

## An Analysis of Urban Green Space Policies, Laws and Institutional Frameworks in Dandora Estates, Nairobi County

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### Abstract

*Urban green spaces have long been integral to urban planning, offering a vital connection between city dwellers and the natural world. Sustainable development and urban well-being are increasingly influenced by policies and laws governing these green spaces. While some nations, like Singapore and England, have achieved notable success through stringent policies and effective implementation, others, such as Poland and Colombia, face challenges in coordination and enforcement. Africa confronts unique hurdles, from outdated regulations to bureaucratic delays. This paper assesses the effectiveness of urban green space policies and laws in slum areas, with a focus on Dandora, Kenya*

**Keywords:** UGS, Policies, Laws, Institutions, Slum Dwelling Areas, Dandora, Kenya

## Introduction

Urban planning has long been a pitch tasked with the delicate balance between urban development and the preservation of nature (Mac Harg, 1971). Visionary models advocating for the infusion of green spaces into urban landscapes, such as Charles Fourier's 'Ecotopia' and Ebenezer Howard's 'Garden City' (Howard, 1902), have laid the foundation for a broader understanding of sustainable development and the role of green cities. The concept of sustainability has emerged as a pivotal factor in urban planning and policy formulation, significantly impacting the well-being of urban inhabitants and the environment (Baycan & Leeuwen, 2002).

As demonstrated by Singapore, which is often dubbed the "Garden City," innovative technological designs and a strong commitment to national direction have transformed urban green spaces into breathtaking infrastructures (Nat Geo, 2019). This success can be attributed to Singapore's dedication to stringent policies, legal and administrative frameworks governing green spaces, actively enforced by urban planners and governmental institutions.

In contrast, England has realized substantial financial savings, amounting to 2.1 billion Euros annually, by investing in sustainable green spaces that promote physical activity and reduce healthcare costs (England, 2020). Sheffield, for example, experiences a remarkable 34 euros in health cost savings for every 1 euro spent on park maintenance. England's local authorities play a pivotal role in enhancing, preserving, and safeguarding green spaces, driven by the implementation of local policies and strategies like the Local Strategic Needs Assessment (JSNA) and Joint Health and Wellbeing Strategies (JHWS). These initiatives emphasize the capacity of green spaces to address current health needs effectively (England, 2020). It has been demonstrated that policy relevance is a crucial determinant of the success and performance of sustainable urban green initiatives (Baycan & Nijkamp, 2004).

However, the effectiveness of urban green space policies and laws varies significantly across regions. For instance, in Poland, a European nation, the post-socialist legacy continues to hinder progress, characterized by inequality tolerance, community disunity, and a lack of government responsibility towards community interests (Kronenberg et al., 2020). Consequently, municipal authorities often neglect to prioritize the protection and maintenance of parks and green spaces, resulting in neglected and unkempt public areas (Feltynowski, Kronenberg, & Bergier, 2018). Similarly, in Bogota, Colombia, challenges arise from fragmented institutional capacities and a lack of clear coordination among federal, state, and local authorities, making it difficult to develop and enforce effective policies and legal frameworks for urban green spaces (Env-, 2014). Brazil faces issues with individuals, including government officials, encroaching on designated green spaces despite stringent environmental laws (Zulauf, 2012).

In Africa, planning of cities is laid down by regulations which are often made by local and national government. African states have splendid policies and regulation framework covering the USG but studies have found that issues with regards to implementation and enforcement have been problematic (Mensah, 2015). Other issues regarding the failure of most African policies and regulation could include; The use of outdated urban regulations to address current developmental project in urban areas. Studies reveals that most of the countries in Africa are operating their urban areas using urban plan regulations and policies made 60 years ago, most of these plans being adopted from their colonial masters at that era (Awuah et al., 2010). For example, the 1948 Town Planning Act of Malawi, and the 1946 Town Planning Ordinance of

Nigeria are still operational up to now. Some were slightly improved, like in Kenya the 1948 Town Planning Memorandum (Master Plan for colonial capital) was improved to Nairobi Area Town Memorandum in 1973. These master plans cannot address comprehensively the status quo problems that most of these UGS are facing especially pressure from rapid urbanization of these African cities (Victor et al., 2015).

Lastly, there have been delays in issuance of development permits by the planning authorities and the relevant agencies with this being associated with bureaucratic procedures. This have caused the available UGS in Africa to suffer. In Tanzania it takes a developer more than three years to get all the needed requirements such as the building permits, detailed plan etc. approved by the relevant authorities (Kironde, 2009). Similarly, studies done in Cameroun, Ghana and Nigeria Egbu, O, and Gameson (2011) indicates that bureaucratic procedures which are long have to be followed. These long processes have influenced development of unauthorized land projects from developers who either want to evade these lengthy processes or run out of patience (Awuah et al., 2010).

