DYNAMICS OF URBAN LAND SPACE CONTESTATION AND THEIR IMPLICATIONS ON UTILIZATION OF PUBLIC GREEN SPACES: A CASE OF MICHUKI MEMORIAL PARK, NAIROBI CITY COUNTY

BY

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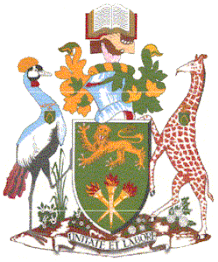

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DECLARATION

This thesis is my original work and has never been submitted for examination for a degree in any other University.

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DEDICATION

This work is dedicated to all those who materially, spiritually, emotionally and physically contributed to its fruitful completion. Specific dedication to Mum and Dad for sparing your all to facilitate my education; to my mentor Arch. E.O Abonyo for your unwavering support, inspiration and belief in my capabilities that kept me uplifted even during the tough times and to my colleague Dr. Mbathi Musyimi for guidance during my formative years; and to my research proposal.

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ABSTRACT

Public urban green spaces are useful natural assets that are globally mainstreamed into practice as one of the nature-based solutions to counter the urban areas challenges such as climate change. Using Michuki Memorial Park as a case study, the study sought to assess dynamics of urban land space contestation and their implications on utilization of public green spaces. The study found that public urban green spaces have increasingly been threatened by competing urban land uses for control hence their quality over time has deteriorated thus denying city residents access to the much needed recreation and leisure areas. Catalysed by lack of a consolidated policy framework for urban green spaces in Kenya, the existing loopholes in policy have resulted to their vulnerability and dilapidation. Further the study reveals that proper planning, management and utilization of the Park can be mainstreamed into policy and practice when factors associated with their positive utilization are incorporated in its planning and design. In addition, any Park mainstreaming program in policy and practice is pegged on adequate financial support, political good will, involvement of all and access to information as well as a robust enforcement agency. Hence the study recommends formulation of urban green spaces policy framework for their planning and sustainable management. It further recommends strengthening strict adherence to land use development controls, optimizing on Park users satisfaction, promoting urban eco-tourism through revitalization of green spaces advocating public private partnerships, payment of parks services and other Park funding options as well as inculcating robust green spaces collaborative governance.

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LIST OF ABBREVIATIONS

AAK	Architectural association of Kenya
CIDP	County Integrated Development Plan
CoK	Constitution of Kenya, 2010
EIA	Environmental Impact Assessment
EIK	Environmental Institute of Kenya
EMCA	Environmental Management and Coordination Act
KIP	Kenya Institute of Planners
MEF	Ministry of Environment and Forestry
MMP	Michuki Memorial Park
NbS	Nature-based Solutions
NCC	Nairobi City County
NEMA	National Environment Management Authority
NIUPLAN	Nairobi Integrated Urban Development Master Plan
PES	Payment for Ecosystem Services
RFTA	Rehabilitation Funding and Technical Assistance
SDG	Sustainable Development Goals

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, more people live in urban areas than in rural areas, with 55% of the world's population residing in urban areas in 2018.[1] In 1950, 30% of the world's population was urban, and by 2050, 68% of the world's population is projected to be urban. As the world continues to urbanize, sustainable development will depend increasingly on the successful management of urban growth[2] and the effects of rapid urbanization such as: environmental degradation, urban sprawl, access to infrastructure and social services that will constantly create pressure and competition on land and natural ecosystems.[3]

1 United Nations, 2018. World Urbanization Prospects. The 2018 Revisions (Key facts). Economic and social affairs. UN. Accessed on 25 March 2018 at: http://www.un.org/en/development/desa/population/theme/urbanization/index.shtml

2 Urban growth is closely related to the three dimensions of sustainable development: economic, social and environmental. Well-managed urbanization, informed by an understanding of population trends over the long run, can help to maximize the benefits of agglomeration while minimizing environmental degradation and other potential adverse impacts of a growing number of city dwellers.

3 Healthy Parks Health People Central. 2017. Urban planning and the importance of green space in cities to human and environmental health. Accessed online on 20th May 2017 at: http://www.hphpcentral.com/article/urban-planning-and-the-importance-of-green-space-in-cities-to-human-and-environmental-health

The 21st century urban developments across the world have encouraged cities to transform and adopt nature-based solutions[4] (NbS) to deal with the numerous challenges urban areas are facing such as climate change, dilapidation and loss of natural capital as well as increase of natural disaster risks [5] in a bid to create robust experience of places which are environmentally sustainable, commuter pleasant (walkability and connectivity) and creates opportunities for human interaction and cohesion.[6] Essentially, NbS are intended to support the achievement of society's development goals and safeguard human well-being in ways that reflect cultural and societal values and enhance the resilience of ecosystems, their capacity for renewal and the provision of services.[7]

Subsequently, mainstreaming urban green spaces (UGS) as a land use into the city landscape is globally recognized among the NbS for sustainable urban development.[8] Sustainable Development Goal (SDG) 11[9] that seeks by 2030 that cities provide universal access to safe, inclusive and accessible, green and

[4] Defined by International Union for Conservation of Nature as "actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits".
[5] International Council for Local Environmental Initiatives (ICLEI). 2017. "*Nature-based solutions for sustainable urban development*". Briefing sheet ICLEI: Bonn, Germany.
[6] Cap C. 2017. "Mixed Land Use is not Random Land Use". Retrieved online , 22 September 2017, http://africancityplanner.com/mixed-land-use-isnt-random-land-use/
[7] Commission on Ecosystem Management. 2018. "Nature-based Solutions" Retrieved online , 22 August 2017, https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions
[8]Chiesura, A. 2004. The role of urban parks for the sustainable city. *Landsc. Urban Plan.* 2004, *68*, 129–138.
[9] "Make cities and human settlements inclusive, safe, resilient and sustainable"

public spaces, particularly for women and children, older persons and persons with disabilities. Hence, UGS matters because; (1) Cities are becoming more expansive, growing spatially faster than their population and haphazardly absorbing land needed for ecosystem services[10]; (2) As a measure of land-use efficiency, there is need to benchmark and monitor the relationship between land consumption and population growth[11]; and lastly, (3) urban configuration largely predetermines the technologies and behavioural patterns within a city; once built, cities are expensive and difficult to reconfigure.[12]

Equally, managing rapid urbanization as well as embedding NbS remains a challenge, particularly in cities where there is competing or contested land use developments, rising land values, illegal land acquisitions, urban governance inadequacies exerting pressure for land as finite resource. As a consequence natural ecosystems are increasingly replaced by land developments leading to reduction of urban ecological footprint. This is evident by studies conducted in 25 European cities in 2015, which confirmed between 7.3% and 41% of green spaces lands had been replaced by other land use developments.[13] Similarly, in

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[10] Elmqvist et al 2013. *Urbanization, Biodiversity and Ecosystem Services*: Challenges and Opportunities. Springer.

[11] It informs and enables decision-makers to track and manage urban growth at multiple scales and enhances their ability to promote land use efficiency

[12] Fast growing cities in the developing world must "get it right" before they are beset by infrastructural constraints

13K¨uhn, M., 2003. Greenbelt and green heart: separating and integrating landscapes in European city regions. Landscape Urban Plann.64, 19–27.

Africa, there is also strong pressure on green spaces for different urban development's resulting in constant decline of green spaces especially in cities and urban areas where it's more intense.[14]For example, the city land space occupying green spaces in the Cape Town in South Africa and Lagos in Nigeria are less than 10% and 3% respectively[15].

Similarly, in Nairobi Kenya, urban green spaces are suffering from poor maintenance, lack of development and underutilization.[16]This is confirmed by Mireri and Makwaro who orate that public open spaces in Nairobi city have been endangered by rapid rate of urbanisation of 5-7%, weak spatial planning, management and illegal alienation.[17] Hence, public open spaces that were planned to serve a population of at least 250,000 were serving over 3 million people with the majority suffering from dilapidation, overcapacity and insecurity, thus denying members of the public access to much needed recreation areas.[18]

14Cilliers, S., Cilliers, J., Lubbe, R., & Siebert, S. 2013. Ecosystem services of urban green spaces in African countries: Perspective and challenges. Retrieved online, 22 June 2018, https://www.researchgate.net/publication/257671074_Ecosystem_services_of_urban_green_spaces_in_African_countries-perspectives_and_challenges

15 ibid

16 Rabare S., Oketch, R. and Onyango T., 2009. The role of urban parks and socio-economic development: Case study of Kisumu Kenya. Retrieved June 2018, from Theoretical and empirical researches in urban management: www.um.ase.ro

[17] Makworo, M. and Mirerei, C. 2010. Public open spaces in Nairobi City, Kenya, under threat. Journal of Environmental Planning and Management 54:1107–1123

[18] ibid

The provision and management of urban green spaces globally is guided by set policies, regulations, guidelines and strategies with regard to green space planning as is the case in Australia, Canada, USA, Japan and South Africa amongst others. Kenya has made tremendous efforts to identify and gazette urban green spaces as well as providing specific legislation relating to urban park planning, design and management such as the CoK (2010), EMCA[19], National Land Use Policy (2018), Physical Planning Act (1996), Physical Planning Handbook (2007), National Environment Policy (2013), National Land Policy (2009) and County Spatial Planning Guidelines (2018).

However, the country as well as the counties lack a consolidated policy framework specific to urban green spaces planning and management policy, plan or guidelines. Due to these loopholes in policy, urban green spaces remain vulnerable and open to exploitation with majority of them suffering from degradation, overcrowding and insecurity, thus denying city residents access to recreation areas besides exposing them to under-utilization, increasing risks of air-pollution and climate pollutants related premature deaths that WHO estimates to be more than 7 million annually.[20]

[19] Environmental Management and Co-ordination Act, CAP 387
[20]World Health Organization (WHO). 2015. *Reducing global health risks through mitigation of short-lived climate pollutants*, Scoping report for policymakers.Geneva.

1.2 Problem Statement

Michuki Memorial Park, remains an important public urban green space landmark in the city established in 2012 by then the Ministry of Environment and Natural Resources, as a model case on how Nairobi River Basin can be sustainably rehabilitated, restored and sustainably managed with an overall goal to provide better livelihoods, enhance environmental quality and values through well regulated commercial and recreational endeavours.[21]

The introduction of the clean-up of the Nairobi River and the landscaping exercise not only created a great node for public recreation, interaction and gatherings on the riverfront Park but also presented an opportunity for future design that can be benchmarked both nationally and globally. It is in this view of incongruity between the possible desired outcome and the present situational reality in the study area which triggers various policy, space users' and management dynamics that needs to be reconciled in a bid to not only make the Park sustainable, environmentally sound and economically viable but also unravel the success, failures and lessons to be learned from this pilot case study of the Nairobi River basin rehabilitation program.

[21] Government of Kenya, GoK, 2012. Nairobi River Basin Rehabilitation Program (NRBP). Office of the prime minister, Nairobi, Kenya.

Catalyzed by lack of clear policy and enforcement framework covering the rehabilitation and restoration of MMP, the study area is epitomized by environmental and land use problems such as pollution, constant encroachment by commercial activities, poor solid waste management, dilapidated Park amenities which have degraded the Park thus hampering its optimum use and envisaged goals.

Using MMP as a case, the study sought to assess the dynamics of urban land space and their implications on utilization of the Park and consequently determine how proper planning, management and utilization of the Park can be mainstreamed into policy and practice.

1.3 Research Questions

The study assessed the dynamics of urban land space and their implications on utilization of public green spaces using MMP as a case study. The research questions for the study were:

1. What is the nature and effects of urban land developments on conservation of Michuki Memorial Park?
2. What is the policy and institutional framework for sustainable management of Michuki Memorial Park?
3. How can proper planning, management and utilization of the Park be mainstreamed into policy and practice?

1.4 Research Objectives

The main objective of this study was to evaluate the dynamics of urban land space contestation and their implications on utilization of public green spaces using MMP as a case study. Specific objectives of the study were:

1. To assess the nature and effects of urban land developments on conservation of Michuki Memorial Park.
2. To examine the policy and institutional framework for sustainable management of Michuki Memorial Park.
3. Determine how proper planning, management and utilization of the Park can be mainstreamed into policy and practice.

1.5 Justification for the Study

Urban green spaces (UGS) provide environmental, economic and social benefits to the urban communities. Globally, environmental protection and management is considered as a vital foundation of numerous human rights such as the right to life and a clean and healthy environment.[22]

Despite this fact, studies by Makworo and Mireri reveal that the quality and quantity of public UGS in Kenya have over time deteriorated resulting in

[22] Marie-Claire Cordonier Segger and Ashfaq Khalifan. 2004. *Sustainable Development Law; Principles, Practices, & Prospects*.Oxford University Press 2004

encroachment, lack of attention, poor maintenance, lack of development and underutilization.[23]

Fundamentally, the study addresses UGS biodiversity issues which are treasured natural capital that must be sustainably managed for present and future generations. Based on the fact that urban parks in Nairobi and Kenya at large lacks a consolidated policy framework for urban park planning and management, the study offers opportunity to seal this policy gap, inculcate high priority in planning and management of green spaces as well as provide a platform for structured systems of maintenance and monitoring and evaluation of public UGS.

Further, the study will contribute considerably to enhance the knowledge base of urban green spaces and the sustainability of these spaces in the physical landscape of urban areas. Key among such contributions is the development of a green space assessment framework that will serve as a guide for city authorities and green space organisations to frequently assess the condition of urban green spaces and undertake measures in areas where the green spaces are in a poor state.

[23] Makworo M. and Mirerei C. 2010. Public open spaces in Nairobi City, Kenya, under threat. Journal of Environmental Planning and Management Vol. 54, No. 8, October 2011, 1107–1123

The study will strengthen the theoretical underpinnings on the management of green spaces by establishing strong linkages between the concepts of green spaces, governance and sustainability, and how such linkages can lead to a successful management of urban green spaces.

Last but not least, the policy and legal recommendations that would be informed by the findings of this study will inform policy makers and takers on empirical strategies to ameliorate environmental management and conservation of urban green spaces into policies, strategies and practices under the prevailing urban development trends. More specifically, when implemented, the attainment of SDG 11 that seek to provide universal access to safe, inclusive and accessible, green and public spaces shall be realizable.

1.6 Study Scope

Geographically the study was carried out at the Michuki Memorial Park (MMP) located 500m from the Nairobi City CBD, between Kipande road to the north and Kijabe street to the south, bordering Nairobi national museum to the north west and globe roundabout to the south east (See figure 1).

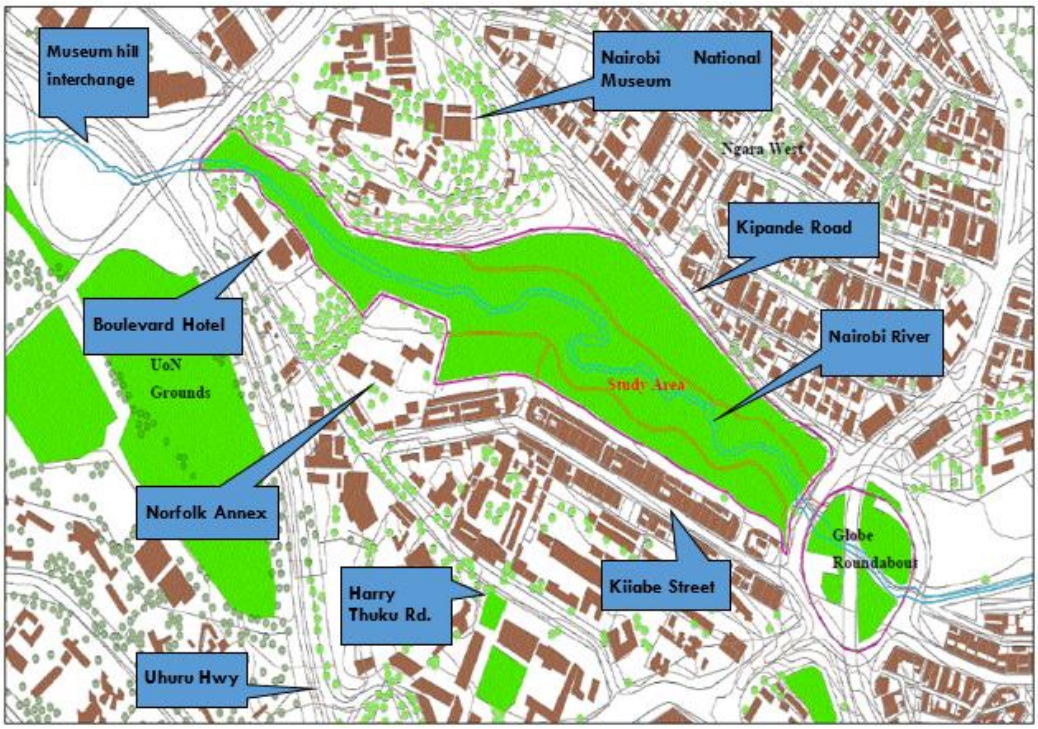

Figure 1: Aerial View of Michuki Park and its Environs

Source: Google Earth, 2018.

The study assess the following variables among others: existing land use activities, land users'/activities dynamics, Park encroachment, land use conflicts, development control policy/guidelines guiding the study area, environmental degradation, land use compatibility, planning and environmental policy concerns of MMP, awareness and participation in green spaces management, benefits and contribution of MMP, Park management ,user's needs and behaviour towards space use, Park users', management and other stakeholders' perceptions and preferences regarding the use of study area, Park facilities and level of equipment supply, awareness and

participation in green spaces management (AAPIGM) as well as how green spaces biodiversity functions be mainstreamed into policies, strategies and practices under the prevailing urban development trends.

1.7 Study Assumptions

The study made the following assumptions:

a) There is lack of an appropriate policy and institutional framework for the sustainable management of Michuki Memorial Park.
b) There have been urban land use development changes around the Park due to urban growth and expansion.
c) The above changes associated with weak urban planning and environmental governance have negatively affected Michuki Park.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter provides a review of the relevant literature regarding the research problem specifically focussing of urban green spaces and sustainable urban development. Subsequently, case studies of best practice have been reviewed to inform the policy and planning of urban green spaces. The chapter concludes with the conceptual and theoretical framework of the study.

2.2 The Concept of Urban Green Spaces

The term "green space" is a recent term and its origin can be traced from the urban nature conservation movement and the European thinking about green space planning which started in the UK[24]. The use the term urban green spaces varies in both developed and developing countries.[25]Developed countries, use the term urban green spaces to cover all areas that are naturally or artificially covered with vegetation.[26] Barbosa et al. defines urban green spaces as a

[24] Swanwick, C., Dunnett, N., & Woolley, H. 2003. Nature, role and value of green space in towns and cities: an overview. *Built Environment*, 29(2): 94-106.
[25] Dunnett, N., Swanwick, C., & Wooley, H. 2000. *Improving urban parks, play areas and green spaces.* London: Department for Transport, Local Government and the Regions.
[26] Fratini, R., & Maroni, E. 2011. Green-space in urban area: Evaluation of the efficiency of public spending for management of green urban areas. *IJED*, 1 (1): 9-14.

parcel of land predominantly a natural area [27] with a sense of environmental quality and the existence of well-preserved amenities.[28] In the context of developing countries, the term green spaces refers to entire urban green infrastructure which covers a network of all natural, semi-natural and artificial ecological systems found in urban areas.[29] In broader terms, urban green spaces refers to any area or land within an urban area covered with vegetation or water.[30]

Notwithstanding the minor differences that exist in the various definitions on green spaces, it can be deduced that in both developed and developing world there is some shared agreement on the meaning of urban green spaces. In both contexts the criteria for defining green spaces centred predominantly on the availability of green vegetation which makes urban green spaces to broadly cover all urban spaces or lands that to some extent have some form of vegetation either natural or artificial and are available for human usage.[31] In the context of this study the aim is to cover all natural and semi-natural spaces

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[27] Barbosa O., Tratalos P., Davies R., Fuller P., 2007."Who benefits from access to green space? A case study from Sheffield, UK", Landscape and Urban Planning, vol. 83, pp. 187-195.
[28] Shackleton C. and Blair A., 2013. "Perceptions and use of public green space is influenced by its relative abundance in two small towns in South Africa", Landscape and urban Planning, vol. 113, pp. 104-112.
[29] Cilliers, S., Cilliers, J., Lubbe, R., & Siebert, S. 2013. Ecosystem services of urban green spaces in African countries: Perspective and challenges. *Urban Ecosystem*, 16(4): 681-702.
[30] Yusof, M. J. M. (2012). *The true colours of urban green spaces: Identifying and assessing the qualities of green spaces in Kuala Lumpur, Malaysia.* PhD thesis submitted at the Institute of Geography, School of Geosciences, University of Edinburgh.
[31] Mensah A. 2015. "Sustaining Urban Green Spaces in Africa: A Case Study of Kumasi Metropolis, Ghana." PhD Thesis. University of Birmingham, UK.

in urban areas that are primarily covered by vegetation, publicly owned and accessible to the public for directly (active/ passive leisure) or indirectly (positive effect on urban environment) use, with no profit motive.

