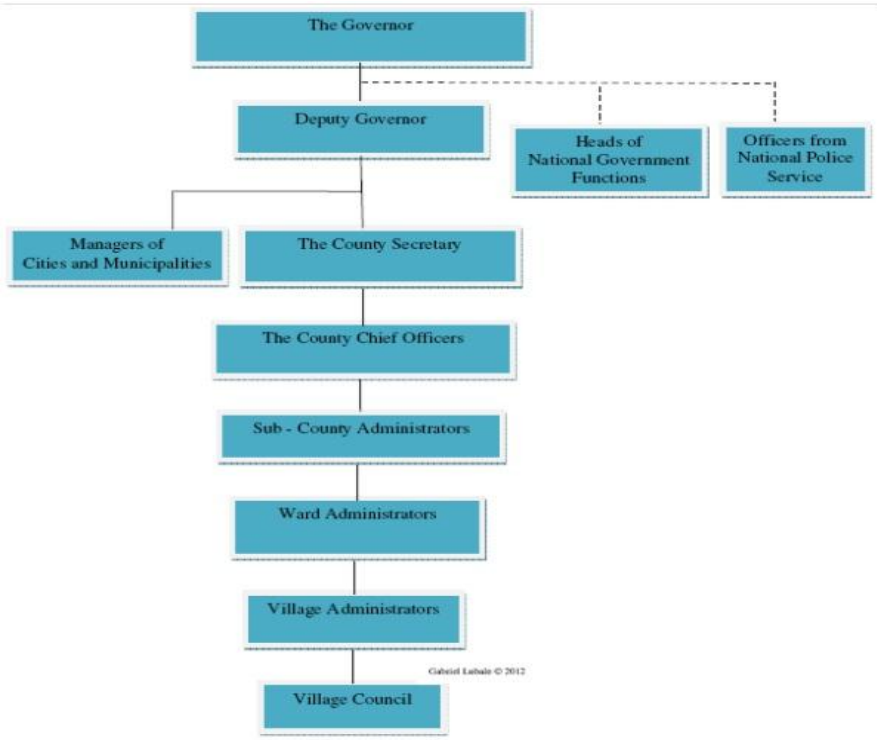
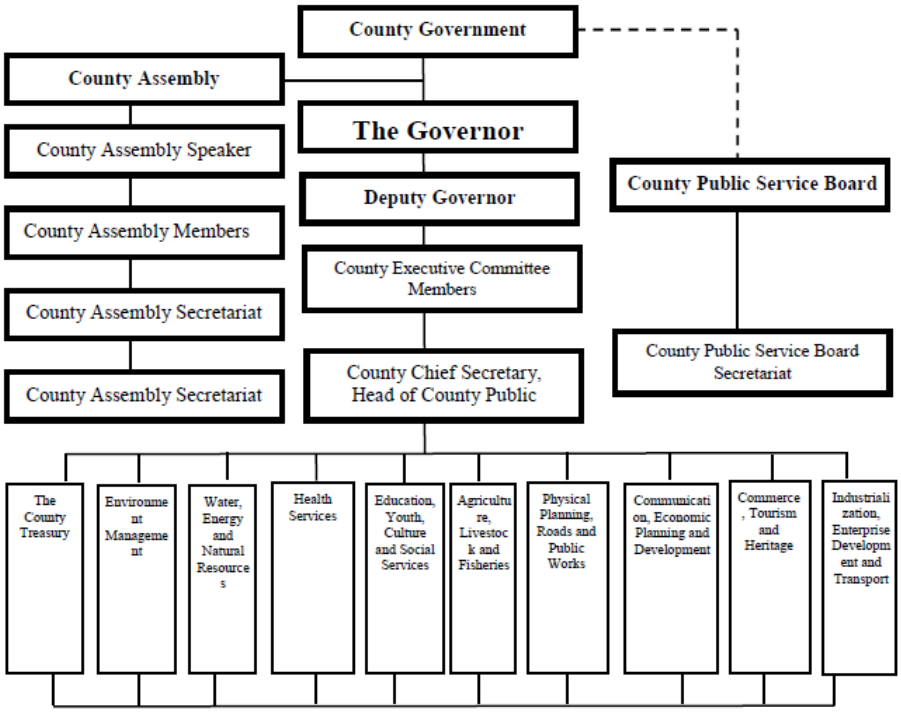


Fig. 4.6: The Kenya Devolved Government Organization Structure based on Institutions
Source: An introduction to the County governments of Kenya; Lubala ; 2012



(a)



(b)

Fig. 4.7 (a&b): County Governments Organization Structure based on Officers
Source: An introduction to the County governments of Kenya; Lubala ; 2012

4.2.6 Climatic Conditions

a) Rainfall

Kisumu is located 0°6' South of the Equator and 34°45' East. The weather for the area has tropical characteristics. However due to the altitude, days are generally hot and hazy with a marked contrast between (i) the hot dry plains, (ii) the hot humid areas on the lake shore and south of the city and, (iii) the cooler highlands and plateaux to the North. Lake breeze makes conditions more pleasant along the coast during the afternoon. Rainfall has some anomalies due to the equinoctial shift of the inter-tropical zone of convergence over this part of Kenya and to the penetration of moist and humid Atlantic airs coming from the Congo basin and re-charged in moisture when crossing over Lake Victoria. The main rain seasons extend from March to May and there is a "little rainy season" in August and September. However rain pattern can be erratic creating a risk of crop failures. The mean annual rainfall varies with altitude and proximity to the highlands along the Nandi Escarpment and Tinderet. The area has two rainy seasons, with the long rains occurring in March and May while the short rains occur in September to November. During the short rains the average annual rainfall ranges between 450mm and 600mm. Rainfall data indicates that the county largely receives substantial rainfall.

Maseno has a mean annual rainfall of 1,630mm, Kisumu 1,280 mm, Ahero 1,260 mm, Kibos 1,290 mm, Muhoroni 1,525 mm, and Koru 1,103 mm. The lowland area which forms a trough of low rainfall receives a mean annual rainfall of between 1,000mm and 1,800mm. Although there is no entirely dry month, the peak generally falls between March and May, with a secondary peak in September to November. The high rainfall and the nature of soils in the Kano Plains have supported small scale agricultural production. However, small-scale farmers find it difficult to prepare the land for planting since black cotton soils are difficult to work on manually during dry season and also during heavy rains.

b) Temperature

The mean annual maximum temperature ranges 25oC to 35oC and the mean annual minimum temperature ranges 9oC to 18oC. The altitude in the county varies from 1,144 metres above the sea level on the plains to 1,525 metres above sea level in the Maseno and Lower Nyakach areas. This greatly influences temperatures and rainfall in the county.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg Temp	23	23	23	22	22	22	21	22	22	22	22	23
Avg Max Temp	30	31	30	28	27	27	28	30	30	30	29	29
Avg Min Temp	16	16	17	17	17	16	16	16	16	17	17	16
Avg Rain Days	6	4	7	9	9	6	6	8	5	7	9	4

Table 4.3: Rainfall patterns of Kisumu
Source: Kisumu CIDP

4.2.7 Vegetation

The Wetlands

Several wetland areas can be found around the city with the main one to the south of the city, in close proximity to the Nyalenda and Dunga areas, others are stretches along the shore. Wetlands are flood prone areas mostly populated by fishermen villages. The presence of these low lying areas irrigated by an extensive hydrological network feeding into the lake is an issue in terms for drainage for the urban area. As most wetlands, Kisumu's hosts rich flora and fauna.

The Plains

The city opens on two main plains: Kano plain extending at the southeast with a fertile soil and Kanyakwar plains to the north with a soil less prone to agriculture but with quarries.

The Highlands

Kisumu's territory includes three highlands areas, the Nandi hills to the north east, which makes up 12% of the city's territory, a modestly high but steep volcanic chain of tea growing hills. The Riat hills and Kisian hills chain to the north, directly overlooking the airport and a sprawling area of the city and slowly colonized despite their steepness with new community developments.

4.2.8 Soil Types and Drainage

The soils are dominated by lake sediments, commonly sand and clay soils. In Kano Plains the soils are dark brown and grey, poorly drained and are generally very deep and firm. In the western part of Kano Plains are dark cotton soils commonly associated with the swamps. These types constitute more than 70 per cent of all soil types found in Kisumu County. These soils are

suitable for brick making and sand harvesting especially at Maseno and Nyakach. (*Kisumu County Integrated Development Plan, 2013-2017)*

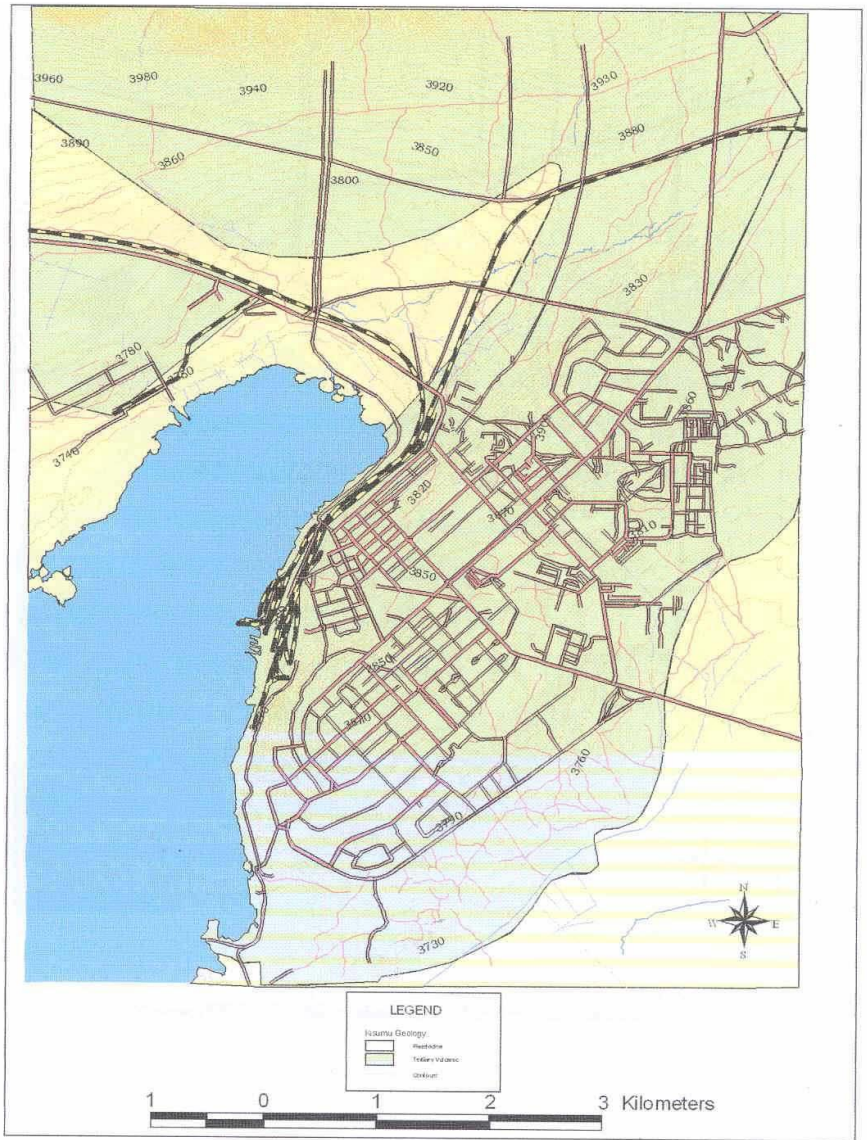


Fig 4.8 Kisumu Geology
Source: Kisumu CIDP

4.2.9 Urban texture/structures

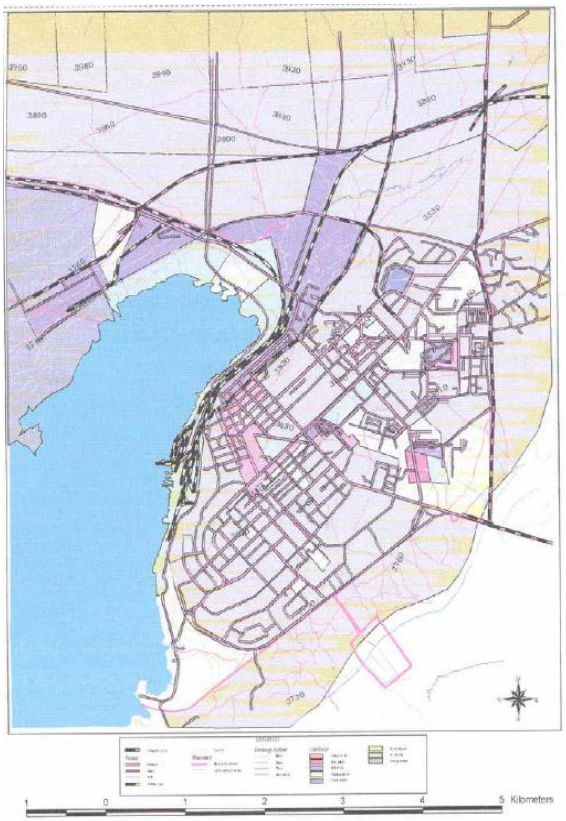


Fig. 4.9 : Kisumu Land Use
Source: Lake Victoria Cities Development Strategy Paper

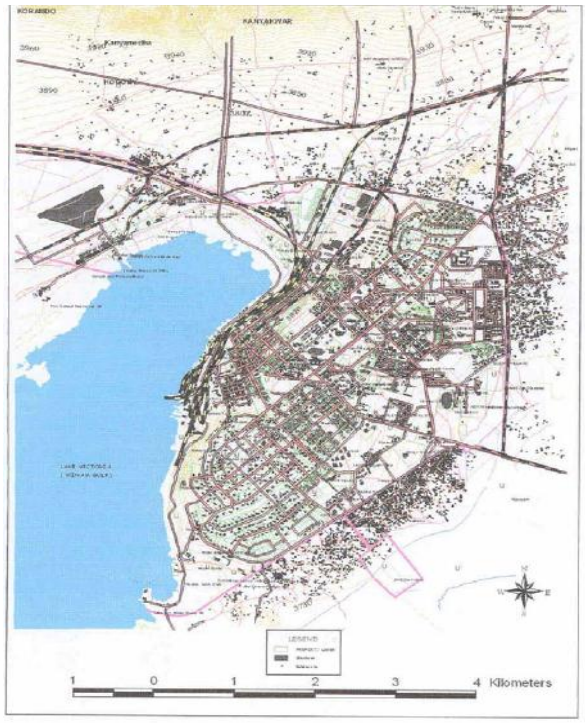


Fig. 4.10: Kisumu urban texture

4.2.10 Geophysical context

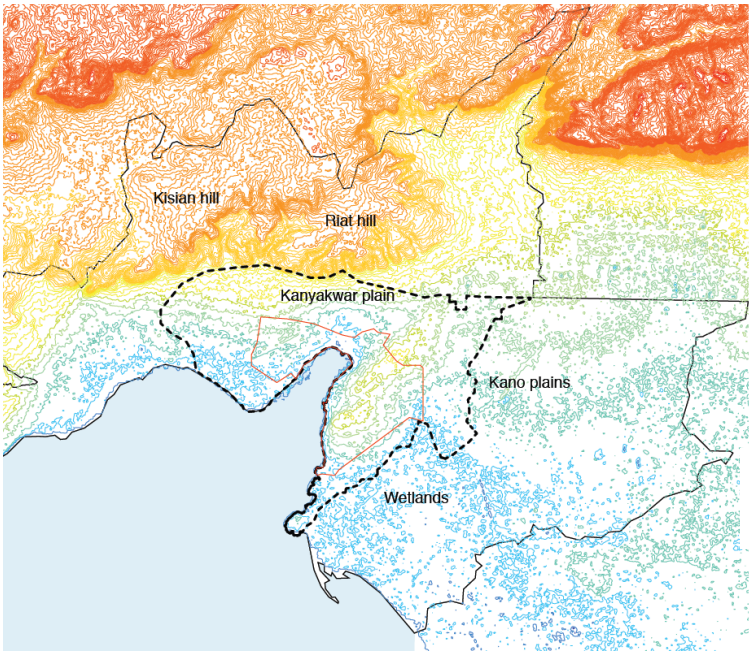


Fig. 4.11 Kisumu'sGeophysical Context
Source: Kisumu CDS

4.2.11 Urban Morphology

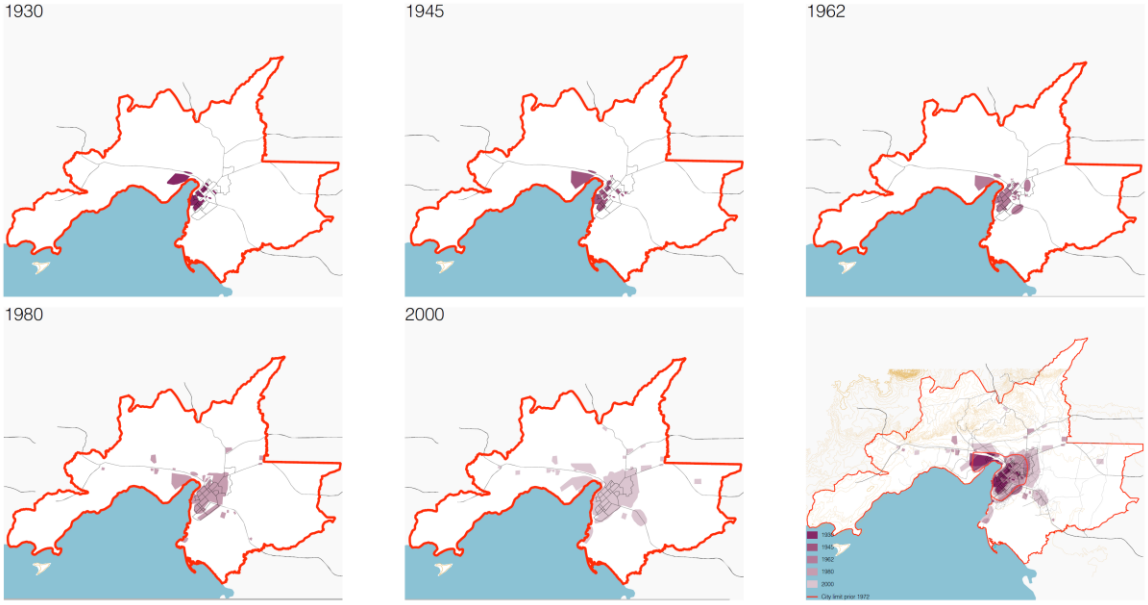
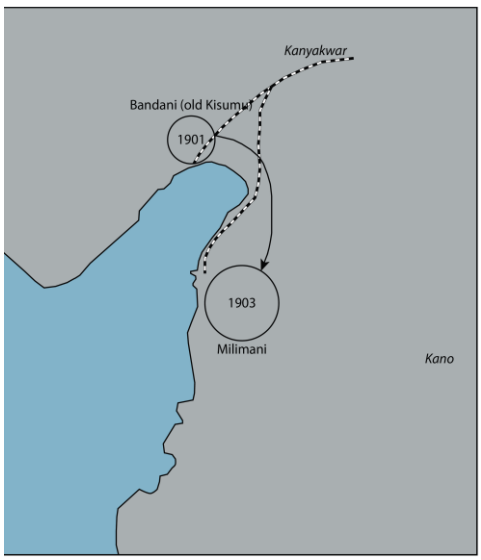


Fig. 4.12(a): :Kisumu urban morphology from 1930
Source: ISUD-Plan



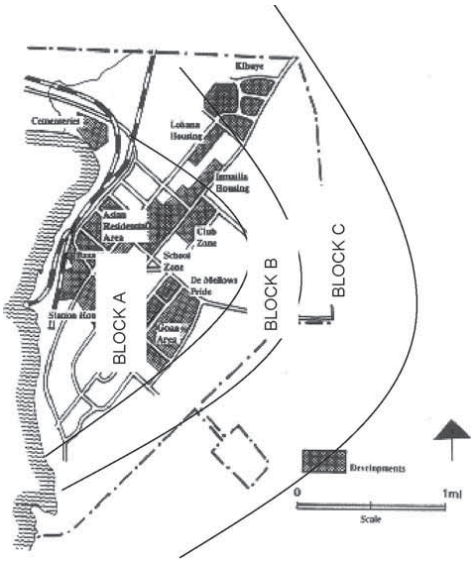


Fig. 4.12(b:Pre-independence Kisumu urban structure
Source: Kisumu CDS

***Block A**: -Consisted of the port, official residences for colonial officers, government and railway headquarters, prison, police posts and hospital, together with residential areas for Indians and Europeans employed in the town.*
***Block B**: -Developed as a buffer block between Block A and C.*
***Block C**: -Was the official African residential area*
Source: Lake Victoria Cities Development Strategy Paper

Figure 7.2 Kisumu Town Structure 1930 - 1939

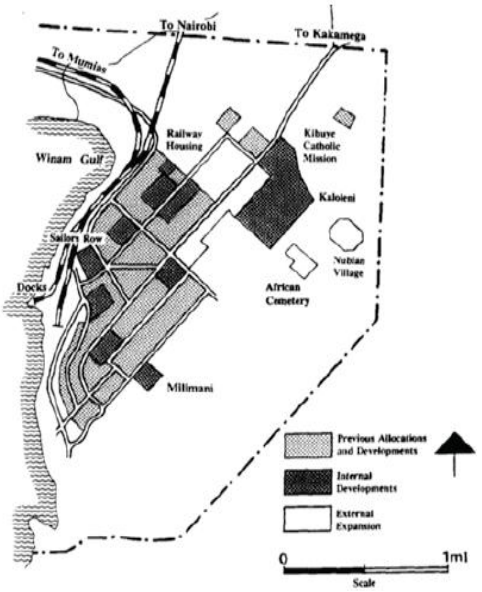
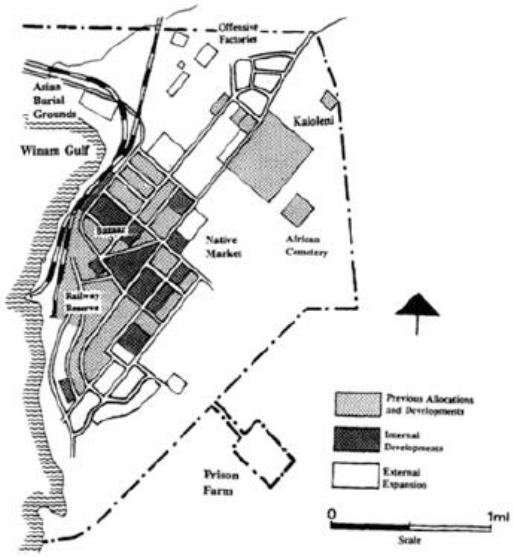


Figure 8.4 Kisumu Urban Structure 1940-1962



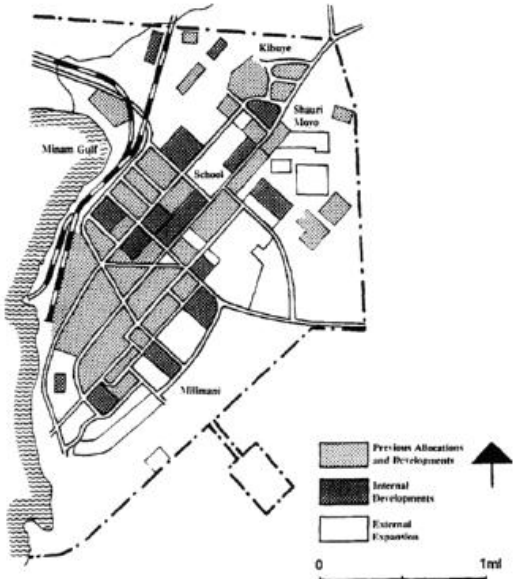


Fig. 4.13: Kisumu urban structure from 1908 - 1962
Source: ISUD Plan

As observed in the ISUD – Plan, Kisumu's ''formal city'' has hardly evolved in the last thirty or forty years. Growth around it, mostly to the South and to the North East, is essentially peripheral and poorly connected whilst both areas in the "formal city" North and South of Kisumu -Busia road remained at low density.

In Kenya, many waterfront projects are currently under development, but only one has been proposed at a reasonably large scale, both in physical and functional senses- the ***Lakeview Resort City***; An Urban-Waterfront redevelopment project by the Kenya Railways Corporation in the protected historical area of Kenya Railway Station, Kisumu consisting of an ensemble of landing bays, jetties, offices, housing and other urban mixed uses.

Kenya Railway Corporation has commissioned a study for the development of a railway project including a "ring line" circling the city and radial connections extending from Kisumu to Homa Bay, Kisii, Kericho, Kapsabet, Kakamega, and Siaya. The study has not been carried out in collaboration with the local authorities or the ISUD-Plan planning team and its present status is not clear. Lake bordering countries, Kenya, Uganda and Tanzania are competing for the roles of hub and gateway to the sub-region. Kenya, hence Kisumu, comparative advantages are high with a unique location allowing to bridge the Indian Ocean (shortest distance from sea to lake in comparison with Tanga or Dar es Salaam distance to Mwanza) with landlocked countries to the West. Another fact that is of considerable attention was that the project limits its focus primarily on the property/land belonging to the Corporation without due attention to the adjoining areas and property, which is not only evidently in a wanting state and demands immediate attention, but also would affect and be affected by this project.