Kenya has a number of planning policy and regulations in place but they have completely failed to deliver their mandates and promote sustainable urban development of green spaces. Studies and reports carried out since 1990s till date have revealed that weak urban planning laws, policy regulations are responsible for current hostile environmental condition to its residents, including the reduction in parcels of lands allocated for Urban Green Spaces (Kimani, 2021; Nation Media, 2020; Kenya Alliance of Resident Association, 2017; Muiruri, 2003; National Environmental Action Plan, 1996)

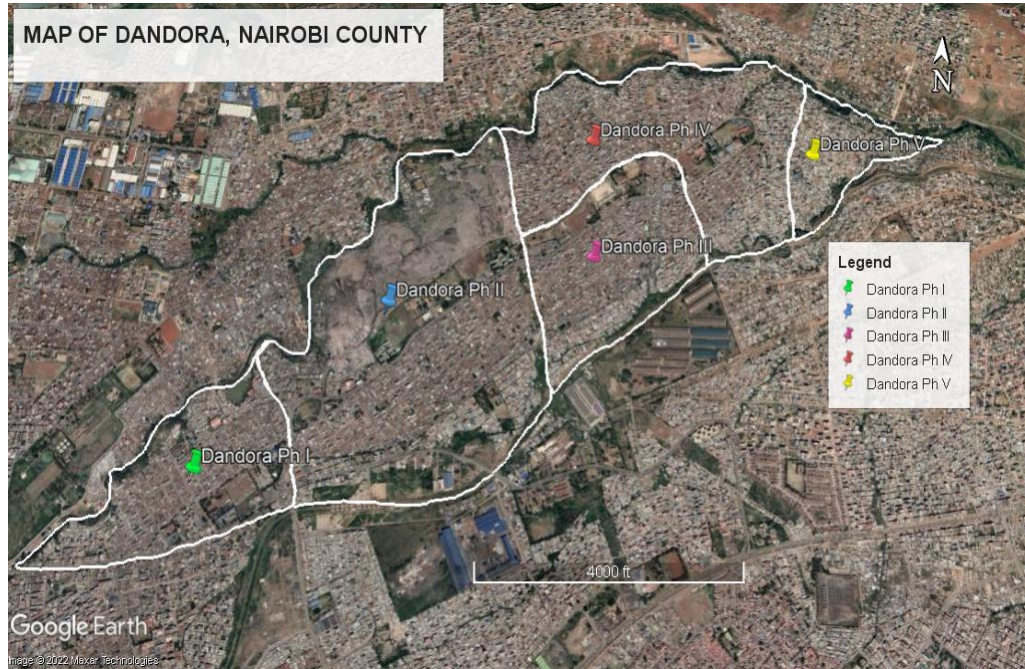
With increase in land grabbing within Nairobi, the CS Environment Keriako Tobiko raises concerns with regards to the importance of UGS. According to Greenspace-Policies-Tobiko, 2021. the CS wishes to liaise with the Nairobi Metropolitan Service (NMS) in the provision of policies regarding the sustainable use of green spaces which are currently lacking in Kenya. All this came after the COVID-19 pandemic uncovered the dire need for having quality UGS.

This paper presents a study conducted to evaluate the effectiveness of policy and institutional frameworks for urban green space management in Dandora Estates, Nairobi County, holds significant significance as it assesses the potential to enhance community well-being, environmental sustainability, promoting social equity and informing policy improvements and advocacy efforts for healthier and more equitable urban environments in informal settlements not only in Dandora but all over the world.

The examination of the management of urban green spaces taking Dandora, Kenya as a case study, has a high potential of contributing to diverse elements of sustainable urban development. Through an analysis of the efficacy of the existing policies and legal frameworks, this research can provide useful information on the areas which need improvement thus building a base for a creation of new policies, which will be more robust and context specific. In addition, through tackling the problems of environmental degradation and access, the work can facilitate environmental sustainability and public welfare. In addition, it can help to surface social equity issues, such that all city residents, including marginalized informal communities, have equal access to green spaces and their advantages. Additionally, with the accentuation of the economic gains of well-governed green infrastructure, such as increased property values and health care cost savings, the research will be able to acquire the support of policymakers and stakeholders. Thus, this research may provide a way to achieve more sustainable and equitable urban development, as well as to improve environmental quality.

## Methods

The study was conducted in Dandora estates. Dandora is an eastern suburb in Nairobi, Kenya. It is part of the Embakasi North Division. Surrounding neighborhoods include Kariobangi, Baba Ndogo, Gitare Marigo and Korogocho. It lies 1.2483°S, 36.9026°E (Latitude, 2018).



*Figure 1: Map of Dandora Estates showing its wards*

The study was conducted among resident of Dandora and targeted the households as special respondent group in the study because they have high likelihood of possessing past and present knowledge of activities carried in and out of the green spaces which surrounds them. Dandora has a population of 295,5670 residents (KNBS, 2019). The sample size for this research was be calculated using the formula by Naissuma (2000) below:

$$n = \frac{N \times Cv^2}{Cv^2 + (N - 1)(e)^2}$$

Where

$n$  = sample size

CV = coefficient and variance 50%

$N$  = population size

$e$  = allowed error +5%

1=the desired level of precision

$$n = \frac{(295,670)(0.5)^2}{(0.5)^2 + (295,670 - 1)(0.05)^2} = 99.999665 = 100$$