2.2.1 Typologies of Urban Green Spaces

Many variables such as size, value (function), nature of green spaces, facilities and ownership are often used to classify urban green spaces. Herzele and Wiedemann using size as a basis classified urban green spaces into 6 main types.[32] One is the values or functions of urban green spaces, Baycan-Levent et al. classified urban green spaces into sixteen distinct types under five main values (ecological, social, economic, planning, and multi-functional values).[33] Furthermore, Azadi et al. using the nature of green spaces as a yardstick categorised urban green spaces into 8 broad types (general urban green space, brownfield redevelopment, greenway, neighbourhood gardens, greenbelt, urban forest, City Park and national urban park).[34]

Focusing on developing countries, Indra grouped the green spaces in Yogyakarta (Indonesia) into two broad types (linear, and non-linear spaces) to

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[32] Herzele, V. A., & Wiedemann, T. (2003). A monitoring tool for the provision of accessible and attractive urban green spaces. *Landscape and Urban Planning*, 63(2): 109-126.
[33] Baycan-Levent, T., Vreeker, R., & Nijkamp, P. (2004). *Multidimentional evaluation of urban green spaces: A comparative study on European cities.* Research memorandum, Vrije Universiteit, Faculty of Economic Business and Administration. Amsterdam: Vrije Universiteit.
[34] Azadi, H., Ho, P., Hafni, E., Zarafshani, K., & Witlox, F. (2011). Multi-stakeholder involvement and urban green space performance. *Journal of Environmental Planning and Management*, 54(6):785-811.

cover different forms of green spaces such as town parks, sports fields and recreational parks.[35] Study on African cities identified 7 different forms of green spaces; semi-private spaces (e.g. residential spaces), public green areas (e.g. parks), trees planted for environmental protection, rangeland and forest close to urban areas, nature reserves, and designated parks.[36]

2.2.2 Benefits and Contributions of Green Spaces to Urban Development

Green spaces provide many functions, services and benefits which are needed for the sustainable development of urban areas ranging from environmental, economic and social benefits as discussed below:

a) Environmental Benefits:

The availability of many urban trees has been observed to enhance urban air quality by helping to remove some pollutants such as carbon monoxide, nitrogen oxide and sulphur dioxide from the atmosphere.[37] WHO estimates that creating more and improving quality of green spaces has the potential to

[35] Indra, H. H. (2008). "*Public open space utilisation: How people perceive it in Yogyakarta."* Master's thesis submitted at ITC, The Netherlands.
[36] Mensah, C. A. 2014. Urban green spaces in Africa: Nature and challenges. *International Journal of Ecosystem*, 4(1):1-11.
[37] Nowak, D. J., Crane, D. E., & Stevens, J. C. 2006. Air pollution removal by urban trees and shrubs in the United States. *Urban Forestry & Urban Greening*, 4(3-4)115-23.

alleviate climate contaminants that possess a great threat to global warming effect and about 7 million premature air-pollution related deaths annually.[38]

Noise emanating from vehicular traffic and other sources are likely to create health problems for urban dwellers.[39] According to UK forest research green spaces have the ability to reduce noise by five to ten decibels for every 30m width of woodland, especially sharp tones, and this reduces noise to the human ear by approximately 50%. [40]

Studies on the urban environment have shown that different forms of UGS contain significant amount of biodiversity.[41] For instance, according to the East African Nature History Society, over 50 indigenous tree species and orchards, some of them found only in Kenya, are found at Nairobi's city park. In addition, City Park has approximately 300 bird species and is also a habitat to hundreds of insects, Dikdik and approximately 2000 Sykes

[38]World Health Organization (WHO). 2015. Reducing global health risks through mitigation of short-lived climate pollutants. Scoping report for policymakers. Geneva.
[39] ibid
[40] UK Forest research. 2018. Tools & Resources: Noise abatement. Accessed online at: https://www.forestresearch.gov.uk/tools-and-resources/urban-regeneration-and-greenspace-partnership/greenspace-in-practice/benefits-of-greenspace/noise-abatement/
[41] Alvey, A. A. 2006. Promoting and preserving biodiversity in the urban forest. Urban Forestry and Urban Greening, 5(4): 195-201.

monkeys.[42]Thus, UGS do serve as habitat for reproduction of species and conservation of biodiversity.[43]

From an architectural point of view, urban green spaces help to beautify urban design and the overall urban landscape. Manlun points out that green vegetation helps to enrich the urban architecture and beautify the landscape through its different forms and styles.[44] Apart from the beauty that green spaces add to urban architecture, they also help to enhance urban aesthetic quality, which makes urban areas more uniform and well diverse.[45]

Further Baycan-Levent and Nijkamp, suggests that when designing towns and cities, green spaces are very important because they help to enhance their identity which can improve the cities' attractiveness as places to live, work, invest in and as tourist destinations.[46]

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[42] Makworo, M. & Mireri, C,. 2011. Public open spaces in Nairobi City, Kenya, under threat, Journal of Environmental Planning and Management, 54:8, 1107-1123, DOI: 10.1080/09640568.2010.549631

[43] Bayram C.and Ercan G. 2012. Urban Green Space System Planning, Landscape Planning, Dr. Murat Ozyavuz (Ed.), ISBN: 978-953-51-0654-8, In Tech, Available from: http://www.intechopen.com/books/landscape-planning/urban-green-space-system-planning

[44] Manlun, Y. 2003. *Sustainable analysis of urban green space system based on GIS.* Master's thesis submitted to the International Institute for Geo-information Science and Earth Observation, Enschede-Netherland.

[45] ibid

[46] Baycan-Levent, T., & Nijkamp, P. (2009). Planning and management of urban green spaces in Europe: Comparative analysis. *Journal of Urban Planning and Development*, 135(1):1-12.

b) Economic Benefits

Economically, since urban greening projects are often labour-intensive and require high maintenance works, they provide both temporary jobs (soil preparation, planting etc.) as well as more permanent jobs (maintenance, management etc.) for many people both in developed and developing countries. A study by Blue Sky Green Space in 2011 revealed that there are over 50,000 people who are directly employed within public parks and gardens in the UK, and many others employed in industries associated with green spaces such as manufacturers of park-based equipment and products.[47]

The use of urban green zones improves air circulation, provides shade and as they transpire, it helps in providing a cooling effect and contributes to lower urban air temperatures.[48] A study in Chicago has shown that increasing tree cover in the city by 10% may reduce the total energy for heating and cooling by 5 to 10%.[49] Increasing property values serve as another important economic

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[47] Blue Sky Green Space (2011). Understanding the contribution parks and green spaces can make to improving people's lives. Retrieved March 12, 2018 from http://www.csd.org.uk/uploadedfiles/files/value_of_green_space_report.pdf

[48] Bayram Cemil Bilgili and Ercan Gökyer. 2012. Urban Green Space System Planning, Landscape Planning, Dr. Murat Ozyavuz (Ed.), ISBN: 978-953-51-0654-8, In Tech, Available from: http://www.intechopen.com/books/landscape-planning/urban-green-space-system-planning

[49] Haq, A., 2011. Urban green spaces and an integrative approach to sustainable environment. Journal of Environmental Protection, 2(5): 601-608.

contribution of green spaces to urban development.[50] The findings from a study in towns such as Emmen, Appledoorn and Leiden in the Netherlands revealed that houses sited near parks have higher property values than those far away from natural parks.[51] Urban economic studies reveals that as a result of UGS, there is increased property values and financial returns for land developers of between 5% and 15% depending on project typology.[52]

Well-planned and maintained UGS improve an area's image and attract businesses, customers, employees and different services, which create a good business environment and boost investment.[53] High tourism value has also been associated with green spaces; as Saraev and Aiello et al. noted the creation of green spaces as well as the greening of community centres attract tourists whose spending on goods and services that generate investments to support local economies and businesses in both developed and developing countries.[54]

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[50] Lutzenhiser, M., & Netusil, N. (2001). The effect of open space on a home's sale price. *Contemporary Economic Policy*, 19(3):291-298.
[51] Luttik, J. (2000). The value of trees, water and open spaces as reflected by house prices in the Netherlands. *Landscape and Urban Planning*, 48 (3-4):161-167.
[52] Haq, A., 2011. Urban green spaces and an integrative approach to sustainable environment. Journal of Environmental Protection, 2(5): 601-608.
[53] Saraev, V. 2012. Economic benefits of green space: A critical assessment of evidence of net economic benefits. Forestry Commission Research Report. Edinburgh: Forestry Commission.
[54] Aiello, D., Cheung, N., Chow, A., Cofie-Godwin, K., Kwon, N., Lee, S. H. Wantz, E. (2010). *Measuring the Economic Impact of Green Space in Pittsburgh.* Pittsburgh: Center for Economic Development, H. John Heinz III College of Carnegie Mellon University.

c) Social Benefits

Frequent contact with urban green spaces has been found to offer children the opportunity to experience close contact with nature, which helps to enhance their knowledge about nature, develop a sense of stewardship for the environment, and in the long run, appreciate and love nature.[55] The Association for Childhood Education International (ACEI) has found that children playing in parks and other green spaces easily develop their muscle strength, co-ordination, language, cognitive thinking and reasoning abilities.[56] It has further been observed that children's interaction with the natural environment, especially urban green spaces, help them to have a good opportunity to enhance their analytical and strategic thinking and improve their cognitive development.[57]

Green spaces contributions stem from close contact with green spaces, improving mental health and psychological well-being[58], and alleviating stress[59], as well as correcting mental disorders in children such as attention

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[55] Lowman, M. (2006). No child left indoors. *Frontiers in Ecology and the Environment*, 4(9): 451-451.
[56] Isenberg, J. P., & Quisenberry, N. (2002). *Play: Essential for all children*. A position paper for the Association for Childhood Education International. Retrieved March 10, 2018 from http://365waystounplugyourkids.com/play_Essential_for_kidsl.htm.
[57] Cornell, E. H., Hadley, D. C., Sterling, T. M., Chan, M. A., & Boechler, P. (2001). Adventure as stimulus for cognitive development. *Journal of Environmental Psychology*, 21: 219-231.
[58] ibid
[59] Louv, R. 2005. Last child in the woods: Saving our children from nature-deficit disorder. Available on line at: https://www.amazon.com/Last-Child-Woods-Children-Nature-Deficit/dp/156512605X Accessed on 24th September, 2017.

deficit hyperactivity disorder.[60] The use of urban green spaces for physical activities such as walking, jogging, playing football and other sporting activities has been found to help address the problem of obesity and prevent diseases such as cardiovascular disease, musculoskeletal diseases and cancer.

Sorensen et al. found that green spaces such as botanical gardens, natural trails and zoos help in informing locals and tourists about different forms of flora and fauna, and offer opportunities for individuals and families to learn about the environment and natural processes. Conner stressed that different forms of urban green spaces used for research activities in universities and scientific and industrial research organisations help researchers to examine a wide range of biophysical, economic and cultural issues related to the urban natural environment.[61] Fam et al. gave a classic example of the educational benefits of green spaces by citing the Museum of Economic Botany in Adelaide Botanical Gardens (Australia) used for several researches relating to the natural environment.[62]

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[60] CJC Consulting .2005. Economic benefits of accessible green spaces for physical and mental health: Scoping study. Final Report for the Forestry Commission, UK.
[61] Conner, N. (2005). Some benefits of protected areas for urban communities: A view from Sydney, Australia. California: California Institute of Public Affairs, Sacramento.
[62] Fam, D., Mosley, E., Lopes, A., Mathieson, L., Morison, J., & Connellan, G. (2008). *Irrigation of urban green spaces: A review of the environmental, social and economic benefits.* CRC for Irrigation Futures Technical Report No. 04/08.

Studies by Cohen et al. in Los Angeles concluded that there is a positive association between neighbourhood parks and the ability of residents to interact positively.[63] In addition to this, some people such as the disabled, aged and the young are often excluded from some social events in their society.[64]

Urban green spaces such as community parks and gardens provide a platform where different categories of people, including the excluded, come together to have fun with other people.[65] According to Haq findings from the UK, Finland and Mexico, classifies green spaces as a major resource for leisure and outdoor recreational activities in urban areas.[66] Observations in China by Xi-Zhang in 2009[67] and Jim and Chen in 2006[68] revealed that many urban residents use green spaces for recreational activities such as relaxing, playing with children among others.[69]

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[63] Cohen, D. A., Inagami, S., & Finch, B. (2008). The built environment and collective efficacy. *Health & Place*, 14(2): 198–208.
[64] ibid
[65] Fan, Y., Das, K.V., & Chen, Q. (2011). Neighborhood green, special support, physical activity and stress: Assessing the cumulative impact. *Health & Place*, 17: 1202-1211.
[66] Haq, S. M. A. 2011. Urban green spaces and an integrative approach to sustainable environment. *Journal of Environmental Protection*, 2: 601-608
[67] Xi-Zhang, S. 2009. Urban green spaces in Guangzhou (China): Attitude, preference, use pattern and assessment. A PhD thesis submitted at University of Hong Kong.
[68] Jim, C.Y., & Chen, W. Y. 2006. Recreation-amenity use and contingent valuation of urban green spaces in Guangzhou, China. *Landscape and Urban Planning*, 75(1-2): 81-96.
[69] Ernstson, H., Barthel, S., Andersson, E., & Borgstrom, S. (2010). Scale-crossing brokers and network governance of urban ecosystem services: The case of Stockholm. *Ecology and Society*, 15(4): 28 id

2.3 Nature and Effects of Urban Land Uses on Green Spaces

2.3.1 Urban Land Use

The significant role that land plays in a country's economic and socio-political wellbeing cannot be overemphasized. Indeed it is on land that all other natural resources become, a fact underscored by the Constitution that defines land to include; the surface of the earth and the subsurface rock; any body of water on or under the surface; marine waters in the territorial sea and exclusive economic zone; natural resources completely contained on or under the surface; and the air space above the surface.[70]

Chapin has argued that urban land use is a term used in at least three ways in contemporary planning literature.[71] Firstly, it means the spatial distribution of city functions – its residential areas, its industrial, commercial, and retail business districts, and the spaces set aside for institutional and leisure-time functions such as green spaces.[72] Secondly, it means a two-part framework for visualizing urban areas; first, in terms of activity patterns of people in the urban setting and their institutions as they require space (for example, activities involved in earning a living, shopping, following leisure pursuits),

[70] Constitution of Kenya, 2010 Article 260
[71] Chapin F. 1965. *Urban Land Use Planning* (2nd edition), University of Illinois Press.
[72] Ibid

and second, in terms of physical facilities or improvements to the land in the urban setting which are made to accommodate those activity patterns (that is, the functional land use identified above). Lastly, land use also involves devotion to the role that value systems of people play as they regulate space using activities and thence the use patterns which emerge.[73]

In summary, land use comprises any arrangement, activity or instrumentality, which produces change in or maintains the conditions of existing land use cover as long as these are human induced. Such inducement may be a direct or indirect, express or implied or incidental, result of some other action or policy. It is through land use that the important services provided by land can be realized.

2.3.2 Rationale for Green Spaces as an Urban Land Use

Urban areas serve as dynamic and complex entities that harbor heterogeneous mixture of built environment, natural, semi-natural and modified habitats for the utilization of human beings, plants and animals.[74] Green spaces represent an important environmental assert of urban areas that covers all open spaces primarily covered by vegetation which are directly (e.g. active or passive

[73] Ibid
[74] Ali, S., & Malik, N. 2010. Vegetation communities of urban open spaces: Green belts and Parks in Islamabad city. *Pak. Journal of Botany*, 42(2): 1031-1039.

recreation) or indirectly (e.g. positive influence on the urban environment) available for use.[75] It has been well acknowledged that urban green spaces (UGS) offer immense benefits to the development of urban areas and these benefits stem from social vitalities to environmental well-being. Notable among these benefits are creating avenue for recreational opportunities, enhancing physical and psychological well-being, ameliorating local climate, improving air quality, creating employment opportunities, and increasing the values of properties sited around them.[76]

In addition to the above, the 2015 Habitat III issue papers 11 on Public Space broadly gives attention to public green spaces a key ingredient of the character of a city[77] since they support sustainable development in the following ways:

a) Equality: A city can tackle inequality through the provision of inclusive, safe and accessible public spaces. Where UGS is inadequate, poorly designed, or privatized, the city becomes increasingly segregated.
b) Lowering crime rates: Well-designed and well-maintained public green spaces result in lower crime and violence. The paper records that from 1980–2000, total recorded crime rates in the world increased by about 30%

[75] URGE Team (Corporate Authors). 2004. *Making greenercities – A practical guide, No. 8/2004*. Leipzig-Halle: UFZCentre for Environmental Research.
[76] Harnik, P., & Welle, B. 2010. *The economic benefits of Denver's park and recreational system*. Washington D. C.: The Trust for Public Land.
[77] HABTAT III. 2015. Issue Paper on Public Space. UNHABITAT, New York.

and it is estimated that about 15% of those crimes have a UGS design and management component.[78]This has resulted in a growth of gated communities, sealed off by walls and sophisticated security installations, have emerged in nearly all Latin American and African cities.[79]

c) Enhancing collaborative governance: The public service dimension of maintaining public green spaces where local authorities can work together with citizens and the private sector to manage and maintain the urban commons is important, for example the City Improvement Districts in Johannesburg, South Africa. The private sector generally fails to provide genuinely accessible public space and wider urban connectivity, so the role of local governments in defending and maintaining the commons is critical.

d) Economic development: Good public green spaces play a decisive role in attracting investment, uses and activities, thus enhancing safety; increasing property values, generating municipal revenue; providing opportunities for economic interaction and enhancing livelihood opportunities.[80] When well managed they encourages investment confidence, e.g. business turn over in

[78] ibid
[79] ibid
[80] ibid

a high street location in London increases by between 5-15% following investment in a nearby public green space.[81]

Finally, the Physical Planning Handbook of 2007 emphasizes on the need to provide UGS the related facilities both in the rural and urban areas because of the following reasons: need for relaxation after a long day's work/break from routine, income generation/economic activities, social interaction, tourist attraction, set as carbon sinks/breathers, preservation of socio-cultural and or religious values, environmental conservation and to counter competing users due to population pressure and urban sprawl.

2.3.3 Factors Contributing to Optimum Utilization of Urban Green Spaces

Through provision of green spaces as an urban land use, physical planners and other policy makers need to ensure optimum utilization of these spaces from planning and design. From various authors, the main factors associated with a positive utilization of UGS include among others:

Equitable access: UGS should be available to those living or working within the city and on its periphery regardless of dwellings, physical abilities or financial possessions since inequality in accessibility may be a limiting factor

[81] UN Habitat, 2009. Global report of 2009 on Human Settlements: Planning Sustainable Cities.

in terms of usage.[82] Urban Planners should factor in physical obstructions like uncrossable highways or heavily trafficked roads as well as linkages to community pathways and sidewalks, uninterrupted by non-residential roads hence providing easy access especially for children and senior adults.[83]

Sufficient assets in land, staffing and equipment: Every UGS should document its natural, physical and historical resources indicating their financial value, know the acreage of natural and designed landscape, and indicate maintenance and replacement procedures to manage sustainably and to track their growth or shrinkage over time.[84] Park expenditure should be accurately tracked transparently and comprehensively reported to everyone.

Safety from physical dangers and crime: Every UGS should be safe, free both of crime and physical hazards. Mechanisms to eradicate physical dangers or threats as well as means for citizens to easily report problems should be put in place. Harnick observes that low frequency of female Park users is a suggestion of an insecure public green space.[85]

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[82] Reyes, M., Paez, A., & Morency, C. 2012. *Accessibility to urban parks in Montreal from the perspective of children.* Retrieved October 2018, from McMaster University.
[83] Tabassum, S., & F. Sharmin. 2012. Accessibility analysis of parks at urban neighbourhood: The case of Dhaka. *Applied science and engineering, 2* (2), 48-61.
[84] Harnick, P. (2003). The excellent city park system: What makes it great and how to get there? San Francisco: The trust for public land.
[85] ibid

Meting Park user's needs: Demographic variables to outdoor recreation activities often divide the population into demand groups based on gender and age with the simplest classification being infants, pre-teens, teenager, young adults, mature adults, and the elderly.[86] Each demand group requires specific park facilities to satisfy their recreational needs both passive and active.[87] In addition, facilities such as nature trails amongst others that allow all age groups to undertake activities together should be included. Regarding gender, women mainly engage in social activities and passive recreation while most men engage inactive outdoor recreation. Park cleanliness and safety contribute to increased female park usage.[88]

Park Maintenance: The known decay in the quality of care of the UGS globally can be connected to declining local authorities' finances that have been manifested on lower UGS maintenance standards and decaying infrastructure.[89]

Community Involvement: Presence of a formal citizen advisory board which meets regularly, whose sessions are open to the public and whose mandate is to provide positive criticism, supportive advocacy, user feedback, and

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[86] Satish, D. (1975). *Factors influencing the use of local parks.* Vancouver: University of British Columbia.
[87] ibid
[88] Dunnet, N., Swanwick, C., & H. Woodley. 2002. *Improving urban parks, play areas and green spaces.* London: Queens's printer and controller of her majesty's stationery.
[89] ibid

planning/design ideas is vital. [90]On certain park projects it might be necessary to have a long public participation process even up to a year in order to solidify community support as was the case in.[91] Official relations with NGOs conservation and service-providers such as waste collectors, Park management companies should be established. These interactions not only enable a higher level of service delivery through public-private partnership (PPP), but also provide the park management with robust PPP and political support.[92]

2.3.4 Assessing the State of Green Spaces

There is an emergent debate on what factors or themes should be used to measure the state or provision of green spaces. One group of scholars believed in using solely quantitative means to assess the state of green spaces.[93]Protagonists among others Kuchelmeister[94], Fraser[95], Barbosa et al.[96] and Wang[97] cite quantitative approach helps to know the total amount of green

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[90] ibid
[91] ibid
[92] ibid
[93] Wang X.-J. 2009. Analysis of problems in urban green space system planning in China, Journal of Forestry Research 20 (1), 79-82.
[94] Kuchelmeister G. 1998. *Urban forestry in the Asia-Pacific region: status and prospects*, FAO Asia-Pacific Forestry Sector Outlook Study Working Paper Series No: 44, Retrieved from: http://www.fao.org/
[95] Fraser G. 2002. Urban ecology in Bangkok, Thailand: Community participation, urban agriculture and forestry, Environments 30 (1), 37-49.
[96] Barbosa O., Tratalos J. A., Armsworth P. R., Davies R. G., Fuller R. A., Johnson P., Gaston K. J. 2007. *Who benefits from access to green space? A case study from Sheffield, UK*, Landscape and Urban Planning 83 (2-3), 187-195.
[97] Wang X.-J. 2009. Analysis of problems in urban green space system planning in China, Journal of Forestry Research 20 (1), 79-82.

spaces available for each individual within a given area and also to quantify the total green space land area required to satisfy the needs of a group of people.[98] Green space per capita (in "m2"), time and distances to green spaces often serve as major indicators for this group of scholars.[99] Critics of this quantitative approach have raised concerns about it being too narrow, rigid[100] and over-emphasizing on only access without given attention to other essential features that similarly contribute to enhancing the state of UGS.[101]

Contrary to the quantitative school of thought is another group of scholars who believed that taken into account the broad nature of green spaces, a blend of qualitative and quantitative features have to be looked at with the aim of appropriately in assessing the state of green spaces. Among this group of scholars are Williams K. and Green S. who found out that an ideal UGS ought to be: safe, clean, accessible and quiet.[102]

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[98] Kuchelmeister G. 1998. *Urban forestry in the Asia-Pacific region: status and prospects*, FAO Asia-Pacific Forestry Sector Outlook Study Working Paper Series No: 44, Retrieved from: http://www.fao.org/

[99] ibid

[100] Centre for Urban & Regional Ecology.2002. Developing standards for accessible natural greenspace in towns and cities, University of Manchester, Manchester.

[101] Pauleit S., Slinn P., Handley J., Lindley S. 2003. Promoting the natural green structure of towns and cities: English nature's accessible natural green space standards models, Built Environment 29 (2), 157-170.

[102] Williams K., Green S. 2001. *Literature review of public space and local environments for the cross cutting review: Final report*, Communities and Local Government, Retrieved from: http://eprints.uwe.ac.uk/10358.