Project critique as observed in the ISUD-Plan:

As it stands the programme seems mostly geared towards commercial land use with hospitality, retail and offices, plus two activities heavily contingent on externalities: "ultra-modern" railway station and cruise tourism, and some light industrial. It seems this programme lacks diversity both in terms of the activities it proposes and people it targets. It is also extremely dependent upon activities which would need to be developed from scratch (except for light industry/manufacturing possibly) and for which demand may not have been assessed thoroughly enough, such as tourism and hospitality whereas local activities and needs such as markets, small scale/artisan fishing, restaurants, low-cost and middle class housing would contribute to de-segregate the project area and the rest of the city and would rapidly flourish. The proposed site layout does not provide continuity or linkage between the city and the lake. It is treated in isolation from the city, and as a green field development, whereas the development of this site

should be approached as a reclamation and requalification of an industrial site in an urban area with the objective of both integrating it within the city and providing room for extension for the CBD. Space use does not seem optimal both in terms of density and layout, organization and coherence. A number of buildings look out of scale and, no specific care seems to have been given to the design and use of the shore, the axis extending beyond the main pier works like a dead-end whereas it should act as a connection with the city. First and foremost, any development on the site should allow reconnecting the city and the lake which will enhance its attractiveness. In this view the KRC project concept should be: an extension of downtown Kisumu retrofitting the port and railway area into a new part of town able to address a number of key land use gaps.

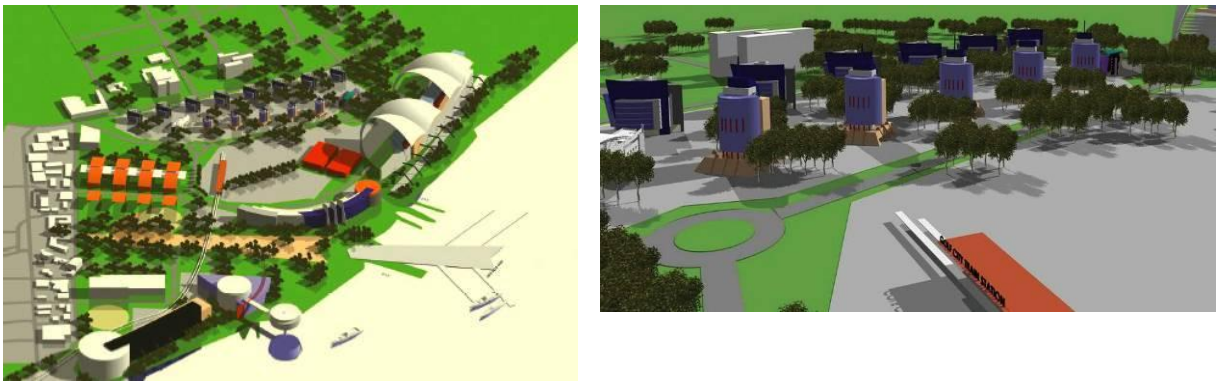


Fig 4.14; Artists impressions of the proposed Lakeview Resort City
Source: www.krc.co.ke

4.3 Economic Activities

4.3.1 Agriculture and Agro -Industry

With the implementation of the East African Community protocol, Kisumu aims to become capital of the regional bloc. Lake Victoria contributes a very large part to the economy of the county since it supports the fishing and fish processing industry being one of the county's main economic activities. Opportunities exist in further developing this sector for local and export markets.

Agro-processing is also a common economic activity with sugar industries like Muhoroni, Chemelil, Kibos and rice irrigation industries employing a good number of residents. The main

cash crops in the county are sugarcane, rice and cotton. Sugarcane is predominantly grown at lower midlands which are common in Maseno, Muhoroni and Miwani while cotton is grown in Kadibo and Nyando. There are opportunities for further investment in this sector.

Equator Bottlers recently unveiled a Sh1.5 billion bottling plant; Jumbo Mattress Co has established a factory at Ahero while Foam Mattresses is setting up a plant in the town.

The county has a total of 27 manufacturing industries, 16 bakeries, 12 *Jua-kali* associations and 10,500 *Jua-kali* artisans. *(Kisumu CIDP)*

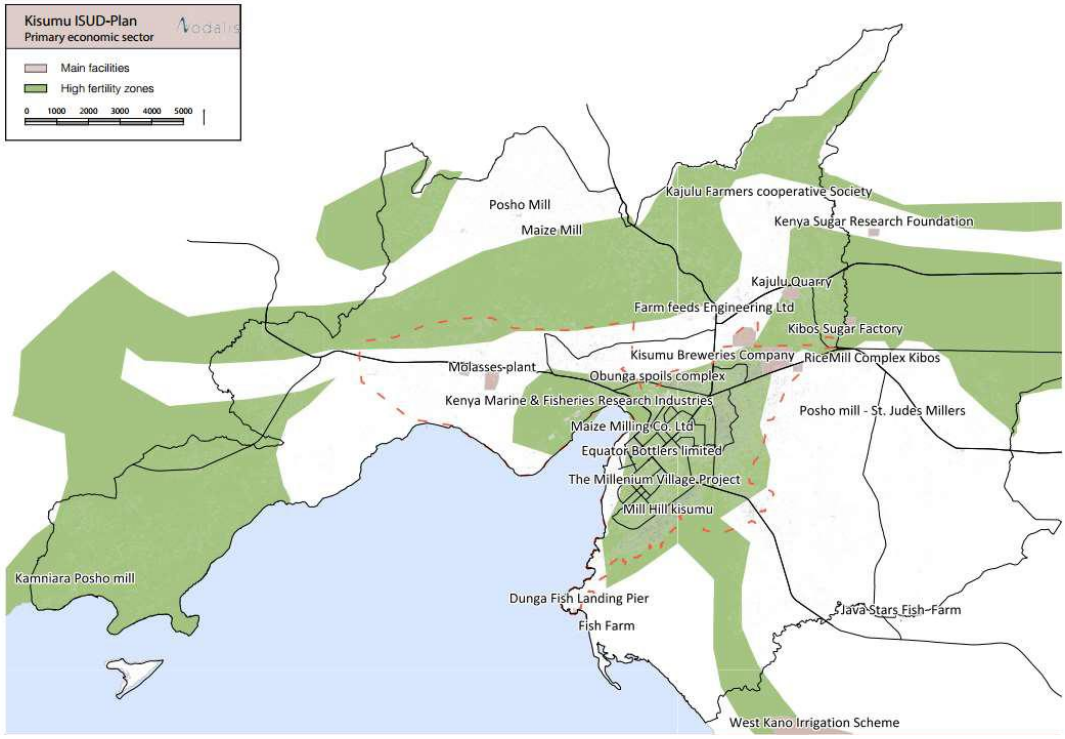


Fig. 4.15: Economic activities
Source: ISUD Plan

4.3.2 Transport, Trade and Commerce

Kisumu's vocation to play a key role in air, water and rail transport at the scale of the sub region is well established and confirmed by policy makers. Kisumu is one of the key transit node in the Northern Corridor – a multi-modal corridor, encompassing road, rail, pipeline and inland

waterways and intended to link the land locked countries of Uganda, Rwanda and Burundi, Eastern part of the Democratic Republic of Congo, Southern Sudan and Northern Tanzania with Kenya's maritime port of Mombasa.

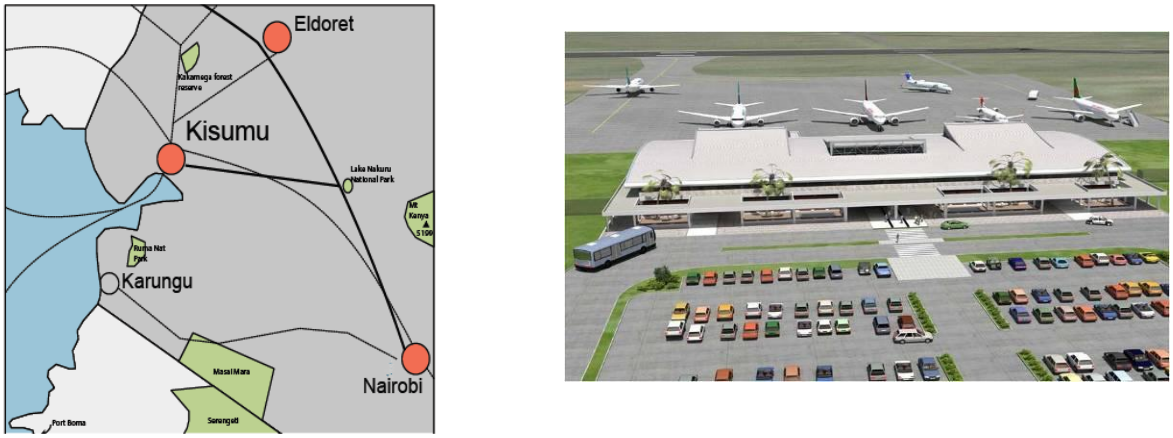


Fig. 4.16: Local Air connectivity and Kisumu International airport
Source: https://www.google.com

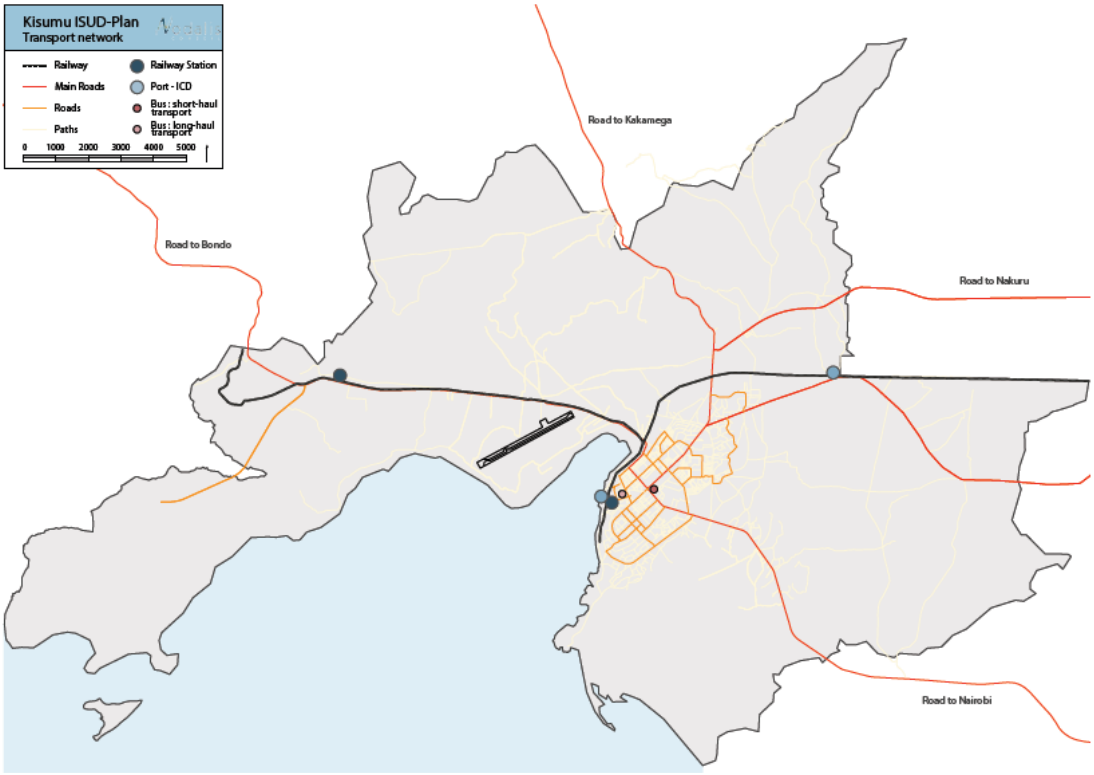


Fig. 4.17: Transport network
Source: ISUD - Plan

The organisation responsible for the management of the Northern Corridor is referred to as the Northern Corridor Transit Transport Coordination Authority (TTCA-NC). The city also hosts a all the main financial institutions including the Central Bank of Kenya.

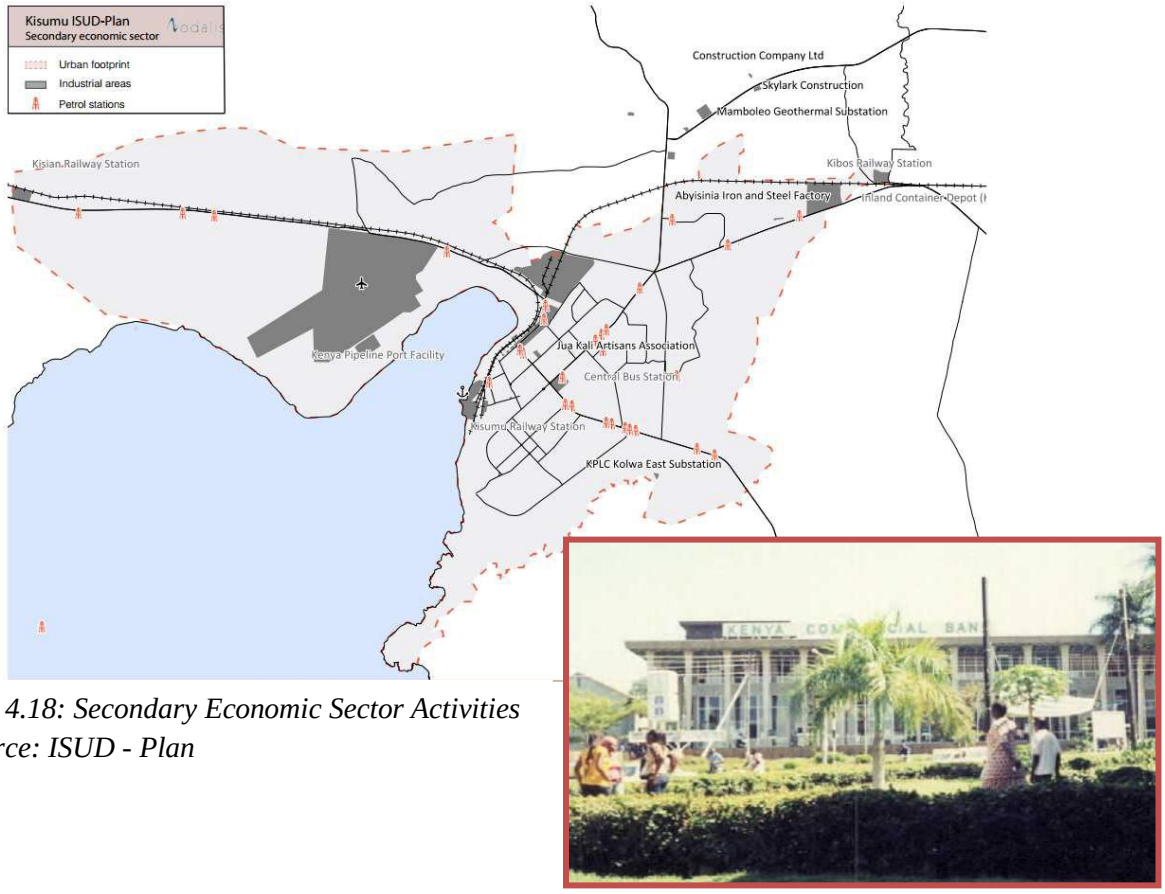


Fig. 4.18: Secondary Economic Sector Activities
Source: ISUD - Plan

4.3.3 Tourism

The western sector has been identified as the next biggest driver of the tourism sector in Kenya. The County stands at an advantaged position in terms of positioning as tourism destination. Kisumu County sits at the epicentre of all the tourist sites within the East African region with the ability of accessing all of them within a time limit of five hours at the maximum.

The county lies in the Western Kenya tourism circuit. The region has tourist attractions sites around the lake. The western tourist circuit is well served by national and international trunk roads as well as Kisumu International Airport which has been expanded and improved to international standards so as to accommodate larger planes.

The county has a variety of tourist attractions including diversity of landscapes, wildlife, culture and the many historical sites and suitable beaches along Lake Victoria provide enormous potential for tourism growth in the region. The Ndere Island National Park in Seme Sub-county ,the Kisumu Impala Sanctuary in Kisumu City and the National Museum in Kisumu. Historic sites such as Songhor Paleontological Site situated in Muhoroni, the viewpoints in Nyabondo, the legendary Luanda Magere site in Miwani,

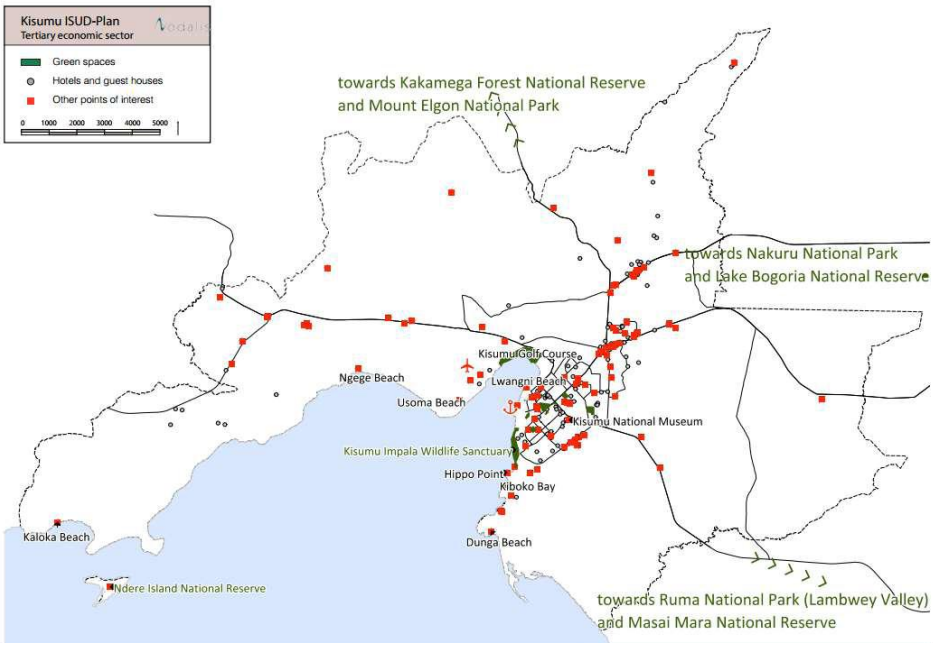


Fig. 4.19: Tertiary Economic Sector Activities
Source: ISUD - Plan

Kit Mikayi in Kisumu West, recreational sailing and sport fishing on Lake Victoria provide attractive sites that need to be fully utilized. Enhanced management and promotion of tourism will earn the county large amounts of revenue that can be ploughed back into developing the infrastructure/social facilities that will further boost the tourism industry.

4.4 Land and Land Use

Kisumu County is generally a satellite City. The land use planning has faced several challenges, the main one being that 80% of the land area is predominantly rural in character and thus demanding a unique set of planning responses. The land ownership type in the County is mainly freehold, putting direct influence on pattern of development on the individual owner's docket. With the ever rising

population especially in and around the City and other areas depicting urban character, emerging land use trends (mainly residential and commercial) are taking up land space that was not initially zoned for them. (*Kisumu County Integrated Development Plan, 2013-2017)*

Areas like the Kibos which was initially zoned for industrial investment has been taken up by residential use, the Riat hills which was reserved for conservation now being a prime residential investment area, parts of agricultural land at Ahero is now being consumed by industrial development(mattress & bread factories) and massive subdivision of initial agricultural land in the hinterland of existing market centres such as Katito/Pap-Onditi, Maseno etc for residential and commercial developments. Also areas of Muhoroni initially set for commercial agriculture being sold out in smaller portions for residential settlements. There is therefore urgent need for reviewing the county spatial planning to address the aforementioned current realities.

4.4.1 Urban Land uses

The county spatial planning should also take into consideration land ownership, land use and control, land acquisition, land allocation and provisions for major land development schemes held by national government, government corporations or by individuals under freehold ownership for closer coordination that is often lacking.

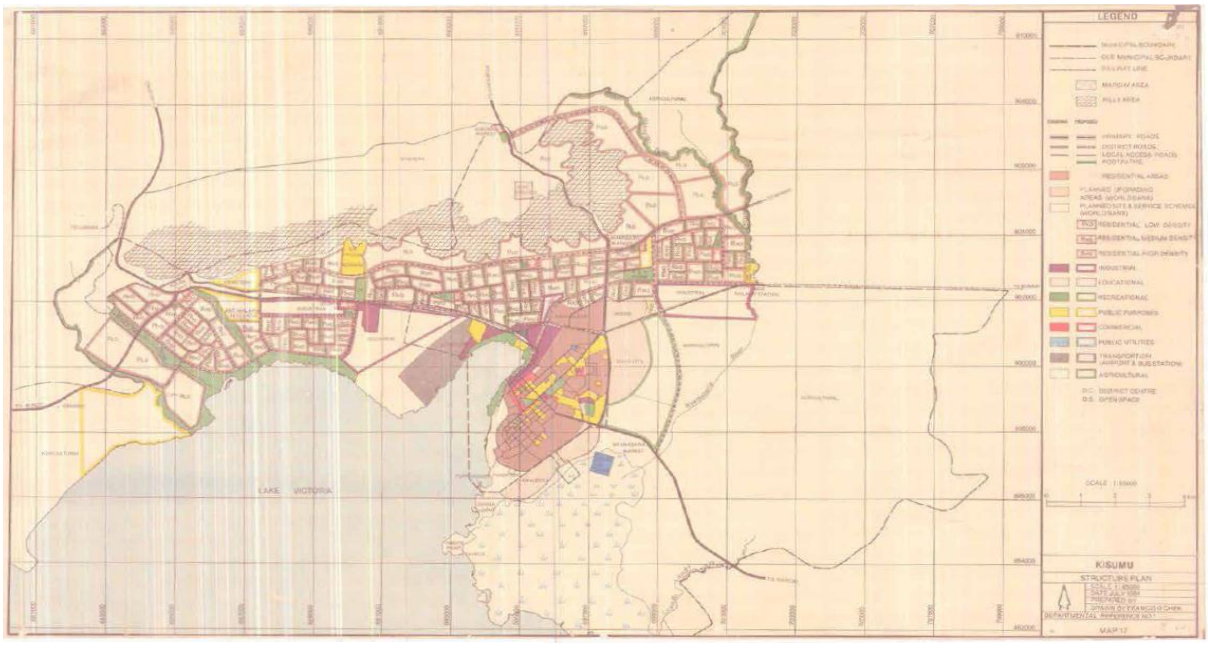


Fig. 4.20: Kisumu 1984 structure plan
Source: KCDS

The 1984 structure plan planned for a growing city with a land use proposal including a large proportion of residential area with three sub designations for three different densities. The plan also increased recreational space and improved their spatial distribution but failed to reclaim the urban shore area. Except for green spaces; it increases industrial land use whilst keeping the actual location by proposing two new locations, one on the Kisumu-Busia road further west after the airport and one to the east on Kibos road in Migosi area. Provision for commercial land use seems insufficient. More importantly, the plan directs growth around the lake, in the area between coastline and the foot of Riat and Kisian hills.

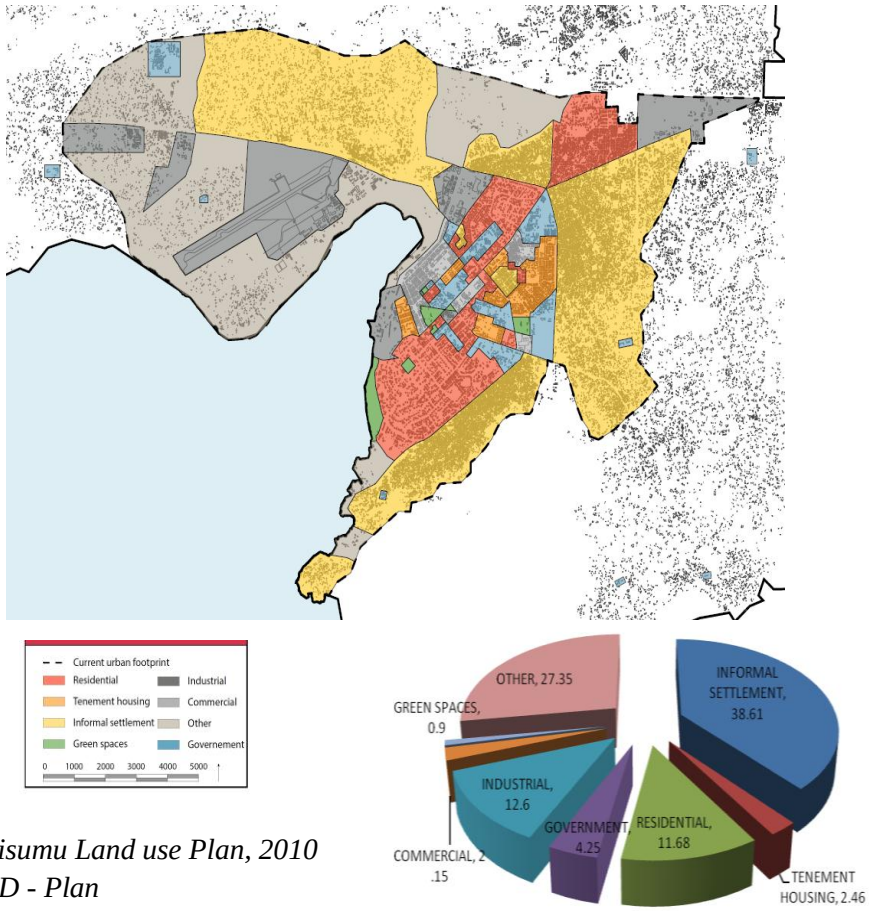


Fig. 4.21: Kisumu Land use Plan, 2010
Source: ISUD - Plan

This key strategic direction did not materialize on the ground for lack of political will and of resources. The situation on the ground therefore largely remains as it was planned in the 1984 structure plan. The notable departure from the plan is the invasion of the recreational space by commercial functions.