Stratified and simple random sampling and were used for probability sampling. Since the study area has 5 administrative ward (phase I, phase II, phase III, phase IV and phase V), firstly, the study area was divided into 5 strata where each administrative ward represents a stratum. Then secondly, depending on the population size of each administrative stratum, 12 (Dandora Phase 1), 24 (Dandora Phase 2), 14 (Dandora Phase 3), 29 (Dandora Phase 4), 22(Dandora Phase 5) respondents were randomly selected in each of the administrative strata to participate in questionnaire, hence reducing biasness. A structured questionnaire was employed to collect data randomly from 100 respondents, who were household heads. The sampling was conducted proportionally across the five strata, which corresponded to different wards in Dandora. The questionnaire was divided into three main sections:

i) Socio-demographic information ii) Assessment of the effectiveness and public awareness of the policy and institutional frameworks related to Urban Green Spaces (UGS) iii) UGS management and the challenges associated with it. Data collection took place over the course of one month, specifically in August 2022. Respondents were allocated a maximum of 20 minutes to provide their answers. The questionnaires aimed to capture the perspectives of households concerning their comprehension and perception of the policies and institutional frameworks governing the management and utilization of green spaces.

*Table 1: Number of respondents per administrative ward to participating in the household questionnaire*

Stata	Population	Number of respondents to be picked per stratum	Number respondents participate in the household questionnaires to be issued
Dandora Phase I	34,971	$\frac{34,971}{295,670} \times 100 = 12$	12
Dandora phase II	69,923	$\frac{69,923}{295,670} \times 100 = 24$	24
Dandora phase III	40,239	$\frac{40,239}{295,670} \times 100 = 14$	14
Dandora phase IV	85,146	$\frac{85,146}{295,670} \times 100 = 29$	29
Dandora phase V	65,391	$\frac{65,391}{295,670} \times 100 = 22$	22
Total	295,670	100	100

Purposive sampling was utilized as well for this study. The researcher conducted on-site visits to the UGS, leading to interviews with individuals engaged in various activities within these spaces. The researcher interviewed 30 business unit operators within the UGS, one Nairobi County Council (NCC) official, one official from the National Environment Management Authority (NEMA), one civil servant from the Ministry of Lands, as well as five local chiefs and five Community Based Organizations (CBOs) involved in activities related to green open spaces within the Dandora area. These interviews provided valuable insights into their respective roles and responsibilities in the management of these spaces in Dandora.

*Table 2: Summary of the Sampling frame*

Category	Sample Size	Sampling Technique
Household heads	100	Stratified Sampling
Business	30	Random Sampling
Chiefs	5	Census
NCC	1	Purposive Sampling
Ministry of land official	1	Purposive Sampling
NEMA	1	Purposive Sampling
CBOs	5	Purposive Sampling
<b>TOTAL</b>	<b>143</b>	

The study also involved desktop review which focused mainly on both published and unpublished literature relevant to the project. The documents reviewed included acts of parliament and relevant policy documents, relevant writing by various authority on the study topic. The documented information assisted a lot in realizing the objectives of the study.

The data collected was analyzed and presented using descriptive statistics and qualitative methods depending on their nature. The data was first subjected to computation of descriptive statistics which include frequencies, averages, percentages, tabulations and ranking. Hypotheses were tested using the spearman's correlation analysis done at 5% level of significance. MS Excel and SPSS were used for these purposes. Data was presented in the forms of comprehensive reports, tables, pie-charts, bar graphs and tables.

Table 3: Summary of data matrix (sources, collection methods, analysis and presentation) for the objective.

Research objective	Data needs (Variables)	Data sources	Data collection methods	Data analysis method	Data presentation methods	Expected outcomes
To evaluate the effectiveness of existing institutional, legal and policy frameworks in management of Urban Green Spaces in Dandora.	<p>Review of existing institutional policies and legal framework</p> <p>Level of effectiveness and compliance of these institutional, policy, legal and institutional frameworks in Dandora</p> <p>Awareness of the existence of these institutional policy, legal and institutional framework by the public</p> <p>Who manages Dandora' Green Spaces?</p> <p>Management challenges encountered in managing green spaces</p>	<p>Publications and journals</p> <p>Key informant in Chief, NCC, NEMA, CBOs, the business communities operating within the green spaces</p>	<p>Literature review</p> <p>Interviews</p> <p>Questionnaire</p>	Descriptive analysis (SPSS & MS Excel)	<p>Reports</p> <p>Charts</p> <p>Tables</p>	Comprehensive descriptive report on effectiveness of institutional, policy, legal and institutional frameworks.

## Results

### Policy and Legal Framework that Govern the Management and Maintenance of UGS In Dandora.

#### *The Constitution of Kenya, 2010*

The Constitution of Kenya, 2010, contains several aspects indirectly related to the establishment of Urban Green Spaces (UGS). The first aspect is mentioned in the preamble, where respect for the environment and the preservation of peoples' heritage are emphasized to achieve sustainability for the benefit of both present and future generations. In Chapter 4, the Bill of Rights, Article 42 guarantees everyone the right to a clean and healthy environment and the protection of this right for the well-being of current and future generations. However, it is evident that many UGS managed by the Nairobi County Council (NCC) are not adequately maintained, resulting in heaps of uncollected solid waste that not only make these spaces unattractive but also pose health and pest-related risks.