A study in UK by Dunnet and the team expounded Williams and Green findings to include other assessing factors among others: availability of recreational facilities (e.g. sports facilities, seats), good access, comfort (e.g. toilet, seats and shelter), natural element (vegetation etc.), presence of staff and all-inclusiveness.[103] This is supported by Gobster and Westphal who point out that cleanliness, naturalness, aesthetics, safety, access and appropriateness of development as among the features that an urban green space which is in good state should possess.[104]

In addition to the above, community involvement in planning[105], user satisfaction, equitable access, marketing, conservation and heritage, and safety have also been observed to also be some of the key features of good conditioned UGS.[106] The green flag award taskforce of 2012, established the following criteria in assessing a well-managed UGS to include the following qualitative factors: cleanliness, maintenance, facilities, care of historical

[103] Dunnett N., Swanwick C., Woolley H. 2002. *Improving urban parks, play areas and green spaces*, Department for Transport, Local Government and the Regions, London.
[104] Gobster P. H., Westphal L. M. 2004. The human dimensions of urban greenways: planning for recreation and related experiences, Landscape and Urban Planning 68 (2-3), 147-165.
[105] Plymouth City Council. 2009. *Plymouth's green space strategy 2008 – 2023*, Plymouth City Council, Plymouth.
[106] Harnik P. 2004. The excellent city park system: What wakes it great and how to get there? The Trust for Public Land, San Francisco, CA

heritage, environmentally sensitivity management, community participation, good management plan, conservation and attractiveness.[107]

Looking at the above two broad views on the state of green spaces it is evident that there is no universally accepted criteria to follow in assessing the state of green spaces. Thus we can consolidate a set of eight (8) themes to assess the state of UGS as follows: accessibility, attractiveness, comfort, safety, conservation and heritage, maintenance, publicity and community participation.

2.3.5 Challenges Facing Urban Green spaces

Urbanization: The predominant challenge that was found behind the deterioration of urban green spaces globally was the rapid urbanisation.[108] According to UNDESA, more than 6.25 billion people will be living in cities by 2050.[109] Between 2000 and 2050, developing regions could add 3.2 billion new urban residents, a figure larger than the entire world's population in 1950.[110] Damage to the global environment is reaching critical levels and

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[107] The Urban Green Spaces Taskforce 2002. *Green spaces, better places* (final report), Department for Transport, Local Environment and the Regions, London.
[108] Tibaijuka, A. (2007). Nairobi and its environment. In: J. Barr, & C. Shisanya, (eds.), *Nairobi city development strategy top priority for 21st Century future of the Kenyan capital* (pp. 145-160). Nairobi: United Nations Environment Programme.
[109] United Nations 2013, United Nations Report Says Rapid Urbanization Requires New Strategies. https://www.un.org/press/en/2013/dev3008.doc.htm , retrieved 18 June 2018, www.un.org/english/
[110] ibid

threatens irreversible changes in global ecosystems.[111]The overarching environmental challenge is anthropogenic climate change with the increased concentration of greenhouse gases in the atmosphere — most importantly, CO_2 — which is leading to a warming of the planet.[112]In tandem with the above, Fuwape & Onyekwelu, note that rapid urbanisation in Africa was found to have resulted in excessive destruction of urban natural environment such as green spaces.[113] This was manifested by the presence of many informal settlements (slums) and urban sprawl on lands reserved for green spaces (such as urban forest, parks, gardens and outdoor sport areas) to contain the high urban population.[114] Sub-Saharan Africa has the highest number of slum population in the world with about 200 million slum dwellers.[115]

Similarly in Kenya, the high rate of urbanisation with its equivalent increase in urban sprawl destroying urban green spaces cannot be over emphasized. This is affirmed by Makworo and Mireri who notes that public green spaces in Nairobi City have been increasingly threatened by congestion and deterioration as result of the rapid rate of urbanisation (5–7.5%), poor

[111] ibid
[112] ibid
[113] Fuwape, J. A., & Onyekwelu, J. C. 2011. Urban forest development in West Africa: Benefits and challenges. *Journal of Biodiversity and Ecological Sciences*, 1(1): 78-94.
[114] ibid
[115] UN-Habitat 2011. Practical guide for conducting: Housing profiles. Nairobi: UN-Habitat.

planning, weak management and illegal alienation.[116] Rapid and uncontrolled urbanisation meant that public open spaces that were intended to serve a population of 250,000 now serve over 3 million people. Public open green spaces in the city suffer from degradation, overcrowding and insecurity, thus denying city residents access to the much needed recreation facilities.[117]

Weak Operation of Urban Planning Regulations: The rationale of any urban planning regulations as a public function is to ensure social, economic and environmental efficiency in the use of space and to ensure that the health, safety and general security of the citizens of a country is promoted and secured.[118] However, urban planning regulations in Africa and Kenya at large, have failed to influence land development patterns in the rapidly growing urban areas.[119] Kenya's experience reveals lack of official government intervention and established procedures in formulating rules for allocation of land, control, approval and regulation of urban development, hence the inability of land use planning regulations to hinder the occurrence of the problems associated with contemporary land use activities.[120]

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[116] Makworo M. and Mirerei C.2010. Public open spaces in Nairobi City, Kenya, under threat. Journal of Environmental Planning and Management Vol. 54, No. 8, October 2011, 1107–1123
[117] ibid
[118] Barasa K. 2004. "Land Use Planning Regulations and Its Implications on Urban Land Use: A Case Study: Umoja Phase One Estate." BA Thesis.University of Nairobi, Kenya.
[119] ibid
[120] ibid

Generally in Africa, issues were found to hinder the effective operation of urban planning regulations on green spaces include among others: the dysfunctional nature of urban planning regulations; bureaucratic processes involved in issuing development permits and weakness of the planning institutions or organisations as result of insufficient resources to work with.[121]The dysfunctional nature of urban planning regulations in Africa can be linked to the outdated nature of some of these regulations to address the current development trends in urban areas.[122] For example the Nairobi zoning ordinance of 2004, the Kenya's Physical Planning Act of 1996, the 1946 Town Planning Ordinance of Nigeria, 1948 Town Planning Act of Malawi among others are still in operation.

Other compounding the problem of insufficient operation of urban planning regulations in Kenya and Africa at large is the poor enforcement of land planning regulations on green spaces. Inadequate skilled personnel, insufficient logistics, financial constraints, political interference and lack of coordination between planning authorities were found to be the cause this problem. In addition to corruption, misappropriation and embezzlement of

[121] Muderere, T. (2011). Natural co-existence or confinement: Challenges in integrating bird-life concerns into urban planning and design for Zimbabwe. *Journal of Sustainable Development in Africa,* 13(1): 162-183.
[122] Mensah A. 2015. "Sustaining Urban Green Spaces in Africa: A Case Study of Kumasi Metropolis, Ghana." PhD Thesis. University of Birmingham, UK.

state funds meant for socio-economic developments such as projects on green spaces by government officials was also found as a problem undermining the successful development of green spaces in Africa.[123]

In probing further on the poor enforcement of planning regulations on green spaces, lack of political will to undertake projects on green spaces also emerged as a dominant challenge.[124] Policy makers were found to lack political will to initiate policies or measures to enhance the development of urban green spaces in many African cities. Factor analysis performed to ascertain the factors destructing green spaces in Lagos city pointed out lack of political will of the planning authorities to initiate policies on green paces as a major factor for such destructions.[125]

Socio-Economic and Political Challenges: The 2010 state of African Cities report linked the high rate of urban poverty to the depletion of Africa's green environment as many of the poor tend to over rely on the green vegetation for their survival as illustrated on figure 5.[126] In 2004 and 2005, about 66 percent

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[123] Okpala, D. 2009. *Regional overview of the status of urban planning and planning practice in Anglophone (Sub-Saharan) African countries.* Accessed May 23, 2018 from http://www.unhabitat.org/downloads/docs/GRHS.2009.Regional.Anglophone.Africa

[124] Mensah A. 2015. "Sustaining Urban Green Spaces in Africa: A Case Study of Kumasi Metropolis, Ghana." PhD Thesis. University of Birmingham, UK

[125] Olaleye, D. O., Ayoade, O. J., & Omisoro, E. O. (2013). A multivariate analysis of factors influencing green space provision in residential neighbourhood of Sub-Saharan Africa. *Journal of Environment and Earth Science*, 3(5): 138-146.

[126] UN-Habitat 2010. The state of African cities 2010: Governance, inequality and urban land markets. Nairobi: UN Habitat.

and 65 percent of urban dwellers in Niger and Nigeria lived below one dollar a day respectively.[127] It was further revealed that about 30 per cent of urban dwellers in Ghana lived below one dollar a day in 2006.[128] Similar findings came up in a study on South Africa which found many poor communities to rely extensively on the green environment for additional income or to improve their livelihood.[129] The effect has been destruction of green spaces by the poor to satisfy their needs.

Lack of priority to green spaces in the development agenda of some cities in Africa has hindered the growth of green spaces. Green spaces were not found to be among the main priorities of many African countries. For example, the Kenya's the "Big Four" Agenda (2018-2022) that is envisaged lead to faster growth of the economy, focuses on manufacturing sector, universal health coverage, provide housing to all Kenyans, food security and nutrition with no emphasis/priority on the environment. Similarly, Mensah A. found that matters of poverty reduction and provision of social amenities such as housing, schools, hospitals and pipe-borne water constitute the top priorities of many African countries.[130] This has influenced national governments and city

[127] ibid
[128] ibid
[129] Cilliers, S., Cilliers, J., Lubbe, R., & Siebert, S. 2013. Ecosystem services of urban green spaces in African countries: Perspective and challenges. *Urban Ecosystem*, 16(4): 681-702.
[130]ibid

authorities not to give much attention and commit the needed funds for the creation and maintenance of green spaces. Bolnick et al. echoed this by indicating that in Africa much attention is given to a brown agenda to the neglect of the green agenda which focuses on preserving the green environment.[131]

2.4 Policy Framework for Sustainable Management of Green Spaces

The Constitution of Kenya 2010, Article 2 legalises the general rules of international law to form part of the law of Kenya. On this basis the following are some of the international policies relating to the study.

2.4.1 International Laws

Africa Agenda 2063 is a framework formulated for the purpose of guiding Africa's development in the next fifty years.[132]The study support Africa participation in global efforts for climate change mitigation (through conservation of UGS) that support and broaden the policy space for sustainable development on the continent as echoed under article 17.

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[131] Bolnick, J., Kayuni, H. M., Mabala, R., McGranahan, G., Mitlin, D., Nkhoma, S., Donk, M. 2006. *A pro-poor urban agenda for Africa: Clarifying ecological and development issues for poor and vulnerable population*. London: International Institute for Environment and Development.

[132] African Union, 2018, *www.au.org* Agenda 2063-SDGs, retrieved 18 February 2018, https://au.int/en/ea/statistics/a2063sdgs

The 2030 Agenda for Sustainable Development (2015-2030) contains 17 SDGs and 169 targets.[133]Specifically, the study contributes towards achieving SDG 11, target 7 which aims by 2030 there will be universal access to safe, inclusive and accessible, green spaces. Hence the study findings and recommendations will inform policy makers and takers on empirical strategies to ensure this goal is attained.

The study buttress achievement of the Rio Declaration of 1992, principle 3 by advocating for the right to development to be fulfilled so as to equitably meet developmental and environmental needs of present and future generations as well as principle 4 where achievement of sustainable development can only be met when environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Regarding handling of environmental issues, the Rio Declaration recommends the participation of all concerned citizens, appropriate access to information and effective access to judicial and administrative proceedings under principle 10 applicable to this research as remedial mechanisms facing UGS in Kenya.

Convention on Biological Diversity (CBD) provisions are supported in the study through promoting conservation and protection of green space

[133] Critical Milestones towards a coherent, efficient and inclusive follow-up and review of the 2030 Development Agenda for SDGs, United Nations, 12 October 2015.

ecosystems as to ensure that human activities within their dominion or control do not cause damage to the environment subject to article 3. The study also aims at informing environmental policy through promoting the protection of ecosystems in natural surroundings pursuant to article 8 of the CBD.

UN Framework Convention on Climate Change (UNFCCC) identifies green spaces are key pillars in building climate change resilience in urban areas.[134] In tandem with UNFCC, the study seeks to support protection and conservation of green spaces which not only make the urban landscape attractive but also provide opportunities for ecosystem services among others is the climate change regulation paramount for the growth of sustainable and resilient communities[135] as echoed in SDG 11.

New Urban Agenda (NUA), 2016 is new framework that that lays out how cities should be planned and managed to best promote sustainable urbanization. In tandem with NUA, the study supports sustainable and inclusive urban prosperity and opportunities for all through advocating for environmental protection, and sustainable growth in the urban economy (article 44). Fundamentally, the study addresses green spaces biodiversity

[134] Carter G. 2013. Climate change and the city: Building capacity for urban adaptation. Volume 95, January 2015, Pages 1-66. ELSEVIER Publishers. Available online at; https://www.sciencedirect.com/science/article/pii/S0305900614000397

[135] Munene R. 2017. City Greenspace: The Future of Climate-Proof Cities. The Urban PLANet. Accessed 27 February 2018 at https://theurbanplanet.wordpress.com/2017/12/12/city-greenspace-the-future-of-climate-proof-cities/

issues in a bid to foster resilience and protecting the environment (article 5). To conclude, the policy recommendations of this study would contribute to empirical strategies to protect, conserve, restore, and promote (green spaces) ecosystems biodiversity, minimize their environmental impact, and change to sustainable consumption and production patterns as echoed in article 13.

2.4.2 Kenyan Based Laws

a) Constitutional and Legal Basis

Constitution of Kenya of 2010 is the supreme law of the Republic of Kenya and has given much attention to the issue of land, land use planning and environment. Article 66 (1) the State may regulate the use of any land, or any interest in or right over any land, in the interest of defence, public safety, public order, public morality, public health, or land use planning. This gives power to the State to intervene, for example in the case of unsustainable urban development's impacting negatively on green spaces, the state can intercede through land use planning for public safety, public order and public health among other reasons. Article 42 provides 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 and also to have obligations relating to the environment fulfilled.

Moreover, article 69 tasks the state to uphold certain obligation in respect to the environment including: a) Ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits (environmental justice), b) Encourage public participation in the management, protection and conservation of the environment, c) Eliminate processes and activities that are likely to endanger the environment and d) Utilise the environment and natural resources for the benefit of the people of Kenya.

The Physical Planning Act of 1996 give powers to the NCC as the local authority to control development under section 29 including (a) to prohibit or control the use and development of land and buildings in the interests of proper and orderly development of its area; (f) 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." As such, no person is allowed to carry out development without a development permission granted by the local authority under section 30 of this Act.

County Governments Act of 2012 provide for county governments' functions and responsibilities to deliver services and for connected purposes. The study area falls within the jurisdiction of NCC which is mandated to under Section 103 of the Act to maintain a viable system of green and open spaces for a functioning eco-system in the county.

In light of environmental degradation in the study are, the Environmental Management and Coordination Act Cap 387, Section 3 (1) bestows both an entitlement to a clean and healthy environment to every person in Kenya and a respective duty to protect and enhance the environment.

Urban Areas and Cities Act of 2011 provide for the, classification, governance and management of urban areas and cities. The Act strengthens community involvement and the spirit of devolution as mechanisms for sustainable city management in all matters of planning and environmental management. Specifically, section 22 provides for "citizen fora" to be organized for purposes of participating in the affairs of an urban area or a city under this Act. Further, section 36 advocates for integrated development planning framework as a basis of the preparation of environmental management plans in urban areas and city development. Institutionally, section 20 of the Act proposes for a board of a city or municipality mandated to promote a safe and healthy environment.

b) Policy Basis

The National Environment Policy of 2013 seeks to better quality of life for present and future generations through sustainable management and use of the environment and natural resources. Regarding green spaces, the policy recommends promotion of management of ecosystems and sustainable use of natural resources, environmental stewardship, environmental quality and

health, research, education and monitoring, environmental governance as well as integration of environmental concerns in all policy, planning and development processes.

National Land Policy of 2009 calls for immediate actions to addressing environmental problems that affect land such as degradation, soil erosion and pollution. For instance, the policy stipulates the principle of conservation and management of land based natural resources, the principle of protection and management of fragile and critical ecosystems including wetlands and arid lands. Relevant to the study is addressing environmental degradation in urban green spaces, upon which the policy advocates for local authority (government) to: (a) EIA and audits; (b) Monitoring environmental degradation regularly; (c) Encourage public participation and (d) Institute enforcement mechanisms such as the "polluter pays principle", and provide incentives to promote cleaner production and prevent pollution of soil, water and air.

Kenya Vision 2030 the nation's development blue-print, aims to transform Kenya into "a newly-industrialising, middle-income country providing a high quality of life to all its citizens in a clean and secure environment". The study supports the third Kenya Vision 2030 Medium Term Plan also known as the "Big Four Agenda", prioritizing affordable and decent housing, affordable healthcare, food and nutritional security, and manufacturing. In supporting the

Agenda, the study takes into account conservation of the environment as a key enabling factor towards achievement of development agenda of the country in the period 2018-2022. Specifically through the study addressing the urban green spaces biodiversity concerns, this will have substantive effect on affordable and decent housing, affordable healthcare, food security, and manufacturing as summarized in Table 1 below.

Table 1: Nexus between Green Spaces and achievement of the Big 4 Agenda

Contribution of Urban Green Spaces	Implications on the Big Four Agenda	Overall outcome
1. Biodiversity and Nature Conservation	Industries raw materials supply.	Enhancing Manufacturing
2. Universal access to safe, inclusive and accessible, green spaces.	Sense of rest and allows workers to be more productive hence increases workers' productivity.	
3. Nutrient recycling climate change regulation and soil formation. 4. Pest Control	Food supply, flood regulation, and water supply.	Food security and nutrition
5. Edible landscapes (Farming in open spaces of land)	Urban farming promotes healthy, sustainable food production and consumption patterns.	
6. Recreational and Leisure areas	• Physical activity • Physical & Psychological Well-Being	Actualisation of a universal health coverage due to less disease burden to the nation
7. Reduction of noise and air pollutants such as Co_2, CO, SO_3 and NO_3 that are very toxic to both human beings and environment.	• Improved human health and comfort. • Reduced premature air-pollution related deaths. • Low respiratory illnesses.	

Source: Author, 2018

The National Land Use Policy of 2017 sets out long term goals on land use management. It addresses issues relating directly to the use of land, its resources as well as incorporates all activities that are likely to have an impact on the use of land and its resources. Regarding the research problem, the draft policy advocates for sustainable urbanization and land use planning by mandating the government to create and protect green and recreational areas within urban centres.

On Urban Environment Management, the policy recognizes that as the country industrializes and the population increases, more people migrate to the urban areas resulting to problems of pollution, informal settlement, and strain on infrastructure, waste management, public health and safety among others. Hence to mitigate on the problems of urban environment the government is required to zone urban areas for the protection of key natural resource and environmental features and amenities including, establishing green areas and recreational facilities in residential areas.

c) Spatial Plan and Related Guidelines Linkages

Physical Planning Handbook of 2007 provide clear and digestible user friendly guidelines and minimum standards on the process and practice of physical planning. Relevant to the study, the handbook echoes the need to provide the recreational facilities (areas of scenic beauty, parks, green spaces) both in the rural and urban areas because of the following reasons: need for relaxation

after a long day work/break from routine, income generation/economic activities, social interaction, tourist attraction, set as carbon sinks/breathers, preservation of socio-cultural and or religious values, environmental conservation-forest, trees, flowers planting and competing users due to population pressure.

The National Spatial Plan-NSP (2014-2045) provides a national spatial structure that defines how the national space is utilized to ensure optimal and sustainable use of land. In relation to the research problem, NSP advocates for provisions that will assist in mainstreaming green spaces biodiversity functions into policies, strategies and practices under the prevailing urban development trends among them:

a) Promoting smart and green urban growth that aims at sustainable use of energy, creation of green spaces, reduce the need for car travel, and promote use of local materials, support businesses, protection of heritage and creation of unique character.
b) Development of human settlements in line with prescribe planning standards for open/green space on private development.
c) Ensuring functionality and liveability of an urban areas through green spaces and parks management plans.

Integrated National Land Use Guideline of 2011 prepared by NEMA as guides by EMCA CAP 387 Section 9(2) (d) recommends the following for guidelines for urban green spaces:

a) For new residential development, provide land for open space and recreation purposes and/or circulation space by ensuring that 10% of land is surrendered during subdivision to provide the open space.
b) Identify carrying capacity limitations of recreational resources and implement policies to regulate and mitigate impacts to these resources
c) Land use planning should provide for extensive and attractive recreational areas across the municipalities.
d) The recreational areas should form cohesive entities so that there is a network of green zones combining them.

County Spatial Planning Guidelines of 2018 formulated to address the challenge of institutionalizing spatial planning in the counties. Relevant to the research problem the guidelines provide the following for UGS:

a) National government are mandated to Formulating general principles, policies, standards and guidelines of land planning.
b) National Land Commission tasked on Monitoring and exercising oversight responsibilities over land use planning.
c) County Governments are mandated in implementing national policies, standards/guidelines as well as formulating County specific policies.

2.4.3 Parks Management Institutional Framework

Globally, the United Nations Environment (UNE), is an environmental authority that sets the global environmental agenda such as coherent implementation of the environmental dimension of SDGs within the UN system which includes urban gren spaces.

In Kenya, urban green spaces is regulated by institutions by both national (policy maker) and county government agencies (implementer) pursuant to CoK 2010, Fourth Schedule. Some of the national institutions includes: the Ministry of Environment and Forestry (MEF) tasked to provide the overall policy direction, NEMA mandated to coordinate the various environmental management activities being undertaken by the lead agencies and environment, land court (ELC) mandated hear and determine disputes relating to land and environment while the Section 5 (2) (c) of the National Land Commission Act requires the NLC 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.

With the devolved governance, the county spatial planning guidelines of 2018, section 103 and 29 of the County Government Act (2012) and physical planning Act (CAP 286) mandates the 47 county governments in Kenya to conserve and protect all the land planned for open spaces, parks, urban forests

and green belts. Other key players in green spaces management are the professional bodies such as AAK, KIP and Academia such as the UoN.