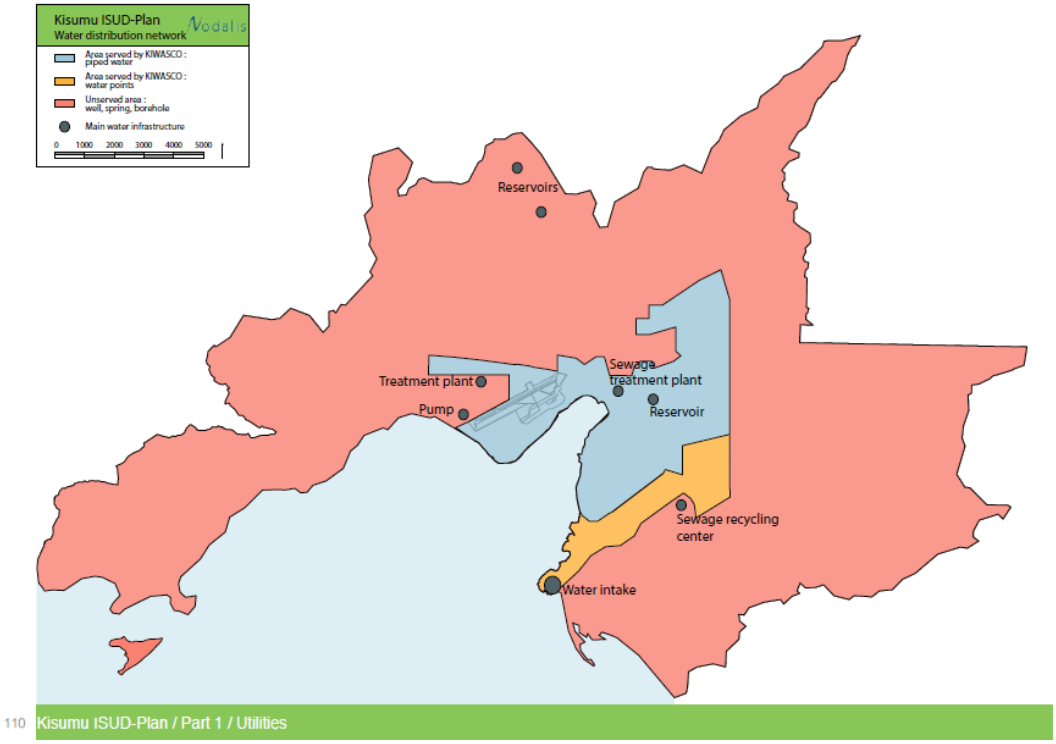


Fig. 4.22: Public Utilities
Source: ISUD - Plan

4.4.2 Land Tenure and Ownership

Land tenure system in Kisumu city can be divided into three broad categories: Freehold land is registered land and held in perpetuity by individuals, companies, cooperative societies or organizations. Private land on leasehold makes up about 25% of the land. The bulk of this is found within the colonial city boundary. The leases run for 99 years renewable based on need. These plots of land are registered and held by individuals, companies, cooperative societies, or organizations. Unalienated public land is vested in the national and county government and accounts for about 6.4% of the city area. This land is used for development of administrative offices, public utilities and social infrastructure.

Freehold

Freehold land is the dominant land tenure system in Kisumu and is estimated to be above 50% of the city's jurisdiction area. This is land registered and held in perpetuity by individuals, companies, cooperative societies or organizations. Lack of effective planning and development control has led to a situation where developments take place without being properly authorized

and where subdivisions are not registered. As a result the city grows haphazardly, without consideration for its global land use demands and in disconnect with infrastructure provision. This tenure type is seen as unsustainable for city development since optimal densification cannot be achieved. Updating the city valuation roll must also be viewed in light of the tenure system.

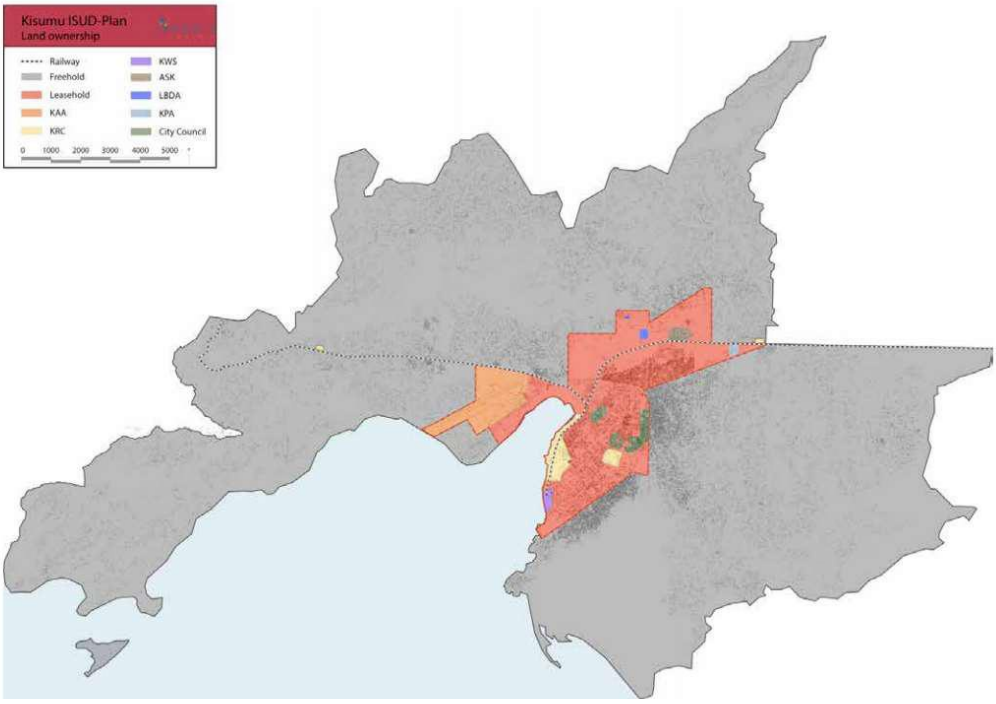


Fig. 4.23: Land ownership
Source: ISUD - Plan

The current valuation roll has tended to focus on leasehold titles only. Inclusion of land on freehold tenure in the roll was met with a lot of resistance from community members who feel that the extra taxation following this inclusion will not be met with service provision. New areas that would have been included in the roll have hampered increase in revenue for the Council since most property owners do not pay land rates. Another issue concerns roll management as it is manually generated and often data does not tally with facts on the ground. An upgrade of the roll is needed together with the adoption of modern technology. Ideally the system should be able to link lot layout, owner and tax roll. The issue of land tenure is also being addressed at national level through the Land Reform process which will have far reaching impact on property

rights. It includes the size/amount of land one can own, the length of tenure, and access and transfer of rights amongst other issues.

Private Land

The bulk of land ownership, whether leasehold or freehold, is private. Private land on leasehold makes up about 25% of the land. The bulk of this is found within the colonial city boundary. The leases run for 99 years renewable based on need. These plots of land are registered and held by individuals, companies, cooperative societies, or organizations. This implies that for any major infrastructure development there will be need to acquire land from private owners. This includes land for new schools, health services, markets, road expansion and so on.

This is compounded by the fact that freehold tenure offers no possibility of revoking the title deed. The only option for the public sector is compulsory acquisition. The recent expansion of the airport exemplifies these difficulties and the high cost inherent to land acquisition for public use and facilities.

Uncontrolled subdivision of private land within the rural area also caused major disorder in the city growth pattern and caused the multiplication of un-serviced community developments without adequate road reserve. Subdivision and planning guidelines are required to curb this trend, as well as some more development control enforcement capacity. As such, Kisumu's development model entails prohibitive compulsory acquisition costs which public authorities would have to bear for road and infrastructure development. Furthermore, it seems advisable to promote a culture of respect for the law for private landlords so as it is understood that land ownership cannot compromise the regulatory and forward planning role of the public authorities. From the public side, a more proactive approach in meeting spatial requirements and development needs of the private sector through better communication on its planning philosophy and land release and re-designation intent would certainly help.

Public Land

Unalienated public land is owned by the County or the National Government and accounts for about 6.4% of the city area. This land is used for development of administrative offices, public utilities and social infrastructure. (ISUD)

It includes all land allocated to public facilities such as schools and health centres, cemeteries, transport infrastructure and road reserves, public housing and open spaces. Land available for such key elements of a functioning city is very scarce, spatially scattered and involves a great variety of stakeholders (authorities, county government who own the land and, squatters on the other hand). Public land also includes protected environmental areas such as open spaces and the riparian strip along the shore-line and the rivers which are gazetted and hence protected by law. The Council has very little land within the City limits. All Council-owned land is developed with residential housing, social and public infrastructure.

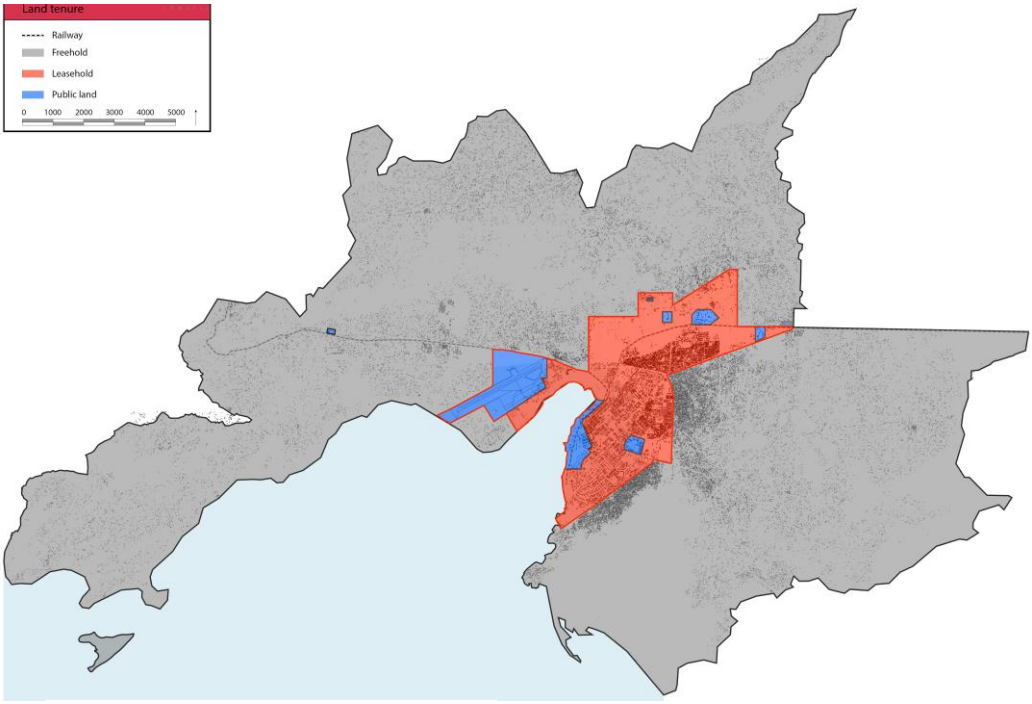


Fig. 4.24: Land Tenure
Source: ISUD - Plan

Government on the other hand has tended to restrict itself to land where it has its offices. These include the Governor's offices, Ministry offices, state corporations and roads in categories A, B and C. The Government has the capacity to acquire land for its purposes (compulsory acquisition) and this has been used to expand highways passing through the city as well as for the proposed by-passes.

4.5 Kenya Railways Corporation (KRC)

KRC is the largest land owner in the city with strategic large lots on the lake shore and in the city. They include the terminus rail station, workshops and hangars, yards and adjacent housing, as well as housing estates and the Kisian and Kibos stations. KRC holding is on a 999 year lease, an inheritance of railway-driven planning from colonial days. In addition to their size and locations, especially on the lake front where it has severed the link between the city and the lake, KRC plots are, under their present status, out of the County planning authority. For good planning purposes and in order to enable it to address paramount urban development issues, i.e., the urban section of the lake shore and renewal of the CBD, KRC holdings should be reverted to the County as public land.

4.6 Public Realm

Public realm refers to the parts of the city which are accessible to and used by the public, it includes streets and sidewalks, piazzas, parks and gardens.

ASPECT	**PARAMETER**
Public access and governance	acquisition of abandoned or underused waterfront lands and converting them to public open spaces
	'nodes' occurring at reasonable intervals along the waterfront
	Short, safe, barrier-free, and pleasant waterfront pedestrian linkages between public access nodes and to the rest of the town.
	continuous recreational trail along the waterfront
	public transit routes that provide easy transit to the waterfront from all over the city
	support systems such as washrooms, seating facilities, and bicycle and car parking
	lighting features
Cultural relics and heritage conservation	Existence of archaeological sites, buildings, structures and artifacts of architectural or historical significance. ***adaptive reuse***. This procedure reuses architecture, preserving the structure of a historic building or element, and adapting a new purpose in its redesign
	new facilities reflect the historical heritage
	spatial organization consistent with the cultural heritage

	scale, architectural design, and quality of new developments, as well as restoration projects, are compatible with and further enhance old towns' overall image and historical themes

Table 4.3: Public Realm Analysis framework
Source: ISUD - Plan

The quality of the public realm in a city greatly influences both its image and living conditions of its residents and visitors. It is also one the most visible areas of the local authority investments, starting with cleaning and maintenance and including street and sidewalk resurfacing, plantations, etc. Quality parks have an iconic character in many cities for which there are part of the their image and reputation, this is true of Paris, London or New York for instance both for public parks such as the Luxembourg Garden, Central Park or Hyde Park. The table below highlights some of the parameters considered in improving the public realm.

5 CHAPTER FIVE: FINDINGS OF THE STUDY

5.1 Introduction:

This chapter presents the data collected and its interpretation with respect to urban-waterfront interface land use issues in Kisumu. The first section presents the geographical context of the study area, and demographic characteristics of the respondents. The second part covers the land use issues and "meaning" of the waterfront area starting with the area designated as SPA 1 and then SPA 2. It also presents an overall evolution situation of the whole study area.

5.2 The Context

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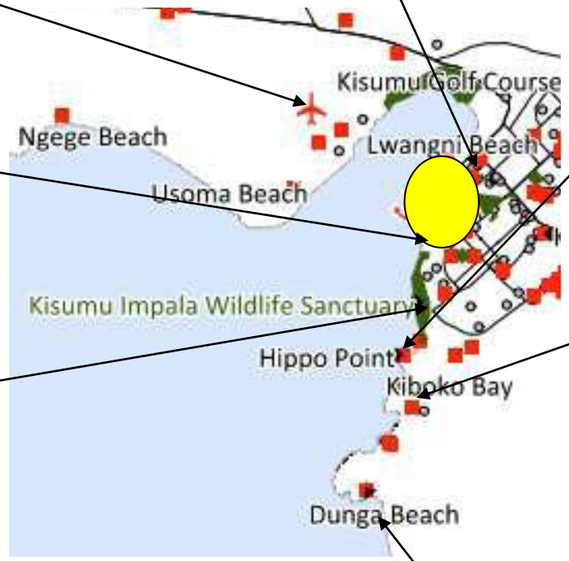

k

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Fig. 5.1: Geographical context
Source: Author

The study area is neighboured by both public and private establishments. The shoreline is dominated by leisure and recreation facilities. The quality of these private and public places is evidently contrasting. The topography is generally gentle and is not attributable to the difference in quality. The major factor at play is the access. The private establishments with controlled access are Kiboko Bay (*e*) and Yatch Club (*l*). The developments on the private properties are permanent, well maintained, attractive and pleasant. On the other hand, developments in the public places are temporary, little evidence of maintenance and less attractive. Next in quality and attractiveness are the Hippo Point and Impala sanctuary. This is attributable to low traffic in the areas and controlled access to the sanctuary. The conditions at Dunga Beach (*f,g,h*) are the least attractive followed by Lwang'ni Beach. The access to these places is challenged by the poor state of the road. Dunga is the worst hit by the poor state of the access road compounded by the distance of 5 km from the CBD. A distance that is not comfortably walkable to many. The study therefore reveals that the quality of space is determined by the ease of access and the traffic. Places with controlled access experience low traffic and therefore are easy to manage. The balance between the concept of universal access to the waterfront and the risk of over-use is important to be established. The private properties have been well maintained but the access is controlled by fee charges. It is worth considering that the public spaces be subjected to minimum affordable charges to control access. Partnerships may be adopted with the private players by, for example, granting trading licenses to dealers whose products can be sold in these areas while they take charge of maintaining their areas of operations.

The private development labeled "j" is controversial and a subject of discussions on the boundaries and environmental impact of development on the wetland. While the vegetation around it is suggestive of the land being a wetland, there are developments and private property in the same area. The study, in this regard establishes that the spatial development plan needs to be reviewed in order to protect the ecologically sensitive areas. Further, the building height seems to defy the existing skyline around the waterfront which is generally low-lying. There is therefore the need for building heights to be prescribed so as to afford visual access to the lake for as many waterfront residents and users as possible. This may be done through adoption of such planning and development guidelines as plot ratios and coverages.

5.2.1 Demographic Characteristics of Respondents

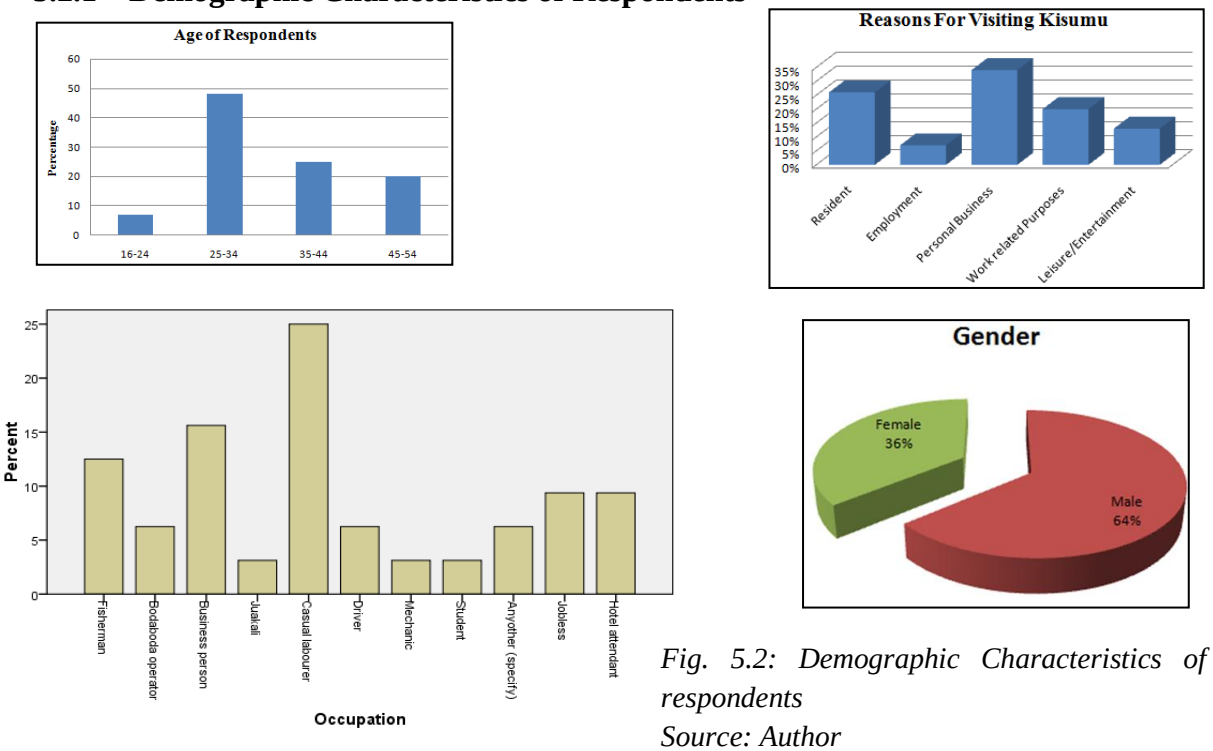


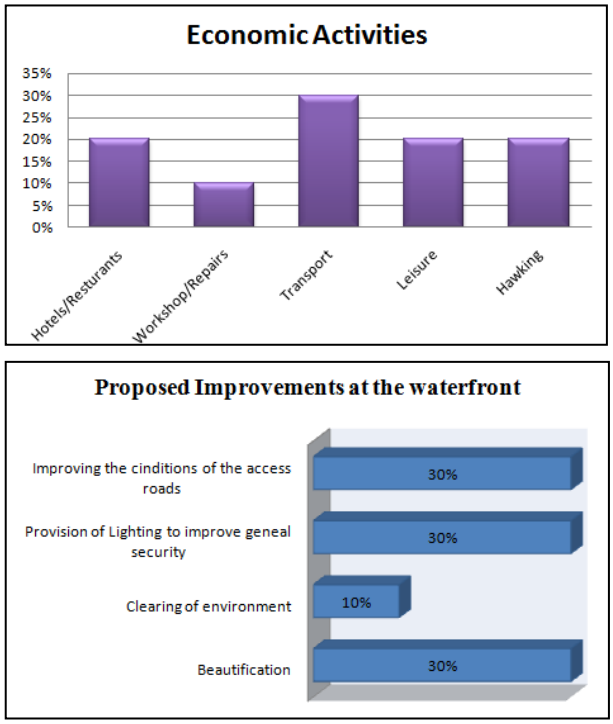
Fig. 5.2: Demographic Characteristics of respondents
Source: Author

The majority of the visitors to the waterfront are middle-aged with 48% being aged between 25 and 34 years. They are followed at 25% by the age group of 35 to 44 years. 45 -54 years age bracket made 20% while 7% was aged between 16 and 24 years. About 64% of the respondents were male with 36% being female. The waterfront users are drawn from an array of occupational backgrounds. The largest proportion is that of casual labourers accounting for about 25%. Business people and fishermen follow at 16% and 13% respectively. Despite its physical proximity to the industrial area, jua-kali artisans and mechanics who work at the industrial area are hardly represented at only 3% each. This can be explained by the fact that the waterfront is seen more as a leisure destination and therefore this category of users would not frequent it. This is also coupled with the pricing of food at a premium. Nonetheless, the diversity reflected at the waterfront is indicative of non-discriminative interest on the waterfront from all sectors of society. Universal access should be pursued but with a clear structure of maintenance of the spaces to ensure that over-use is eliminated and their quality is not compromised.

The reasons for being in Kisumu were varied. The largest percentage of 34% was there for private businesses followed by 26% being residents. Only about 13% were there for leisure. This may be explained by the limited leisure activities on the waterfront.

It is the finding of this study therefore that the interest in water is indiscriminate and disregards the economic status of the members of society. It also establishes that the water is an important source of leisure. However, in Kisumu, the waterfront offers very limited leisure opportunities, mainly leisure sitting while eating and boat rides. Introduction of more leisure activities will present an opportunity to increase the visitors to the waterfront.

5.2.2 Economic Activities



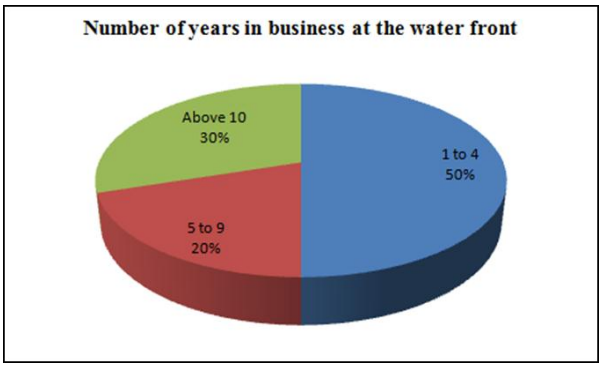


Fig. 5.3: Economic activities on the waterfront
Source: Author

The most dominant economic activity is transportation at 30%. This group encompasses the boda-boda, the tuk-tuk, bicycles and motor vehicles/cars. The boats in this part of the study area do not perform the role of transportation but rather as a leisure activity. Of the respondents, 20% were involved in this activity. It is therefore then finding of this study that there is adequate means of transport to the waterfront. The challenge to be addressed is the quality of the access roads. Another 20% engaged in hawking and restaurant businesses. A small percentage of 10% was involved in the repair of motor-cycles. Most of the operators on this site have operated for

less than 4 years. Restaurant operators form the greater percentage of those who have operated on the waterfront for over 10 years. The study established that except for the restaurant businesses, the other waterfront users are mobile nature. There is therefore no physical investment that would tie them to the same location. A waterfront plan integrating these uses can be achieved by allocating specific spaces for these mobile activities. This will add to the vitality of the waterfront.