Article 60 directs that land in Kenya should be held and managed in an effective, productive, equitable, and sustainable manner, in line with principles such as the sustainable and productive management of land resources and the sound conservation and protection of ecologically sensitive areas. Unfortunately, in the riparian green areas of Dandora, there have been encroachments, violating the 6-meter riparian rule, and no action has been taken to rectify this.

Article 69 (d) encourages public participation and awareness in environmental matters and the management of public resources. However, research findings indicate that 83% of the respondents claim they have never been involved in public participation or public awareness initiatives related to UGS management by the government. Article 70 envisions the enforcement of existing planning and environmental laws, but this has not been effectively applied, particularly in the enforcement of the plastic ban policy aimed at making Kenya plastic-free. The failure to enforce the ban has resulted in some parts of the country reverting to the production and use of banned plastic items. Consequently, this has increased the levels of plastic waste in UGS within Dandora

#### *The Physical and Land Use Planning Act, 2019*

In accordance with The Physical and Land Use Planning Act of 2019, the Director of Physical Planning assumes the role of the chief government advisor on all matters pertaining to physical planning. The director is entrusted with the task of formulating national, regional, and special area physical development policies, guidelines, and projects, subject to approval by their Liaison Committee. Additionally, the director of physical planning offers guidance on various pertinent matters, including land use management, change of land use, lease extensions, user extensions, and land subdivision.

Furthermore, the director of physical planning is vested with the responsibility of ensuring the proper implementation of physical development control and preservation orders by local authorities. The Physical and Land Use Planning Act, Cap 286, stipulates the preparation of physical development plans for local, regional, or special areas. Section 30(1) of the Act mandates that no developmental activities shall take place within the jurisdiction of a local authority without the requisite development permission.



Moreover, the Act specifies that, for every 10,000 members of the urban population, 1-2 hectares of land should be allocated as recreational spaces. However, this standard falls short of the guidelines set by international bodies such as the UN and WHO, which advocate for a minimum of ten square meters per person. In contrast, Nairobi currently provides less than one square meter of Urban Green Spaces (UGS) per resident. This deficiency can be attributed to the rapid population growth and urbanization rate experienced within the city. The Act, as outlined in the physical planning handbook, details the planning requirements for UGS in urban settings. Nevertheless, the study identified a lack of familiarity among some Nairobi County Council (NCC) staff with both the Act and its associated handbook. Furthermore, the Act primarily addresses planning requirements for parks and stadiums at various levels, ranging from neighborhoods to the metropolitan scale. Notably, it does not adequately address the planning and utilization of other green spaces such as roadside greenery, railway areas, riverbanks, community gardens, vacant lots, and similar areas.

In summary, The Physical and Land Use Planning Act provides a framework for physical planning in Kenya but may require further elaboration and inclusivity, particularly in addressing a broader spectrum of green spaces and their public utilization.

#### *Environmental Management and Coordination Act of 1999 (Rev. 2015)*

In accordance with this Act, Section 7 outlines the legal and institutional frameworks designed to facilitate the management and coordination of environmental matters. These institutions encompass the National Environmental Council (NEC), the National Environment Management Authority (NEMA), County Environmental Committee (CEC), National Environmental Action Plan Committee, Public Complaint Committee (PCC), and others. NEMA bears the responsibility for implementing stipulations related to environmental policies. Section 58 of the Act mandates that any developmental activity with a high potential for significant environmental impact must undergo an environmental impact assessment before commencement.

EMCA also contains provisions aimed at safeguarding and conserving the environment. These provisions include protection of traditional interests, identification of hilly and mountainous areas, reforestation and afforestation of hilltops and mountainous regions, safeguarding natural and artificial forests, conservation of biological diversity, conservation of biological resources in-situ and ex-situ, and protection of environmentally significant areas (Government of Kenya, 2012). However, it is worth noting that this act, while comprehensive, is aging and complex. There is an urgent need to divide it into smaller, more manageable acts. Additionally, EMCA, like many other parliamentary acts, lacks specific guidelines pertaining to the management and governance UGS.

#### *Urban Areas and cities Act, 2012*

In the Cities and Urban area Act 2012, Section 13, the Board of Cities/Municipality shall control land development and zoning by public and private sector for purpose including markets, transport, open and green parks, entertainment, agriculture and other land users within the framework of master plans of the city/municipality. An indication of countless concerns from the residents on increased cases of public land grabbing and encroachment to conduct other activities which are contrary to the core mandates of UGS could mean that this provision has failed to deliver.

### *The National Urban Development Policy*

The National Urban Development policy was formulated for the purpose of the urban areas around the country. This policy is to address some important areas such as the urban: economy, finance, governance, management and also planning. It also looked at the environment and also the infrastructure for provision of social services, housing, safety and emerging risks from disasters within the urban areas. This policy does not provide any provisions on the planning requirement for UGS. It was noted that most of the administrators from the study were aware that the policy is somehow vague since it has held no contents on UGS and other recreational places.