2.5 Mainstreaming Urban Green Spaces into Policy and Practice

The process of embedding UGS biodiversity considerations into policies, strategies and practices of key public and private actors that impact or rely on biodiversity is globally recognized to ensure these spaces are conserved and sustainably used both locally and globally. According to the UN Habitat, a city's growth in order to reduce its ecological footprint and maximize benefits derived from natural systems, should be planned to achieve appropriate densities and providing alternative forms of mobility to private vehicles to help slow urban expansion into ecologically sensitive land and reduce citizen demand for scarce resources by sharing them more efficiently.[136]

According to Gallagher, planning, designing, constructing, and operating sustainable parks often includes: minimizing environmental impacts from the onset through sensitive citing of a park within the landscape and careful consideration of the various uses within the park boundaries; protecting and enhancing habitat areas; educating the public about the value of natural resource stewardship; incorporating rain water reuse, waste reduction and

[136] UN Habitat. 2012. Urban patterns for a green economy: Leveraging density. Nairobi: UN Habitat.

recycling; minimizing pollution impacts resulting from park features and user activities; promoting alternative forms of transportation, greenways, bike trails; reducing maintenance and operations costs; involving the public; and encouraging partnerships with various organizations.[137]

An urban Park Master Plan document should be integrated with the city planning system, be within the city's development policies integrating with other policies, lead towards better use of its space potentials and resolve conflicts in advance.[138] Further he adds that participation of stakeholders is vital in order to meet the needs of the entire community and allow a thorough exploration of successes and failures in the current operation.[139] In addition, to reverse the process of degradation of urban parks, sufficient political and financial support is required from all stakeholders.[140]

Lister introduces the use of ecological design approaches as a means to mainstream UGS into policy and practice. He notes that ecological design approaches connects culture and nature, allowing humans to adapt and integrate nature's processes with human creations and provides a learning framework in which to renegotiate, remediate, and reconsider our relationships

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[137] Gallagher, T. 2012. *Developing sustainable park systems in Oregon.* Retrieved October 2017, from State of Oregon: www.oregon.gov
[138] Green K. 2008. *A strategy for urban green space. Availeble online at:* www.ioer.de Retrieved August, 2018
[139] ibid
[140] ibid

to the diverse ecologies that characterize the contemporary urbanizing landscape.[141]

2.6 Case Studies Review

In light of the research problem and study objectives, case studies review shed insights on proper planning and management of UGS as presented below:

2.6.1 A Park Master Plan: City Park, New Orleans, USA

New Orleans City Park, one of the ten largest urban parks in USA is centrally located in the city covering a recreation area of about 1300 acres in the metropolitan area. It was once the site of Allard Plantation and owned by John McDonogh who upon his death left the estate to the cities of New Orleans, Baltimore, and Maryland. The park hosts 11 million visitors each year.[142] Guided by a Master Plan, City Park has general rules prohibiting those actions and activities which are detrimental to the operations and grounds or which or which would prevent reasonable enjoyment of the Park by others.[143]The Park is distinguished by its diverse recreational activities consisting of; fishing in the lagoons, birding, boating in Big Lake, sports fields, playgrounds, walking,

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[141] Lister, N. 2007. Sustainable large parks: Ecological design or designer ecology. In Czerniak, & Hargreaves (Eds.), *Large parks* (pp. 31-51). Ryerson University Press.
[142] City Park New Orleans. (2005-2013). *City Park history*. Retrieved October 2013, from City Park New Orleans: www.neworleanscitypark.com
[143] ibid City Park. 2005. *City Park master plan: Vision for the 21st century- City Park 2018.* Retrieved October 2017, from City Park New Orleans: www.neworleanscitypark.com

biking, running, couturier forest, disc golf, equest farm and festival grounds and its natural beauty. City Park's attractions include; a botanical garden, carousel garden, city putt, city splash, golf, morning call, storyland, train garden and New Orleans museum of art and sculpture garden. The park directly or indirectly supports over 1,350 jobs, has influenced rise in surrounding property values by a total of nearly US$400 million and generates annual tax revenue of about US$ 11 million to the state and local government.[144]

City Park Master Plan 2018, was developed with extensive input from the public, including a regional telephone survey, an online survey, and public meetings.[145] The master plan has been reviewed and updated several times since the original plan was announced in 2005. The structuring of the master plan was around five themes of: expanded recreational opportunities for all, strong sense of community, integrated natural and functional system, distinct identity and financial self-efficiency. The Master plan (2005) indicates that the Park has a significant economic impact on the New Orleans region which will be dramatically threatened if the park does not have a sound financial plan and repairs, modernizes and improves of park facilities.

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[144]

[145] ibid

2.6.2 Case Study 2: Planning Process for Green Spaces: New South Wales Government, USA

From the New South Wales Government, there are 8 step that guides green spaces planning which begins with an initial policy review is conducted to establish the prevailing government policies, existing land for UGS as well as physical development plans (Step1).

Secondly, existing conditions and assets analysis is then carried out acting as an information base to inform the planning process (step 2). A survey is carried out to analyse local users and visitors interests and understand competing demands and needs plus any shift in community needs and preferences (step 3). The plan must clearly articulate intent and direction so that government officials and the community understand what is being proposed by identifying a vision, principles, goals and objectives (step 4). Step 5 involves: the identification of opportunities and options to meet needs; compare supply and demand; and identify gaps opportunities and constraints through environmental scanning.

In plan preparation stage (step 6), the desired green space services program are subjected to evaluation as part of a feedback process before moving to finalisation. This should reflect the ability to meet needs as expressed in the locally appropriate standards, modified by the understanding of opportunities and constraints as well as identifying priorities as short medium or long term

resulting in a final draft plan. The resultant comprehensive plan should include references to outcomes and findings of the different park creation process stages. [146]

The implementation plan should be integrated into the Community Strategic Plan and delivery program and cover capital and operation costs (step 7). The operation and management of the urban park maybe outsourced functioning on contract indicating operating standards, a pricing schedule, and performance fees and other incentives for the operator.

Step 8 requires the local government maintain a comprehensive database that is linked to a GIS system of relevant data on the UGS and recreation facilities to underpin decisions to modify approaches to green space provision or changed maintenance regimes and assist in public communication of these changes (See Figure 2).

[146] Government of New South Wales. 2010. *Recreation and open space planning guidelines for local government.* Retrieved August 2013, from www.nsw.gov.au

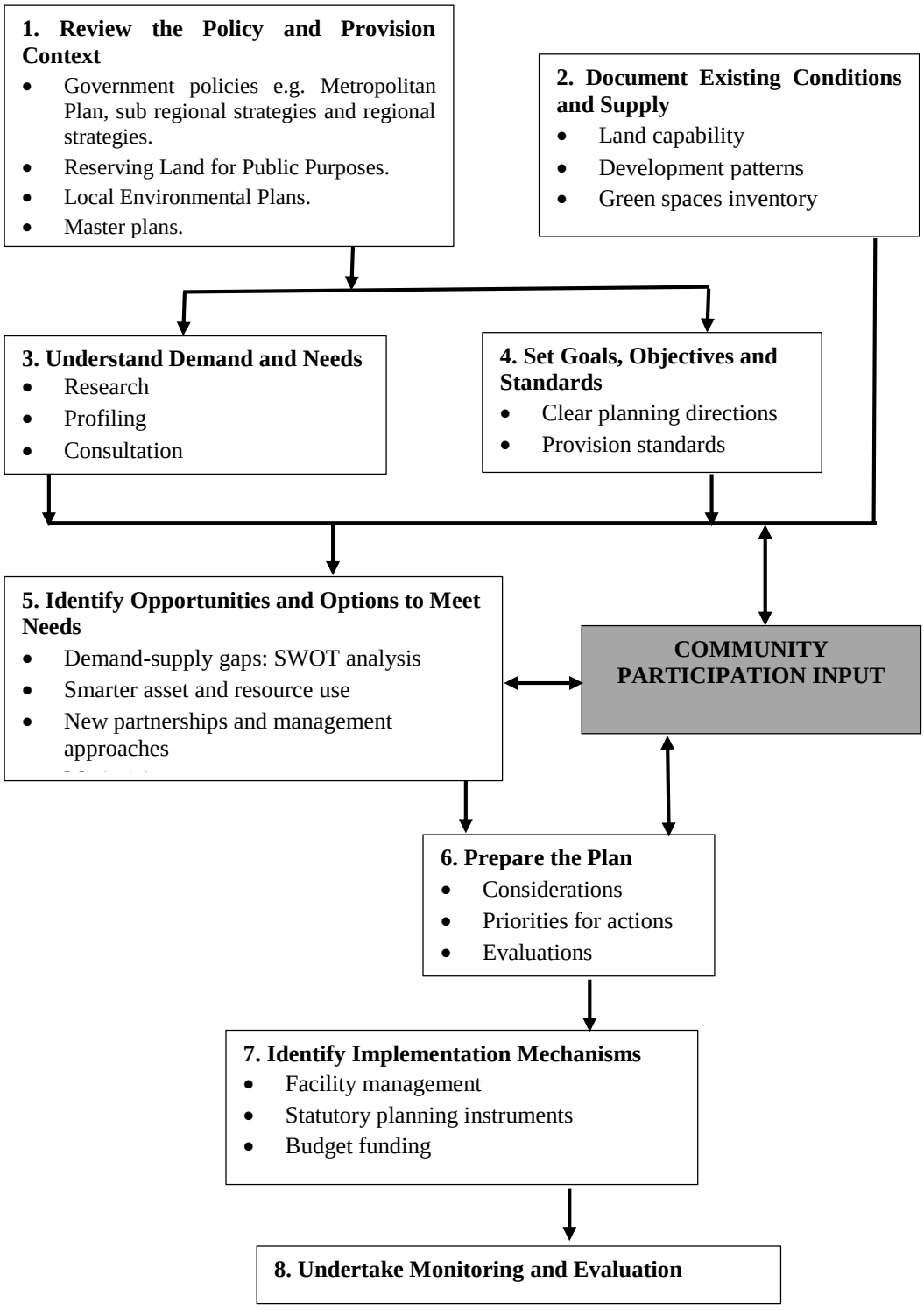

Figure 2: Green space planning process, Government of New South Wales.

Source: Government of New South Wales, 2010

2.7 Theoretical Framework of the Study

Theories are formulated to provide an explanation for, predict and comprehend a phenomena and in lots of instances, to mission and amplify existing expertise within the limits of crucial bounding assumptions.[147] Conversely, the theoretical framework is the structure which maintain or aid a principle of a research study that broadly describes the concept that explains why the study problem exists.[148] This study in the quest of assessing dynamics of urban land space contestation and their implications on utilization of public green spaces landscape ecology theory (LET).

2.7.1 Landscape Ecology Theory

Landscape ecology theory (LET) emerged in 1980s from both European and American schools of thought as a theory that focuses on the reciprocal relationships between ecological procedures in the environment, spatial structure and specific ecosystems.[149] LET emphasis on three main factors:

a) Spatial Patterns: The focus here is on the spatial extents at the relevant scale e.g. a neighbourhood, town, city etc.

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[147] Trancik, R. 1986. Finding Lost Space. New York: Van Nostrand Reinhold Company. New Yor: Van Nostrand Reinhold Company.
[148]ibid
[149] Fu, W., Liu, S., Degloria, S., Dong, S. and Beazley, R. 2010**.** Characterizing the "fragmentation–barrier" effect of road networks on landscape connectivity: A case study in Xishuangbanna, Southwest China. *Landscape and Urban Planning*, 95(3): 122-129.

b) The role of humans in creating and affecting landscape patterns and process: LET takes into consideration the know-how of dealing with the interrelation among human society and the environment. Thus, a tremendous landscape ecology deals with 'constructed' environments, wherein humans are the dominant pressure of landscape change over time (natural/semi natural and build landscapes).

c) Spatial heterogeneity and pattern: Deals with identifying land scape pattern and the scale at which it is articulated and summarizing it quantitatively, identifying and describing the agents of pattern formation i.e. the physical abiotic agents, demographic responses and disturbance regimes overlaid on these, characterizing the land changes in pattern and process over time and summarizing it quantitatively, understanding the ecological consequences of pattern socially, economically and environmentally and finally management of landscapes to achieve the set goals.

2.7.2 Relevance of Landscape Ecology Theory to the Study

LET relevance to the study lies on the fact it focuses on the mutual relationships between spatial structure and ecological functions. Different landscapes such as urban land uses ranging from residential, commercial green spaces have different structures and functions hence ecological consequences such as biodiversity loss can be quantified by comprehensive measuring and

analyzing of landscape structure changes and causes as for the case of MMP. Through LET tripartite approach (spatial heterogeneity, spatial scope and role of humans), it will aid to unravel dynamics of urban land space contestation and their implications on utilization of public green spaces in the study area.

Further, with its attention on urban patterns is vital to the study in defining why the green space ecosystem context matters within the urban development realm, how this ecosystem functions hinge on the interaction of urban patterns and process, and lastly how human actions can dramatically vary urbanscape patterns and processes. Thus, linkage of time, space, and environmental change will inform the study on how proper planning, management and utilization of the Park can be mainstreamed into policy and practice.

2.8 Conceptual Framework of the Study

Building from landscape ecology theory, the rapid deterioration of urban green spaces is closely linked with rapid urban land use developments that negatively impact on them. This has resulted to urban disorder such as pollution and environmental degradation as well as encroachment of urban green spaces. As a consequence this had led to reduced ecological footprint and loss of ecosystem services. Hence UGS in the city dwellers have continued to suffer from overcrowding and insecurity, thus denying city residents access to the much needed recreation and leisure facilities.

To intervene on the status quo, proper planning for urban green spaces is required to address and reconcile fundamentally the social economic activities on green spaces, urban land use conflicts and contestation as well as conservation strategy to save the space from extinction.

To support the overall planning process, a robust policy legislation and institutional arrangement for urban green spaces is perquisite. This is because the policy will:

a) Develop and expand on participation processes which build up trust, enhance cooperation between participants and encourage the public to take care of green spaces.
b) Establish develop local standards of quality, quantity and accessibility in order to permit different user groups to benefit, as appropriate, from urban green spaces.
c) Establish mechanisms that will sustainably provide financial and personnel support for the departments responsible for the development and management of green spaces in order to permit them to plan, create and maintain them in accordance with local needs and conditions (including climatic, natural, social and economic).
d) Support the implementation of more sustainable strategies for urban development at regional and local levels.

e) Raise awareness about the contribution of green space development to the ecological performance of cities i.e. support strategies to improve the urban-climate and ecological functions.
f) Introduce new financial resources for safeguarding and developing urban green spaces.
g) Incorporate appropriate finances for the development, adoption and monitoring of urban green space strategies.
h) Encourage the exchange of experiences between urban green spaces departments and spatial planning departments nationally and across counties.

The overall implication of a consolidated policy and institutional framework for urban green spaces planning and management will reflect in conservation and protection of urban green spaces. When the performance of the urban green spaces is good or positive (+), it will reflect in the provision of a range of social, environmental and economic benefits to meet the needs of urban dwellers.

The long term effect will be sustainable urban green spaces management which will reflect on increased urban ecological footprint, urban resilience through adequate supply of ecosystem services as well as promote environmental justice by helping urban dwellers irrespective of their status to easily access the benefits of green spaces, which in effect will promote equity

in distribution of environmental resources. Further sustainable green spaces management will monitor and evaluate periodically green spaces performance to ensure the long term effect is protection and conserving urban natural ecosystems for intergeneration equity through support delivery of ecosystem services and contributing generally to human well-being. This is illustrated on Figure 3 below.

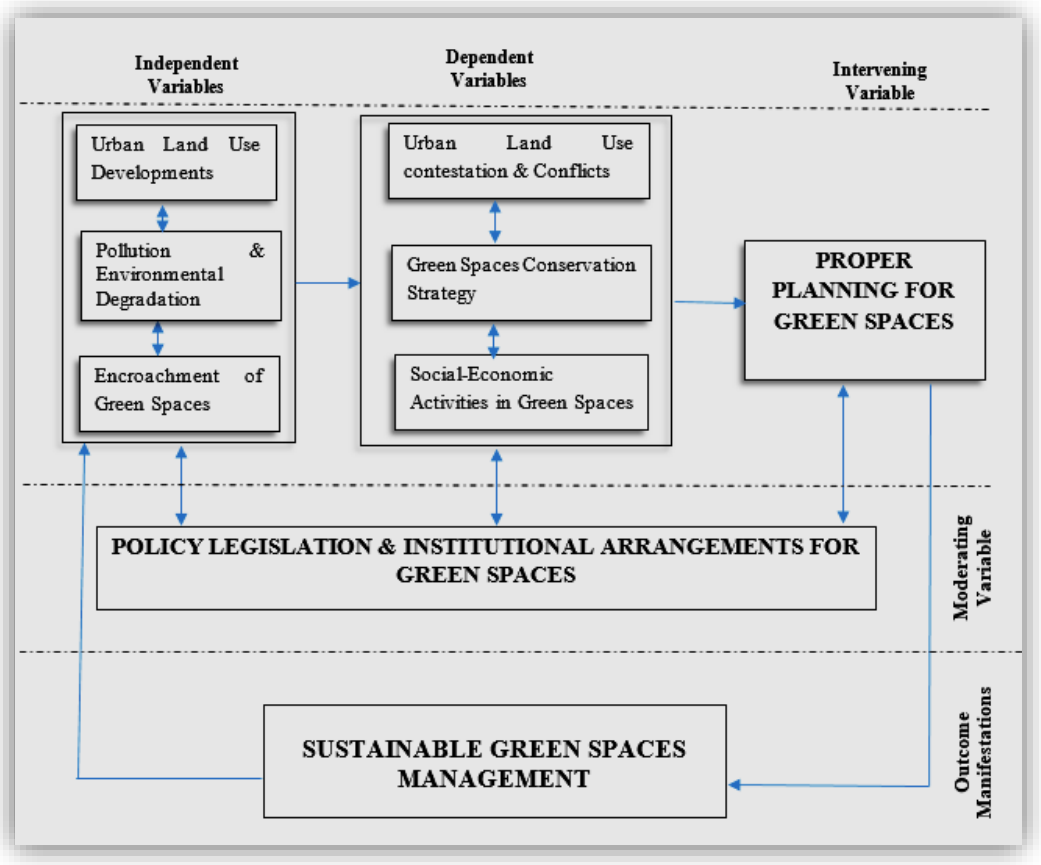

Figure 3: Study Conceptual Framework.

Source: Author, 2018

CHAPTER THREE

STUDY DESIGN AND METHODOLOGY

3.1 Introduction

The chapter gives a detail background of the study area, addresses the procedure applied in the research study covering on the research design, target research population, the sampling plan, sample size and methods, data collection methods, data inputting and analysis as well as data presentation techniques.

3.2 The Study Area

3.2.1 Historical Background

Historical background of MMP can be traced back in 1983 where a section of the riverfront riparian reserve was donated by the government to be used to relocate the city hawkers who occupied the Nairobi River. The hawkers settled at the riverfront zone but could not get enough customers and as a result they gradually moved back to the CBD. As they migrated back to the CBD, their positions were taken over by other commercial developers. Garages and carwash stations gradually emerged in the Park. By early 1999, the River was blocked with solid waste from the plastic bags and the metallic materials from the garage as well as a breeding ground for thieves and thugs.

3.2.2 Inception Phase

In mid-1999 the Nairobi Rivers Basin Rehabilitation and Restoration Program (NRBRRP) was commissioned by then Ministry of Environment & Mineral Resources (MEMR).[150] The Programme was supervised by the then Office of the then Prime Minister, while MEMR provided leadership and coordination involving 17 key Government ministries and agencies. The main objective of the Programme was to rehabilitate, restore and sustainably manage the Nairobi River Basin in order to provide improved livelihoods, enhance environmental quality and values through well-regulated economic and recreational ventures.

The program formulated a 10 point strategy among them: creating an awareness and assessing social impacts, survey and delineation of the riparian reserve, stopping illegal discharges, completing work of 2.5 km demo stretch (see figure 4), relocating economic activities and informal settlements, developing and implementing an integrated solid waste management system, rehabilitation of Nairobi dam, repairing and installing sewerage and associated infrastructure, developing a master plan for economic utilization of riparian zone, landscaping and beautification of the riparian zone.

[150] Kenya Rivers & Water Resources. 2016. Master Plan for rehabilitation and restoration of Nairobi River Basin. Available online from https://kenyariversandwaterresources.wordpress.com/2016/11/08/master-plan-for-nairobi-river-basin/ Accessed 24 April 2018

Figure 4: Nairobi River Demo Stretch Plan

Source: Nairobi Rivers Basin Rehabilitation and Restoration Program (NRBRRP), 2012

3.2.3 Project Phasing

Notable initiatives of NRBRRP was Phase I of 2003 -2006 and Phase II of 2006 – 2009. The first phase, which was supported by the United Nations Environment (UNEP), concentrated on water quality assessment, public awareness and capacity-building.[151] The second phase, which was conceived as a pilot, targeted one of the tributaries of the Nairobi River, the Mutuine-Ngong River.[152] It was primarily aimed at monitoring pollution and included community education while the third phase, which lasted four years (2004–2008), focused on five activities with the objective of restoring the river ecosystem so as to provide clean water for the capital city and a healthier environment for the people of Nairobi.[153]

When the programme first started in 1999, donors, partners, NGOs and the Government of Kenya were all enthusiastic and reasonably supportive and funds were easily mobilized. Some of the funds from the government and other donors were channelled into research, entailing work that was then given to the University of Nairobi and other universities in Kenya. Other funds were

[151] Kakonge J. 2017. "Nairobi River basin rehabilitation and restoration: Succeeding by building on lessons from past failure". Available from https://www.pambazuka.org/land-environment/nairobi-river-basin-rehabilitation-and-restoration-succeeding-building-lessons-past Retrieved 1 August 2018.
[152] ibid
[153] ibid

allocated to individual consultants to look not only at water quality and chemical pollution but also at the physical and social aspects of the Nairobi River basin. [154]

According to Muiruri, the then Minister of Environment, the late Michuki, was disappointed because most of the planned activities and the recommendations emanating from some of the studies were never implemented.[155] Moreover, he was not happy because some people in Authority did not care about the dumping of garbage and waste into the river.[156] Through his passion and political will, however, and by making good use of the financial resources provided, Michuki ensured that the communities along the riverbanks were involved in cleaning up the river. He succeeded in stopping the dumping of raw sewage and other wastes into the river at 30% of the points where this had previously been practised.[157]

In 2012, the Government of Kenya together with the private sector rehabilitated the area where the Park lies and was renamed it Michuki

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[154] Kenya Rivers & Water Resources. 2016. Master Plan for rehabilitation and restoration of Nairobi River Basin. Available online from https://kenyariversandwaterresources.wordpress.com/2016/11/08/master-plan-for-nairobi-river-basin/ Accessed 24 April 2018

[155] Muiruri, B. 2009. Life slowly returns to Nairobi River. Available from http://www.nation.co.ke/news/1056-686108-jk24v1z/index.html Accessed 24 April 2017

[156] ibid

[157] ibid

Memorial Park in honour of the late John Michuki. Since then, MMP was to be an alternative recreation park to serve the Nairobi city residents (See Plate 1 and 2).

Plate 1: A section of the bridge connecting the two parts of MMP

Plate 2: Rehabilitated section of MMP occupied by various business activities

Source: Nairobi Rivers Basin Rehabilitation and Restoration Program, 2012

3.3 Study Design

Based on literature review and previous similar studies, the study adopted a case study research design which involved integrating both quantitative and qualitative data in the study in order to provide the state of affairs as it naturally happen thus informing a better understanding of research problem. The chosen research design enabled the narration of respondents' perceptions and these were analyzed into facts after triangulating the primary data with the secondary data to answer the research problem.

The research study embraced a participatory and mixed research approaches by involving various stakeholders. The research sought to holistically assess the nature and effects of urban land developments on conservation of MMP, examine the policy and institutional framework for sustainable management of MMP and consequently determine how proper planning, management and utilization of the Park can be mainstreamed into policy and practice.

Both quantitative and qualitative research approaches were used in this study whereby quantitative approach was used to carry out of a survey to form a database from which characteristics and relationships of the sample population of park users, key informants and business community. Qualitative approach enabled subjective assessment of attitudes, opinions and behaviour of Park users and Park management by use of questionnaires and in-depth structured interviews.