The physical condition of the area is of great concern to the users of the waterfront. Beautification, improvement of access road and provision of street lights and improved security are cited at 30 % each as the main improvements that they desire at the waterfront. Only 8% are concerned about cleaning of the environment. This is because the business operators have devised a system of handling their individual wastes. It is therefore the finding of this study that the attractiveness of the waterfront is highly affected by the physical status and cleanliness. Landscaping scheme for the waterfront in a manner that will integrate the water and land is an appropriate approach to improving the waterfront physical attractiveness.

5.2.3 The Meaning of the Waterfront:

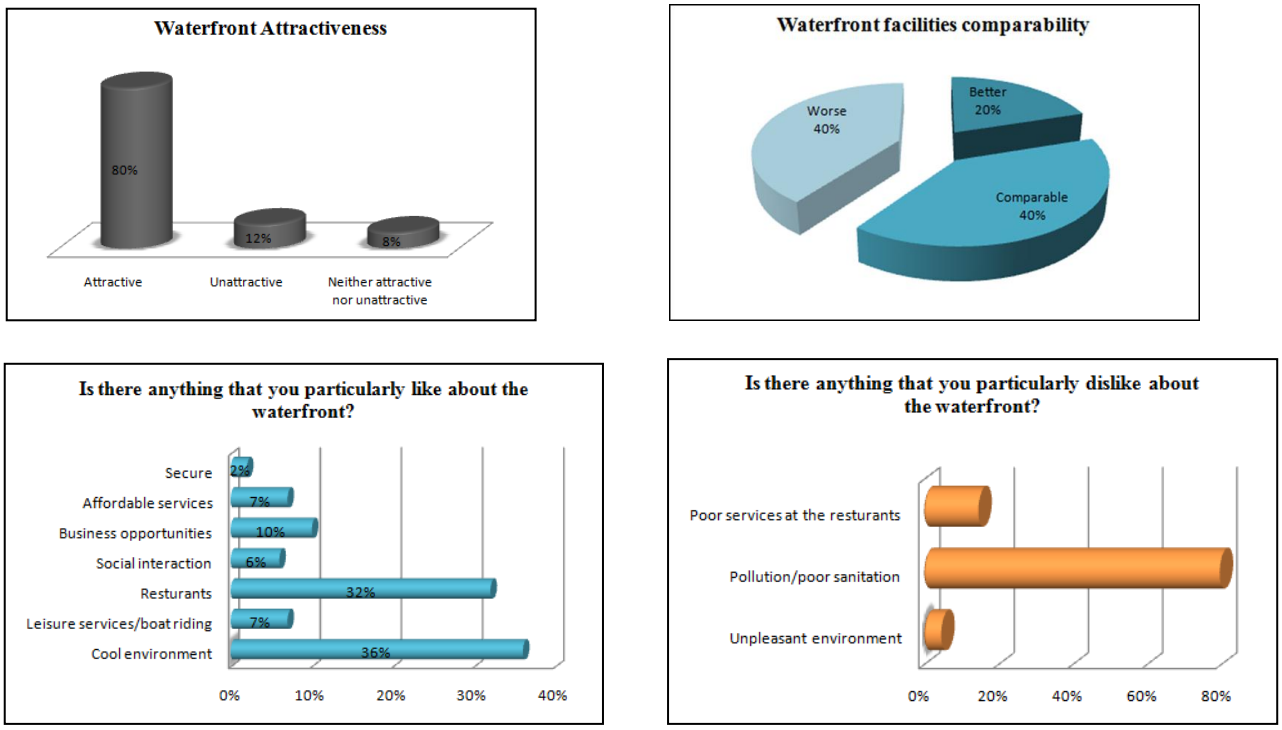


Fig. 5.4: The Character of the waterfront
Source: Author

About 80% of the respondents rate the waterfront as generally attractive. 12% feel the waterfront is unattractive while another 8% feel that it is neither attractive nor unattractive. The reason for the attractiveness is mostly because of the cool environment as mentioned by 36%. The restaurant services contribute 32% of the attractiveness of the waterfront. The waterfront also offers a good opportunity for business with 10% of respondents citing this as the reason for its attractiveness. The unique relaxing quality inherent of water is clearly confirmed by these statistics. Security at 2% is the least contributor to the attractiveness and this resonates with the same issue being a major concern for the business operators. While leisure activities should be one of the major attractions, only 7% find it as an attraction. The only leisure activity is boat ride for which a number of visitors have a phobia. Pollution and sanitation are the most disliked aspect of the waterfront. Most cited was the car-washing activity which was strongly blamed for hyacinth weed and turbidity of the water. The activities on the waterfront should be environmentally sustainable. The waste water generated from the car washing activity needs to be collected and processed alongside other waste water before being discharged in to the lake.

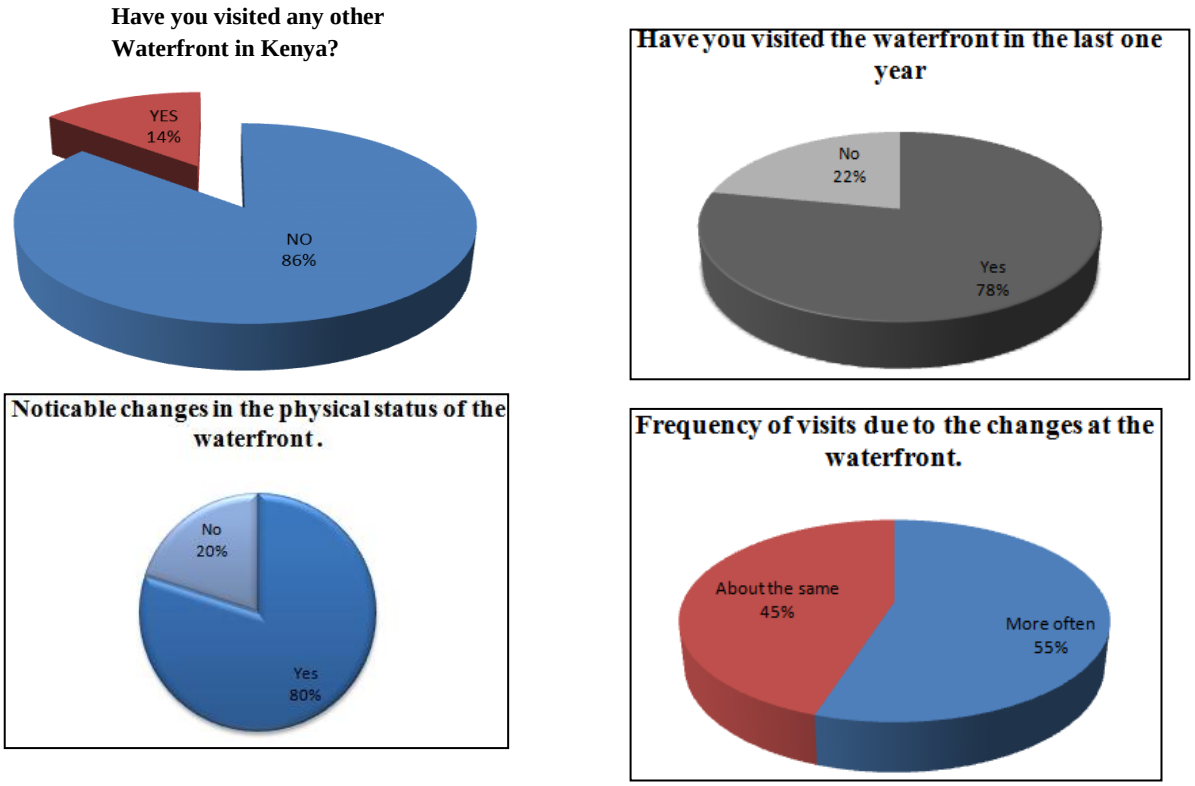


Fig. 5.5: The perception about the waterfront
Source: Author

80% of visitors have not visited any other waterfront within Kenya while 78% have visited this same waterfront more than once within the year. There is noticeable change in the physical status as acknowledged by 80% of the respondents. The three aspects cited most were the improvement on the restaurant floors co-sponsored by the Coca-Cola Company, the reduction of solid waste and the emergence of storeyed structures. Because of these improvements, 55% of the respondents have increased their frequency of visits. This study therefore establishes that this waterfront is critical and is the only one available to a large population. The need therefore to enhance its quality. Universal access to the waterfront is therefore crucial in the design for land uses on the waterfront.

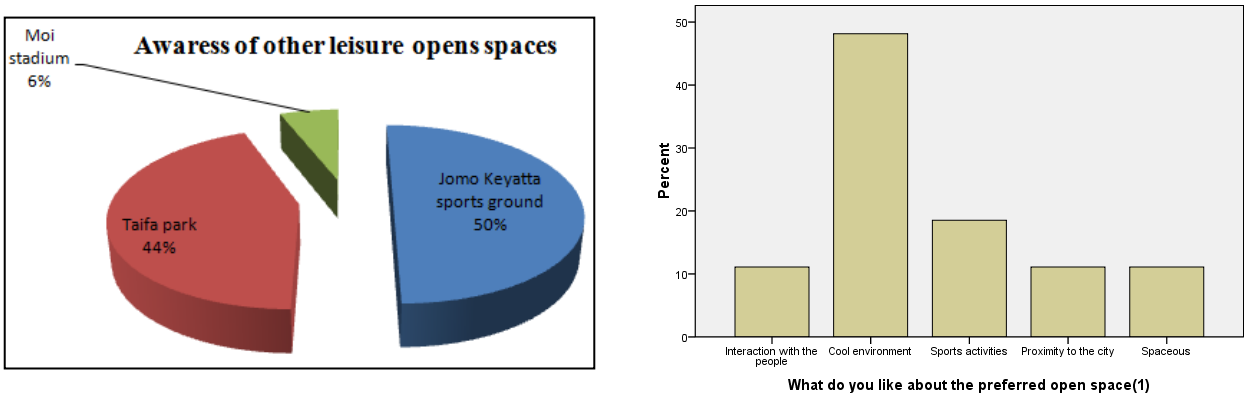


Fig. 5.6: The public open space awareness
Source: Author

Jomo Kenyatta Sports Ground is the most familiar open space with waterfront users at 50%. Taifa Park closely follows at 44%. Moi stadium which is about 3 kilometres away from the city centre is familiar to 6% of the respondents. Conspicuously unrecognized is the City Square. This is explained by the invisibility of the space surrounded by heavy commercial buildings and activities. The scale of the space is arguably inadequate for the activities and developments that surround it. It is the finding of this study that the relative ease of access among these open spaces, the quality/cleanliness and the existence of support facilities in the public open spaces determine the preference and frequency of visits and use by the public.

5.2.4 Accessibility

Oginga Odinga Street is the most preferred access route to the waterfront at 80%. As reflected on the streets matrix (Fig. 5.23), it is the most user-friendly in terms of parking availability,

furnishing, lighting, direct access and clarity. Even the only other alternative route, Obote Road, which attracts few visitors, as it accommodates predominantly industrial and warehouse functions, joins Oginga Odinga Street to access the lake. 44% of the respondents recognize it as the only access route to the waterfront while another 26% prefer it for its directness.

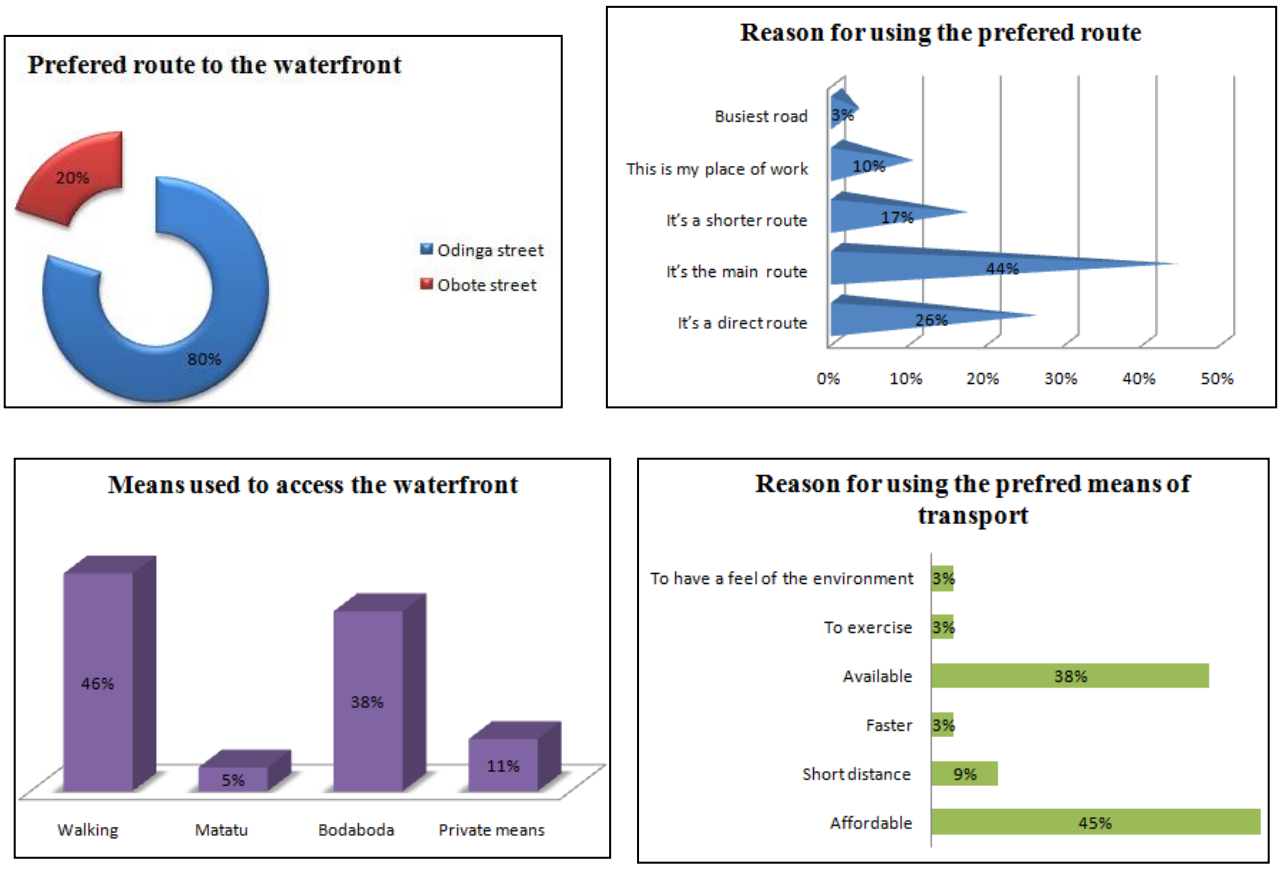


Fig. 5.7: Waterfront Accessibility
Source: Author

The most used means of access is by walking. 46% use this means followed by boda-boda at 38%. This is not only due to the proximity of the waterfront from the urban core but also due to zero-cost of the means. The choice of boda-boda is mainly because of immediate availability and affordability. This preferred means of transport should therefore be made comfortable and a pleasant experience. The street has parking lots, is gentle in slope, shaded by canopies for pedestrians, and generally clean and pleasant and therefore friendly. As a way of improving accessibility, streets should be well designed to accommodate the various modes of transport and

furnished appropriately. A variety of activities and land uses should also be encouraged along the streets. Pedestrian trails should be well designed to encourage the already popular means of transport.

5.2.5 Evolution of The Waterfront

	2003	2005	2009	2010	2014	2015	2016
TILAPIA BEACH	 	 					 
	The site has continued to evolve with addition of structures into the lake. From slaughter house to temporary restaurant structures to permanent structures initially blocking views to the lake but eventually opened up						
LWANG'NI	 	 	 	 		 	
	The transformation is evident on the extreme lower left and upper right corners from temporary mono-pitch roofed structures to permanent pitched roofs with addition of new and multi-storeyed structures						
GOR MAHIA STREET							
	There is no much transformation except for a vertical extension of the highlighted building.						
OGINGA ODINGA STREET					 		
	Only two plots have undergone noticeable transformation, the old British Council Library, now University of Nairobi Towers and Alpha House on the plot opposite.						
OTIENO OYOO STREET							
	A swimming pool is the only change noticeable at Agakhan Hospital.				Demolition of a structure, perhaps in preparation for a new structure around Kamas.		

Fig. 5.8: Waterfront Evolution
Source: Author

From fig. 5.8, there is a higher rate of evolution on the shoreline compared to the areas that are distant from the shore. Tilapia beach records the most tremendous evolution from a slaughterhouse to a simple outdoor restaurant with a few round grass thatched huts. It then evolved to more permanent iron sheet structures. Due to what appears to be lack of understanding of the role of visual connection with water, the more open round structures were replaced with more opaque and fully solid walled structures. These would later be pulled down and replaced by permanent but visually porous structures with half walls or no walls at all upon realization that the clients preferred spaces that were visually open to the water. It also serves as a clear evidence of change of use from a less to a more water-dependent activity. The entrepreneur seemed not to be keen on conserving the remnants of the former slaughterhouse structure. The study therefore establishes that the connection to the water must be considered in the architectural designs of the structures on the waterfront. The study also established that there is need to sensitize on the importance of conservation to keep the history of the place. Adoptive reuse of historical structures should be encouraged.

Lwang'ni restaurants have equally undergone substantial evolution both numerically and in quality. The first notable change was recorded under a joint venture with Coca Cola company that came in to give financial support for the improvement of the structures from mono-pitch (single sloping) roofs to pitched roofs and laying of tiles on the floors. This in exchange for exclusive branding rights of the restaurants and restriction to only sell Coca Cola products. In this regard, the study establishes that there is great potential in partnerships in improving the waterfront. Partnerships can be upscaled to the levels of Government and the Private Sector.

New establishments have come up while others have expanded both horizontally and vertically. Horizontally, some restaurants have extended right in to the water while others have developed in to multi-storey structures. The study therefore found out that the demand for space at the waterfront is high and people will do what is possible to get such space. There is need to avail more space on the waterfront and adopt sustainable technologies that will allow development into the water.

PARAMETER BUSINESS	Ownership of the premises	Years of operation	Previous location	Reason for location	Alternative preferred location	Access to suppliers	Access to customers	Days of max. activity	Hours of max. activity	No. of employees: P/C*	Major challenge
B1	OWNED	>10	N/A	High sales	None	Poor	Poor	Fri. – Sun.	12–3p.m, 6 – 9 p.m	4/14	Poor roads
B2	LEASED	>10	N/A	High sales	None	Fair	Fair	Fri. – Sat.	12–3pm	4/6	Poor services
B3	LEASED	5-9	Juakali	High sales	None	Fair	Good	Fri. - Sat	12–3pm	3/5	Poor roads
B4	LEASED	>10	N/A	No alternative	Any other	Fair	Fair	Fri. – Sun.	11–3pm	3/7	High levies
B5	LEASED	>10	Busstop	High sales	None	Good	Good	Fri. – Sat.	12–3pm	4/9	Insecurity
B6	LEASED	5-9	CBD	High sales	None	Poor	Good	Fri. – Sun.	1–3pm	4/6	Sanitation
B7	LEASED	>10	N/A	High sales	None	Fair	Good	Fri.	11–4pm	3/8	High levies
B8	LEASED	1-4	N/A	No alternative	Any other	Poor	Fair	Fri. – Sat.	12–3pm	4/5	High levies
B9	LEASED	>10	N/A	High sales	None	Poor	Poor	Fri. – Sun.	11 – 3, 6–10 pm	3/9	Poor roads
B10	LEASED	>10	N/A	High sales	None	Poor	Fair	Fri. - Sat	12–3pm	4/8	Poor roads
B11	LEASED	5-9	Kibuye	High sales	None	Poor	Fair	Fri. - Sat	12 – 4 pm	4/6	High levies

*P/C – Permanent/Casual

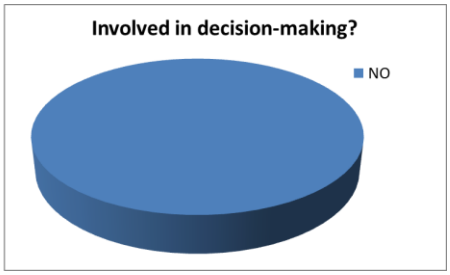
Note: the waterfront remains the preferred location of the businesses with majority having no alternative locations.

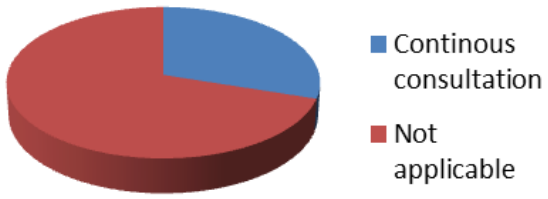
Table 5.1: Synthesis of business questionnaire
Source: Author

From table 5.1,column 1 reveals that the business operators on the waterfront have leased the spaces except for Tilapia Beach Restaurant. This is because most of the land is owned by the KRC which has leased it out. The statistics revealed that most of the businesses have operated on the waterfront for more than 10 years (column 2). The main reason attributed to this is the attractive returns as captured in column 5. The business operators see no alternative place for their businesses. With regard to this, the study deduces that the waterfront is unique and has no comparable or alternative.

Access is recorded as a major challenge for the waterfront users. It is challenging to access supplies and customers as well. Some supplies are reported to come from as far as the neighbouring countries of Uganda and Tanzania. The study establishes that the challenge is due to poor connectivity and poor stste of infrastructure, especially the roads. This would be overcome by improvement on the state of roads and rejuvenation of the water transport.

5.2.6 Governance and Participation





Are you ever involved in decision making on matters affecting you?

How can participation be improved?

Fig. 5.9: Governance and participation
Source: Author

Although the Planning authorities report that they consult with the stakeholders on matters affecting the waterfront, the users at Lwang'ni contradict the statement and report that they get information from third parties about consultations between the authorities and their landlord, KRC. This has failed in certain instances such as when it wa resolved that the carwashers be relocated to a site next to the Polytechnic which they rejected on the basis of access to their clients. There is need for the operators to organize themselves and establish formal structures through which they can be consulted, their interests addressed and participation guaranteed.

5.3 SPA 1

Tilapia Beach Resort

(a) (b) (c)

Fig. 5.10: Physical Status of Tilapia Beach Restaurant
Source: Author

This is a privately owned facility that occupies about 2 acres. Though there is contention as to the legality of the ownership, with the county government claiming irregular allocation of the land. The land initially served as a slaughterhouse as evidenced by the remains of the structure captured on fig. 5.4 (a). The establishment gets its supplies from as far as the neighbouring countries of Uganda and Tanzania.

One concern for the operator is the fees and levies paid by the business. Annex 8 shows the levies charged on the business. To reduce on the expenditure, the establishment only has 4 employees on permanent basis. The major concern for the entrepreneur however is that of infrastructure. The access road is of murram quality with a lot of potholes. There is no street lighting. The facility uses pit latrines for waste disposal as the area is not served with a sewer line. The place is topographically separated by a steep drop from the Obote Road and is therefore only accessible through Oginga Odinga Street. Furthermore, the industrial buildings and the power sub-station pose a challenge of compatibility. This sub-station should preferably be relocated to release the land for more appropriate and water-related land use. The entrepreneur does not recognize the structure previously used as a slaughterhouse as a historical heritage worthy of conserving. In the immediate neighborhood is an obsolete fish-landing bay which is no longer operational. This space should be considered for more valuable use. Further to the north are the Hindu, and Sunni Muslim cemeteries, developments from which the urban public wishes to be isolated. These “isolation” uses have not drawn on the inherent specialization of waterfront

land (with the exception of sewage treatment plant uses). These isolation uses, especially for sewage disposal, generally degrade the aesthetic environment, and often the quality of adjacent waters as well. The turbidity at this point is high due to its proximity to the waste water inlet into the lake from Kisat River.

Like the other waterfront restaurants, maximum business is recorded between Friday and Sunday. On the mix of activities, she proposes the inclusion of other leisure activities like boat cruises, performance theatres and shopping facilities. This is yet another indicator that the waterfront plays a critical role in leisure activities yet constrained by land use challenges.

5.3.1 Lwang'ni Beach Restaurants




(a) *(b)* *(c)* *(d)* *(e)*


(f) *(g)* *(h)*




(j) *(k)* *(l)* *(m)*

Fig. 5.11: Physical Status of Lwang'ni Restaurant
Source: Author

Accessibility to Lwang'ni is a major challenge. Access point is only from Oginga Odinga Street. The infrastructure on this part of the waterfront is generally poor. The access roads is of murram quality and characterized by potholes from the point of turn from Oginga Odinga Street to Obote Road. It is neither proximate to nor has a direct access to any public open space. Challenges of sanitation and public health facilities exist. There is no sewer connection to the area thus pit latrines are the waste disposal means which is environmentally unsustainable. Until recently when the entrepreneurs shared costs to get connected by KIWASCO, there was no portable water.