### *The Nairobi 2030 Metro Spatial Draft Plan*

It is through the Strategic Plan 2008 – 2012, and the Draft Spatial Concept delivered in April 2011 through which the Ministry and Metro 2030 vision (A World Class African Metropolis) was created in relation to the Kenya Vision 2030. This draft plan was developed to promote the metropolitan image of Nairobi and its neighboring towns. To achieve all this, the plan was set to undertake projects such as tourism enhancements and environmental sustainability, infrastructural development. Some of the projects proposed in the plan in as far as UGS in general is concerned includes; crime reduction in the public spaces and parks through setting up of CCTV cameras and streetlights; Design UGS in a way that it could enhance the overall communal utility of the spaces through setting up of public facilities such as public furniture, bins and toilet. The planning policy is supposed to be implement by the year 2030 but for the last 11 years since it was prepared no implementation attempt on its provisions was witnessed. In some FGD done some said this plan and the vision 2030 were so good to be true.

### *Vision 2030*

In Vision 2030, the environment is notably absent as a distinct pillar. However, the national government has established a comprehensive institutional, policy, and legal framework to address the causes of environmental degradation and the adverse effects on ecosystems resulting from industrial and economic development programs. The primary goals of Vision 2030 include increasing forest cover and reducing environmental diseases. The strategies outlined in this vision encompass the promotion of environmental conservation to bolster the economic pillar and align with the attainment of the Millennium Development Goals. Key flagship projects within the environmental sector encompass initiatives for solid waste management systems, including the proposed relocation of the Dandora dumpsite and the transformation of the area into an urban green space. Furthermore, the plastic bag policy seeks to limit the production and use of environmentally harmful options, promoting alternatives such as khaki bags. Other initiatives involve land core and land use mapping projects, as well as the rehabilitation of water towers through water catchment management programs.

As we approach the year 2030, progress in these areas has been somewhat limited. The relocation of the Dandora dumpsite, intended to pave the way for a world-class Urban Green Space (UGS) project benefiting the growing population, has faced challenges. Politicians have increasingly viewed the dumpsite as a resource, complicating the implementation of the project. Efforts to make Kenya plastic-free have encountered obstacles, with the public continuing to purchase, use, and indiscriminately dispose of plastic waste, which often ends up in UGS areas. This situation is largely attributed to a breakdown in enforcement by the National Environment Management Authority (NEMA).

## **Institutional Framework that Governs the Management and Maintenance of UGS in Dandora.**

### *National Environment Management Authority (NEMA)*

The authority was established under section 7 of the EMCA of 1999 and has been operating as a government agency in the Ministry of Environment, Water and Natural Resources since 2002 with a core mandate in supervision and coordination of all matters relating to environment. Its functions include; coordination of environmental activities being undertaken by the lead agencies, taking account of the stocks of natural resources in Kenya and how they get to be utilized and conserved, establish and review the land use guidelines in consultation with the relevant lead agencies, undertake research and publish their findings among other functions. NEMA has a mandate in enforcing the provisions laid out in EMCA as well as the regulations on; waste management, environmental impact assessment, noise, and biodiversity regulations.

From the key informant interview schedule at NEMA HQ, the authority not developed any regulations dealing with UGS as it had done with waste management, environmental impact assessment, noise, and biodiversity. NEMA doesn't have much say on UGS planning and management but yet it has a full mandate on monitoring impact of land use on people and the natural environment. Prof. Judy Wakhungu, the then Cabinet Secretary for Environment and Natural Resources banned plastic bags on 28<sup>th</sup> Feb 2017, the ban took effect the same year with the help of her board of management and the NEMA staff who embarked on its enforcement. NEMA are aware that waste management especially that of plastic is exquisitely indiscriminate in the lower-class area (Dandora included) due to the fact that business and household are not compliant with the waste regulations. This has in turn made the existing UGS to look disheveled with reduced aesthetic value. NEMA staffs are looking forward to work on their weaknesses especially on enforcement.

### *Ministry of Land, Housing and Urban Development*

The Ministry of Land, Housing, and Urban Development was established in 2013 by merging five ministries (Public Works, Urban Development, Land, Housing, and Nairobi Metropolitan Service) under an executive order issued by the new government. Its primary mandate is to provide policy direction and coordination for all matters related to land, housing, and development. Its functions encompass public land administration, physical planning, land policy management, surveying, mapping of public land, and more. The ministry comprises three directorates: Land, Housing, and Urban Development. The Directorate of Urban Development encompasses Public Works and Nairobi Metropolitan Development. The Directorate of Urban Development focuses on policy formulation, urban planning and management, municipal development, research, and training. Public Works oversees the planning, design, construction, and maintenance of government properties in the built and infrastructural development sector. Nairobi Metropolitan Development is responsible for formulating, coordinating, and administering policies related to urban development. One of the key initiatives of the ministry is the National Urban Development Policy (NUDP), aimed at addressing challenges arising from rapid urbanization and providing governance and management guidelines for resource allocation in urban areas.

During key informant interviews, it was revealed that the department of planning within the ministry does not adequately account for small enterprises in Nairobi County in their land use plans/systems. This partly explains why informal business enterprises often use Urban Green Spaces (UGS) for their daily activities.