3.4 Target Population

As guided by the research problem, the target population samples for the study were MMP users/visitors, the Park guard, adjacent commercial activities within MMP [Jua Kali traders, garage owners, mechanics, hawkers, Maasai market traders], Professional bodies among them Architectural Association of Kenya (AAK), Kenya Institute of Planners (KIP), Environment Institute of Kenya (EIK) and relevant institutions and authorities involved in the management of MMP (National Environment Management Authority (NEMA), Nairobi City County (NCC) and Ministry of Environment and Forestry (MEF).

3.5 Sampling Design

The sampling clusters for the study included Park users, Park administration, relevant Authorities and institutions, traders of formal and informal businesses within and adjacent to the MMP. The unit of analysis included individual park users, individual park administrators/ management, individual formal/informal business owners, professional bodies' such as AAK, KIP, EIK and relevant institutions such as MEF, NCC and NEMA. The various methods employed in the study are:

a) Purposive sampling: For the choice of information-rich cases or individuals related to the study area, purposive sampling, was used.

Application of this method targeted the relevant key informants involved in planning and urban parks management and environmental management including the Park guard, MEF, the department of Development Control, Environment Parks and Open Spaces within NCC and NEMA.

b) Quota sampling: was adopted to sample a subgroup that is of great interest to the study mainly to observe relationships between subgroups. Among the quota sampled were professional bodies, Park users, and County and National governments departments, formal and informal traders. Structured interviews were carried out with relevant institutions that included the professional bodies and relevant institutions.

c) Cluster sampling: It was difficult to obtain a sample size for MMP users/visitors since there was neither any documentation on Park visitors nor the entrance into the park was not defined. On this basis, cluster sampling was therefore employed on the units of analysis for your study area which included: park users, traders of formal and informal businesses within MMP cluster.

d) Random Sampling: Based on Mugenda & Mugenda, for descriptive studies, 30 cases or more or 10% of the accessible population is enough to determine the sample size. For this study, a total number of one hundred (100) questionnaires were randomly administered to the

identified clusters to obtain research data as indicated in table 7. Park users' interview was conducted from Monday to Sunday, between 9am and 6pm because it is the time when the park is open to members of the public. In cases where the park users visited as a group, one (1) member of the sampled group was asked to respond to the questions.

Table 2: The Study Sample Sizes

Sampling Unit	No. of Questionnaires
1. Park Users (During the working days and weekends)	60
2. Businesses (weekly Maasai market, hawkers and traders within and outside MMP)	40
TOTAL	100

Source: Author, 2018

3.6 Data Collection Methods and Instruments

Both primary and secondary data was used in the study. Secondary data was collected through literature review on key data such as the study area development control policy/guidelines, underlying factors that influence the level of utilization of Parks, documented environmental and landuse planning challenges affecting the study area as well as best responsive urban developments and policies that have led to conserved urban green spaces. On

the other hand, primary data was obtained through observation, interview guides and questionnaires administration while secondary data was collected through literature review as discussed below:

a) Questionnaire Administration: A designed questionnaire was used to collect data and views from a total of 60 Park users' (during the working days and weekends), Park guard and business groups [Jua Kali traders, Garage owners, mechanics, hawkers, Maasai market traders, Matatu operators]. The questionnaire covered areas such as respondent profile, perceptions and preferences regarding the use of study area, environmental issues, challenges and suggestions. The questionnaires were administered by the research assistants with the help of the Park guides (see appendix I and II).
b) Interview Administration: The researcher used an interview schedule guide to generate discussions with key sources from (National Environment Management Authority (NEMA), Nairobi City County (NCC) and Ministry of Environment and Forestry (MEF) and relevant professional bodies. The aim of these interviews was to get informants to freely offer their opinions, knowledge and experience. It basically involved the researcher asking informants open-ended questions, and probing wherever necessary to obtain data on relationships and roles played by various stakeholders in research problem (see appendix III).

c) Observation and photography: to enable observation during field visits, an observation checklists and photography was used to gain better understanding of the existing Park facilities such as eateries, sanitation facilities, water drinking points, street lighting, waste management, adjacent urban development's challenges of planning and management of the study area (see appendix III).

3.7 Data Analysis and Presentation

Data analysis was executed at three different levels. First, data collected through questionnaires were cleaned through proof reading and coded to enable empirical analysis using SPSS software version 22. Use of SPSS enabled analysis of descriptive statistics such as frequencies, percentages and cross tabulation.

Secondly, data obtained through key informant interviews (KIIs) were subjected to content analysis to detect any incongruence on a number of interview results and the findings of the documents reviewed.[158] This data was coded[159] to differentiate and integrate interview data into categories that create

[158]Hsiu-Fang Hsieh and Sarah E. Shannon. 2005. Three Approaches to Qualitative Content Analysis. Vol. 15 No. 9, November 2005 1277-1288 DOI: 10.1177/1049732305276687 © 2005 Sage Publications.

[159] Kumar, R. Research Methodology: A Step-by-Step Guide for Beginners, 3rd edn, (Sage, London, 2011)

philosophies, themes or models.[160] Direct quotations from the interviews were used for presentation to justify conclusions about various ideas and themes.

Thirdly, spatial data such as the site and adjacent land uses coordinates gathered using Geographical Positioning System (GPS) was subjected to a Geographic Information System (GIS) software analysis to generate the site base and land use maps. Fourthly, the existing environmental and urban planning policies were evaluated through an indicator(s) based evaluation tool which considered various indicators such as effectiveness of development control tools, public consultation, provisions of park policy guidelines or masterplan and monitoring mechanisms for measuring the level of public green spaces utilization. Finally, presentation of the analysed data was done in form of descriptive and analytical reports, figures, graphs, tables, and charts developed from Microsoft excel software 2013.

3.8 Ethical Considerations

The study was carried out in such a manner that it respected the respondent's rights to privacy. The norm of voluntary participation was applied in the research where participation by the various respondents were on voluntary

[160] Carson, D., Gilmore, A., Perry, C. &Gronhaug, K., *Qualitative Marketing Research*, (Sage, London, 2001)

basis. In addition, all respondents were assured of confidentiality i.e. that what they provided was purely for academic purposes and that the information would be presented correctly. None of the respondents was coerced into giving any information. Finally, while presenting findings of this study, the researcher abided by the principle of anonymity by not refereeing to the respondents by their names.

3.9 Study Limitations

The limitations under this study touched on aspects of data shortage, bureaucracies and long procedures particularly where official information, security of research team, uncooperative respondents and resource limitation.

Data shortage on the study area such as the Park population, site plans, and previous works documentation was one of the major limitations during this study. This was however, overcome by considering relevant alternative pieces of information and also use of similar cases or study done regarding the research problem.

Bureaucracies and long procedures particularly where official information was sought from key informants was another major challenge that faced during the study. This was overcome through booking of both formal an informal appointments via email and phone call a week before the scheduled date of meeting.

Due to the nature and condition of MMP, security was a key challenge. For this research, the researcher put in place protective measures to ameliorate this challenge by using Park Guides to guide the team around the Park as they interview different respondents. This also ensured that the target sample size was adhered to. Due to constraints of time, this research largely depended on non-probability selection methods (quota, convenience and purposive sampling) where Park users', management and other stakeholders' to be interviewed were selected using personal judgement.

In addition, the study was limited to only one public green spaces in Nairobi. This may affect replicability of the findings to other public green spaces. Nonetheless, the findings still form a robust foundation for arguments on implications of adjacent urban developments on conservation of green spaces.

Lastly, non-responsive respondents frustrated the study. For example, some respondents were not cooperative as some required payment before participating in the interviews during the administration of questionnaires. In the spirit of maintaining objectivity of the study as well as ethical considerations, triangulation of information from interviews with key informants was used to overcome such challenges.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides the findings of the study, analysis and discussion based on the study objectives. In-depth cross-referencing of the above findings was used to contextualize the study findings and ultimately informing the study on how green spaces biodiversity functions can be mainstreamed into policies, strategies and practices under the prevailing urban development trends.

4.2 Study Response Rate and Composition of Respondents

4.2.1 Response Rate

Overally the study had a return rate of 90% in a questionnaire survey and 100% on the key informant interviews, making it sufficient for analysis in a questionnaire survey based on Mugenda and Mugenda min. return rate of 50%.

4.2.2 Demographic Characteristics

Field survey results show that MMP is mainly utilized by the middle age population (18-35 years old) representing 65% while 35% of the population were of 35-65 years of age. Only 27% of the surveyed park users were between 18- 25 years of old, 37% were between 26– 35 years of age while 7% of them were above 65 years of age. In line with study objective 3, the two age groups i.e. 18 to 25 years and 26 to 35 years are the highest in park visitation as the

youth frequently engage in recreational activities and these two categories have families with young or teenage children who require recreation as part of their physical growth (See Figure 5).

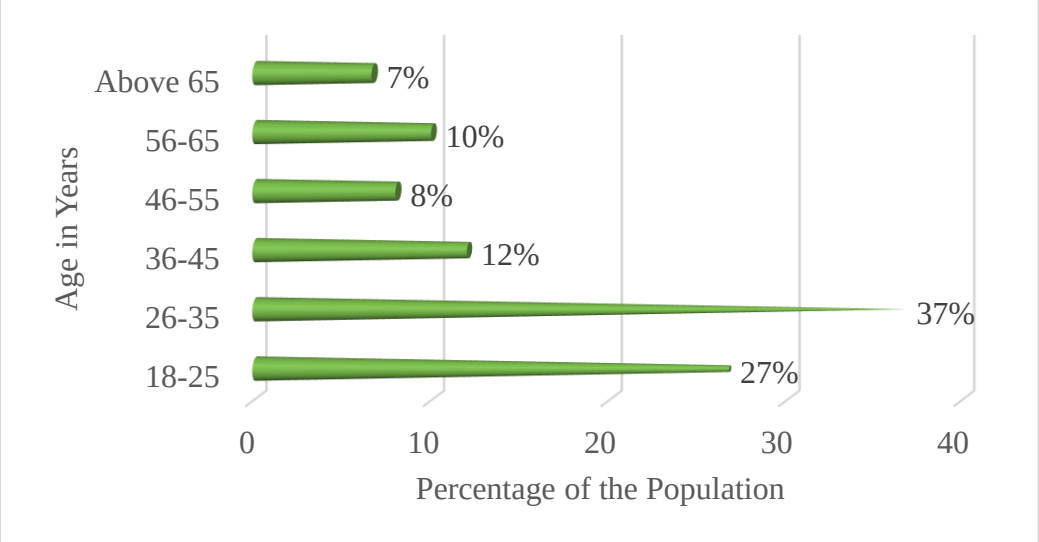


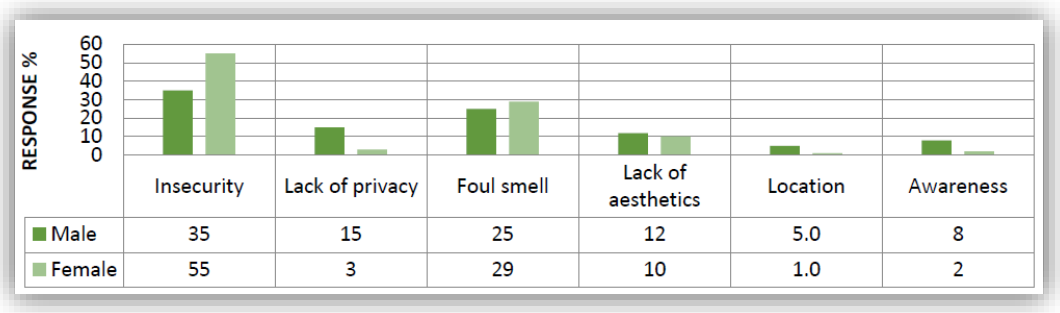
Figure 5: Respondents Age Distribution

Source: Field survey, 2018

4.2.3 Respondents' Gender Characteristics

Majority of park users were males, constituting 75% while the female population was registered at only 25% according to the survey. Corresponding to study objective 3, the relatively low rate of female users based on the study findings was due to safety risks (sexual violence and muggings) and foul smell. With increased security risks and poor maintenance of MMP, both gender tend to stay away from the park as shown in Figure 6.

The findings of this study are similar to that by Harnick, who stated that low rate of female users is a strong sign of a park which is unsafe.[161] This is further affirmed by Brownlow who elucidates that apparent absence of control and security is fundamental to the ever-developing fear of violent (sexual) abuse among urban women in parks.[162]



	Insecurity	Lack of privacy	Foul smell	Lack of aesthetics	Location	Awareness
Male	35	15	25	12	5.0	8
Female	55	3	29	10	1.0	2

Figure 6: Reasons for lack of preference of Michuki Memorial Park

Source: Field survey, 2018

4.2.4 Users' of the Park

Park visitors are grouped into different categories that include; groups of youths, workers, business group, boda operators and traders. Consistent with the study objective 3, this is a strong indicator that utilization of urban green spaces and their public recognition/appreciation lies on needs and specific facilities related

[161] Harnick, P. 2003. The excellent city park system: What makes it great and how to get there? San Francisco: The trust for public land.
[162] Brownlow, A., 2006. An archaeology of fear and environmental change in Philadelphia. Geoforum, 37, 227–245.

to people's interests such as recreational and economic needs. Hence in policy perspective, this calls for reconciling the various user needs and activities through providing a safe, inclusive and accessible UGS as echoed on SDG 11.

4.3 Nature and Effects of Urban Land Developments on Conservation of Michuki Memorial Park

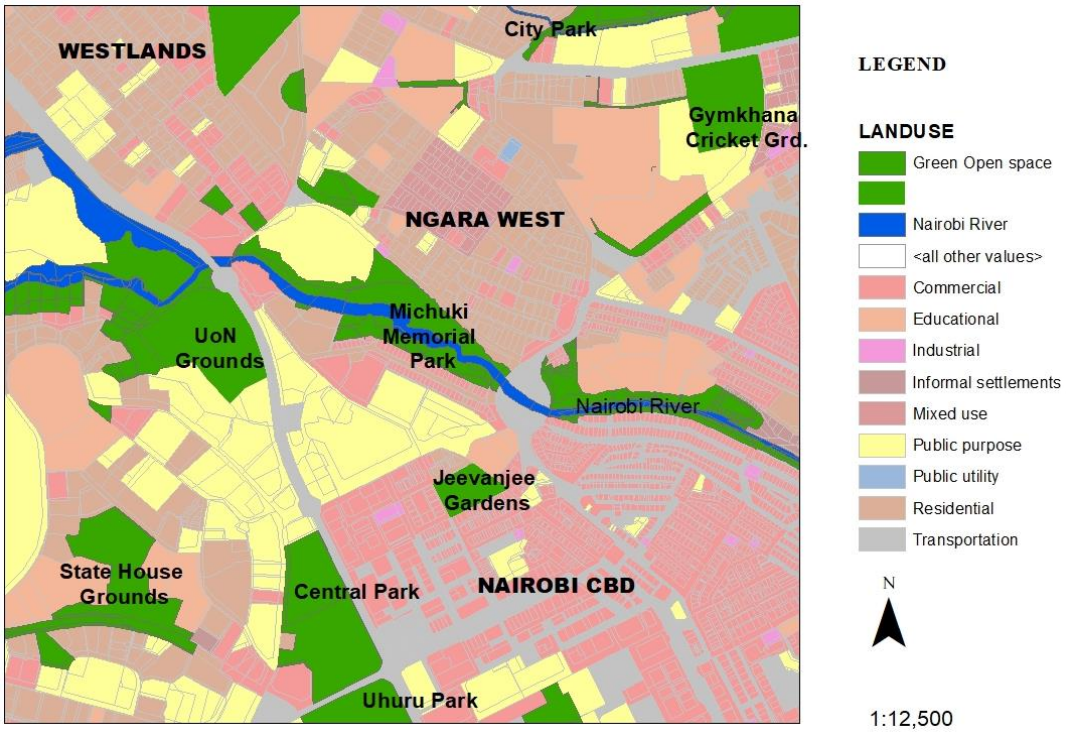
4.3.1 Adjacent Urban Developments along Michuki Memorial Park

The study area abuts a mixed use land uses comprising commercial, residential and light industry developments which are consistent with NCC ordinances of 2004 under zones (1A). Commercial land use is mainly common along Kijabe Street where numerous retail and wholesale shops are located. Kijabe Street exhibits a mixed use development accommodation public purpose developments such as churches, commercial and light industries. Industrial land uses mainly comprise of light industries which include auto spares and carpentry works. The nature of mixed commercial-light industrial activities along the park from the survey include food vending (25%), automobile spare parts selling (20%), garages (18%), car wash business (15%), clothes selling (13%), hawking (3%), retail shops (3%) and cloth washing business (3%) (See map 1).

Residential use is mainly manifested in the form of apartments consisting of multi-dwelling units which are up to six floors, majorly on Kipande road side of the park.

The park strategic location at the boundary of Nairobi CBD and middle class neighbourhood of Ngara, was meant to serve the Ngara estate households as well as the central business district population who would enjoy leisure and recreation in the park during working days and weekends.

Of particular concern according to the Ministry of Environment and Forestry officials, is the Nairobi River that flows through MMP, provided a strategic opportunity for a riverfront urban green spaces which was the original intention of MMP as a pilot case under the Nairobi River Restoration and Rehabilitation Programme (NRRRB).



Map 1: Michuki Memorial Park Land use Map

Source: Google Maps and Modified by Author, 2018

4.3.2 Effects of Urban Land Use Developments on conservation of Michuki Memorial Park.

The study found that the existing adjacent urban land use developments have impacted MMP in various ways as discussed below:

a) Encroachment on Park Land Space

The rapid land use developments along MMP resulted in excessive destruction of this urban natural environment contrary with section 3.16 of the National Land Use Policy of 2017 and National Environment Policy of 2013. This was manifested by the presence of many informal of informal businesses activities that encroached MMP, a land reserved as a green space. The much affected section of the Park was the one along Kijabe Street where from personal observation, market traders, food vending, automobile spare parts selling, and hawkers extendeding their activities into the Park.

From study finding, the business group encroaching the MMP cited a number of pull factors such as the Park proximity to the Nairobi CBD offers large market (20%), availability of "open land" along the Park (20%), ease of accessibility (10%), relatively cheaper rents (20%) and increased sales (30%). Furthermore, encroachment of the Park had been further contributed by the low level environmental policy awareness and enforceable development control policies as attributed by 70% of the respondents who were not aware of green belt buffer zones. The 30% who were aware of the policy regulations attribute the encroachment on competitive demands for the use of the land.

The above findings were confirmed by the NCC development control Assistant Director who noted that lack of development control in neighbourhoods adjacent to parks influenced encroachment by other uses. As a result rendering rehabilitation and restoration of the available Parks difficult due to competitive demands for the use of the land. However, he remains optimistic with the enactment of Sessional Paper, No. 1 of 2017 on National Land Use Policy, noting that the policy will address issues of land cover, land use data and land use planning. Makworo and Mireri are of a similar view that provision of public green spaces in Nairobi City is threatened by uncontrolled development against the weak capacity of city authorities to tackle the growth, hence green spaces in the city are likely to be encroached, thus denying the public access to recreation and leisure facilities.

b) Environmental Degradation

Personal observation on the study site revealed that the periodic Maasai market, park users and other commercial activities along MMP, dumped solid waste directly into the park which contravenes the Environmental Management and Co-ordination (Waste Management) Regulations, 2006. Even the Nairobi River which flows through the park is laden with solid waste, defining its new landscape's topography. Further to the above, the dilapidated public sewer line traversing the park has environmentally degraded that park due to bad odour and raw sewer disposal directly into MMP rendering the park and immediate environment unusable (See Plate 3).

Triangulation of this findings with interview feedback from the users and business group, laid much blame on the reluctance by NCC on the part of solid waste management. The NCC Environmental Planning and Management section confirmed that indeed the poor waste management was attributed to inadequate budgetary allocation for the park's management in supplying dustbins in the park, however he noted that negligence and lack of environmental stewardship on the part of park users also played a key role in the increased level of land pollution in the park.

Plate 3: Poor solid and liquid waste at Michuki Memorial Park

Source: Field Survey, 2018

This sentiment was echoed by the Park Manager who revealed that inadequate budgetary allocation, lack of park facilities and a security fence protecting the

park, had led to part of the park becoming a dumping ground, insecure and unattractive to the public. On the other side, in-depth interview with NEMA officials revealed that pursuant to the environmental management and co-ordination (waste management) regulations 2006, part II section 1 mandates the waste generator to be responsible for its management.

Hence NEMA advocates the need for proper framework to be laid between NCC and the users of space to ensure proper waste management as advocate for cleaner production principles such as waste segregation, reclamation and recycling. This will restore and conserve land quality through control degradation of land through abuse of inputs and inappropriate land use practices subject to sub section 3.4.2.3 of the 2009 National Land Policy.

c) Noise Pollution

Noise to the site majorly emanates from vehicles passing particularly through the globe Roundabout overpass, Kipande road, Kijabe Street, Muranga road mechanics which have become detrimental to park users and the surrounding neighbourhood. Minimum noise is also generated from the music at Boulevard Hotel to the park; particularly on Friday and Saturday evening (See Figure 7).

Nonetheless, the study survey showed that the majority of MMP park users (75%) perceived noise sources in urban parks, although they considered the environment silent and did not report annoyance. Zannin, concurs with this findings revealing a similar observation. He described that, despite the high

levels of noise in the Botanical Garden of Curitiba — PR, Brazil, 52% of interviewees considered the park a calm environment and reported that the noise did not cause major disturbances.[163]

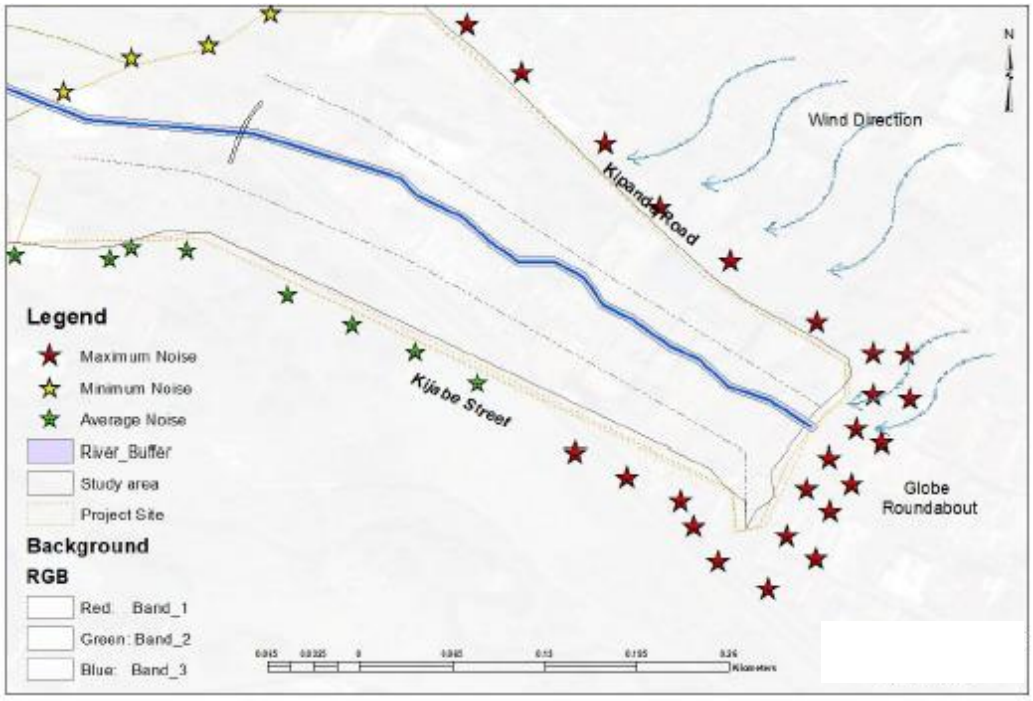


Figure 7: Noise Sources from Abutting Urban Land Use Developments

Source: Author, 2018

Subject to section 3 of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009, no person is allowed to make any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of

[163] Zannin P. and Szeremetta B. 2003. Evaluation of noise pollution in the Botanical Garden in Curitiba, Paraná, Brazil. Available online at: https://www.ncbi.nlm.nih.gov/pubmed/12764486/ Accessed August, 2018

others and the environment. In this regard, NEMA officials interviewed in the study were of the opinion that a serene environment is key to park users as they conduct their leisure and recreational activities since the fundamental goals of creating parks and other green spaces is to create spaces that people can rely on to enjoy and comfort themselves. The same sentiments were echoed by NCC senior Planner who asserted regulators should strive to uphold the important function played by parks in preserving or promoting the health of users through maintaining quality of acoustic environment in these scenarios.

d) Lost Ecotourism Opportunities

The effects of uncontrolled development against the weak capacity of city authorities to tackle the growth, pollution and environmental degradation has denied the park an opportunity in enhancing the quality of life and urban environment while offering social, health, environmental and economic benefits to the city and its residents.