The railway line creates a strong edge between it and the CBD. It is further blocked both physically and visually from the CBD by the industrial buildings on Obote Road which have blank walls facing the lakeside. The building typology here is industrial which are opaque and do not embrace such concepts as arcades which encourage through-access. There are neither canopies on the buildings nor pedestrian walkways. Obote Road itself is designed as a highway and has no provision for pedestrian-friendly access to the waterfront. In close proximity is an underutilized fuel depot.

This zone is purely dominated by restaurant services. Each restaurant is approximately 6 metres wide by 36 metres long. Ngege Self Help Group is the organization bringing together the restaurant operators at Lwang'ni beach. It has a membership of 21 against the total number of 28 restaurants. There is clear signage (Fig 5.5 a) erected as part of improvements sponsored by the Coca Cola Company. It is this improvement that saw the transformation from mono-pitch roof (Fig 5.5 b) to gabled roofs (Fig 5.5 c) and floor tiling. The place has poor access, no street lights and no designated parking area.

There are serious notable physical developments, changing from single level (Fig 5.5 c) to double level and entering into the lake to create floating restaurant (Fig 5.5 d).

Governance: Hawking is one of the informal activities on the waterfront. They are registered with Lakeshore Hawkers Self-Help Welfare Group. This group has a membership of 25. They don't pay any fee to any organization but only make a weekly welfare contribution of 100 shillings when they meet on Mondays. One reason for the formation of the association is to address accusations by the restaurant operators that the hawkers are responsible for frequent loss

of restaurant customers' properties. Boda-boda riders offer critical transport services to the waterfront visitors at an average cost of Kshs. 50 to the city centre. They face stiff competition from Tuk-tuk (3-wheeled motor cycles) with a capacity of 3 passengers who are able to charge KShs. 30 per passenger. Lwang'ni Boda Transporters Self-help Group brings the motorcycle operators at Lwang'ni Beach. It is also a new organization whose registration is in the process. They face the challenge of another organization called Boda boda East and Central Zone Society which covers a larger area including their area of operation. Lwang'ni Boda Transporters Self-help Group has a membership of 35 but only 17 are active.

Boat riding is a common leisure activity. They operate under Kavirondo Boat Ride Association membership of 27. There are a total of 8 boats. Two individuals own one boat each while 2 other individuals own three boats each. The other 19 members of the association are brokers who convince the customers and the boat riders and employees who are paid on a 30% commission basis. The cost of hiring a boat ranges from a minimum of 100 shillings for more than 4 customers to 200 shillings per person for less than 4 customers. The association is registered with Kenya Maritime Authority, to which it pays 10,000 shillings per year and 3000 shillings renewal fee per month.

Car washing is another activity in this area. There are three groups of car washers within the same area at different points along the shore. Those involved in this activity are not registered as a group due to the illegal nature of the business that is associated with environmental degradation of the lake. The county Government made a proposal to register the members in to an association on condition that they are relocated to a site near Kisumu Polytechnic, located about 3 kilometers away. This proposal was rejected by the car washers on the basis of their target clientele. Their main client base is that of restaurant customers which they reckon is lacking at the proposed site. They are of the opinion that they should be allocated space along the waterfront. This proposal appears rational only if accompanied by a sustainable way of handling the waste generated by the activity. There are also environmental challenges arising from activities such as solid waste dumping.

An umbrella body is being constituted to bring together all the Lwang'ni beach users. The total number of the users is estimated at 270 but those so far actively involved in the preparations for

registration are about 100. The members are yet to agree on a name. This umbrella body is the vehicle through which these users expect to defend and protect their common interests. Of particular concern to them is the continuous threat of displacement if and when the waterfront land is improved. They report inadequate involvement in decision-making on matters affecting the waterfront. From the discussions, it is the finding of the study that this part of the waterfront is generally single purpose with no variety of activities, therefore lack of vitality.

5.3.2 The Kenya Railways Corporation

Both port and railway, once the main economic actors of Kisumu, do not provide nowadays the activity and employment they used to. The activities have steadily declined over the years, courtesy of development in road transport with their fenced sites remaining out of bound and mostly unused. Historically, the access to this place was controlled and it was equipped with a police station to ensure security.

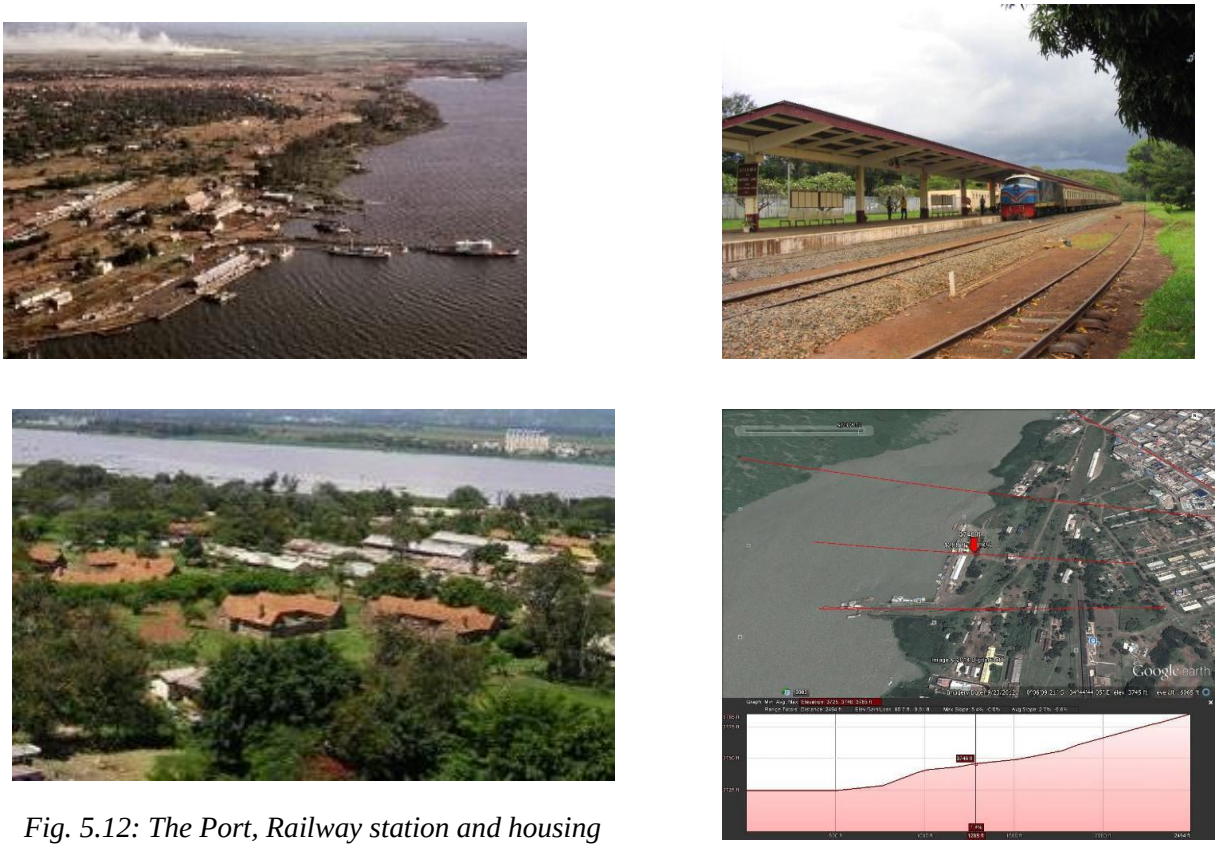


Fig. 5.12: The Port, Railway station and housing
Source: Author

There are no uncrossable highways proximate to this land and this makes it relatively easier to establish pedestrian trails. The area lacks access to any public open space. Rusting vessels now litter the foreshore causing environmental pollution. Deteriorating piers and retention structures, rotting and partially collapsed cargo handling sheds, warehouses, and wharves characterize the waterfront, contributing floating debris to the navigational channels, and capturing silt and debris at water level. The traditional transportation, industrial and isolation uses of waterfront land have been single-purpose uses, planned at a time when land scarcity in urban areas was less of a planning constraint than it is today. But under the conditions imposed on planning by the contemporary urban environment, such single-purpose uses are neither efficient nor especially relevant to urban needs. For example the public demand for open space and recreation resources in the city has risen, as per capita incomes have risen.

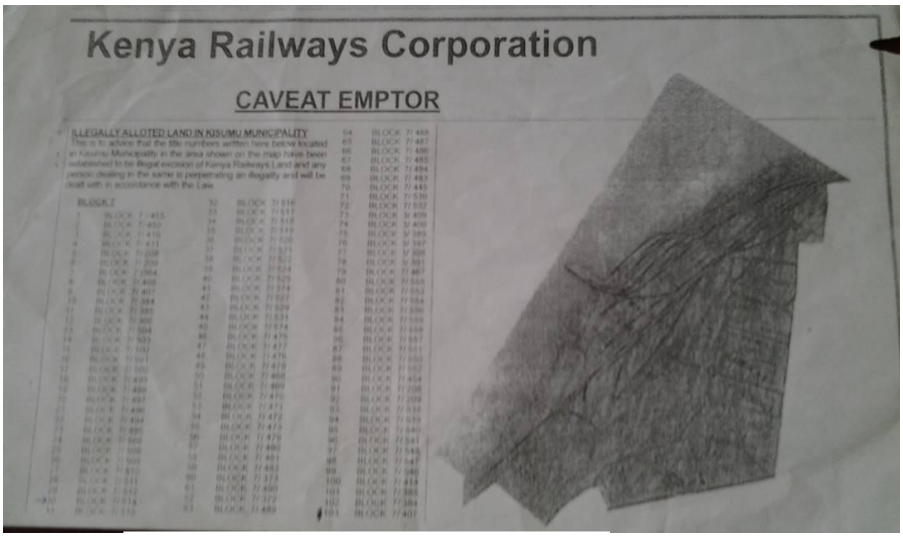


Fig. 5.13: Caveat on KRC land
Source: Daily Nation Newspaper

The neglected low density houses don't give value for the land and the physical infrastructure is generally lacking. It is characterized by poor condition of access roads, no street-lights, and blocked storm water drains. Topographically, this is the area fronting the lake with a gentle slope. A very suitable topography for construction projects.

Despite the potential, the area lacks diversity of activities thereby denying the waterfront the vitality that it so badly needs. Lack of development on the land has led to a lot of attempt to grab the land. This has necessitated the placement of caveat on the piece of land as shown in the

figure below. It has also distorted land values, making the waterfront land cheaper than the land at the CBD, which is more removed from the water.

This area constitutes a major historical site whose conservation is critical for the city. ISUD – Plan has proposed retrofitting of the station into a culture and leisure center and the port into and artisan fishing and boating center with lake side restaurants.

5.4 SPA 2

5.4.1 Streets:

Otieno Oyoo Street

Fig. 5.14: The character of OtienoOyoo Street.
Source: Author

The street is 18 metres wide and is positively oriented towards the lake with physical and visual access only terminated by Obote road. It is characteristically divided into two sections by Nyerere Road indicated in black line in fig 5.15 (a) The upper section between Jomo Kenyatta Highway and Nyerere Road is dominated by institutions: Kisumu Boys School, Aga Khan Hospital, Aga-Khan Hall, and Aga Khan Primary School. This section has provision for pedestrian walkway which has been invaded by hawkers and illegal bus stops. The second section between the junction with Nyerere Road and Obote Road lacks order and is dominated by informal *jua kali* traders. This section has no provision for pedestrian walkway, no street-lighting, no signage, and no street furniture. The street has no direct access to open space. The

condition of the road is poor with pot-holes evident and there is no street parking. No notable physical developments/construction projects as illustrated under morphology.

Gor Mahia Street

Fig. 5.15: The character of Gor Mahia Street.
Source: Author

The street is 15 metres wide. The street is positively oriented towards the lake with physical and visual access only terminated by Obote road. The condition of the road is good with minimal pot-holes evident but there is no street parking. The street is mainly occupied by wholesale shops and hardware shops which are characteristic of the industrial zone in which it is. It opens to Taifa Park, which is a public open space. Taifa Park has no public facilities, is not cared for as evidenced by the overgrown grass and potentially hazardous due to occupation by street urchins.

Fig. 5.16: The character of Taifa Park.
Source: Author

There is provision for elevated pedestrian walkway, in fair condition with a few paving slabs broken. The pedestrian walkway is not protected from weather elements and vehicular traffic. No street-lighting and no street furniture is provided. The street records no notable physical developments/construction projects.

Paul Mbuya Street

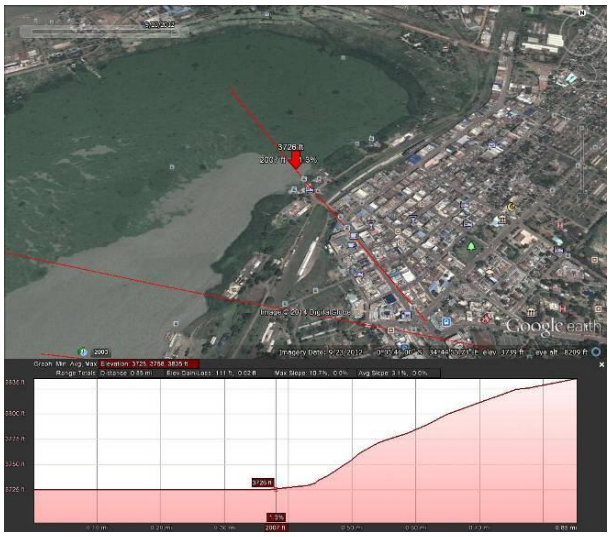
Is 15 metres wide with clear signage. There is provision for elevated pedestrian walkway, in fair condition with a few paving slabs broken. Some walkways are done using distinct materials, i.e. paving bricks. There is street-lighting but no street furniture and no designated street parking. The condition of the road is fair with few pot-holes visible. No. The street is positively oriented towards the lake with physical and visual access terminated by Obote road. It links the CBD to Jomo Kenyatta Sports ground, a public open space. Taifa park has no public facilities. There are no notable physical developments/construction projects.

Fig. 5.17: Paul Mbuya Street
Source: Author

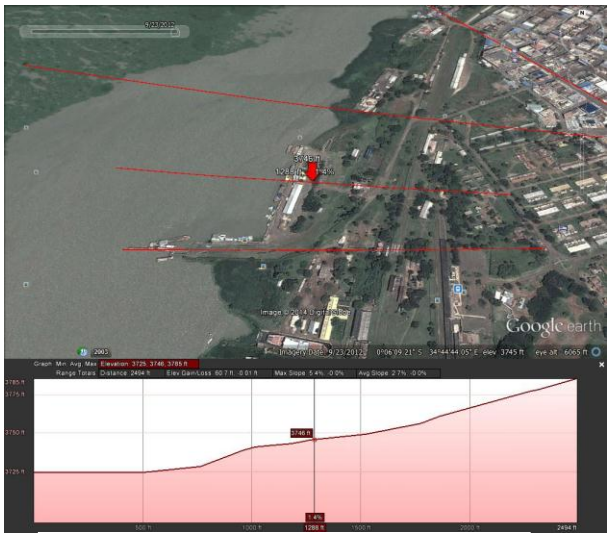
Oginga Odinga Street

The street is positively oriented towards the lake with uninterrupted physical and visual access. The street is characteristically divided into two sections. The upper section from the KCB

roundabout to Ogada Street (city clock monument) and the lower section from Ogada Street to the lakefront. The upper side of the street is 21 metres wide.



(a) Section along the Street



(b) Section across KRC land

Fig. 5.18. The Character of Oginga Odinga Street
Source: Author

This is the section with relatively more modern architecture and exceeding the general skyline of 4 storeys. It is this section where phenomenal physical transformation is taking place. Worth mentioning is the University Of Nairobi Towers going 16 floors and Alpha House that is being redeveloped to 7 floors.

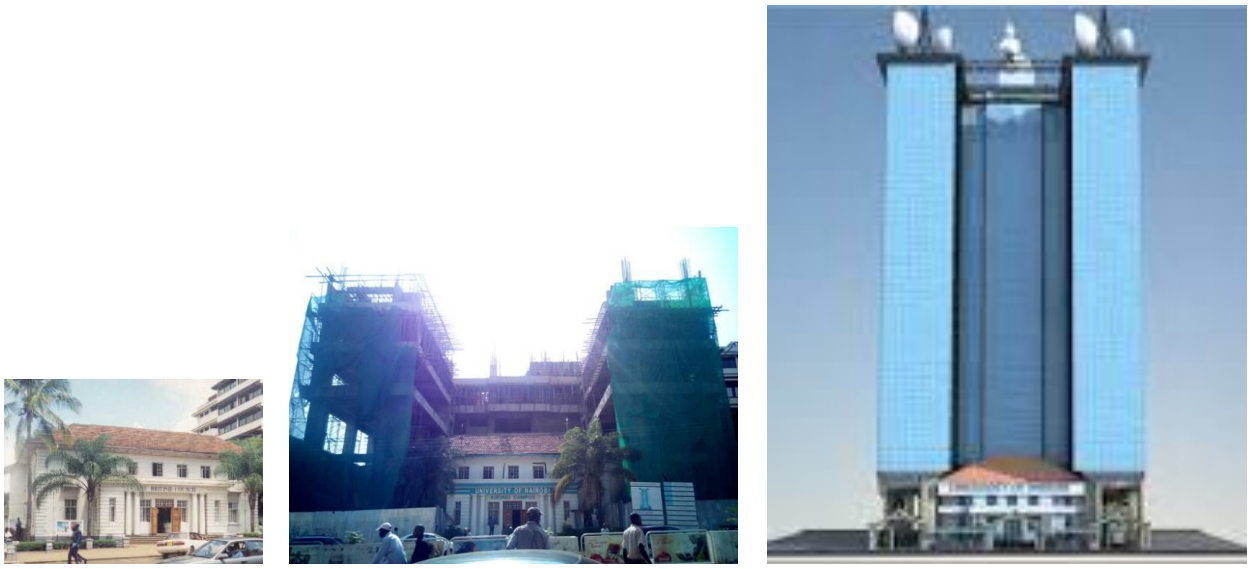


Fig. 5.19. Transformation on Oginga Odinga Street
Source: Author

Mid-rise development (4-10 storeys), with underground parking should achieve an appropriate balance for the waterfront. Most waterfront plans permit a maximum height of six storeys (with a minimum height of 4 storeys), with an additional two storeys available under a 'public benefit' density bonusing formula. The density bonus permits additional height if the developer provides specific and quantifiable public benefit as part of his / her proposal, to a predetermined maximum.

This approach is used in most cities now and can be permissible through legislation. Density, mass, and height of new development should step down so new construction is compatible in scale and design with existing adjacent residential neighborhoods.Mid-rise development (4-10 storeys), with underground parking should achieve an appropriate balance for the waterfront. Most waterfront plans permit a maximum height of six storeys (with a minimum height of 4 storeys), with an additional two storeys available under a 'public benefit' density bonusing formula. The density bonus permits additional height if the developer provides specific and quantifiable public benefit as part of his / her proposal, to a predetermined maximum. This approach is used in most cities now and can be permissible through legislation. Density, mass, and height of new development should step down so new construction is compatible in scale and design with existing adjacent residential neighborhoods.

The lower section is 15 metres wide and characterized by old architecture of two to three level buildings with colonnaded walkways. There is no visible physical development in this section.

Fig. 5.20. Lowers section of Oginga Odinga Street
Source: Author

The section of the street to the lake is very steep. This greatly enhances storm water drainage in to the lake. It also favours various means of transport to the waterfront but becomes a challenge for the non-motorized means from the lake to the city centre. This explains why bicycles are not common as means of transport in this respect. The street is very accessible to Jomo Kenyatta Sports ground, a quality public open space. There is provision of elevated pedestrian walkway in fair condition with a few broken paving slabs. There is clear signage, street-lighting, clear designated street parking and street furniture is provided at the City Square Park. The condition of the road is good with no pot-holes visible. The landscaping of the street enhances its character which makes it attractive and friendly. Street vitality enhanced by the variety of activities including trading, offices and leisure facilities. This makes it unsurprisingly the most preferred access route to the waterfront.

This study establishes that this street is not only the main access route to the waterfront but is also the main street of the city. It also registers one of the highest rates of transformation and of phenomenal extents. It is therefore critical that developments along this street are regulated by use of urban design guidelines and site plan reviews to enhance view corridors and strong physical linkages between the street and the waterfront. The impact of new development on street level and waterfront microclimates must be considered and minimized prior to approving development applications using such tools as shadow studies.

Fig. 5.21: The upper section of Oginga Odinga Street
Source: Author

Obote Road

The street is 24 metres wide and has clear signage. The condition of the road is good with no pot-holes visible after recent repairs. No clear designated street parking. There is no provision for pedestrian walkway, no street-lighting and no street furniture provided. The street is negatively oriented against the lake with neither physical nor visual access. In fact, the buildings are backing rather than facing the lake. Not proximate to and has no direct access to any public open space. Street vitality lacking due to single type of activity i.e. industrial uses. Serious notable physical developments/construction projects, but still industrial in nature. The development being undertaken is that of vertical extension of the buildings. This poses serious threat to the

visual access of the lake from the other streets that run from the urban core towards the lake. To enhance the waterfront, the industrial uses on Obote Road should be replaced and a mix of water-dependent uses like large and small-scale commercial, cultural and recreational facilities such as movie theatres, indoor markets, concert halls and a convention centre. The study established that this street is purely hard surface and dominated by vehicular traffic with minimal pedestrian traffic. This has a great effect on the thermal comfort of the street users. To reduce this effect, street-resizing is a considerable strategy. It reduces the vehicular traffic while increasing the pedestrian space and experience. Creation of parking as a buffer and installation of bollards on elevated walkways makes them safe for the pedestrians. It also creates opportunities for activity islands that act as nodes, especially at the street nodes.

Fig. 5.22: Obote Road
Source: Author

Streets Matrix

PARAMETER / STREET	Direct linkage with water front	Provision of parking	Buffer between vehicular and pedestrian walkway	Provision of lighting	Adequacy of lighting	Design of lighting	Provision of Street furniture	Provision of services/ restrooms	Signage	Barrier-free	Connection with public spaces	Visual orientation to the lake	Permanent material pavement
OGINGA ODINGA													
PAUL MBOYA													
GOR MAHIA													
TEMPLE ROAD													
OTIENO OYOO													

KEY

Adequate

Inadequate

Not Provided

Fig. 5.23: Street Characteristics
Source: Author

5.4.2 Public Realm

Public realm is occupied by street vendors and hawkers to an extent that sometimes hampers pedestrian movement and vehicular traffic. Public realm in Kisumu also suffers from lack of maintenance and investments, whether considering sidewalks and streets or open spaces, which are insufficient in number and poorly kept. Some of the public spaces are well kept and maintained with provision of requisite facilities and services. One such place is the Central square on Oginga Odinga street while the other is Jomo Kenyatta Sports ground. The study found out that these open spaces are not interlinked by a coordinated system of pedestrian trails. A braided system of pedestrian trails interconnecting the large and small open spaces with other public spaces such as Hippo Point and Impala Wildlife Sanctuary will greatly enhance the value of the public realm. Where these trails intersect with vehicular traffic, grade separation, use of consistent surface materials and enhanced intersection treatments are some strategies that would ensure safety. The study also found out that public spaces installed with streetscape features and well maintained were more aesthetic and attractive to pedestrians and provided a better interface between the urban fabric and the waterfront.