The NUDP was expected to offer guidelines for UGS provisions and develop strategies to enhance and expand their land coverage. However, it was noted that many administrators were aware that the policy lacked specific provisions related to UGS and recreational areas, making it somewhat vague. Additionally, the ministry acknowledged the absence of public participation in UGS planning and management in Nairobi, citing confusion over roles and duties between them and the county government. Another reason for limited public involvement is the absence of an organized system for UGS management and maintenance that can accommodate public engagement.

The National Land Commission and the ministry are actively working on developing a GIS database covering all state-owned land, including UGS at the county level. They also plan to update the current National Spatial Plan with policies and guidelines for UGS conservation, protection, and management.

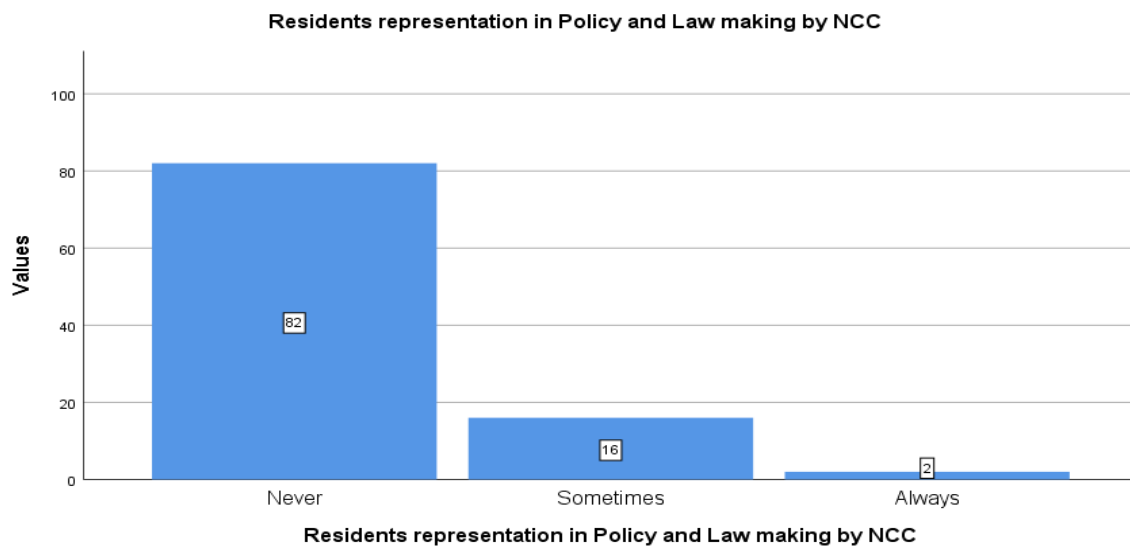
#### *Kenya Forest Service*

This is a state corporation under the Forest act, established in 2007 mandated to develop, conserve and sustainable manage forest and its resources for development in Kenya. Its function relating to the UGS include sustainable management of forest and its resources for social and economic aids; and development and maintenance of important infrastructure for effective forest protection and conservation. KFS inspires and encourages communities living adjacent to forest, take part in forest conservation and protection. KFS does not get involved in oversight of the management of UGS, but since Dandora has some natural riverine forest along the Nairobi River then KFS can come in advise NCC on how they can manage their forest resources. Since Dandora is a lower income area then the riverine forest and trees are at a higher risk of extinction. There is a need on community capacity building on sustainable forest and tree management in these areas where the community can benefit without damaging the existing biodiversity.

#### *Nairobi City Council*

Within NCC in the Department of Environment (Park and Open Spaces section) is where UGS are located. This Department has the following objectives; making and enforcing regulations that guarantee quality of use satisfaction; continuous maintenance of open spaces to maintain their high standards through efficient practices; indorse acceptable uses diversification to ensure there is good synergies among all the user groups; administer and protect UGS to ensure that they remain on their public domain and oversee daily maintenance for the public use. UGS administration falls under the Chief Environmental Officers-Conservation and Recreation. The Chief Environmental Officers reports to Assistant Director (Parks and Open spaces) who then reports to the Director of Environment NCC. The County Government allocate funds for management and maintenance of UGS to the Park and Open Space section via the Department of Environment, the moneys are disbursed to the Chief Environmental Officers. As per the Nairobi City Council Finance Act of 2013, any business person who wishes to undertake business activities in UGS must be issued with a license from County Hall. From the research finding out of the thirty businesses interviewed, 43.33% of the traders do not pay for their operational rent taxes on the spaces occupied in the UGS. This indicated that the County Government of Nairobi is losing revenue due to the gross incompetence of NCC revenue collectors. The unlicensed businesses especially those located inside UGS, could be one of the major contributors of indiscriminate solid waste management in these spaces due their lack of accountability nature arising from NCC officials' failure to do their duties.