In-depth interview with the Ministry of Environment and Forestry, Nairobi River Basin Programme officer revealed that in 2007, UNEP and the Ministry were engaged in rehabilitating the study area. However, with the abutting land uses negatively impacting on the study site coupled with rapid urbanization, the officer noted that the initial plan on how Nairobi river basin can sustainably be rehabilitated, restored and sustainably managed has been rendered handicapped, hence the park neither provides better livelihoods nor enhance environmental quality and values.

On the same note, NCC officials are of the opinion that the lost ecotourism opportunities from MMP and other degraded parks in the city can be attributed to insufficient operation of urban planning regulations to support the political goodwill of rehabilitating them. The study found that although several land planning regulations that cover green spaces had been put in place with both national and count governments, the operation of such regulations was problematic.

Professional bodies and Academia were of the view that the dysfunctional nature of urban planning regulations in Nairobi can be linked to the outdated nature of some of these regulations to address the current development trends in urban areas. It was revealed that some of the urban planning regulations operating in Nairobi like the Physical Planning Act, CAP of 1996 and Nairobi Zoning Ordinance of 2004 are still in operation.

e) Land Space Competition and Conflicts

The study found that MMP being a "contested" space had to accomodate the diverse land users' (park visitors, Jua kali traders, garage owners, mechanics, hawkers, Maasai market traders, regulators, public etc.) For instance, the encroachment by commercial activities into the Park (perceived idle space) reveals how urban green spaces are highly contested areas. With regards to the residential land use, 75% of the respondents perceive the space to be contested, 55% of respondents in the business sector perceive the study area as a contested terrain as well as 65% of the respondents in the park space respectively.

Personal observation revealed that, the Kijabe street section abutting the Park was more prone to land use competition due to its location as well as the perception of ‘no man’s land’. Unfortunately as a result of land space contestation, coupled by weak urban regulations, environmental degradation has been witnesses as manifested by poor solid waste management, sewerage spillage from overloaded sewer infrastructure, dilapidated park facilities and amenities which have led to extreme environmental degradation and unpleasant park scenery (See Plate 4).

Plate 4: An open sewer flowing into Nairobi River at Michuki Memorial Park

Source: Field Survey, 2018

The survey further indicated that the business owners/ operators perceived the effects of space contestation to include conflicts, wrangles and battles among the land users (52%), congestion of activities and persons (20%), reduced business profits (20%) and displacement of business activities (8%) respectively. The space users indicated the effects of space contestation as being over exploitation

of the park resources (30%), congestion of land use activities and persons (22%), conflicts, wrangles and battles among land users (15%), increased pollution (19%) and displacement of other land use activities (14%).

The national land use policy in a bid to promote best land use practices for optimal utilization of the land resource in a productive, efficient, equitable and sustainable manner, advocates for an appropriate, independent, accountable and democratic institution for land use conflict resolution. It further advocates for review of the gazettement of protected areas to foster the realization of their multiple values and ensure that they are protected for their ecosystem values and not merely to physically exclude human activities (Section 2.6.10).

4.4 Policy and Institutional Framework for Sustainable Management of Michuki Memorial Park.

4.4.1 Policy and Institutional Framework

The study found that MMP was created under the Nairobi Rivers Basin Rehabilitation and Restoration Program (NRBRRP) back in 1999. With lack of a clear policy, the main objective of the Programme was to rehabilitate, restore and sustainably manage the Nairobi River Basin in order to provide improved livelihoods, enhance environmental quality and values through well-regulated economic and recreational ventures.

From a historical perspective, in 1999 to 2008, the then UNEP conducted a water quality assessment, public awareness and advocacy on pollution in

Nairobi rivers. In 2008 Government initiated the NRBRRP by constituting a task force to develop an Action Plan. The Action plan proposed that NRBRRP activities be coordinated by a secretariat based at the Ministry of Environment and Mineral resources. Further, the Programme was supervised by the Office of the then Prime Minister involving 17 key Government ministries and agencies.

Key informant interviews noted that when the Park creation process first started, donors, partners, NGOs and the Government of Kenya were all enthusiastic and supportive and funds were easily mobilized. Given that, over time and the demise of the late Michuki in 2012, donor funding has been reduced and hence the Park stake continue to deteriorate with minimum support from the current Ministry of Environment and Forestry (MEF) and NCC. They further elucidates that it will be difficult to raise the substantial amounts necessary for MMP and also the NRBRRP, more so because there is so little to show for what has already been spent on this endeavor in the past.

5.4.2. Policy and Institutional Framework Emerging Issues

The following policy and institutional emerging issues were found by the study:

a) Duplication and Conflicting Institutional Roles in Management

The study revealed that there were other institutions that held a stake in planning and management of urban parks in Nairobi contrary with the County Governments Act of 2012, section 103 and Physical Planning Act of 1996, section 29 which stipulates that County governments are the administrators and

managers or urban parks/ forests under their jurisdiction. Conflicting institutional roles between NCC and MEF as well as NEMA stood out as a major cause of poor management of MMP according to this research. As noted by NEMA officials, MMP is under their jurisdiction which contradicts with NCC department of environment parks and open spaces which claims MMP and other public parks in the city of Nairobi is under them.

Further, informal interviews with Park users and the adjoining land-users, also had conflicting opinions on who actually manages the park. Approximately, 60% of the respondents thought that the park was managed by NCC since they collected revenue for the periodic Maasai market times held in the park, 30% of the respondents thought that MMP was managed by the National Government through NEMA while 10% thought that JMMP is managed by community based organizations (CBOs) whom they see often cleaning the park. Indeed, duplicity and conflicting institutional roles in management of Michuki park has resulted into lack of maintenance as both NEMA and NCC are divided on who should do which role.

Informal discussions with professional bodies' representatives, Park users and personal observation confirmed the manifestation of conflicting institutional roles in management of MMP. It revealed that MMP had become renowned more for dysfunction, neglect and disorder than for its recreational and environmental opportunities, with commensurate change in its importance to the Nairobi city dwellers. The poor state of plant nurseries and toilets, the lack of

play equipment, overgrown vegetation and illegally dumped solid waste, had become defining features of its landscape's new topography.

The Park Manager noted the Park user's desire for quality rather than quantity in urban green space and he was of the opinion that the relevant MMP management institution (s) should consider transferring park management and maintenance services to a private contractor and itself/themselves retaining a policy, strategy, contract and quality-monitoring role.

This view by the Park Manager is echoed by Dunnet.[164], who noted that development of new innovative evidence based approaches and models for the management of public urban green spaces such as private manager would: promote the active involvement of local residents, user groups and business communities; extend and improve the "capacity" of local user groups; and foster a greater sense of ownership and civic pride among stakeholders.

NCC Physical Planner was of the view that MMP should be coordinated by a single entity or ministry, working together with the Nairobi City County government. Adopting a holistic approach will help to ensure that consistent standards and work methods are adopted by all players. Moreover, proper coordination will be cost-effective and will enable all stakeholders to stay on the same page and to apply a clear-cut vision.

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[164] Dunnet, N., Swanwick, C., & H. Woodley. 2002. *Improving urban parks, play areas and green spaces.* London: Queens's printer and controller of her majesty's stationery.

This sentiments concure with Montella who confirms that involvement of too many agencies working on implementation of a project causes the dilution and fragmentation of responsibility and this, in turn, ruins the chances of success of such a difficult undertaking, with repercussions on the lives and health of the inhabitants of Nairobi.[165] He further observed that the national and county governments have revealed that most of the funds for the programme were used up in meeting the overhead costs of 17 government ministries and agencies and very little was left over for actual cleaning activities and maintenance of MMP.

b) Lack of Michuki Memorial Park Planning and Management Policy

After creation of MMP the study found that there was lack of Planning and management policy to guide the daily operation of the Park. This was affirmed by NCC Physical Planner who notes that, even at county and national level there was lack of a specific policy dealing with planning and management of urban green spaces. He further noted that existing legislative framework alludes to certain aspects and components of urban park planning such as the physical planning and management but there is no single consolidated policy framework for parks planning and management.

[165] Montella, M. 2009. Nairobi River Basin Programme, problems and delays in the project. International Alliance of Inhabitants, 17 August 2009. Available from http://www.habitants.org/news/local_info/nairobi_river_basin_programme Accessed 2 May 2018.

Hence, the deteriorated condition of MMP can be linked up with existing loopholes in policy and the lack of UPMP according to NCC assistant director, development control section. He notes that with no UPMP, the entire process of creating, conserving and protecting green spaces is regulated has been rendered futile hence to address user's needs, preferences and park environment, park features and facilities as well as management cannot be initiated.

In-depth interview with the county planner to some extend revealed that NCC currently relies on an outdated 20 city zones ordinance of 2004, Physical planning Act, CAP 286, Physical Planning Handbook of 2007 EMCA Cap 387, National Land Use Policy of 2016 and County Spatial Planning Guidelines of 2018 legal frameworks that are shortage of what an urban parks management plans or land use plan should look like.

According to Harnick, 2003 with a Parks Planning and Management Policy in place, an ideal/quality green spaces can be achieved in urban areas and this will increase its optimum level of utilization since existence of such a policy ensures and set necessities for quality, financial precedence and protection of natural and cultural values that constitute the green capital of the city.[166]

[166] Harnick, P. 2003. The excellent city park system: What makes it great and how to get there? San Francisco: The trust for public land.

c) Poor Involvement of the Park and Nairobi River Basin Residents

The study findings revealed that 80% of the respondents interviewed were not aware of MMP while 20% indicated there unawareness of the park. This study is in agreement and therefore comes to conclusion that lack of awareness is a major reason for underutilization and constant pollution of MMP. Further probing on awareness factor, the study found that 57% of the respondents knew the park since they passed next to it, 33% knew about the park since they work next to it. Only 10% of the surrounding neighbourhood is aware of the park (See Figure 8).

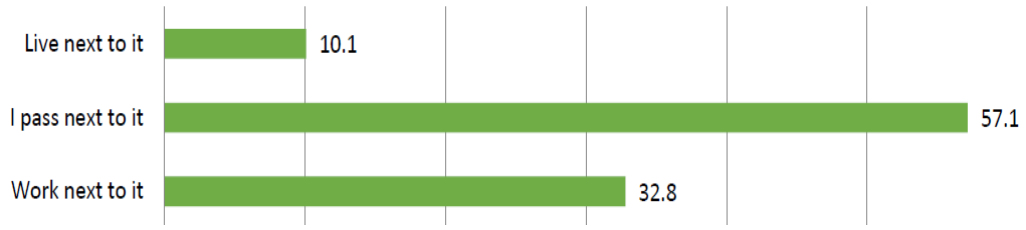

Figure 8: Awareness Ways of Michuki Memorial Park Existence

Source: Field Survey, 2018.

This translates to the low number of park users from the surrounding neighbourhood. Hence, consistent with Lindsay et al. 2001, lack of awareness is one of the constraints that consistently limit use of parks, particularly in urban areas characterized with very high and diverse population. The Park users and Key informants from the Ministry of Environment concured that the level of awareness by residents of the Park and Basin's pollution was low. According to

the Ministry, the public did not seem to realize that pollution of the Park as well as the river could be a source of malignant ailments.

Professional Association were of the view that strong campaign to educate the residents of the Park as well as the basin about the negative impact of their activities and to identify solutions that were within their reach is recommended. It was also suggested that the residents should be offered financial incentives for collecting the garbage in their own vicinity and beyond.

d) Negative Public Perception towards Michuki Memorial Park

The study findings on public perception on MMP revealed that 39% of those interviewed referred to the park as *"Msitu"* a Swahili word for a "bush", 23% considered that the Maasai market is the major landmark activity, 18% associated the park with the garage, yet still 11% believed that the area is a dumpsite. Only 9% considered it as a recreation park. The perceptions on the park by the users as a bush, garage and dumpsite area (See Figure 9).

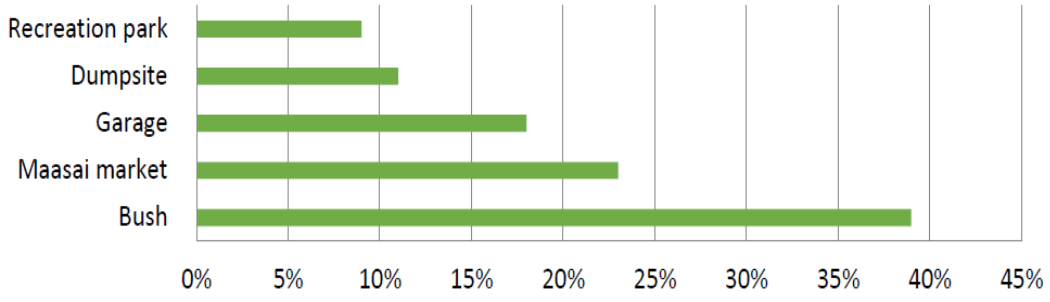

Figure 9: Public Perception on Michuki Memorial Park

Source: Field Survey, 2018.

The way people perceive a place directly influence the way people use such a place. Consistent with NEMA key informants, the negative perception of the public on MMP has contributed further to the consistent environmental degradation as affirmed by personal observation where park users respond to the call of nature as well as illegally dump solid waste anywhere in the park, thus further lowering its environmental quality.

e) Scarcity of and Highly Technical Nature of Collected Data

The study found that there was no comprehensive data of the population of MMP Park users, residing along the banks of the river and clear data on the extent of the pollution of the Park. Given the large number of organizations and groups involved in the restoration and rehabilitation of the river basin, Key informant interviews revealed that, the relevant information is fragmented, uncoordinated, unconnected and in some cases outdated or not useful.

According to University of Nairobi (UoN) key informant who was involved in the Nairobi River program, the 2006 UoN study, initiatives related to research, pollution management and information management were not centrally coordinated. Furthermore, he noted that there was no analysis or synthesis of available data, information and environmental issues as well as some of the information and data collected were difficult to understand because they were too scientific.

He further observed that the International Union for Conservation of Nature (IUCN) and UNEP had funded the preparation of a booklet in 2005 to ensure that the information was user-friendly and could assist policymakers in making decisions (Network for Water and Sanitation (NETWAS), hence he recommended more to be done in this regard to ensure the available information is rationalized and coordinated by one focal point not only to ensure ease of access but also this will avoid wastage of scarce financial resources and duplication of efforts.

f) Lack of Enforcement to Sustainably Maintain the Park

Consistent with lack of MMP planning and management policy, the study also found lack of clear legislation covering the rehabilitation and restoration of MMP. According to the Ministry of Environment, even if we create institutions such as NLC to ensure that public land and land under the management of designated state agencies were sustainably managed for their intended purpose, with no existence of such a law the post-maintenance of the Park will continue to be rendered futile. He further noted that the residents of these riparian and the Park reserves were protected by a cartel of powerful politicians, who can turn to the highest authorities and claim that members of their communities are being harassed or targeted.

Park users and business group shared the same sentiments that the late Michuki still succeeded in his pilot project of the Park as well as cleaning the Nairobi River basin by recruiting young workers through the *"Kazi Kwa Vijana"*

initiative ("jobs for youth") to serve as security guards and to watch out for anyone violating the law such as dumping waste or encroaching riparian areas. In congruence some Matatu operators agreed that without such a strong-willed and well-empowered enforcement team, little can be done to tackle the current and future problems facing MMP clean-up efforts.

g) Lack of Interest in Turning Waste into Opportunity

As a policy concern, the study found that illegal dumping of waste is still rampant in MMP and lack of interest by NCC and the national government in turning waste into opportunity was a major issue. According to NEMA, most African cities have undergone rapid growth and struggle to cope with the side effects of that growth, in particular waste management. To make matters worse, they seem unable to see the generation of waste as an opportunity.

For the case of MMP, the Rehabilitation exercise pointed out that plastic waste tops the list, followed by organic waste and recyclable materials such as paper and glass. Their Programme concluded that most of these materials could be reused and recycled to create employment opportunities for the youth.

Success stories of turning waste into opportunity is seen in the Watamu beach programme in Malindi by Watamu Marine Association (WMA), which has been

effective in clearing garbage and waste off the beaches.[167] The approach followed by the WMA is to create community-based waste-recycling businesses and income-generating enterprises. Members of the local community are employed to collect solid waste from the beaches and village environs. The association has acquired land and developed premises for demonstrations and the training of local people in new technologies. Items produced from the collected waste include compost, biofuel briquettes, bio-charcoal from coconut husks, and biogas. Training is being conducted on environmentally-friendly techniques such as permaculture. All the plastic and glass waste generated by the big hotels in Watamu is used at their demonstration site to construct walls and houses.This resulted in the general clean-up of the beaches and has created employment opportunities for the poor in the Malindi community. According to Kakonge, the project, which has been mounted under the slogan "Turning Trash into Cash", has created a win-win situation for the environment, coastal community and its partners and sponsors (beach hotels, the county government, charity organizations and others).[168] The WMA experience could easily be replicated in MMP, where enterprises/Individuals polluting the Park should be encouraged turn waste into an opportunity or even obliged to pay based on the polluter pays principle.

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[167] SEED 2015. "Watamu Community Solid Waste Management and Recycling Enterprises (WSWMR)", 2011 SEED winner. Berlin, Adelphi Research GmbH. Available from https://www.seed.uno/images/casestudies/SEED_Case_Study_Watamu_Kenya.pdf Accessed 2 May 2018.
[168] Kakonge J. 2017. "Nairobi River basin rehabilitation and restoration: Succeeding by building on lessons from past failure". Available from https://www.pambazuka.org/land-environment/nairobi-river-basin-rehabilitation-and-restoration-succeeding-building-lessons-past

4.5 Mainstreaming Proper Planning, Management and Utilization of Michuki Memorial Park into Policy And Practice.

The study found a number of ways proper planning, management and utilization of MMP can be mainstreamed into policy and practice as discussed below:

4.5.1 Recognizing the Role and Contributions of Michuki Memorial Park

The survey provided evidence of pragmatic social, environmental and economic contributions that MMP offers leading to its increased utilization. Socially, from figure 10 below, MMP, offering relaxation and leisure spaces to park users and visitors are major factors influencing its utilization at 60%. These exemplify the core functions of the park as a recreational area persistent with the planned goals of enhancing environmental quality and values through recreational endeavours.

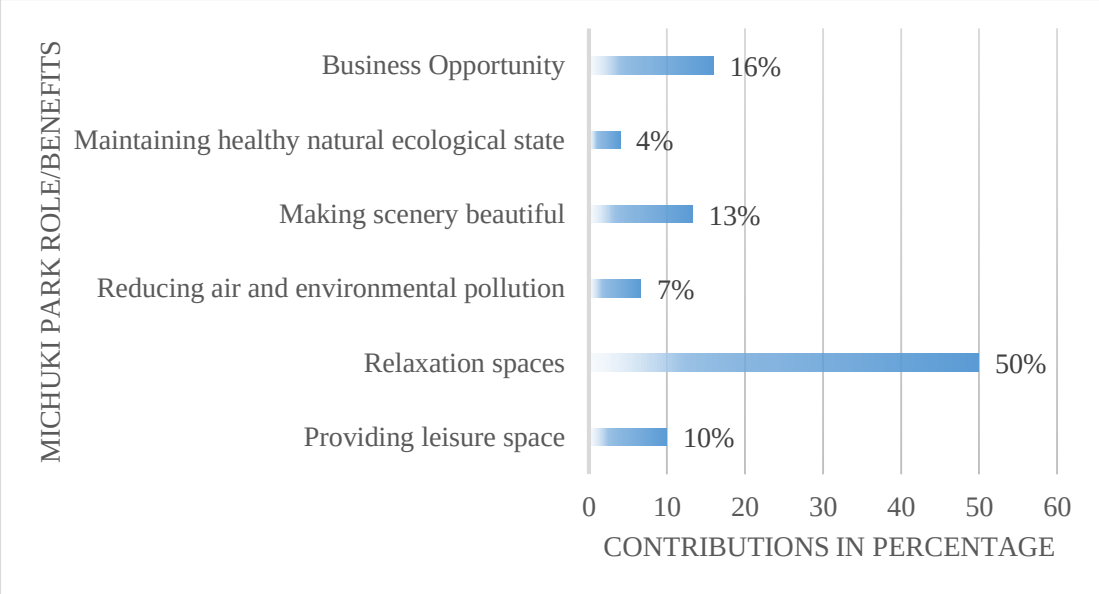

Figure 10: Roles & Contributions of Michuki Memorial Park

Source: Field survey, 2018

The above findings are echoed with the frequency of park visit where, main reason of visiting MMP was “relaxation” (26%), followed by “get-together with friends” (16%), “business” (15%) and “enjoying nature” (15%) , which showed relaxation, socialization, recreation, doing business, leisure and scenery were the main purposes of MMP.

NEMA and NCC Physical Planner are of the similar view that once policy makers recognize the vital role MMP plays, they will be able to comprehensively incorporate them in the preparation of land use plans for urban areas. Ideally, Counties have a role to) 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 (Physical Planning Act, CAP 286).