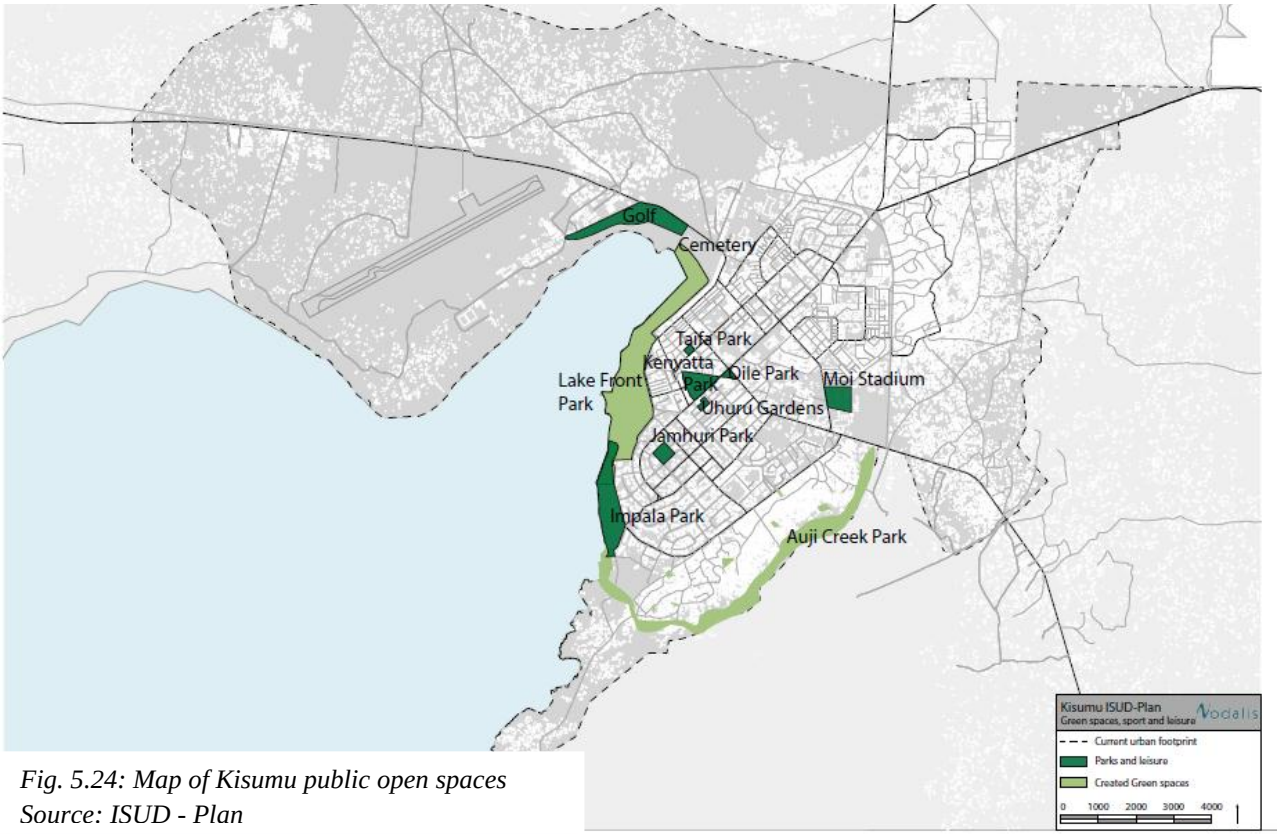


Fig. 5.24: Map of Kisumu public open spaces
Source: ISUD - Plan

Fig. 5.25: Quality of public spaces and streets, and activities thereon
Source: Author

The status of the public realm is of mixed character, some of good quality, while some are of poor quality. Notable of all the open public spaces is the attempt to connect them with the waterfront. The connections are unfortunately not designed as walkways. They lack appropriate lighting, seating and other facilities that would make them comfortable and safe for pedestrian use. Jomo Kenyatta Sports ground is well maintained and attracts large human traffic and high levels of activity. This has in turn worked against it with the access routes and utility spaces invaded by informal activities. Some of the informal activities are food kiosks and clothes and footwear vending. These have encroached on the access routes that have squeezed the routes to less than adequate widths. Some of the structures are built right on top of drainage channels. This is a major cause of blockages which lead storm water overflows. There is need to formally plan for and restrict the activities around the public open spaces in order to maintain high quality and standards.

Fig. 5.26: Fairly well maintained sections around Jomo Kenyatta Sports Ground.
Source: Author

5.5 Land Values Kshs./Acre

As discussed under literature review, a study revealed that on average, a wide water view could increase the mean land value by 50 percent while locations on the coastline could increase land value by 43 percent, if all the other factors are held constant. If the network distance of a property to access the beach doubled, the land price would decline by 17 percent. The land values on the waterfront are greatly distorted and contrast the norm. While the land fronting the lake is valued at between 150 – 200 million shillings, the land in the urban core is valued at 250 million. This is due to underdevelopment and inaccessibility of the KRC land. The expectation is that the land fronting the lake has intrinsic value arising from proximity to water. Release of some of the KRC land for more active land uses will increase the levels of activity and bring more people to the waterfront. This would improve the business opportunities at thewaterfront with the ultimate effect of improving the land prices fronting the water.

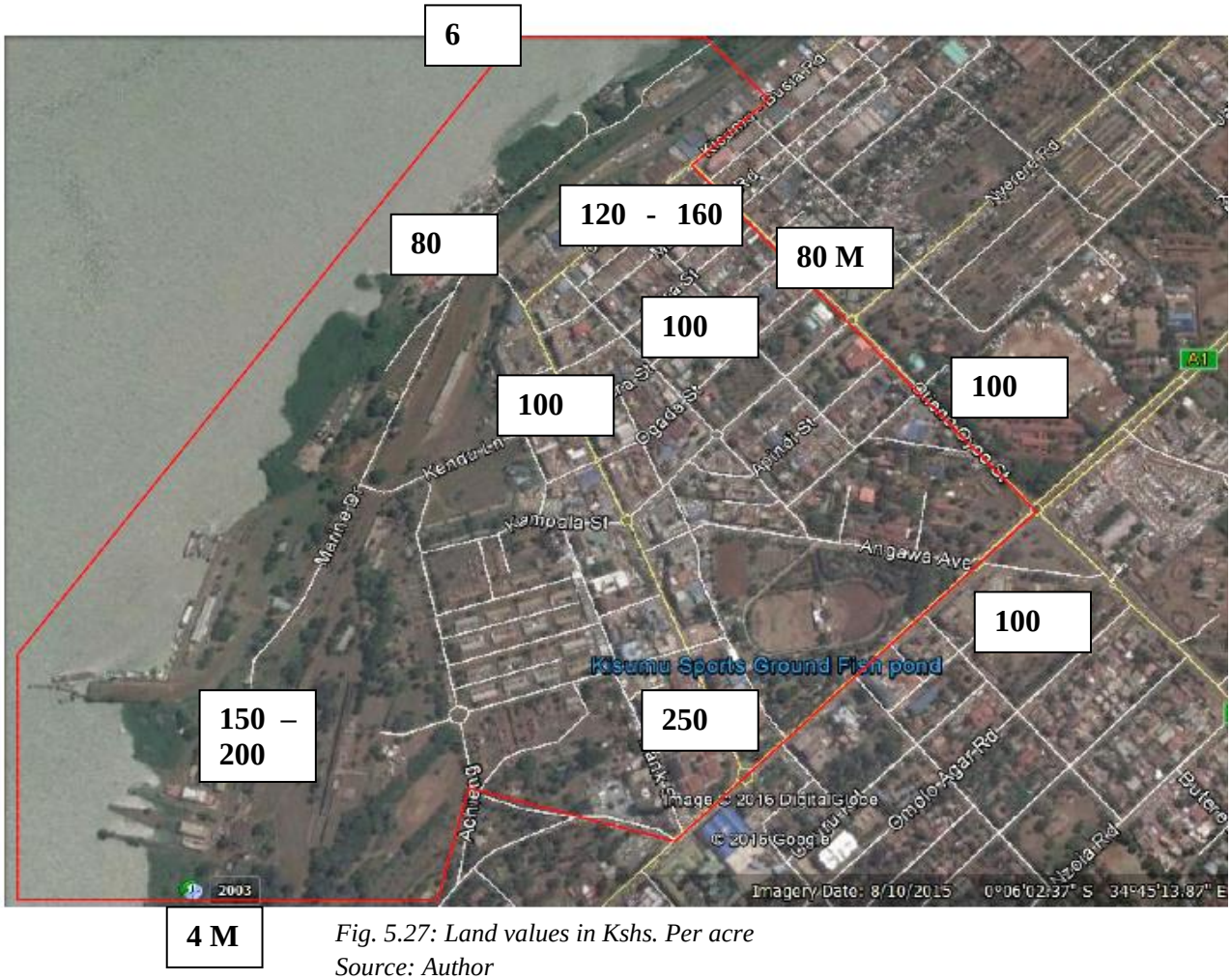


Fig. 5.27: Land values in Kshs. Per acre
Source: Author

5.6 Institutional Framework

Lake management is under the responsibility of the County; the Lake Basin Development Authority, based in Kisumu is in charge of proposing development initiatives for the region whilst two multinational organizations, the EAC Lake Victoria Basin Commission, which published its 4th development strategy in 2011, has a role in promoting integration and development among countries bordering the lake. The management of the waterfront largely depends on the general planning and development framework of the larger urban area. It is of concern that Kisumu urban development including the waterfront is still guided by strict zoning plan. Zoning plans are rigid and identify zones as areas of same type of development. A waterfront on the other hand needs a flexible framework to encourage mixed use developments that increase vitality.

The extension of the municipality boundary brought in a substantial area under freehold land tenure into the municipality. Development on freehold land is not administered under the planning bylaws that demand submission and approval of development proposals. There is need to bring in all the land in the municipality under a regime that will subject developments thereon to the management and control by the County Planning Department.

The recognition of Kisumu's waterfront as a Special Planning Area in the CIDP calls for special development conditions. This means that the regulatory framework for the area should be developed. As proposed in the ISUD-Plan, this should include a semi-autonomous body charged with developing the physical strategy, making the master plan, urban design guidelines, selecting developers and managing the public open space

5.7 Building Typologies

Kisumu is a low lying city with average building heights between two and three stories with colonnaded walkways except for government buildings, the Imperial Hotel and a few others. This has however changed with more recent developments going way past the three storeys. Development should seek to balance height and sprawl in a manner that is considerate of the context and economically viable for the waterfront. Low-rise buildings (<4 storeys) are not appropriate as catalysts for creating activity on the waterfront, nor is there enough development return to warrant their development. High-rise development (>10 storey) maximizes available

open space but is not appropriate for the waterfront context. Surface parking is much more affordable for developers, but compromises the integrity of the waterfront and as such should be minimized wherever possible.

Fig. 5.28: The general skyline of Kisumu and the various building typologies and architecture. Source: Author

It is the finding of the study that the building typologies on the waterfront generally responded to the need for a consistent architectural language of 2-3 storey buildings with colonnaded walkways. Even those that did not have colonnaded walkways provided for canopied pedestrian walkways. The building typologies protected views of the water and created key urban spaces beside every street that enhanced opportunities for visual access to waterfront areas. The relatively new and more modern buildings seem to have ignored this consideration and are non-responsive to the waterfront scale, no longer sensitive to the historical architectural language and historic vernacular building traditions.

Fig. 5.29: Existing Urban skyline undergoing phenomenal change by new developments
Source: Author

The waterfront except the railways housing, is dominated by commercial developments, while residential developments are dominant outside the waterfront, with row houses, semi-detached or small collective blocks being mostly found in public estate and nascent private developments targeting the middle class. The study established that the principle of public good over individual good in waterfront development projects was not in any way being applied. Waterfront developments should give back to create public benefit to the waterfront, contributing public space right up to the footprint of the buildings and not large surface parking lots. They should incorporate active facades oriented to and engaged with the streets.

Fig. 5.30: Various building typologies outside the Waterfront mainly residential.
Source: KCDS

5.8 Summary of Findings

The study noted that the waterfront has remained at the decline stage of waterfront development history characterized by inaccessibility, topographically isolated in some sections, blocked by highways, cluttered with dirty industrial plants and municipal treatment and waste disposal facilities. Idle cargo handling sheds and warehouses occupy the waterfront. The waterfront activities are limited with waterside activities being only boat rides and fishing. The landside activities dominate the waterfront. This is attributable to non-continuity of the waterfront and the single purpose residential and industrial land use on the KRC land that occupies the greater part of the waterfront. The study also established that the parts of the waterfront that is active is purely restaurants which only operate actively between 11.00 A.M. and 4.00 P.M. and between Friday and Sunday. It is only Tilapia Beach hotel that occasionally extends its operations to 10.00 P.M. This implies that the waterfront is a place where visitors and locals go for lunch and relaxation over the weekend.

A consensus exists among all involved in urban development in Kisumu that Lake Victoria is at the same time a unique asset for the third largest Kenyan city and an undervalued opportunity. The same consensus exists on two strategic planning aspects for the city, one being to reconnect the city with the lake physically, visually and functionally, the second being to revitalize the transport hub function Kisumu once had. (ISUD).

In relation to the research objectives and research questions the following is a summary of the study findings.

5.8.1 The Kisumu waterfront development over time.

The waterfront land has continued to remain under the ownership of KRC which lacks the capacity to develop the land and limits its accessibility. Because of this relative inaccessibility, the waterfront land continues to be used for developments that have not drawn on the inherent specialization of waterfront land and have essentially ignored the potential of the water resource and its implications on adjacent land. It has therefore largely remained the same compared to the CBD.

The kind of evolution being witnessed is that which is not controlled, taking place without guidelines and mostly informal on the shore and formal in the urban core. The land fronting the

lake is still dominated by temporary structures due to short term (one year) land leases granted by the Kenya Railways Corporation. The urban core is however witnessing phenomenal transformation as permanent taller structures are erected to replace shorter ones. This is attributed to the form of land ownership that is on long term leases from the government.

5.8.2 Factors that can be attributed to the transformation of the waterfront.

As discussed under theoretical framework, most of the waterfront land uses have evolved without regard to the water resource, and have failed to take advantage of its proximity and the special character it lends to adjacent land. The second half of the twentieth century has witnessed profound changes along abandoned or underused waterfronts. The trend is accelerating in cities around the globe. The greater part of the urban waterfront land is owned by the Kenya Railways Corporation which has been unable to develop it to its full potential. The part leased out to Lwang'ni restaurants is characterized by temporary structures due to insecurity of the land tenure. The decline in rail and water transport puts in to question the viability of the huge land reserves for the railway station as a land use. Further, the low density residential development of bungalows puts the land in a state of gross underutilization. On the waterfront also is an obsolete fish-landing bay which is no longer operational, industrial buildings, silos and a power sub-station. To the north are the Hindu crematorium and Sunni Muslim cemetery, developments from which the urban public wishes to be isolated. These uses have not drawn on the inherent specialization of waterfront land and pose a challenge of compatibility.

The topography is also a challenge to physical access in some areas where there is steep drop to the lakefront from the landside. This is especially so between the warehouses on Obote Road and the lake. Open public spaces work in isolation. There is no network that connects large and small parks and open spaces and wildlife habitats like Hippo point and Impala wildlife sanctuary which should be connected with a "braided" system of pedestrian trails

Poor infrastructure around the waterfront greatly limits access to the waterfront. The only access route to the waterfront from the CBD is Oginga Odinga Street whose status changes at the turn to the waterfront, from bitumen surface to murram and is full of potholes. The existence of the railway line forming a strong edge between the urban core and the lake has limited the

connection between the landside functions and the waterside functions and there are no connections between the motorized transport infrastructure and pedestrian walkways.

Governance challenges of the waterfront arise from, among other factors, the extension of the municipality boundary which brought in a substantial area under freehold tenure into the municipality. This is land registered and held in perpetuity by individuals, companies, cooperative societies or organizations. Development of land under this tenure is largely controlled by the Land Boards created by the Land Act. This responsibility has however been reduced to approval of subdivision of lands and not what kind of development takes place on the land which is mostly agricultural. As a result the city grows haphazardly, without consideration for its global land use demands and in disconnect with infrastructure provision. This tenure type is seen as unsustainable for city development since optimal densification cannot be achieved. Attempts to include land on freehold tenure in the valuation roll was met with a lot of resistance from community members who feel that the extra taxation following this inclusion will not be met with service provision. There are no specific or special conditions of development control for the waterfront area such as those that will treat the waterfront as a public space and therefore whose access by the public must be reserved.

While the technical planning officers report that there have been consultations, the waterfront users at the lakeshore report otherwise. This despises the fact that there are many other stakeholders on the waterfront. Some of the bodies that have raised concern over non-involvement in waterfront development project approval process include the Ministry of Environment, Water and Natural Resources Lake Victoria Basin Development Authority (LBDA) Kisumu Water and Sewerage Company (KIWASCO) Ltd, Department of Fisheries, National Museums of Kenya, Kenya Forestry Service and Kenya Airports Authority. This indicates the inadequate public participation in the planning process.

Another factor is the lack of institutional capacity to oversee the developments from proposals to implementation and the monitoring is also challenged by lack of technical capacity of the construction development inspectors.

5.8.3 Planning and management challenges emerging from the waterfront development

Existing land uses on the waterfront are either obsolete, e.g. the fish landing site, while others do not gain any value associated with proximity to water. E.g. the silos and the power sub-station. Other isolation land uses like the cemeteries and crematorium occupy this prime land yet their relocation is challenged by cultural beliefs and unavailability of alternative sites.

Inaccessibility of the waterfront is attributed to the dominant ownership of the land by KRC. KRC controls physical access to the land as well as rights to develop the land. Physical access stems from the historical set-up where the railway stations were access-controlled areas that were equipped with police stations to deal with trespassers.

The poor state of infrastructure around the waterfront is a challenge to the planning and management of the waterfront. The access roads are poor with no street lights and do not interconnect with any pedestrian walways. This makes the waterfront unsafe and unfriendly for pedestrians.

The existing institutional frame work does not promote inter-agency coordination among these various stakeholders. The waterfront is therefore subject to multi-agency actions based on sectarian interests. It is managed within the larger general urban development control framework which does not recognize it as a unique entity that needs specific framework. The existing institutional framework lacks capacity to oversee the developments from proposals to implementation. The urban development control department charged with supervising construction development projects only has two members of staff who have no technical qualifications to execute their mandate.

5.8.4 Planning interventions that can lead to the sustainable development of Kisumu waterfront

The land uses on the waterfront need to be reevaluated to determine their suitability on the waterfront in terms of the value they get from and add to the waterfront and their compatibility with water-dependent land uses. The obsolete land uses should be relocated and the sites released for more waterfront-appropriate developments. This must still be done with the interest of historical and cultural conservation.

There is lack of access to the waterfront and the waterfront land both physically and in terms of putting it to use. The result is the city turning its back to the lake and lack of connectivity between the two components (land and water) of an urban waterfront. Enabling acquisition of waterfront land rights and predictable tenure instead of being hoarded by KRC will enhance the vitality and create a vibrant waterfront by encouraging diversity of land uses and activities. A continuous public walkway along the waterfront edge is an important part of an active transportation strategy for the city and provides for a fully public water's edge and key linkages to other city wide trail systems. It provides the opportunity to walk the waterfront while respecting natural habitat by eliminating barriers (real or perceived) on the waterfront. To connect the water to the landside, large and small parks and open spaces and wildlife habitats like Hippo point and Impala wildlife sanctuary should be connected with a "braided" system of pedestrian trails.

Poor infrastructure at the waterfront should be improved. To encourage active transportation, road improvements are necessary to facilitate the safe and comfortable movement of all road users, including pedestrians, cyclists, and transit users. Make the waterfront inviting to people on foot by developing trail connections between the beach and landside using grade separation opportunities for crossing motorized transport e.g. on Obote Road and create walkable streetscapes incorporating sidewalks on both sides of streets, highlighted pedestrian crossings, street trees, on-street parking, decorative street, and pedestrian level lighting.

The waterfront land ownership by KRC, the freehold land tenure system and weak institutional frame work are major contributors to governance challenges. KRC land should be developed either by themselves through such mechanisms as PPP or be released to the market for potential developers. The land under freehold tenure should be brought under a different system like leasehold so that developments on the land can be controlled under a legal framework.

Waterfront planning is a multi-disciplinary undertaking that involves various professionals. Strengthening of institutional and legal framework through capacity building to manage the waterfront must involve the planners, urban designers, architects, environmentalists, historians, engineers, and sociologists among others. The institutional framework needs to be propped in terms of institutional structure, personnel and mandate and incorporate all the stakeholders.

The waterfront area has been recognized as a special planning area in the CIDP. The next step is to define development guidelines for the waterfront and establishing waterfront specific development guidelines that ensure sustainability by consensus through extensive consultations with all the stakeholders. These guidelines should form the management framework for the waterfront. Creation of a special entity to manage the waterfront should be considered, this being one of the best practices recorded worldwide.

6 CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction:

This chapter summarizes the study by way of conclusions from findings of the study and proposing ways of achieving the main goal of waterfront development which is bringing back of citizens and visitors to the water's edge and the provision of a tangible sign of the continuing vitality of cities. It also recommends areas of further research.

6.2 Conclusion

Wherever relative success is achieved, in advanced or developing countries, it is not simply a matter of financial investment, nor of creating a modern waterside playground, nor of avoiding too much emulation or too painful a replacement of traditional communities by imported artificial counterparts. It involves, ideally, a unique set of compromises based on a more deep-rooted reunion in a given location between different components of the urban fabric, and between the city and the sea. (Norcliffe *et al,* 1996)

This study highlights the important role that Kisumu waterfront played in its social, economic and ecological sustainability. Existence of the water informed the construction of the railway terminal which greatly influenced and continue to influence the city's form and existence. The role of the railway that gave Kisumu the status of a regional transport and trading hub has however declined and the economic contribution of the water equally affected. Today, the experience at the waterfront itself is as bad as that along the access routes. This is due to the monotonous single use of restaurants at the waterfront. The waterfront lacks in diversity i.e. vitality. The final result is a case of urban functions being divorced and largely independent of the lake. The city turns its back to the lake instead of embracing.

The study reveals that the potential still exists. The waterfront can be used to reclaim the strategic position of Kisumu as a regional commercial and services hub serving the western Kenya as well as the East and Central African region. This potential has been seriously undermined by the existing obsolete land uses and lack of access to the waterfront land. The City can realize its potential and provide a base for economic revival through connecting and re-orientation of the City to the lake. The vibrancy of the waterfront is guaranteed by mixed use development that embraces the concept of live, work and play. This will enhance the touristic

value of the waterfront and the accompanying economic benefits. All this should happen under a governance structure that manages the development of the waterfront with the main focus on its sustainability.

Most of the urban waterfront land is under the ownership of the Kenya Railways Corporation. Part of the land is leased out to Lwang'ni restaurants on one year leases. The rest is occupied by low density residential bungalows, the port and the railway station. Rusting vessels now litter the foreshore causing environmental pollution. Deteriorating piers and retention structures, rotting and partially collapsed cargo handling sheds, warehouses, and wharves characterize the water-front, contributing floating debris to the navigational channels, and capturing silt and debris at water level. Other land uses include fish-landing bay which is no longer operational, industrial buildings, silos and a power sub-station, the Hindu crematorium and Sunni Muslim cemetery. These uses are either obsolete or have not drawn on the inherent specialization of waterfront land. They also pose a challenge of compatibility.

The topography varies from more gentle slopes to the south around the railway station and housing but steeper on the northern side around Tilapia Beach. This presents a challenge of physical access especially in the steep areas. Links between parks, other public open spaces and the waterfront do not exist. This greatly hampers the connectivity between the urban core and the waterfront.

The infrastructure on the waterfront is generally in a poor state. There is no sewer connection to the area. The users in the area have to contend with the use of the environmentally unsustainable pit latrines. Until recently when the entrepreneurs shared costs to get connected, there was no portable water. Access roads to the waterfront are of murram quality and characterized by potholes.

There is challenge of governance emanating from the ownership of land, the freehold land tenure and the inadequate legal and institutional frameworks. Issues related to KRC land are mostly discussed between the planning authorities and KRC itself as the landlord while ignoring the actual users of the land. This has occasionally produced undesired results.

Controlling the development on freehold land is legally challenging since they only seek the approval of Land Boards for subdivision but not on the intended use. Furthermore, there are

many interests on the waterfront represented by various institutions but they work in their respective thematic areas without coordination. Their participation in scrutiny and approval of developments on the waterfront is not guaranteed. The county government that is entrusted with the approval of development projects also has inadequate technical capacity to undertake the task. Public participation is also inadequate.

6.3 Recommendations

The following are recommendations based on the findings of the study, which if implemented, should result in a vibrant and successful urban waterfront, effectively reorienting and creating a strong link between Kisumu urban centre to its waterfront.

6.3.1 The Kisumu waterfront development over time

The land uses on the waterfront need to be reevaluated to determine their suitability on the waterfront in terms of the value they get from and add to the waterfront and their compatibility with water-dependent land uses. The obsolete land uses should be relocated and the sites released for more waterfront-appropriate developments. This must still be done with the interest of historical and cultural conservation by reinforcing a unique "sense of place" at different waterfront locations through protection of the natural shoreline and minimal representative accommodation of light industries and encouraging research and institutional uses, preserving landmark industrial structures, enhance existing vegetation where possible and preserving the native trees.

Require sustainable practices in all development such as reinforcement of historical identity and architectural heritage; the preservation, conservation and renewal of the historical fragments of urban space; the refurbishment and adaptive re-use of buildings of character and interest, the small-scale redesign of open spaces, the introduction of appropriately signed historical and archaeological promenades, and the integration of such features into a continuous system of pedestrian public open spaces. Part of the strategy is to increase population density, permit and encourage multi-story buildings, encourage activity and vibrant public spaces, to maximize utilization of the waterfront and increase the area's ability to support year-round services and business. Example includes retrofitting of the station into a culture and leisure center and the port into and artisan fishing and boating center with lake side restaurants.

6.3.2 Factors that can be attributed to the transformation of the waterfront.

Land ownership is the major factor that has influenced the evolution with permanent transformation evident in the areas with long term leases and certainty of ownership. This study recommends improved access to the waterfront and waterfront land by granting ownership and tenure systems that encourage predictability and investment security therefore the willingness to invest on more permanent and quality transformations.