From NCC made it clear that they face a number of challenges in the management and maintenance of UGS which include; inadequate funds from the county government, land grabbing and encroachment by the private developers, inadequate number of staffs, inconsistency nature of the Kazi Mtaani initiative by the National Government, increased cases of vandalism of the public facilities such as fences that surrounds the UGS, uncooperative members of the public who litter and dispose solid waste in these spaces. The council intends to work with NEMA and the ministry of Environment, Water and Natural Resources in formulation, implementation of new policy guidelines that will exclusively govern the management of the UGS which will be achieved through intensive public involvement and constant engagement in all stages. The council acknowledge that there have been ineffective public participation and this was verified to be true with 82% of the Dandora residents saying that they have never been ask to participate in any stage of policy and law making by NCC.



*Figure 2: Resident's representation in Policy and law making by NCC*

The council also noted that it has been had to has been extremely hard and difficult to push for the idea of relocation of the Dandora Dumpsite and using the space to construct a 600million worth of UGS. This is due to the fact that the dumpsite is badly politicized and the majority of the public tend to view it now as a resource other than a health nuisance as it was then.

#### *Community Based Organizations/Resident Associations*

These organizations are playing vital role in improving the environmental outlooks in their neighborhood through resource mobilization and community awareness creation and sensitization towards matter surrounding UGS and maintenance of the community gardens. Some of these CBOs which the researcher managed hold FGDs with include; Dandora Transformational League (DTL), Jijenge Pamoja Ghetto (JPG), Dandora Resident Associations, Mustard seed and Believers. All the mentioned CBOs been had; conservation of the environment as their primary interest among, mobilization of residents against land grabbing by private sectors like DTL has been involved in petitioning for change in Kenya's land laws to bar allocation of public land especially the easement and wayleaves for other objectives. Other activities done by the CBOs include; provide services security, clean up, hosting environmental events and



competitions and gardening and beautification, among others UGS maintenance duties. CBOs should work closely with NCC on the matters ascertaining UGS but apparent that appears to be a challenge. Member of these CBOs complained that they do not feel represented in the any stage of law, regulation or policy making that concerns UGS. Other challenges include high cost of maintenance, inadequate funds and resources to run their organization, land grabbing, uncooperative members of society, vandalism and theft resulting from increased numbers of idlers.

### Public Awareness on the Policy, Legal and Institutional Frameworks on UGS Management

During the field study the residents and the business were asked if they have any awareness of the existence of policy, legal and institutional framework governing UGS in Dandora. The findings suggested that the majority (74%) of the respondents were no aware of any policy, legal and institutional framework governing the UGS while 26% said they were aware.

A correlation analysis technique was done to check if there was any relationship between level of education and the public awareness on the available policy, legal and institutional framework on UGS management so as to make inferences on the descriptive statistics.

*Table 4: Correlation between the level of education and public on the policy, legal and institutional framework on UGS governance*

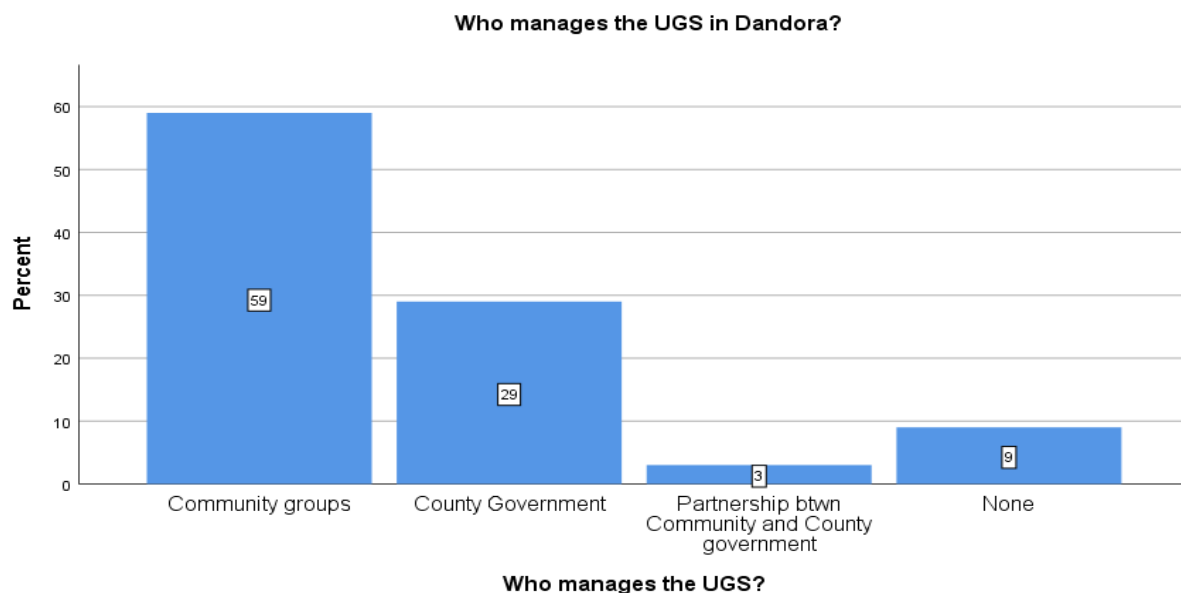
Correlations			
		Level of Education	Public awareness on the Policy, legal and institutional framework on UGS
Level of Education	Spearman's Correlation Coefficient	1	.652**
	Sig. (2-tailed)		.000
	N	100	100
Public awareness on the Policy, legal and institutional framework on UGS	Spearman's Correlation Coefficient	.652**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

The Spearman's correlation results indicated that there is a positive correlation between the level of education and public on the policy, legal and institutional framework on UGS governance, this means that whenever there is a positive change in level of education, there is a positive increase in the level of public awareness on the policy, legal and institutional framework on UGS governance. Since the  $p$  is less than  $\alpha=0.01$ , this confirms that there is a valid relationship between the level of education public awareness on the public awareness on the policy, legal and institutional framework on UGS governance.