4.5.2: Addressing Park User’s Needs and Preferences

From the study, 40% of the respondents hardly use the park, 13% and 17% of the respondents use the park 3-4 times a week and a couple of times a month respectively. Only 10% of the respondents use the park use the park every day. The rare visiting to MMP by most respondents were attributed to “poor park management” (40%), followed by “absence of features of parks” (23%), and “lack of park facilities” (18%). Other reasons cited included insecurity of the park and bad odour/smell at 15% and 4% respectively. Proper management, landscaping, park facilities such as chairs, toilets, notice boards and playing facilities for children, comfort and a secure park lures park users to frequently visit urban green spaces (See Figure 11).

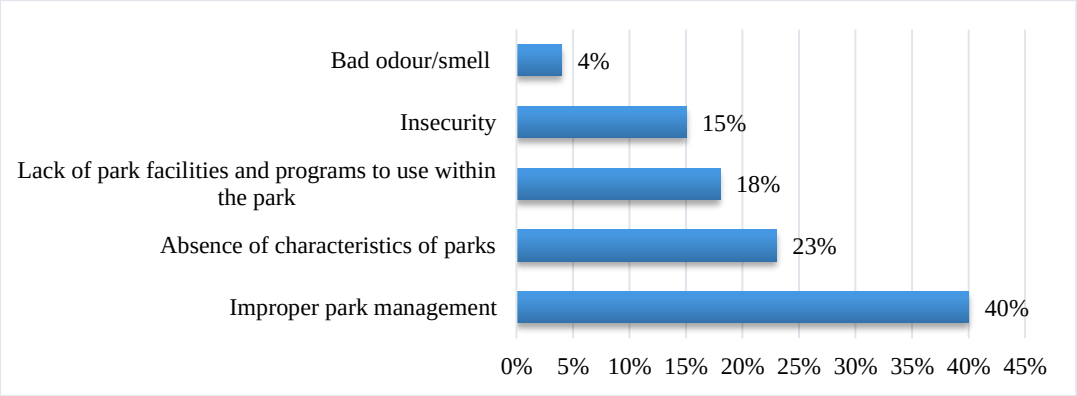

Figure 11: Public Reasons for infrequent Visit to Michuki Memorial Park

Source: Field survey, 2018

Personal observation, shows that the uncollected waste, human waste from passers-by and some park users, liquid effluents from the surrounding neighbourhood, metals from the garage and overflowing sewers from the neighbourhood particularly Ngara estate, park users' are exposed to unpleasant park scenery and bad odour which makes MMP unattractive

Triangulating personal observation of the study site and park users perceptions, revealed that, environmental degradation is further affirmed by the study findings where 84% of the respondents ranked the park poor, while 10% ranked it as fair. Only 6% of the users believe that the condition of the park is good.

Cross case analysis of the above findings with key informants' in-depth interviews, reveal that MMP filthy environment and unpleasant smell does not only substantially impinge detrimentally on the attractiveness of the park, but also has serious health implications for the visitors who use parks for recreation. Hence this phenomenon according to the County Physical Planner, not only

necessitate integrated policy management guidelines for city green spaces but also introduction of polluter pay principle.

4.5.3 Provide and Maintain Park Facilities

Concerns on the attractiveness of MMP featured prominently in the in-depth interviews with NEMA, NCC and park users. Issues of absence of signage, insecurity, walkways and lack of sub-optimal design of the Park to cater for the needs of its users and beneficiaries strongly was discussed. From the case studies review, the minimum support facilities required for an urban park include: basic infrastructure and services such as water and sanitation amenities, security, solid waste facilities shelter and seats. However from Table 3 below the Park basic facilities are inadequate in dilapidated condition.

Table 3: Park Facilities for serving Michuki Memorial Park

Facility	Adequacy	Status/condition
1) Open lawn	Well Provided	Poorly maintained
2) Restaurant/Eateries	None	N/A
3) Flood Light	3	Only 1 working
4) Play facilities e.g. swings	None	N/A
5) Plant nurseries	1	Poorly maintained
6) Washrooms / toilets	1	Dysfunctional
7) Water drinking points	None	N/A
8) Street lighting	None	N/A
9) Waste disposal points	1	Inadequate
10) Wheelbarrows	3	Dilapidated
11) Sign Boards	None	N/A
12) Seats	None	N/A

Source: Field survey, 2018

Further, personal observation revealed that as a result of dysfunctional toilets, park users may be forced to respond to the call of nature anywhere in the park, predisposing the users to risks of pathogenic contamination as well as further lowering its environmental quality. An interview with the director, department of environment parks and open spaces at NCC confirmed the alienation or abandonment of MMP since its inception in 2012 without any form of maintenance work. For instance, portions of MMP being turned into refuse dumps, was influenced by poor provision of garbage bins in the parks and gardens. Personal observations further confirmed that park had only one garbage bin donated by Fairmount Norfolk hotel as affirmed by the Park Manager.

Interestingly to note is that the poor level of cleanliness of MMP was exacerbated by the poor culture of waste disposal by the general public and traders. The general public were of the view that keeping the green spaces clean and tidy is the sole responsibility of NCC and thus it indiscriminately litter these places. Additionally, the study finding does not only paint a bad picture about how urban green spaces are suffering from poor maintenance but it also gives an idea about how such spaces are not recognized as important resources in the city.

Similar results emerged in Kumasi Ghana parks (Kumasi Zoo, Kumasi Children's Park and Abbey's Park) where Mensah in 2014 found broken down facilities and poorly maintained grasses, lawns, trees and shrub in these parks. He further notes that poor maintenance was found as the root cause for the

absence of several facilities on green spaces in the area which make these spaces unattractive. Park features and facilities are vital and should be treated as such since failure to achieve them especially the maintenance theme have serious repercussion on the overall state of green spaces.

4.5.4 Payment for Park Services

From the study, 60% the respondents are not willing to pay for recreation services when the park is improved while only 30% are willing to pay a fee in order to enjoy the ecosystem and park services. 10% are not sure whether they are willing to pay or not. The 60% unwilling to pay a fee for the natural and environmental recreational park services is attributed to the majority who noted that ecosystem services are nature free while 10% were are not sure yet whether they can pay for ecosystem services, however they were optimistic that they can be convinced especially after improvement of the park condition.

On the other hand, the 30% group willing to pay for ecosystem services were of the opinion that payment for Park services will eventually lead to improvement of the park condition (environmental quality). Payment for ecosystem services has been applied in some of Nairobi's urban green spaces such as City Park and this has steered improvement of not only environmental quality but also recognition of the fact that urban areas are substantial consumers of natural resources hence mainstreaming green spaces into policy appraisal and practice.

4.5.5 Promoting Public-Private Partnerships (PPP)

Creation and existence of MMP was hinged on public-private partnerships (PPP) that were efforts led by the late John Michuki in 2007. In-depth interviews revealed that in 2007, the Government through the then Ministry of Environment under the leadership of the late Michuki decided to take the leading role in coordinating the already on-going initiatives (by Government, private sector and individuals) in order to have a fully integrated approach to rehabilitate MMP and restore the Nairobi river. The current dilapidated state of MMP now is attributed to the collapse of the PPP arrangement after the demise of the late John Michuki in 2012. With the enactment of PPP Act in 2013, it revives the hope of restoring MMP through PPP contractual arrangements.

Further to the above, the business community considered during the study among others: Boulevard and Norfolk hotel, Media Cinemax, commercial activities along Kipande and Kijabe road/street and traders at Maasai market, were of the opinion that PPPs has a great potential to expand the provision of the services within MMP and can guarantee improvement of environmental quality for the park. About 70% of the business community interviewed were willing to partner and contribute in one way or the other in planning and management of MMP. At the same time 30% of the business community are reluctant about PPP citing the small size of their businesses, low profit and mistrust as major reasons.

In Nairobi, PPP has worked to improve the state of urban green spaces such as the Nairobi City Park (NCP). According to Mutua, NCC has partnered with Friends of City Park formed in 1996, to rally public support for NCP long term preservation and engaged with the then Nairobi City Council and the National Museums of Kenya to secure protected legal status for the entire NCP and as well ease the financial burden of managing the park by raising funds and resource and expertise mobilization to restore and expand the Park's then dilapidated infrastructure. In September 2009 through legal notice No. 130 in the Kenya Gazette, 60 hectares of NCP was gazetted into law as a National Monument under the Government of Kenya's National Museums and Heritage Act (No. 6 of 2006). In the past only small sections of the park enjoyed this status and the extension to include virtually the entire park was recognition of the historic, environmental and recreational significance of the park to the nation.[169]

4.5.6 Instil Collective Environmental Stewardship

Consistent with NEMA, NCC and Professional organizations maintenance of the MMP should be the responsibility of everyone: residents, national and county governments, the private sector, NGOs, and community groups, in particular youth and women's groups. From the study, the Park users, Business

[169] Mutua S. 2014. "Assessing Planning Policy Framework for Public Urban Parks: A Case of City Park, Nairobi." Ma Thesis. University Of Nairobi, Kenya.

group and NEMA key informants share that the littering of paper, plastic, or other forms of waste in the park should be a thing of the past and anyone found littering should be punished, fined or made to pay in some way.

The Government of Singapore, for example, continues to take drastic action against people found littering, imposing severe punishments on culprits, and in this way has managed to make their city state clean and the Professional organization share similar opinion that if the national and county governments want the MMP to be clean, they should adopt an approach on the same lines of the Government of Singapore. The bottom line is that the national and county governments have the obligation to ensure that people stop dumping refuse and waste into the park or the tributaries of the Nairobi River.

4.5.7 Incentivize Waste Collection Exercise

In light of illegally dumped solid waste becoming defining features of MMP landscape's new topography, the study key informants from NCC, NEMA and KIP are of the view that incentives for collecting paper, plastics and other materials are critical to the success of the Park clean-up operation and to maintaining it in the long term. Further, they are also critical to the opportunities that such operations provide to unemployed people, particularly youth and women, to earn something no matter how small to meet their basic needs. Small and big businesses that are dumping their waste in the Park or river should be made to pay to support this initiative, and to stop dumping. In addition, MEF together with NCC should establish awards for greening of the Nairobi River

basin and the county's wards should be challenged to compete. The winning ward should be given a trophy and a financial reward, which could be donated by such sponsors as commercial banks, industries and hotels.

An example of successful resident involvement may be seen in the Watamu beach programme in Malindi, which has been effective in clearing garbage and waste off the beaches.[170] Community members, principally young people and women, but also men, collect all kinds of waste and take it to collection centres where they are paid according to the quantity delivered. This motivates them to collect as much as they can. The beaches are now clean and tourist numbers are rising, both local and international.[171]

Following this example, the NCC and MEF could usefully consider encouraging industries and other businesses to establish a fund to pay people for gathering waste and delivering it to designated sites. This is echoed by NEMA informants who note that clearly, without such incentives and public education, the battle to stop the dumping of waste and other pollutants in MMP will be very hard to win.

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[170] SEED 2015. "Watamu Community Solid Waste Management and Recycling Enterprises (WSWMR)", 2011 SEED winner. Berlin, Adelphi Research GmbH. Available from https://www.seed.uno/images/casestudies/SEED_Case_Study_Watamu_Kenya.pdf. Accessed 2 May 2018.
[171] ibid

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1: Conclusion

While reflecting on all urban green spaces in Nairobi, with MMP as case, the study concludes land use conflicts, competition and struggle for control of MMP by other urban land use activities is a threat to achievement of a safe, inclusive and accessible green spaces. Hence with no proper intervention, urban chaos and conflicts witnessed in the study are will ail urban resilience through nature based solutions such as UGS that provides an avenue for tackling existing environmental and societal challenges such as water security human health, climate change, water pollution, food security, and disaster risk management as discussed in the study.

On policy and institutional framework for sustainable management of MMP, the study concludes that MMP and Kenya at large lacks a consolidated urban park policy outlining planning, utilization and management of UGS at both county and national levels of government. Despite the law providing, the custodians of County Parks, conflicting institutional roles and responsibilities still exist resulting in confusion on who should do what, where and at what juncture. Gaps present in the existing policy framework for provision and management of urban parks coupled with the weak governance of UGS enhance their vulnerability to exploitation and negligence.

Finally proper planning, management and utilization of the Park can be mainstreamed into policy and practice when factors associated with a positive utilization of an UGS are incorporated in its planning and design among others: specific facilities related to people's recreational interests, community involvement, perception of safety and good overall maintenance. A strong civic education campaign is also necessary in mainstreaming UGS into policy and practice since it educate the residents about the negative impact of their activities such as poor solid waste management and to identify solutions that are within their reach. Lastly, success of any Park conservation is pegged on adequate financial support, political good will, involvement of all, and access to information as well as a robust enforcement agency.

5.2: Recommendations

In line with the study objectives, a number of policy recommendations have been given notably:

5.2.1: Nature and Effects of Urban Land Developments on Conservation of Michuki Memorial Park.

a) Development of an Urban Park Master Plans (UPMP)

An urban park master plans (UPMP) is an important planning process output, meant to guide the growth of urban green spaces in a sustained manner, through specified development planning imperatives. The master plan document, which is prepared through an interactive process, lays down a roadmap of how to reach

the future e.g. 5-10 years from the present. UPMP also provides an opportunity for community leaders to look ahead, establish new visions and directions, set goals, and map out plans for the future of their green belts. The purpose of the Master Plan is to set the most appropriate future development of the area.

Further UPMP should furthermore be coordinated with other neighbourhood plans touching on transport, tourism, water management, housing, economic development, education and health.

b) Strict Adherence to Land Use Development Controls

Strict adherence to or implementation of development controls enshrined in the various planning regulations offers another strategy to control the encroachment onto green spaces. Routine monitoring exercises of physical development activities in the city by the development control (enforcement) unit with collaborative efforts by the local people and environmental agencies such as NEMA can help to relieve Nairobi from the excessive green space encroachment the city is currently grappling with. Such routine monitoring exercises will help to check whether developers are conforming to the laid down regulations, and if not bring the defaulters to book. It will help the city authorities to easily identify and prevent physical developments that encroach on green spaces at an early stage so that they will not degenerate into something worse.

Individuals who contravene the land-use regulations should be liable to a fine or to an imprisonment not exceeding five years or to both pursuant to the Physical Planning Act, CAP 286 section 30 (2) and such development shall be discontinued. Notwithstanding the above legal consequences, the local authority concerned shall require the developer to restore the land on which such development has taken place to its original condition within a period of not more than ninety days (section 30 (4a).

5.2.2: Policy and Institutional Framework for Sustainable Management of Michuki Memorial Park

a) Development of an Urban Green Space Policy (UGSP)

There is need to consolidate and develop a coherent urban park policy framework for urban park planning and management. Urban green space policy (UGSP) are formulated to guide the implementation of not only the urban park master plans but also the overall city Master Plan. In light of the institutional conflicts found in the study, UGSP will play a key role to identify all institutions involved in urban park planning and management and clearly defines their mandate and roles should be developed in order to avoid overlaps and conflicts resulting in a well-structured co-ordinated system.

The proposed policy should indicate clearly what its components are and at which juncture a specific legislation is in force. The urban park creation process should be based on the developed policy framework including the actors

involved at each step. An operation framework for the developed policy indicating the issues being addressed, actors and timeframes for execution should also be evolved.

b) Instil Collaborative Governance

Taking into cognizance the institutional conflicts surrounding the study area, a collaborative effort by NCC to bring on board the allied agencies on green spaces (NEMA, Ministry of Environment and Forestry etc.), and the local people in developing those parks/gardens as emphasized by the concept of collaborative governance. Such collaboration will offer a platform for joint discussions where shared ideas on how the identified locations can be developed as green spaces can be tapped. It will also open avenues for contribution of wider resources and technical expertise from various stakeholders, and "local knowledge" especially from the local people to develop those green spaces to meet their needs.

Further, a collaborative management model will help in in the formulation of policies and regulations to provide strong institutional and legislative framework for green spaces. The enforcement of the institutional and legislative framework will provide an avenue for various strategies (physical, socio-economic or political in nature) to be undertaken to conserve green spaces. The end result will be sustainable green spaces that will provide social, economic and ecological benefits to support the development of urban areas. This outcome

will motivate the green space organisations to continue to work together to conserve green spaces and it will keep the process on-going.

5.2.3: Proper Planning, Management and Utilization of the Park Mainstreaming into Policy and Practice

a) Payment for Park Services (User Pay Principle)

Based on the study findings, payments for environmental services (PES) can take the form of local mechanisms where the consumers of the service e.g. park users contribute to its conservation through user pay principle. However, the main challenge to operationalizing PES in county and national government is lack of clear legislation and undervaluation of ecosystem resulting to low resource allocation. Pursuant to principle 16 of the Rio declaration, national authorities such as NEMA, NCC among others should endeavour to promote the internalization of environmental costs and the use of economic instruments.

b) Institutionalisation of an Award Scheme for Green Spaces.

Institutionalisation of an award scheme purposely for green spaces such as the green flag award in UK for well-conditioned green spaces can also be adopted to mainstream green spaces biodiversity into policies, strategies and practices. This recommendation comes in a wake of resentments expressed by the respondents about poor motivation for maintenance of MMP. This award scheme can be used as a precursor to get stakeholders involved in maintaining green spaces. To accomplish this, experts or professionals from the allied bodies on green spaces

together with independent members with rich experience on green spaces can be selected to constitute the panel of judges for the award.

Application of collaborative governance techniques such as high sense of mutual understanding and consensus in arriving at decisions by the panel of judges will enable them to collaborate well to steer the affairs of the award scheme. Specific laid down criteria which comprehensively cover all aspects of green spaces such as attractiveness, comfort, accessibility, safety, maintenance, publicity, community participation, and conservation and heritage can be designed to serve as baseline criteria to select specific parks and other green spaces as winners for the award. This green flag award and the benefits that come along with it such as opening up areas to boost tourism, pride and reputation will serve as incentives to motivate various neighbourhoods to actively participate in maintaining green spaces in their areas.

c) Explore Public Private Partnerships (PPPs) Funding Mechanism

Public Private Partnerships should be embraced considering that NCC lacks the adequate funds for efficient and effective management of the park. Memorandum of understanding (MoU) and programs such as rehabilitation funding and technical assistance (RFTA) applied in other recreational parks in Nairobi such as Nairobi City Park should clearly indicate what each party's role and responsibility is, who will finance the project, who and how the park operate and be managed and how income or accrued benefits will shared.

Matters on equitable access and fee levying should be given priority. It is important to highlight how the public stands to gain not only on the recreation front but also on the economic side considering that low income groups use such urban park and this population group also earn a living from MMP. Priority should moreover be given to publicity and marketing of rehabilitation, maintenance programmes in order to reach a larger resident population and get all stakeholders participating.

c) Enhancing Maintenance of Green Spaces

As part of measures to make green spaces sustainable, regular maintenance of the available facilities on green spaces have been recommended by many scholars such as Baycant-Levent & Nijkamp,; Harnik,; Jim, and Dunnett et al;. Such maintenance works range from repairing worn-out facilities to providing new facilities to augment the existing ones hence influencing optimum utilization of urban green spaces. To improve the maintenance of facilities on green spaces in Nairobi, a funding scheme purposely set aside for maintenance works especially rehabilitation works and provision of facilities on green spaces can be established by the city authorities. This scheme can be managed by a team of professionals selected from the allied government and private bodies on green spaces in the city. Also, some portions of city's annual budget could be channelled into this funding scheme. Financial assistance from individual philanthropists, benevolent organisations and international and local environmental agencies can also be sought to get more funds into the scheme.

The maintenance funding scheme when managed in a transparent way devoid of political interference and embezzlement of funds will lead to trust building which Ansell and Gash found to be critical in collaborative governance. This level of accountability will enhance the collaborative process by enabling individuals and bodies who contribute to the collaborative process develop much trust and remain committed to the process.

d) Promoting Urban Eco-tourism through Revitalization of Michuki Memorial Park

Closely related to educational campaigns on conservation of green spaces is the urban eco-tourism concept that broadly influences optimum utilization of urban green spaces. Public urban green spaces are potential eco-tourism sites yet to mainstream in the Kenya tourism industry for economic growth while proactively contributing to environment quality. Thus, in achieving urban eco-tourism through revitalization of MMP, the study recommends two alternatives: Alternative I: development of an arboretum at MMP that involve planting of a variety of indigenous trees that are arranged to create nature trails for walking and biking along the riverfront zone. Alternative II which is evelopment of an Integrated Riverfront Urban Park will involves development of a recreational park that takes into consideration the environmental, social and economic aspects of development. It aims at conserving the fragile river ecosystem, improve social interaction among city residents as well as create income generation opportunities through proposed activities in the Park.

5.3: Contributions of the Study

The study contributes to enhancing the knowledge base of theories, policy and research including:

a) Addressing measures and ways contemporary city developments can conserve public urban green spaces by calling for environmental management strategies that's aimed at meeting the development objectives of the present generation without jeopardizing the interests' future generations to enjoy the same. Hence rejects all precepts of short term economic or industrial growth which ignore conservation measures
b) Expands and strengthen the natural law theory by calling for environmental respect by all which is our heritage and should be used for the common good for the society. This is echoed in the CoK, 2010 preamble: "we, the people of Kenya— respectful of the environment, which is our heritage, and determined to sustain it for the benefit of future generations."
c) Expands and strengthen the legal positivism school of thought specifically on the concept of meaningful public participation on urban green space planning and management out of the accepted wisdom that the authorities in charge of environmental management (such as MEF, NEMA and NCC) will do better if they are exposed consistently to public views. In addition, the public is likely to feel better and be more positively won over to accept outcomes if they are invited to express their opinions and facts., has shown that there is a profound nexus

between public participation on sustainable development issues on the one hand and higher learning on the other.[172]

d) Advocating for environmental rights (the right to a clean and healthy environment, article 42 of CoK, 2010 to be adhered and be adopted in human rights documents such as the Universal Declaration of Human Rights (1948).

e) Strengthens environmental governance through supporting for collaborative governance to cover issues of green space management i.e. local, national, international/global) among institutions (actors i.e., state, market, and civil society and rules), whether in formal and informal ways, in the formulation and implementation of policies in response to environment-related demands and inputs from the society to enhance the management of urban green spaces.

f) Triggers the need for counties and national governments to endeavour promoting user pay principle instruments (utility, willing to pay and willing to accept) in public urban green spaces management, taking into account the users of space, incentives for the ecosystem services payment without distorting the right of city dwellers from enjoying public urban green spaces.

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[172] Kiboyye D and Oluoch, J. 2016. Public Participation and Environmental Jurisprudence In Kenya: Education For Sustainable Development Paradigm. Available on line at: https://www.academia.edu . Accessed on 24th September, 2016.

g) Theoretically, the study strengthens the theoretical underpinnings on the management of green spaces. It has established strong linkages between the concepts of green spaces, governance and sustainability, and how such linkages can lead to a successful management of urban green spaces. Sustainable development and governance clearly exemplified these inter-connections, and well situate green spaces in a broader debate on sustainability and governance that is useful for an integrated approach to conserve green spaces.

h) The study further contributes to the practical perspectives on green spaces by relying on the findings from the study area and case study review to design a sustainable planning process of urban green spaces. Owing to the fact, Nairobi and Kenya at large lack of a policy framework to guide the planning process of urban green spaces in Nairobi and Kenya at large, this process makes relevant contributions in different respects which have wider policy implications. By designing a sustainable planning process of urban green spaces, it provides strategies to address complex community and park user needs which often hinder effective management of urban green spaces.

i) Finally, the study has also expanded the existing knowledge on urban green spaces in Kenya and Africa at large where there is limited literature. It provides a comprehensive discussion on how green spaces biodiversity functions be mainstreamed into policies, strategies and practices under the prevailing urban development trends.