The challenge of inaccessibility is two-thronged. The first facet is in terms of acquisition of land rights that would enable development of the land. KRC should be encouraged to enter into partnership arrangements. Joint ventures (JV) with private developers and investors as well as PPP approaches such as Build, Own, Operate and Transfer can be adopted for public infrastructure. Title holder (KRC) may be a shareholder with revenue made up of either or both land lease and direct participation in development schemes with profit pegged on total built up area (BUA). The second facet is the physical accessibility to the waterfront. This is a factor of the poor road infrastructure and lack of coordination and intermodal connections. The study recommends the reinforcement of the use of Oginga Odinga Street and Obote Road as means of pedestrian, vehicular and rail access to the waterfront. This has the potential to improve vehicular access and circulation, and provide shared decentralized parking away from the shoreline supported by convenient connections between different modes of transportation. This should be supported by a continuous public walkway along the waterfront edge as part of an active transportation strategy and a fully public water's edge and key linkages to other city wide trail systems. Private space and public space should coalesce.

As part of strategy to improve the infrastructure, Transportation Demand Management (TDM) strategies and designs/technologies that optimize traffic efficiency will be needed to address increased parking demand along the waterfront to continue to address traffic capacity issues. In the long term, the City should passively acquire strategic properties with a policy of purchasing properties that, over time, come up for sale. These should be converted to public purpose and public utility land uses. Marine Drive which is the access road along the waterfront should be seen as an integral part of the road network from the CBD and upgraded from murram to bitumen surface. It should also be furnished with street furniture including street lighting. The

upgrade should be coordinated with streetscape improvements in the urban area to establish a sense of continuity rather than the piece-meal and disjointed street improvements currently being undertaken. Critical waste disposal infrastructure like sewer line and solid waste receptacle services should be extended to the waterfront as a way of ensuring environmental sustainability.

The topography is currently seen as a constraint at some points yet it presents great opportunities. The gentle slopes to the southern part of the waterfront are recommended for buildings and construction projects. The steeper areas are recommended for landscaping and as protection from environmental degradation. It also provides an opportunity for multilevel development and grade separation of different modes of transport. The gentle slope also presents a perfect opportunity for drainage of surface run-off.

6.3.3 Planning and management structure of the Kisumu waterfront.

Waterfront planning is a multi-disciplinary undertaking that involves various professionals. Strengthening of institutional and legal framework through capacity building to manage the waterfront must involve the planners, urban designers, architects, environmentalists, historians, engineers, and sociologists among others. The existing institutional framework is weak and does not recognize the special attention that the waterfront requires and the level of consultation is inadequate, especially with the local waterfront users. The technical and financial capacity of the county planning department, which is in charge of development control and management of the waterfront as part of the county is currently inadequate.

As a special planning area recognized in the CIDP, the waterfront requires special governance and management structure. Examples of these include Mombasa Old Town Conservation Office (MOTCO), Stone Town Conservation Development Authority (STCDA) in Zanzibar, Baltimore Economic Development Corporation (BEDC) in Baltimore, Boston Redevelopment Agency (BRDA) in Boston, Park City Authority (PCA) in New York, all of which were formed to specifically manage the developments in their respective urban waterfronts. This study, based on the case studies, recommends the creation of a special entity that is semi-autonomous charged with the responsibility of managing the waterfront development right from developing design standards to overseeing the implementation of waterfront development projects.

6.3.4 Planning interventions necessary for the sustainable development of Kisumu waterfront.

Reevaluation of the existing land uses to establish their suitability on the waterfront. Replacement of obsolete and water-independent uses shall release the prime waterfront land for more appropriate uses. Mixed uses should be carefully planned to achieve sustainability and vitality of the waterfront. A working port that contributes to the GDP of the City in a significant way should be protected while promoting a mixture of land uses (retail, residential, hospitality, office, etc). Traditional zoning separates uses. The new zoning approach should be more inclusive about mixing uses so long as high design standards are followed.

Acquisition of waterfront land should be facilitated by developing a framework that will encourage KRC to release part of the land for other potential developers. KRC should be given specific development conditions to meet within a time frame, failure to which it should facilitate the development of the land by other means such as PPP and Joint Ventures. Enhancement of physical access to the waterfront should be done by improving the status of the access roads. In the long term, the City should passively acquire strategic properties with a policy of purchasing properties that, over time, come up for sale.

The infrastructure that is lacking like the sewerage and solid waste disposal systems at the waterfront should be provided. This shall improve its physical attractiveness and improve its accessibility. Of utmost importance in improving physical accessibility is to create and connect large and small parks and open spaces and wildlife habitats like Hippo point and Impala wildlife sanctuary with a “braided” system of pedestrian trails while protecting views of the water at the end of waterfront streets and creating key urban spaces beside every street to enhance opportunities for visual access to waterfront areas.

The topography should be taken advantage of for surface drainage of the waterfront. All developers must be compelled to handle their surface and storm water to reduce the amount of the surface run-off and flooding of the streets.

Lakefront Development Authority as proposed in the CIDP is recommended in this study as an appropriate agency for these purposes. It would be in charge of the waterfront as qualified in this study which encompasses SPA 1 and SPA 2 in the CIDP. The agency should be adequately

equipped with technical and financial resources to address the institutional capacity challenges. This approach has also been associated with increased participation. Public participation should be enhanced by citizens being included in review of development proposals as part of approval process. Specific development guidelines should be based on the following principles, among others:

Considering the public good over individual benefit. All developments must give back to create public benefit to the waterfront, contributing to the positive experience rather than taking from the positive experience; encouraging public space right up to the footprint of buildings. The urban waterfront is no place for suburban 'front-yards' or large surface parking lots.

The concept of 'public benefit' density bonusing formula which permits additional height if the developer provides specific and quantifiable public benefit as part of his / her proposal, to a predetermined maximum.

As development proceeds, use urban design guidelines and site plan reviews to create view corridors and strong physical linkages between the streets and the waterfront. Development of commercial frontages of buildings adjacent to the waterfront to create a main street feel and connection to the city centre and a visual connection to the rest of the waterfront promenade.
New construction should be designed to incorporate pedestrian entrances and active facades oriented to and engaged with the street. Street facing, ground-floor spaces housing restaurants, retail businesses, or other non-residential uses shall incorporate traditional storefronts and large areas that visually connect interior activity with the public space of the street.

The impact of new development on street level and waterfront microclimates must be considered and minimized prior to approving development applications. This is done by shadow studies for all developments to illustrate the impact of building massing and height on microclimatic conditions, particularly in most heavily used areas of the waterfront.

6.4 Site Specific Recommendations

ENHANCE CONNECTION BETWEEN THE CITY CENTRE AND THE WATERFRONT BY PEDESTRIANIZING THE GOR MAHIA STREET AND USE IT AS A CONNECTION OF A SERIES OF PUBLIC OPEN SPACES INCLUDING KENYATTA SPORTS GROUND AND TAIFA PARK AND SHOPPING ARCADES. IT SHOULD TERMINATE AT THE MAIN CIVIC BUILDING, I.E THE COUNTY ASSEMBLY AND OTHER CULTURAL BUILDINGS.

RESTORE THE EXISTING WAREHOUSES TO RESTAURANTS, SHOPS AND OTHER USES WHOSE VALUE IS ADDED BY PROXIMITY TO WATERFRONT

RELOCATE THE UTILITIES SUCH AS THE POWER SUB-STATION AND ESTABLISH MORE FRIENDLY PURPOSES SUCH AS A PUBLIC PARK.

REPLACE THE EXISTING "KIOSKS" WITH MORE PERMANENT AND ATTRACTIVE STRUCTURES WITH MANAGEMENT ORGANIZATION TO ALLOW THE SMALL SCALE OPERATORS TO CONTINUE WITH BUSINESS/ AVOID GENTRIFICATION.

ALLOW THE CITY'S MAIN STREET, (OGINGA ODINGA) CONTINUATION OVER THE LAKE THROUGH A BRIDGE BUT WITH LEVEL SEPARATION FROM THE PEDESTRIAN PATHS

CREATE A WATERFRONT PARK INCLUDING GAMES FOR ALL AGEGROUPS AND SOCIAL CLASSES RANGING FROM VOLLEYBALL COURTS TO CRICKET TO BEACH FOOTBALL. THIS IS TO CONNECT WITH WATER-BASED SPORTS SUCH AS BOAT-RIDING AND RAFTING

LOW RISING OFFICE PARK TO INCLUDE GOVERNMENT OFFICES AND CIVIC SQUARE

CREATE A CONTINUOUS WATERFRONT TRAIL ALONG THE WHOLE WATERFRONT INCLUDING A PROMENADE, CYCLING TRACKS. ETC.

CREATE MORE DOCKS AND BAYS FOR INCREASED NAVAL TRAFFIC AND OF HIGHER CAPACITIES.

PROVIDE FOR HOUSING FOR DIFFERENT ECONOMIC GROUPS i.e LOW, MIDDLE AND HIGH INCOME EARNERS.

THE RAILWAY RESTAURANT TO BE UPGRADED TO A FIVE STAR HOTEL.

Fig. 6.1(a): Specifi Recommendations.
Source: Adopted from www.googleearth.com.

6.5 Graphical Representation Of Recommendations

Fig. 6.1(b): Graphical Representation of Recommendations
Source: Adopted from www.googleearth.com.

6.6 Summary Of The Thesis

Objective	Finding	General Recommendations	Specific Recommendation
1. To examine the Kisumu's waterfront development and land uses as a specific case.	1. The waterfront has remained at the decline stage of waterfront development history characterized by inaccessibility, is topographically isolated in some sections, blocked by highways, cluttered with inappropriate land uses including dirty industrial plants and municipal treatment and waste disposal facilities idle cargo handling sheds and warehouses 2. The evolution of the waterfront is taking place without guidelines and mostly informal on the shore and formal in the urban core.	1. Evolution of the waterfront should take place under specific guidelines to ensure that the historical and cultural identity of the city is retained. 2. Respect history, cultures and the arts by identifying historic sites prior to development, embracing and expanding knowledge of past heritage by identifying, locating and providing interpretative information for native history, pioneer history and natural history.	1. Reinforcement of historical identity and architectural heritage; the preservation, conservation and renewal of the historical fragments of urban space; the refurbishment of buildings of character and interest, the small-scale redesign of open spaces, the introduction of appropriately signed historical and archaeological promenades, and the integration of such features into a continuous system of pedestrian public open spaces. 2. Reinforce a unique "sense of place" at different waterfront locations through protection of the natural shoreline and minimal representative accommodation of light industries and encouraging research and institutional uses. Preserve landmark industrial structures, enhance existing vegetation where possible and preserve the native trees. 3. Require sustainable practices in all development. Favor plans which exploit adaptive reuse of existing structures to conserve the heritage.
2. To investigate factors that have led to the transformation of the waterfront.	1. Existing land uses 2. Land ownership and tenure 3. Infrastructural development. 4. Accessibility 5. topography 6. Lack of development guidelines / effective governance structure.	1. Relocate existing obsolete land uses 2. Review land ownership and tenure 3. Improve infrastructure. 4. Improve accessibility 5. Use topography to improve drainage 1. Formulate development guidelines / effective governance structure	1. As new development proceeds Transportation Demand Management (TDM) strategies and designs/technologies that optimize traffic efficiency will be needed to address increased parking demand along the waterfront to continue to address traffic capacity issues. 2. In the long term, the City should passively acquire strategic properties with a policy of purchasing properties that, over time, come up for sale.
3. To assess the planning and management challenges of the Kisumu waterfront.	1. Existing land uses are obsolete 2. Limiting Land ownership and tenure 3. Poor infrastructure. 4. Inaccessibility 5. Irregular topography 6. Lack of development guidelines / effective governance structure.	1. The institutional framework needs to be propped in terms of both personnel and mandate. 2. Public participation should be enhanced by being included in the review of development proposals as part of projects approval process.	1. A special entity that is semi-autonomous should be created and charged with the responsibility of managing the waterfront development right from developing design standards to overseeing the implementation of waterfront development projects. Examples of this include Mombasa Old Town Conservation Office (MOTCO), Stone Town Conservation Development Authority (STCDA) in Zanzibar, Baltimore Economic Development Corporation (BEDC) in Baltimore, Boston Redevelopment Agency (BRDA) in Boston, Park City Authority (PCA) in New York, all of which were formed to specifically manage the developments in their respective urban waterfronts. 2. Public participation should be enhanced by citizens being included in review of development proposals as part of approval process.
4. To determine the	1. There is lack of access to both	1. Reevaluation of land uses to	**Waterfront Access**

appropriate planning interventions necessary to achieve sustainable development of Kisumu waterfront.	the waterfront and the waterfront land both physically and in terms of putting it to use.	determine their suitability on the waterfront 2. Enable acquisition of waterfront land rights and predictable tenure instead of being hoarded by KRC. 3. Provide missing infrastructure and improve existing ones. 4. The planning process should include all stakeholders including the public, statutory bodies, and all relevant professionals such as engineers, architects, urban planners and designers, sociologists, economists, among others.	1. A continuous public walkway along the waterfront edge is an important part of an active transportation strategy for the city and provides for fully public water's edge and key linkages to other city wide trail systems. Provide the opportunity to walk the waterfront while respecting natural habitat by eliminating barriers (real or perceived) on the waterfront. Private space and public space should coalesce. 2. To encourage active transportation, design road improvements to facilitate the safe and comfortable movement of all road users, including pedestrians, cyclists, and transit users. 3. Make the waterfront inviting to people on foot by developing trail connections between the beach and landside using grade separation opportunities for crossing motorized transport and create walkable streetscapes incorporating sidewalks on both sides of streets, highlighted pedestrian crossings, street trees, on-street parking, decorative street, and pedestrian level lighting. 4. The gateways and waterfront image should be improved to enhance the first impression of the city by creating promenade at the waterfront and boulevards at the entry roads from Nairobi, Kakamega and Busia 5. Create and connect large and small parks and open spaces and wildlife habitats like Hippo point and Impala wildlife sanctuary with a "braided" system of pedestrian trails 6. Protecting views of the water at the end of waterfront streets and creating key urban spaces beside every street will enhance opportunities for visual access to waterfront areas. 7. Reinforce the use of Oginga Odinga Street and Obote Road as means of pedestrian, vehicular and rail access to the waterfront. This has the potential to improve vehicular access and circulation, and provide shared decentralized parking away from the shoreline supported by convenient connections between different modes of transportation. 8. Provide large and small open spaces along the waterfront to serve as connecting nodes for trails and shore ways. 9. Explore various financing incentives for improving public access. 10. Develop a concise way-finding signage program that is coordinated with the rest of the waterfront, and to connect trails, parks and streets to improve access to the waterfront. Provide wayfinding signage at all transit route corridors, including bus stops to direct people to the adjacent recreational trails and open space systems. **6.6.1 Vibrant Waterfront Economy** 1. A place for active ground floor uses which will activate the waterfront and create a must see/experience destination. Single purpose private uses should always be discouraged on the ground floor if they don't encourage public activity (.e.g. residential uses, offices, general industrial uses, parking garages, etc.). The ground floors should always be reserved for commercial uses like retail, restaurants, pubs, visitor centres, galleries, etc. These uses should be encouraged to have an active address on the waterfront. 2. A year round activity centre with sites and destinations around the waterfront that appeal to the widest possible audience from kids, to young families, to seniors, to boaters and visitors. 3. Providing an equal mixture of programmed and flexible spaces. There needs to be more activity centres which focus activities on a wide range of waterfront users (kids to seniors). 4. Explore opportunities to create passive and active recreational activities on to and adjacent the lake such as canoeing. Primary passive recreation activities such as walking, bicycling, skating, bird and wildlife viewing and lounging should be considered. In terms of canoes and kayaks, a light watercraft dock is essential for public access. Further, additional community parks in the waterfront will augment the

			recreational functions with more active recreational opportunities. 5. Supporting diversity through a variety of housing and unit typologies. These include unit sizes for singles, couples and families. 6. Considering the public good over individual benefit. All developments must give back to create public benefit to the waterfront, contributing to the positive experience rather than taking from the positive experience. Encouraging public space right up to the footprint of buildings. The urban waterfront is no place for suburban 'front-yards' or large surface parking lots. 7. Improve permitting processes to achieve the goals and principles of the Waterfront development vision. 8. Install and ensure maintenance of the landscape/streetscape features in public spaces (walkways, seating, lighting paths, softscaping) to freshen its appearance and demonstrate the importance of the areas as an interface between the urban fabric and waterfront. 9. Designing walkways between open spaces and waterfront to provide a clear, safe and attractive pedestrian connection (i.e. through the use of consistent surface materials and enhanced intersection treatments); 10. Coordinate the upgrades (i.e. the replacement of landscape/streetscape features) with streetscape improvements in the urban area to establish a sense of continuity rather than the piece-meal and disjointed street improvements currently being undertaken. 11. Undertake detailed plans for Taifa Park, City Square and other public open spaces for consideration in future. 12. Carryout all necessary studies to design and construct a new water-based sports tourism facility at the shore that will also serve as a sports tourism facility. 13. Program waterfront open space with year-round events. 14. Explore the feasibility of high profile waterfront recreation projects, such as a multi-purpose cultural and training centre. 15. Encouraging the development of commercial frontages at the rear of buildings on Obote Road, adjacent to the waterfront, so as to create a main street feel and connection to the city centre and a visual connection to the rest of the waterfront promenade. 16. Street resizing is critical in reducing vehicular traffic while increasing the pedestrian space and improving the pedestrians' experience. Resized streets can be made safe by creating parking as a buffer and installing bollards on the elevated walkways. It also creates activity islands that can act as nodes, especially at the street junctions. 17. To facilitate appropriate vehicular speeds and ensure pedestrian safety, incorporate traffic lanes, curbing, curb bump outs, speed limits, roundabouts, and other traffic calming elements. 18. New construction should be designed to incorporate pedestrian entrances and active facades oriented to and engaged with the street. 19. Street facing, ground-floor spaces housing restaurants, retail businesses, or other non-residential uses shall incorporate traditional storefronts and large areas that visually connect interior activity with the public space of the street. 20. Promote the redevelopment of water-independent land uses along Obote road with a mix of uses that include more water-dependent functions like small and large-scale commercial, cultural and recreational facilities (e.g. movie theatres, indoor markets, concert halls and restaurants), and/or a new hotel and convention facility. 21. As development proceeds, use urban design guidelines and site plan reviews to create view corridors and

			strong physical linkages between the streets and the waterfront. 22. The impact of new development on street level and waterfront microclimates must be considered and minimized prior to approving development applications. This is done by shadow studies for all developments to illustrate the impact of building massing and height on microclamatic conditions, particularly in most heavily used areas of the waterfront. 23. A working port that contributes to the GDP of the City in a significant way should be protected while promoting a mixture of land uses (retail, residential, hospitality, office, etc). Traditional zoning separates uses. The new zoning approach should be more inclusive about mixing uses so long as high design standards are followed. **6.6.2 Kenya Railways Corporation, KRC land** 1. Increase population density, permit and encourage multi-story buildings, encourage activity and vibrant public spaces, to maximize utilization of the waterfront and increase the area's ability to support year-round services and business. 2. Create high-density residential development including town homes and multi-story condominiums oriented toward and engaged with walkable, pedestrian-friendly streets and the lake. 3. Retrofitting of the station into a culture and leisure center and the port into and artisan fishing and boating center with lake side restaurants. 4. Incorporate active uses including a conference center or flexible space accommodating large gatherings, lodging, restaurants, shops, entertainment establishments, and other uses that support pedestrian activity and capitalize on the riverfront location. 5. Incorporate public spaces such as plazas or promenades to permit the public to access and enjoy the lake and the waterfront. 6. Outfit public spaces with attractive and durable amenities such as seating areas, benches, pavilions, tables, and bike racks. 7. New buildings should incorporate durable quality materials and sensitive architectural design and articulation that respond to the waterfront's scale and historic vernacular building traditions. 8. Preserve private access and accommodate the continued functioning of the existing restaurants, private boat docks, and other acceptable uses located along the lake. 9. Requiring every development to contribute to the public good. For example, by creating high quality public spaces that are flexible, beautiful, and serve the public good. 10. Designing spaces for specific programs, and emphasizing a year-round waterfront by providing a variety of public spaces at different scales and forms, both green spaces and urban plazas. Plazas should be designed for a wide variety of users, from young families and teenagers, to active adult and senior lifestyles. 11. Balancing parking requirements with the provision of open space. 12. Encouraging public art and civic beautification 13. Create a promenade and a continuous waterfront trail system that connects with the other city trail systems. 14. Protecting the Port area but improving public compatibility and recognition that the Port is also part of a major urban public waterfront. Develop the waterfront lands into new public parks and trails along the shore, where these opportunities arise. 15. Replan the KRC waterfront residential land to support increased use for the site, including the

			development of a small year-round facility to house a range of recreational uses, a potential recreation park and trail connections to the waterfront trail. 16. Prepare and implement redevelopment plans in consultation with local residents for all other activity centres along the shore, and ensure improvements are made to meet the current and future recreational needs of the area. 17. At the newly created nodes, encourage private sector commercial initiatives, such as kiosks to serve the recreational nature of the area and promote tourism in these Secondary Activity Centres. 18. Protect public access to the shoreline and its recreational amenities, including trails, as a condition of any new development or redevelopment. **6.6.3 Sustainability** **Environmental Sustainability** **6.6.4 Improve Environmental Quality** 1. Mitigate upland and in-water contamination. The car-washing activity needs to be formalized by creating proper management system of the water that is generated by collecting it and channeling it through a treatment system instead of washing being done right in the lake. 2. Initiate environmental cleanup strategies and remediation to planned use. 3. Manage storm water to enhance estuarine habitats. 4. Enhance and expand beaches wherever possible by such methods as importation of clean sand. 5. Explore mitigation banking and incentives such as environmental credits for "green" buildings for environmental resource protection and enhancement prior to redevelopment. Provide incentives. 6. Preserve and enhance the natural beach and restore onshore and offshore habitat, incorporate coastal geology and other natural forces in inter-tidal habitat and beach enhancement. Controlled access in favor of habitat protection is one strategy. 7. Protect existing natural shorelines and recognize the dynamic nature of changing tidelands to address the concern of water invading the restaurants during high tides. 8. Mitigate existing contamination while establishing erosion control. 9. Establish and enforce a groundwater and contamination collection and treatment policy to prevent contaminates from entering the lake and use building materials which do not produce toxics, i.e. reduce "heat island" effect by selecting light colored paving materials. **Social Sustainability** 1. There is need for extensive public involvement. This can come in the form of providing all presentation materials, presenting information verbally as needed, engaging in discussions and interacting creatively with the public. 2. Waterfront planning is a multi-disciplinary undertaking that involves various professionals. The planners, urban designers, architects, environmentalists, historians, engineers, and sociologists are just but a few professionals who should be involved in planning the waterfront. 3. Management of waterfronts is complex and from the literature review and case studies, special bodies have had to be created to specifically mange the development of urban waterfronts. This study therefore recommends the creation of a quasi-public body to undertake the management and control of the waterfront development. 4. The development of diversified programming on the waterfront to maximize arts and cultural

			opportunities and to encourage year-round use of this public space. This shall enhance it as a Cultural amenity and showplace 5. Entrench public ownership of the waterfront to ensure the City maintains authority over its future development for the benefit of the public. 6. Supporting the provision of affordable housing or other quality of life benefits to capture the whole social spectrum. 7. Where permitted, ensure all new development is compatible with the adjacent residential community, in terms of introducing land uses and a built form that preserves the local character and avoids adversely impacting adjacent properties, by, for example, blocking views of the waterfront, or creating a noise disturbance. **Economic Sustainability** 1. Marsh protection and enhancement provides tourist attraction and local amenity 2. Engineered wetlands reduce servicing costs and provide an interesting tourist attraction 3. Public investment in the waterfront trail to attract visitors and support community 4. Tourist services, accommodation and amenities increase appeal to year round visitation 5. Development site can generate income to support public infrastructure 6. Adaptive reuse of existing structures reduces capital costs and provides opportunity for a quick success on the waterfront without major capital outlay 7. Interim use generates income while the area matures. Example includes utilization of existing road right of way to accommodate both vehicular and active transportation. 8. Promote and nurture private sector investments on existing city lands and existing privately held lands in keeping with the development vision and subject to engineering study findings and cost/benefit analysis. 9. Develop partnership arrangements for projects as needed based on outcome of feasibility studies. PPP approaches such as Build, Own, Operate and Transfer can be adopted for public infrastructure.

Table. 6.1: Summary of the Thesis.
Source: Author

6.7 Areas Of Further Research

The Cause-Effect approach of analysis to issues has been proved as an effective way of developing solutions to issues. This study concerned itself with land use issues and how they have affected the character of the waterfront. The findings and recommendations would benefit a lot from studies on the effect of the waterfront on land uses. The study therefore recommends further research on the effects of the water on land uses.

6.8 References:

1. *A preliminary plan for integration of the lakefront in the city of Kisumu,Kenya Mission held from 19 June 2013to 5July 2013*
2. *Abt Associates (1969). Water and the cities; contemporary urban water resource and related land planning. Cambridge, Massachusetts.*
3. *Alexandria Waterfront Small Area Plan. May 3, 2011*
4. *Ali I. (2013)A Comparative Analysis Of Public Access Along The Waterfront Walkways Of Kingston And Belleville, Ontario; Queen's University Kingston, Ontario, Canada*
5. *Andrew J. (1998): Issues in Waterfront Regeneration: More Sobering Thoughts-A UK Perspective, Planning Practice and Research.*
6. *Arie R., Leisure in Waterfront Redevelopment: An Issue of Urban Planning In Rotterdam? OTB Research Institute for Housing, Urban and Mobility Studies. Delft University of Technology, Delft, the Netherlands.*
7. *Azlina B., Sandy B. McDonagh J. The Effectiveness Of The Riverfront Development Guidelines In Malaysia University Tun Hussein Onn Malaysia (UTHM),*
8. *Breen, A. and Rigby, D. (1996). The new waterfront: a worldwide urban success story London: Thames and Hudson.*
9. *Brian H, (2000). Port-City Renewal in Developing Countries: A Study of East African Waterfronts. University of Southampton, UK*
10. *Chunsong W. (2011), Waterfront Regeneration. City and Regional Planning. Cardiff University*
11. *City of Charlottetown (2012);Comprehensive Waterfront Master Plan*
12. *City of Dryden (2008),Sustainable Waterfront Development Plan.*
13. *City of Everett Central Waterfront Redevelopment Plan; (2013); A Sub-area Plan of the Everett Growth Management Comprehensive Plan*

14. *Dora Papatheochari, , Examination of Best Practices for Waterfront Regeneration, EDP Sciences*

15. *Filip Merckx et al. Spatial models of waterfront redevelopment: the tension between city and port revisited. Extracted from www.filip.merckx@ua.ac.be*

16. *Fort Pierce Downtown Waterfront Charrette, (2008); A Community's Vision March 15 - 21, 2008 Treasure Coast Regional Planning Council, Indian River, St. Lucie – Martin – Palm Beach*

17. *Hoyle, S. B. et. al. (1988). Development dynamics at the port-city interface; Revitalising the Waterfront. Chichester, Belhaven Press.*

18. *Jenipher N. (2007) Urban by Design: An Evaluation of Public Spaces in Downtown New Westminster. Simon Fraser University*

19. *John C. R, Prof. Deming M. E. (2004). Defining Success in an Urban Waterfront Bristol, UK. Suny College of Environmental Science and Forestry.*

20. *Karen E. (1992). Meeting Public Accessibility and Recreational Needs in Urban Waterfront Open Space Systems: A Comparative Analysis of Mississauga and Etobicoke*

21. *Kenya Vision 2030(2007), A Globally Competitive and Prosperous Kenya. Extracted from www.treasury.go.ke.*

22. *Kimani M. and Musungu T., (2010) Reforming and Restructuring Planning and Building Laws and Regulations in Kenya for Sustainable Urban Development, 46th ISOCARP Congress*

23. *Kisumu County First County Integrated Development Plan 2013 – 2017 September 2013. Extracted from www.Kisumu.go.ke.*

24. *Konstantinos Ioannidis (2011) Designing the Edge; An inquiry into the Psychospatial Nature of Meaning in Architecture of the Urban Waterfront.Royal Institute of Technology (KTH), Stockholm, Sweden.*

25. *Kothari R.G. (2002). Research Methodology- Methods and Techniques. New Delhi: Wiley Eastern Ltd.*

26. *L. A Torre, (1984). Waterfront development, Bernhard Glaeser. Oxford Pergamon Press.*

27. *Lake Victoria Basin Development Authority Strategic Plan 2008 -2012, Retrieved from website:www.lbda.co.ke*

28. *Ledgerwood & Grant, (1985). Ecodevelopment, concepts, and Project strategies. Aldershot Gowes.*

29. *Lina Dong Waterfront Development: A Case Study of Dalian, China. A thesis presented to the University of Waterloo in fulfillment of the thesis requirement for the degree of Master of Applied Environmental Studies in Local Economic Development - Tourism Policy and Planning Waterloo, Ontario, Canada, 2004*

30. *Lise Burcher, Urban Character and Viewscape Assessment, ISoCaRP Congress 2005*

31. *Mohammed Ali Mwenje, (2010) Revival of the Swahili Built Heritage Along The Kenyan Coast Case Study of The Dheulle Mosque Building Inspector National Museums of Kenya –Lamu World Heritage Site and Conservation Office .*

32. *Mugenda, O., Mugenda A. (2003). Research Methods Quantitative and Qualitative Approaches. Nairobi: Acts.*

33. *National Environmental Management Authority. (2014). About Us. Retrieved from http://www.nema.go.ke/*

34. *Nester G. Navaro,(2000). Public Waterfront Access: A Comparison If Integrated Coastal Management In Canad And The United State, Simon Fraser University.*

35. *Nurul S. A. L. Contextual Integration In Waterfront Development Thesis Submitted To The University Of Nottingham School Of Built Environment For The Degree Of Doctor Of Philosophy January 2011*

36. *OKech R. "Socio-cultural Impacts of Tourism on World Heritage Sites: Communities' Perspective of Lamu (Kenya) and Zanzibar Islands", Asia Pacific Journal of Tourism.*

37. *Opiyo V.O, B.A Land Economics Thesis, University of Nairobi, (1986), The standard of services rendered to the residents of Kisumu.*

38. *Republic of Kenya (2002). Water Act, 2002. Government Printer, Nairobi.*

39. *Republic of Kenya (2012). Physical Planning Act, Cap 286. Government Printer, Nairobi.*

40. *Republic of Kenya. (2010). The Constitution of Kenya 2010. Published by the National Council for Law Reporting with the Authority of the Attorney-General, Nairobi.*
41. *Republic of Kenya. (2010). The Constitution of Kenya 2010. Published by the National Council for Law Reporting with the Authority of the Attorney-General, Nairobi.*
42. *Republic of Kenya. (2011). Urban Areas and Cities Act. Published by the National Council for Law Reporting with the Authority of the Attorney-General, Nairobi.*
43. *Republic of Kenya. (2011). Urban Areas and Cities Act. Published by the National Council for Law Reporting with the Authority of the Attorney-General, Nairobi.*
44. *SIDA (2002) Regional Workshop For Lake Victoria Cities/Municipalities Development Strategies For Improved Urban Environment; An Urban Management Programme (UMP) Initiative ITDG-EA*
45. *South Waterfront Greenway Development Plan Design Component- Phase I December 8, 2004, Portland Development Commission.*
46. *Stefanie B.N (2007.) Waterfront Revitalization in Riga: The case of Kipsala. Recklinghausen Germany*
47. *Stefano Bianca et al, (1997). Historic Cities Programme. Imprimeries RBunies de Lausanne (IRL).*
48. *Stephen N.M, (1990). Waterfront Development in the Post-industrial City: A Profile. University of British Columbia.*
49. *Stockholm Waterfront: A forum for Global Water Issues April 2012. Extracted from www.siwi.org*
50. *Sustainable Historic Towns: A Handbook about DIVE - Urban Heritage Analysis.*
51. *The City Of New York Department Of City Planning. (2013)Coastal Climate Resilience; Urban Waterfront Adaptive Strategies*
52. *The Waterfront District, Bellingham Washington, Draft Sub – Area Plan – 2010*
53. *United Nations Human Settlements Programme (2005). Situation Analysis Of Informal Settlements In Kisumu.(UN-HABITAT), Nairobi,*

54. *United Nations Human Settlements Programme, (2004). Kisumu City Development Strategies (2004-2009)*

55. *Urban Design Study for the New Central Harbourfront, July 2011*

56. *Van Nostroud R. (1989), Waterfronts; Urban innovation: the transformation of London's docklands.*

57. *Wafula Luasi Nabutola, National Urban Development Policy (NUDP) Making Process: The Kenyan Way:Big Challenges And Some Opportunities*

58. *Waterfront Futures, (2004) Waterfront Vision & Framework Plan, connecting bellingham with the bay,Bellingham, WA.*

59. *Wiener, Aaron (1972., The role of water in development; an analysis of comprehensive planning. New York, M'c Grawhill.*

7 ANNEXES

7.1 *Annex 1: General Public Questionnaire*

UNIVERSITY OF NAIROBI

DEPARTMENT OF URBAN AND REGIONAL PLANNING

BUR 604: RESEARCH PROJECT

OBJECTIVE: To prepare a research project

DECLARATION: The information provided by the respondent will be treated with confidentiality and for the purpose of preparing the above a planning research project

Questionnaire No…… Date of interview…….

Name of interviewer……..

Locality……

GENERAL PUBLIC QUESTIONNAIRE

(To be administered to the general public at the waterfront)

SECTION A

RESPONDENT'S PROFILE

1. Name of Respondent (Optional)……
2. Age (Years) (a) 16-24 (b) 25-34 (c) 35-44 (d) 45-54 (e) 55-64 (f) 65+
3. Gender (a) Male (b) Female
4. Occupation……

SECTION B

Q1. What is the main reason for your visit to Kisumu today?

1. Resident

2. Employed
3. Personal business
4. Work related purposes
5. Shopping
6. Leisure/entertainment
7. Education purposes
8. Tourist/visitor
9. Administrative issues
10. Other (specify)

Q2. (a) Which route/street do you prefer using when visiting the waterfront? .....

(b) Explain your answer above
……
……
……
……

Q3. (a) What means of transport do you use to access the waterfront?

1. Walking
2. Matatu
3. Boda boda
4. Private means
5. Other (specify)

(b) Explain your answer above
……
……Q4. How do you find the environment at the Waterfront?

1. Attractive
2. Unattractive
3. Neither attractive/nor unattractive
4. Don't know

Q5. Is there anything that you particularly like about the Waterfront? (Please state the reasons in order of preference)

1……..

2……..

3……..

Q6. What do you dislike about the Waterfront (state up to three reasons starting with the most disliked reason)

1……..

2……..

3……..

Q7. Have you visited the waterfront in the last one year?

1. Yes 2.No

Q8. If yes, is there noticeable change in its physical status?

1. Yes 2.No

Q9. If yes, what is the change?

1. More attractive
2. Less attractive
3. Not sure/don't know

Q10. Due to the changes, how often do you visit the waterfront?

1. More often
2. About the same
3. Less often

Q11. Have you visited other similar waterfronts elsewhere within Kenya?

1. Yes 2. No

Q12. How does this facilities/amenities compare with other similar waterfronts you have visited before?

1. Better
2. Comparable
3. Worse
4. Not sure/Don't know

Q13. Other than the waterfront, name any other leisure open spaces around the city centre that you are aware of in order of your preference?

1……..

2……..

3……..

Q14. What do you like about your preferred open space stated above? ……
……

Thank you and God bless you.

7.2 Annex 2: Focus Group Discussions Guide

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING
BUR 604: RESEARCH PROJECT
OBJECTIVE: To prepare a research project

DECLARATION: The information provided by the respondent will be treated with confidentiality and for the purpose of preparing the above a planning research project

Questionnaire No…… Date of interview…….
Name of interviewer……..
Locality……

FOCUS GROUP DISCUSSIONS GUIDE

1. i) How frequently do you visit the waterfront?
    a. Daily
    b. Weekly
    c. Monthly
    d. Frequently
    e. Periodically
    f. Annually

    ii) For what reasons/purpose do you visit the waterfront?
    a. Leisure
    b. Business
    c. Education
    d. Sanitation
    e. Cultural/religious
    f. Any other

2. i) How do you find the access to the waterfront and the lake?
    a. Good
    b. Fair
    c. Poor

    ii) Kindly explain the above?

    iii) What means of transport do you use to access the waterfront?
    a. Walking
    b. Bodaboda
    c. Public/matatu
    d. Private cars

e. Any other

3. i) Which street(s) do you prefer using to access the waterfront?

   ii) Why?

4. What parts/developments do you know on the waterfront?

5. i) What part of the waterfront do you like most?

   ii) Why?

6. What is the most immediate alternative to that which you like most?

7. i) Do you like to stay long at the waterfront and the lake?

   ii) Why?

8. How can you rate the security on the waterfront?
   a. Good
   b. Fair
   c. Poor

9. Are there any cultural sites at the water front that you feel should be preserved?

10. i) Are you ever involved in decisions concerning the waterfront use?
    a)Yes b) No

    ii) Explain.

11. What major improvements or changes would you like to see done at the Waterfront?

12. Do you have any other comments/concerns about the waterfront?

Thank you and God bless you.

7.3 Annex 3: Businesses Questionnaire

UNIVERSITY OF NAIROBI

DEPARTMENT OF URBAN AND REGIONAL PLANNING

BUR 604: RESEARCH PROJECT

OBJECTIVE: To prepare a research project

DECLARATION: The information provided by the respondent will be treated with confidentiality and for the purpose of preparing the above a planning research project

Questionnaire No…… Date of interview…….

Name of interviewer……..

Locality……

BUSINESSES QUESTIONNAIRE

(To be administered to the business entities at the waterfront)

SECTION A

RESPONDENT'S PROFILE

5. Name of Respondent (Optional)……
6. Age (Years) (a) 16-24 (b) 25-34 (c) 35-44 (d) 45-54 (e) 55-64 (f) 65+
1. Gender (a) Male (b) Female

SECTION B

Q1. General details of the business

i. Nature/type of Business
   1. Hotel/restaurant
   2. Shop/Kiosk
   3. Grocery
   4. Workshop/repairs
   5. Transport
   6. Leisure facility

7. Any other (specify)

ii. Position held in Business
   1. Owner
   2. Employee

iii. Telephone Number (optional)……
……..

Q2. What is your reason for choosing this location?

1. Availability of customers
2. Availability of space
3. Affordable rent
4. Any other (specify)

Q3. For how many years have you had the business at the waterfront?

1. 1-4
2. 5-9
3. 10 and above

Q4. a) Had you previously occupied premises outside the Waterfront?

1. Yes 2.No

b) If yes – where was/were those premises? ……

c) What main factor influenced your decision to relocate to the Waterfront?
   1. Availability of quality sites/premises
   2. Proximity to customers
   3. Proximity to suppliers
   4. Availability of space
   5. Affordable rent
   6. Any other (specify)

Q5. a) If the sites/premises at the waterfront had not been available, would you have chosen another location?

1. Yes 2.No

b) Where would you have located your business if this site were not available? (First preference only)……
……..

Q6. a) How far is your business located from its main suppliers?

1. Within a 30 minutes drive.
2. Between 30 minutes to 1 hour drive
3. Over 1 hour drive

a) How far is your business located from its main customers?

1. Within 30 walk
2. Between 30 minutes to 1 hour walk
3. Over 1 hour walk

Q7. How would you rate your location at the waterfront with respect to the factors below?

NB. (Use: Good (1) Satisfactory (2) Less than Satisfactory (3) Poor (4))

1. Access to customers
2. Access to suppliers

Q8. a) What are your days of operation?

1) 7 Days
2) 6 Days
3) 5 Days
4) 4 Days and below

b) What are your hours of operation in a day? .....

Q9. a) What time of the day do you experience maximum activity?

1. Early morning
2. Mid-morning
3. Afternoon
4. Late afternoon
5. Evening
6. Night

Q 10. a) How do you rate the access route you usually use to the waterfront?

1. Excellent
2. Good
3. Fair
4. Poor

b) What improvements could be made to them?

.....

Q11. What is the level of this business premise?

1. Sole premise/business
2. Headquarters of a multiple branch company
3. Branch operation of a larger company
4. Any other (specify)

Q12. a) How many people are employed by the business on this site on full time?

1. 0-20
2. 21-49
3. 50 and above

b) How many people are employed by the business on this site on part-time?

1. 0-20
2. 21-49
3. 50 and above

Q13. Over the time of operation, how has the number of people employed by the business changed?

1. Grown
2. Remained the same
3. Declined
4. Fluctuates

Q14. Ownership of the business

a) What is the physical size of the premises/site?
   1. acre
   2. 2-4 acres
   3. 5-9 acres
   4. Above 10 acres

b) Do you own the place of business?

   1. Yes 2.No

c) If yes, how did you acquire?
   1. Bought
   2. Rented
   3. Inherited
   4. Any other (specify)

d) If no, who owns? .....

e) What levies/fees do you pay? .....

f) To whom? .....

Q15. What is your opinion on the cost of premises/site compared to other alternative business premises outside the waterfront?

1. High
2. Low

3. Comparable

Q16. a) Are you ever involved in the decisions that affect the waterfront?

1. Yes 2.No

b) If yes, how?

.....
.....

c) How can the involvement in the decision making process be improved?
……
……

Q17. Diversity of the water front

a) The Waterfront has a range of businesses and facilities located here. Which of the listed elements of the development mix do you find useful or compatible with your business. (rated in terms of: Positive (1) Neutral (2) Negative (3))

i. Hotels (1) (2) (3)
ii. Restaurants (1) (2) (3)
iii. Shopping facilities (1) (2) (3)
iv. Leisure facilities (1) (2) (3)
v. Other related businesses (1) (2) (3)
vi. Heritage elements (1) (2) (3)

b) Could the development mix be improved – are there other facilities or features you would like to see on the Waterfront site?

1. Yes 2.No

c) If yes, how?

.....
.....

d) Which activities do you think should be eliminated to improve the waterfront?
....,
……

e) Which activities do you think should be introduced to improve the waterfront?
……
……

f) Are there any cultural sites that you feel should be preserved?
……
……

Q 18. Overall satisfaction

a) What general improvements would you like to see on the waterfront that would positively impact on the business?

.....
.....

b) Is there any major issue of concern to you relating to the water front? Kindly state it
……
……
……..

Thank you and God bless.

7.4 Annex 4: Key Informants Interview Schedule

UNIVERSITY OF NAIROBI

DEPARTMENT OF URBAN AND REGIONAL PLANNING

BUR 604: RESEARCH PROJECT

OBJECTIVE: To prepare a research project

DECLARATION: The information provided by the respondent will be treated with confidentiality and for the purpose of preparing the above a planning research project

Questionnaire No…… Date of interview…….

Name of interviewer……..

Locality……

KEY INFORMANTS INTERVIEW SCHEDULE

Part I: (Policy, planning and administration of Kisumu's waterfront development)

1. **Relationship between the water and the city.**

   a) Kisumu is a city with a waterfront. What are the geographical limitations of the waterfront under your jurisdiction? (i.e. geographically, what is regarded as the waterfront?)

   ……
   ……

   b) It is also a city that grew up with port activities. What do you think are the effects of the port activities on the relationship between the water and the city in the past, now and in the future as affected?

   .....

   ……

   c) Is there any part of the city that can be considered as providing both physical and visual corridor to the waterfront?

   .....
   .....

d) Is there any legislation that explicitly guarantees and promote waterfront access.

……
……

e) Do you think contextual integration (i.e. both physically and functionally) of the waterfront with the city is important?

……
……

f) If yes, why?

.....
.....

g) If not, why not?

……
……

h) What are the main challenges, to the integration of the waterfront with the city?

……
……

2. Evolution of the waterfront

a) What would you consider as the current primary use(s) of the waterfront?

……
……

b) The waterfront area has gone through years of development. What was the area like before?

……
……

c) How has it changed through time in terms of uses of the waterfront area from the past years?

……
……

d) Is there any major waterfront development project in plan?

……
……

e) If yes, what is the scope of the project?

……
……

f) Are there any cultural sites at the water front that you feel should be preserved? (kindly state)

……
……

3. Vision and plan

a) There are different rationales for waterfront development; some are for economic revenue while some are for urban regeneration. What is the vision and plan for Kisumu's waterfront development?

……
……

b) Do the citizens/other stakeholders share in the vision?

……
……

c) Kindly explain the above.

……
……

d) What strategies are put in place to achieve the vision? Explain?

……
……

e) How do the citizens participate towards achieving the vision?

……
……

f) Is the vision a part of a dynamic positioning, i.e a strategy to respond to future demands and exploit its comparative advantage?

……
……

g) If so, at what level?
   i. Only a plan on a local level.
   ii. A plan on a regional level.
   iii. A plan on a national level.
   iv. A plan on an international level.

h) In respect of the vision, does the lake represent a constraint or advantage to the contemporary development?

……
……

4. Policy

a) Almost all development zones have special policies associated with them. Which Act(s), guidelines or policies are used by this department as regards the lakefront development?

……
……

b) Is there any difference with other projects which are not at the waterfront? Any checklist of the development guidelines specific to the waterfront projects?

……
……

c) What are the major considerations taken in evaluating/ approving application of projects next to the lake or within the waterfront area?

……
……

d) How is it being implemented/ enforced?

……
……

e) Since when has it been enforced?

……
……

f) What are some of the challenges faced in enforcing certain acts or guidelines, if any?

……
……

g) Who are the major stakeholders or interested parties on the waterfront?

……
……

h) How are they involved in the decision-making on matters affecting the waterfront?

……
……

Part II: Overall evaluation.

a) In your evaluation, how would you gauge/score Kisumu's waterfront development?

……
……

b) Explain your answer to above.

7.5 Annexe 6: Research Work Plan

PHASE	Task Title	ID	SPECIFIC TASK	Est. Start	Est. End	Deliverable	Actor	BUDGET
I	**Identification of research topic**	1	General Review of literature	2-2-12	2-3-12	Collection of papers	Researcher	5,000.00
		2	Compile related literature	5-3-12	15-3-12	Report on Lit review findings	Researcher	
		3	Compile references	15-3-12	20-3-12	Reference list	Researcher	
	Introduction of the study	4	Background to research problem	22-3-12	24-3-12	Report on Lit review findings	Researcher/ tutor	50,000.00
		5	Statement of problem, purpose, objectives and questions	25-4-12	25-4-12	Report on Lit review findings	Researcher	
		6	Literature review and secondary Data collection	26-4-12	22-5-12	Report on Lit review findings	Researcher/ tutor	
II	**Field Reconnaissance**	7	Ad hoc, indiscriminate random and informal interviews	23-5-12	28-5-12	Sample population	Researcher/ tutor	20,000.00
	Preparation of data collection instruments.	8	Draft instruments	29-5-12	31-5-12	Draft Questionnaires	Researcher	25,000.00
		9	Review of draft instruments	20-2-2014	17-3-2015		Researcher/ tutor	
		10	Developing of sampling frame	21-3-2014	13-4-2015	Final Questionnaires	Researcher	
		11	Sampling and identification of subjects	4-5-2015	5-5-2015	Interview guide	Researcher	
		12	Pre-testing of instruments	6-5-2015	8-5-2015	Letter seeking authority	Researcher	
	Field work	13	Interview the subjects Issue Questionnaires	11-5-2015	29-5-2015	Filled Questionnaires	Researcher/ Research assistants	25,000.00
		14	Collect Questionnaires	25-5-2015	30-5-2015	Raw data	Researcher/ Research assistants	
III	**Data Analysis**	15	Data organization	2-6-2015	5-6-2015	Pre processed data	Researcher/ Research assistants	5,000.00
		16	Content analysis of interview sessions	8-6-2015	12-6-2015	Sieved data	Researcher	
		17	Data analysis	15-6-2015	26-6-2015	Report	Researcher	
		18	Data presentation	6-6-2015	6-6-2015	Tables & graphs	Researcher	
IV	**Report writing**	19	Writing of draft research report	27-6-2015	24-8-2015		Researcher	25,000.00
		20	Final hard and soft copies	31-6-2015	31-8-2015		Researcher	
CONTINGENCY								20,000.00
TOTAL								**175,000.00**

7.6 Annexe 6: Land Use Check List

Building	**Use**	**Plot size (m^2)/acres**	**Footprint (m^2)**	**Setback (m)**	**Height (m)**	**Storeys (No.)**	**Density**	**Plot ratio**	**Orientation**

7.7 Annexe 7: Accessibility Evaluation Checklist

	STREET				
EVALUATION CRITERIA	**A**	**B**	**C**	**D**	**E**
Walkway Design					
Spatial Orientation (how does the walkway relate to the shoreline spatially)					
Dimensions (width and elevation of the walkway)					
Material (material used for paving)					
View of the Water (maintenance of views to water)					
Landscaping (use of landscaping to buffer walkwayfrom surrounding uses)					
Connection (connectivity between walkway and other public areas)					
Separation of Space					
Transition between Public and Private Space					
Amenities					
Seating (frequency and design of seating)					
Restrooms (frequency and design of restrooms)					
Public Access					
Accessibility from Streets					
Access to Water's Edge from Walkway					
Barrier-Free Access Design					
Wayfinding and Lighting					
Signage (frequency and design of entrance signs,					
wayfinding and informational guides)					
Lighting (frequency and design)					
Surrounding Environment					
Parking (provision of parking and buffering from walkway)					

Legend: (1) Not at all; (2) Poor; (3) Adequate; (4) Good; (5) Excellent

7.8 Annexe 8: Fees chargeable on a restaurant

- Single Business Permit Kshs 30,000/=
- Food Handlers Examination fee of Kshs. 500 on first visit
- Kshs. 200 on second visit after 4 months
- Typhoid Vaccination, Tuberclosis, and Hepatitis B each at 1,000
- Food and hygiene – 5,000/=
- Public Health permit – 900/= per member of staff
- Catering levy – 16,000/=
- NACADA – 30,000/=
- Tourism Fund – 18,000/=
- K.R.A – 13,000/=
- Land Rent – 48,600/=
- Land rates – 100,900/= (up from 67,000/=)