5.4: Areas of Further Research

Further research should be undertaken focusing on:

a) Specific standards and guidelines for urban parks so as to promote proper planning and management of land uses in public parks.
b) Innovative approaches to park management that may include the private sector and park users. Park management could be improved through public private partnership, which could be done by creating a commission/trust for park management. This would facilitate active engagement of the key stakeholders in park management, especially government, park users, the private sector and civil society organisations interested in park conservation.
c) Implications of class (high/low/middle income) conflicts on utilization of public urban green spaces.
d) Health and safety challenges of urban green spaces thorough scientific analysis from the perspective of health sciences. This was due to background of the whole thesis, which was undertaken from the angle of environmental policy and urban planning).
e) Enabling systems to create, revitalise, manage, and maintain public green spaces, including participatory processes to define their use and manage access to public spaces.
f) Land value sharing and land readjustment tools to capture private values generated by better public green spaces to sustain investment in public space.

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APPENDICES

1. RESEARCH PROPOSAL AND SUPERVISORS APPROVAL

UNIVERSITY OF NAIROBI
GRADUATE SCHOOL

Telephone: 318262
Fax Number: 243626
Telegrams: "Varsity of Nairobi"
E-mail: gs@uonbi.ac.ke

P. O. Box 30197 - 00100
NAIROBI, KENYA

Our Ref: Z50/89424/2016

February 24, 2018

Naibei Peter Ndiwa
C/o Director
CASELAP

Dear Mr. Naibei,

RESEARCH PROPOSAL AND SUPERVISORS

This is to inform you that the Director, Graduate School has approved your M.A research proposal titled: **"Implications of adjacent Urban Developments on conservation of Green spaces: A case study of Michuki Memorial Park in Nairobi City".**

She has also approved **Dr. Elvin Nyukuri** and **Dr. Romanus Opiyo** as the supervisors of your thesis.

You should therefore begin consulting them and ensure that you submit your thesis for examination on or before the end of August 2018. The Guidelines on Postgraduate Supervision can be accessed on our website (www.gs.uonbi.ac.ke) while the Research Notebook is available at the University Bookstore.

Yours sincerely,

ANNE M. SIMIYU (MS.)
FOR: DIRECTOR, GRADUATE SCHOOL

cc Director, CASELAP
Dr. Jones Fairfax Agwata (Supervisor) – C/o Director, CASELAP
Dr. Romanus Opiyo (Supervisor) – C/o Director, CASELAP

AMS/gwg

2. PARK USERS QUESTIONNAIRE

UNIVERSITY OF NAIROBI: CENTER FOR ADVANCED STUDIES IN ENVIRONMENTAL LAW AND POLICY (CASELAP)

Thesis Research - Master of Arts in Environmental Policy

RESEARCH TITLE: DYNAMICS OF URBAN LAND SPACE CONTESTATION AND THEIR IMPLICATIONS ON UTILIZATION OF PUBLIC GREEN SPACES: A CASE OF MICHUKI MEMORIAL PARK, NAIROBI CITY COUNTY

RESEARCH OBJECTIVES:

1. *To assess the nature and effects of urban land developments on conservation of Michuki Memorial Park.*
2. *To examine the policy and institutional framework for sustainable management of Michuki Memorial Park.*
3. *Determine how proper planning, management and utilization of the Park can be mainstreamed into policy and practice.*

Declaration: The information and data collected will be confidential and is intended purely for the research study being undertaken for a thesis that forms part of the requirements to complete a Master of Arts in Environmental Policy at the Center for Advanced Studies in Environmental Law and Policy (CASELAP), University of Nairobi.

Student: *Peter Naibei* **Reg. No:** *Z50/89424/2016*

Research Assistant: ……..……..…… Time: …… Date: ……..…

SECTION 1: GENERAL CHARACTERISTICS OF THE SURVEY RESPONDENTS

1. **Name of respondent** (optional): ……
2. **Gender** [1] Male [2] Female
3. **Age:** (1) 18-25 (2) 26-35 (3) 36-45 (4) 46-55 (5) 56-65 (6) Above 65
4. **Marital Status** (1) Married (2) Divorced (3)Separated (4) Widowed (5) Never Married (6) Cohabiting
5. **Highest educational level attained**

   [1] Primary level [2] O-level [3] Secondary-Level [4] Vocational Training

   [5] College Diploma [6] University Degree [7] other (specify): ……..
6. **What is your employment status?**

   [1] Casual labourer [2] Permanent employment (public sector) [3] Permanent employment (private sector)

   [4] Small scale business [5] Unemployed [6] other (specify)
7. **Which Neighbourhood do you reside?** ……..……..

SECTION 2: PARK LEVEL OF UTILIZATION

8. **How frequently do you visit Michuki Park?**

   (1) Hardly use

   (2) A couple of times a week

   (3) Three to four times a week

   (4) A couple of times a month

   (5) Almost every day
9. **What is the main purpose of visiting Michuki Park?**

(1) Relaxation and walking (2) Meeting with friends (3) Playing sports and using exercise facilities (4) Enjoying the nature (5) No special areas to go other than parks (6) Attending community events and meetings (7) Spending time with family (8) Educational activities for children

(9) Others: ……..

10. What is the main reasons for not visiting/infrequent visit to Michuki Park?

(1) Improper park management (2) Lack of interesting facilities and programs to use within the park (3) Far from home (4) Insecurity (5) Bad odour/smell (6) Poor maintenance (7) Not attractive (8) Lak of park facilities

(9) Others: ……..

11. What role/benefits do you think the Michuki Park provides to the city of Nairobi?

(1) Providing leisure space (2) Relaxation spaces (3) Reducing air and environmental pollution (4) Making scenery beautiful (5) Maintaining healthy natural ecological state (6) Preventing uncontrolled urban development (7) Raising real estate prices in the surrounding area (8) Preventing natural disasters.

(9) Others: ……..

SECTION 3: PARK FACILITIES

12. Indicate (√) which park facilities you are aware to be found within Michuki Park

1. Open lawn 2. Restaurant 3. Maze 4. Memorial statues 5. Colonial cemeteries 6. Fish pond area 7. Play facilities e.g. swings 8. Plant nurseries 9. Washrooms / toilets 10. Water drinking points 11. Street lighting 12. Waste disposal points 13. Other (specify): …….

13. Are the park facilities adequately provided and in what condition?

For the adequacy of the park facilities, insert numbers as follows; 1. Well provided, 2. Moderate, 3.Inadequately provided 4. None

For the conditions of the facilities, insert numbers as follows; 1. Very poor 2.Poor 3.Fair 4. Good 5. Very good

Facility	Adequacy	Status/condition
1) Open lawn		
2) Restaurant/Eateries		
3) Maze		
4) Memorial statues		
5) Colonial cemeteries		
6) Fish pond area		
7) Play facilities e.g. swings		
8) Plant nurseries		
9) Washrooms / toilets		
10) Water drinking points		
11) Street lighting		
12) Waste disposal points		
13) Other (specify): ……		

SECTION 3: PARK FACILITIES

14. What challenges have you faced while using Michuki Park?

1. Inadequate number of park officers/ employees 2. Insecurity

3. Lack of / inadequate vehicular parking areas 4. Idlers (potential aggressors) / insecurity

5. Reduced vegetation cover 6. Soil erosion

7. Poor management of solid waste 8. Pollution of river / streams

9. Inadequate number of eateries 10. Dilapidated play facilities

11. Lack of variety of recreation/ play facilities 12. Poorly maintained plant nurseries

13. Inadequate provision of water drinking points 14. Lack of / inadequately provided wash rooms

15. Inadequate number of sheltered areas/ gazebos 16. Inadequate street lighting

17. Other: ……

SECTION 4: PARTICIPATION IN ENVIRONMENTAL MANAGEMENT PRACTICE

15. Have you been involved in any environmental management practice regarding public green spaces?

[1] Yes [2] No

a. If yes, which one?

[1] Community clean-up [2] Garbage collection [3] Tree planting [4] Protection of green open spaces

[5] Other (specify) ……..

b. If No, Why are you not involved?

……

……..……

……..……

16. What methods can be explored to enable participation in expanding green spaces in the city?

[1] Citizens joining or assisting non-profit civic organizations [2] Participating in volunteer works of cleaning and management [2] Approval for politicians favourable to the policy for green spaces expansion [3] Agreement with paying more tax [5] Donation in cash or real estate [6] Paying park fees

[7] Other: ……

17. In your opinion, how can environmental management of green spaces be mainstreamed into policies, strategies and practices under the prevailing urban development trends??

……

……..……

……..……

……..……

THANK YOU

3. BUSINESS COMMUNITY QUESTIONNAIRE

UNIVERSITY OF NAIROBI: CENTER FOR ADVANCED STUDIES IN ENVIRONMENTAL LAW AND POLICY (CASELAP)

Thesis Research - Master of Arts in Environmental Policy

RESEARCH TITLE: DYNAMICS OF URBAN LAND SPACE CONTESTATION AND THEIR IMPLICATIONS ON UTILIZATION OF PUBLIC GREEN SPACES: A CASE OF MICHUKI MEMORIAL PARK, NAIROBI CITY COUNTY

RESEARCH OBJECTIVES:

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2. *To examine the policy and institutional framework for sustainable management of Michuki Memorial Park.*
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Declaration: The information and data collected will be confidential and is intended purely for the research study being undertaken for a thesis that forms part of the requirements to complete a Master of Arts in Environmental Policy at the Center for Advanced Studies in Environmental Law and Policy (CASELAP), University of Nairobi.

Student: *Peter Naibei* **Reg. No:** *Z50/89424/2016*

Research Assistant: ……..……..…… Time: …… Date: ……..……...…

SECTION 1: GENERAL CHARACTERISTICS OF THE SURVEY RESPONDENTS

18. **Name of respondent** (optional): ……
19. **Name of the business** (optional): ……...……
20. **Position in the Business:**
    [1] Business owner [2] Manager [3] Employee [4] Other: ……
21. **Gender** [1] Male [2] Female
22. **Age:** (1) 18-25 (2) 26-35 (3) 36-45 (4) 46-55 (5) 56-65 (6) Above 65
23. **Marital Status** (1) Married (2) Divorced (3)Separated (4) Widowed (5) Never Married (6) Cohabiting
24. **Highest educational level attained by respondent**
    [1] Primary level [2] O-level [3] A-Level [4] Vocational Training
    [5] College Diploma [6] University Degree [7] other (specify): ……..
25. **What is your business Category?**
    [1] Manufacturing [2] Service [3] Logistics [4] Logistics [5] Logistics

SECTION 2: TRADING ACTIVITIES

26. **What type of commercial activity are you carrying out?**
    1. Retail shop 2. Wholesale shop 3. Groceries 4. ICT related 5. Hawking
    6. Child entertainment e.g. clown, face painting etc. 7. Mechanics‟ work 8. Other (specify)
27. **How long have you been in business?**
    1. ≤ 5 years 2. >5≤10 years 3. >10≤15 years 4. >15≤ 20 years 5. Over 20 years

28. **Where do you carry out your business?**

1. Within Michuki Park boundaries ( ) 2. Outside Michuki Park boundaries ( )

29. **Who manages business operations within Michuki Park?**

1. Nairobi City County/ Nairobi City Council 2. City Park Management 3. Community Based Organisations 4. Non-Governmental Organisations 5. None 6. Other

30. **How did you obtain this business space?**

1. Nairobi City County/ Nairobi City County 2. Michuki Park Management 3. Inherited 4. Hired 5. Rented 6. Own the space 7. Other

31. **Does Michuki Park's proximity influence your income volume? Yes ( ) No ( )**

If YES how:

……
……
……
……
……..

If NO how:

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……
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……
……..

SECTION 3: WASTE GENERATION AND DISPOSAL

32. **What type of solid waste do you generate?**

1. Organic waste 2. Papers 3. Plastic 4. Oil spills 5. Metal 6. Other

33. **Are you provided with waste disposal areas?**

Yes ( ) No ( )

34. **If Yes which ones:**

1. Road side bins / containers 2. Waste disposal pit 3. Central collection point 4. Other (specify)

35. **What challenges have you faced as a trader operating outside/within Michuki park boundaries?**

1. Lack of washrooms 2. Lack of drinking water points 3. Eviction from business operation space 4. Lack of specified business operation space / stall / kiosk 5. Operation fees levied by City park management

36. In your opinion, what can be done to mitigate the identified challenges?

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……
……..
……
……

SECTION 4: COMMUNITY PARTICIPATION

37. Were you involved in any planning/environmental management regarding Michuki Park?

[1] Yes [2] No

a. If YES what stage in the project/ program should you be consulted/ involved?

1. Planning 2. Design 3. Implementation 4. Monitoring and evaluation 5. Maintenance 6. Conservation 7. Other (specify)

b. If NO, would you want to be involved in future Michuki Park rehabilitation/ redesign projects?

[1] Yes [2] No

c. If YES in (b) above which method would be the most effective to be used in the public consultation process?

1. Questionnaires 2. Interviews 3. Public forums / Barazas 4. Other (specify): ……..

……..

……

……

38. What methods can be explored to enable participation in expanding green spaces in the city?

[1] Citizens joining or assisting non-profit civic organizations [2] Participating in volunteer works of cleaning and management [3] Approval for politicians favourable to the policy for green spaces expansion [4] Agreement with paying more tax [5] Donation in cash or real estate [6] Paying park fees

[6] Other:

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……

39. In your opinion, how better can environmental management of green spaces be enhanced in the city of Nairobi?

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THANK YOU

4. NAIROBI CITY COUNTY: DEPARTMENT OF ENVIRONMENT (PARKS AND OPEN SPACES)

UNIVERSITY OF NAIROBI: CENTER FOR ADVANCED STUDIES IN ENVIRONMENTAL LAW AND POLICY (CASELAP)

Thesis Research - Master of Arts in Environmental Policy

RESEARCH TITLE: DYNAMICS OF URBAN LAND SPACE CONTESTATION AND THEIR IMPLICATIONS ON UTILIZATION OF PUBLIC GREEN SPACES: A CASE OF MICHUKI MEMORIAL PARK, NAIROBI CITY COUNTY

RESEARCH OBJECTIVES:

1. *To assess the nature and effects of urban land developments on conservation of Michuki Memorial Park.*
2. *To examine the policy and institutional framework for sustainable management of Michuki Memorial Park.*
3. *Determine how proper planning, management and utilization of the Park can be mainstreamed into policy and practice.*

Declaration: The information and data collected will be confidential and is intended purely for the research study being undertaken for a thesis that forms part of the requirements to complete a Master of Arts in Environmental Policy at the Center for Advanced Studies in Environmental Law and Policy (CASELAP), University of Nairobi.

Student: *Peter Naibei* **Reg. No:** *Z50/89424/2016*

Research Assistant: ……..……..…… Time: …… Date: ……..……..…

SECTION A: KEY INFORMANT PROFILE

Key informant's name ……	
Key informant's profession and rank ……	
Key informant's experience in the profession *(in years)* ……	

SECTION B: HISTORICAL BACKGROUND MICHUKI PARK

1. **What triggered (causal factors) the establishment of Michuki Park in Nairobi City?**
   ……
   ……
2. **What were the objectives for the establishment of Michuki Park in Nairobi City?**
   ……
   ……
3. **Who were the target users during the establishment of Michuki Park?**
   ……
   ……
4. **Who were the main stakeholders in the establishment of Michuki Park? What roles did they play?**
   ……
   ……

5. **What are the reasons behind the Park being called; "John Michuki Park'?**

……
……
……

6. **What are the some of the successes or achievements associated with the JMMP**?

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……
……
……

7. **Has there been a formal gazettement of the establishment of Michuki Park?**

……
……

8. **What are the various categories of green spaces in Nairobi?**

……
……

9. **What category of green spaces does Michuki Park fall?**

……
……

10. **What are the various habitat species found in Michuki Park?**

……
……
……
……

11. **Are there any fees levied for park users? [1] Yes [2] No**

(b) If yes, which ones? …….

12. **What are the various land use conflicts arising within and/or outside the Michuki Park?**

……
……

SECTION C: PARK FACILITIES AND MANAGEMENT

13. **What is the role your institution in the planning, management and conservation of Michuki Park?**

……
……

14. **What has the current CIIDP provided regarding planning, management and conservation of Michuki Park?**

……
……

15. **Is there a clearly defined schedule of Michuki park maintenance in the city? If No why?**

……
……
……
……

16. **What is the current allocation for Michuki Park maintenance in the city in terms of:**
    a) Workforce allocation:
    ……
    b) Facilities:
    ……
    c) Financial resources allocation in the last 3 years:
    ……
17. **Are there any capital improvements in the existing Michuki parks nor the development of new parks?**

    ……
    ……

18. **What challenges do you face in planning and management of Michuki Park?**

    ……
    ……

19. **What suggestions would you put forward to address afore mentioned challenges?**

    ……
    ……

20. **What are the on-going activities at Michuki Park?**

    ……
    ……

21. **What land use activities have emerged due to the presence of Michuki Park?**

    ……
    ……

22. **Do you involve the community in park planning and management? If Yes How?**

    ……
    ……

23. **Is there any community resistance towards any planning programs regarding Michuki Park? If yes, what is causing the resistance**

    ……
    ……
    ……
    ……

24. **How long do you engage the community before implementing proposals regarding Parks?**

……
……
……
……
……
……
……

25. What institutions have supported/collaborated with NCC in management of urban green spaces and how?

Institution	**Category e.g. NGO**	**Nature of support**
1.		
2.		
3.		
4.		
5.		
6.		
7.		

26. What is the level of equipment supply for Michuki park management?

Item	Purpose	Current No.	Condition	Adequacy status	Extra no. required
1. Tractor					
2. Lawn Mowers					
3. Power saw					
4. Ladders					
5. Forked Jembe, Pangas & Secateurs					
6. Lister engines					
7. Hose pipes					
8. Nurseries					
9. Pesticides/Fungicides					
10. Fertilizer					
11. Water bowser/ tanker					
12. Lorries					

27. What Park facilities are provided in Michuki Park?

Item	Purpose	Current No.	Condition	Adequacy status	Extra no. required
1. Seats					
2. Toilets					
3. Cycling lanes					
4. Jogging tracks					

28. What is your rating on the state of Michuki park and why based on the following parameters?

Parameters	Rating [1-poor, 2 Moderate, 3. Good]	Rationale	Suggestions to improve this state
1. Accessibility			
2. Attractiveness			
3. Comfort			
4. Safety			
5. Conservation And Heritage			
6. Maintenance			
7. Publicity			
8. Community Participation			
9. Other: ……			

29. What are the future plans as regards the development of Michuki Park?

……

……

30. Is there any threat to Michuki Park's boundaries and ecosystem? If Yes, which one?

……

……

……

31. What strategies/plans has the current governance structure of public green spaces in Nairobi City set to ensure conservation and management of green spaces?

……

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……..

THANK YOU

5. NAIROBI CITY COUNTY PHYSICAL PLANNING DEPARTMENT

UNIVERSITY OF NAIROBI: CENTER FOR ADVANCED STUDIES IN ENVIRONMENTAL LAW AND POLICY (CASELAP)

Thesis Research - Master of Arts in Environmental Policy

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Student: *Peter Naibei* **Reg. No:** *Z50/89424/2016*

Research Assistant: ……..……..…… Time: …… Date: ……..……..…

SECTION A: KEY INFORMANT PROFILE

Key informant's name:	
Key informant's profession and rank	
Key informant's experience in the profession *(in years)*	

SECTION B: PROVISION OF MICHUKI PARK IN NAIROBI CITY

1. **Which legislation(s) guides? Informs? Provision of green spaces like Michuki Park in Nairobi?**

   ……
   ……

2. **How much has the city Masterplan(s) allocated land for public green spaces in Nairobi City?**
   1. 1948 city master plan
      ……
      ……
   2. NIUPLAN [2014- 2030]
      ……
      ……

3. **What is the percentage of city land occupied by green space?**

   ……
   ……

4. **What is rate of depletion of public green spaces in Nairobi City since the first city master plan?**

……
……

5. **What are the drivers for the lost public green spaces in Nairobi City (previous to date)?**

……
……
……

6. **What are the major <u>socio-environmental</u> problems facing the level of green spaces utilization and why?**

……
……

7. **Are there any conflicts arising between the county and national government regarding green spaces management?**

……
……

8. **What is the land ownership status of Michuki Park?**

……
……

9. **Are you aware of any ongoing litigation regarding Michuki Park land?**

……
……

10. **Are there any arising land use conflicts with Michuki Park?**

……
……

11. **How does the public participate in planning, development, and management of open spaces?**

……
……

12. **Is there an existing public participation framework being followed?**

……
……

13. **Which direction is the planning law taking with regard to;**

- Green space planning? ……
- Green space management? ……
- Green space safeguarding? ……

SECTION C: PLANNING AND DEVELOPMENT CONTROL

14. What are the various development control tools governing use and management of public green spaces in Nairobi City? What is the level of efficiency? And why

DC tools	Efficiency level [1-Low and 2 High]	Rationale	Suggestions to improve the Tools
1.			
2.			
3.			
4.			
5.			

15. Does the city have urban green spaces master plans? [1] Yes [2] No

If yes does the existing plan enable park users to fully utilize the park?

……
……

If no why?

……
……
……..

16. How can you rate city authority priority for the planning and development of public green spaces? (LOW, MEDIUM HIGH) Give reasons.

……
……

16 (b) How does theses priorities reflect in NIUPLAN?

……
……

17. What are the impact of changing land uses activities around on Michuki Park itself?

Changing land uses: ……
……
Impacts:
……

18. Are there any proposed planning design and management interventions for Michuki Park?

……
……
……..

19. How can how green spaces biodiversity functions can be mainstreamed into policies, strategies and practices under the prevailing urban development trends?

……
……

THANK YOU

6. FIELD OBSERVATION CHEKLIST

UNIVERSITY OF NAIROBI: CENTER FOR ADVANCED STUDIES IN ENVIRONMENTAL LAW AND POLICY (CASELAP)

Thesis Research - Master of Arts in Environmental Policy

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Research Assistant: …….....……..…… Time: …… Date: ……...…

Write brief notes on the following

Item	*Notes (condition, activities)*
1. Urban land development	
2. Vegetation cover	
3. Drainage	
4. Solid waste collection	
5. Waste water management	
6. Park Facilities e.g. eateries, sanitation water drinking points	
7. Park Personnel	
8. Pollution	
9. Plant nurseries	
10. Street lighting	
11. Parking Spaces	