The correlation table above reveal that the level of education has a strong positive correlation (0.652) relationship with the public awareness on the policy, legal and institutional framework on UGS governance in Dandora. This means that as the residence's level of education advances, there is a proportion increases in the public awareness on the policy, legal and institutional framework on UGS governance. The results demonstrates that those with less education level as that not of college they tend to be less aware on the available policy, legal and institutional frameworks and their provisions in UGS governance. There is a need dire for the county government, community organizations and other related agencies to invest in an intensive the public awareness and sensitization on the UGS policy, legal and institutional frameworks for all residents regardless of their education status.

### Management of UGS

The researcher sought to find out who manages the UGS in Dandora. The graph below shows that, 59% of the respondents said the Community groups/ organizations manages the UGS, 29% said NCC, 3% said it's the UGS are managed through a partnership of the county government and the community groups, lastly 9% of the respondents reported that the green spaces are neglected so no one manages them. The results demonstrated that the community groups/organizations the most responsible in the governance, management and maintenance of UGS in Dandora, the county government through NCC seemed to be unreliable for the job.

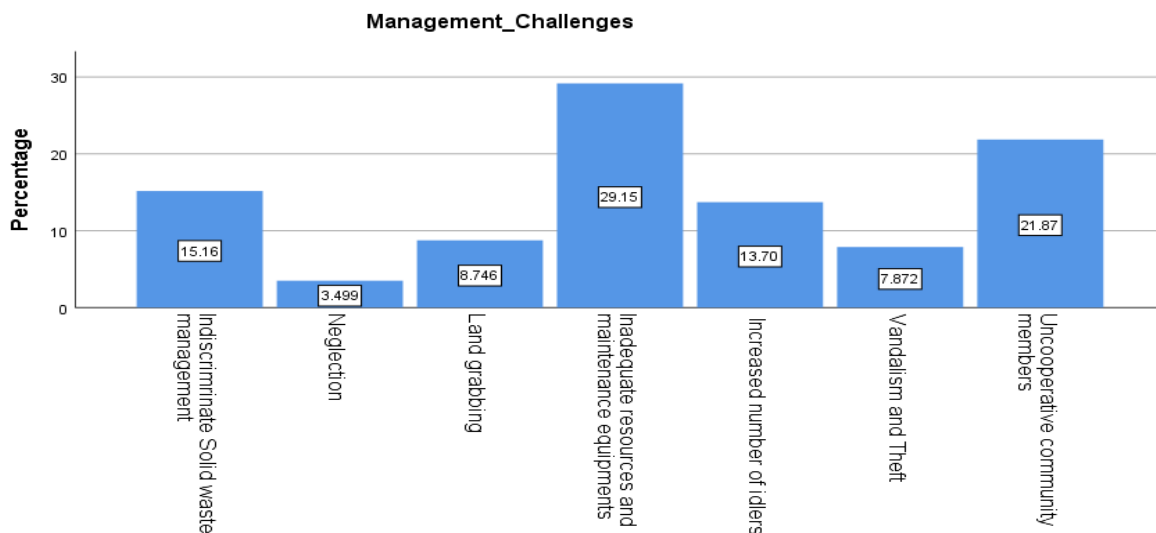


*Figure 3: Management of UGS in Dandora*

### Management Challenges Faced by the Governing Institutions

The research aimed to identify management challenges related to Urban Green Spaces (UGS) in Dandora through focus group discussions (FGDs) and key informant interviews with two primary governing bodies: Community-Based Organizations (CBOs), including Dandora Transformational League (DTL), Jijenge Pamoja Ghetto (JPG), Dandora Resident Associations, Mustard Seed, and Believers; as well as the County Government.

The chart below summarized the responses obtained from the CBOs during the FGDs. The findings indicated that the majority (29.2%) of CBOs identified inadequate resources and maintenance equipment as their primary challenge. Additionally, 21.9% pointed to the uncooperative nature of community members, 15.2% faced increased issues with indiscriminate solid waste management, 13.7% encountered a rise in the number of idlers, 8.8% cited land grabbing as a challenge, and 7.9% mentioned vandalism and theft. Finally, 3.5% of respondents reported neglect from the Nairobi County Council (NCC) and other non-governmental organizations (NGOs) as a challenge.



*Figure 4: Management challenges*

The study revealed that the most significant challenge faced by these community groups and organizations was the lack of adequate resources to support their activities and mandates. Remarkably, the challenges experienced by NCC were similar to those of the community groups and organizations. According to key informant interviews with NCC, their challenges included inadequate funding from the county government, land encroachment by influential private developers, a shortage of staff, inconsistency in the *Kazi Mtaani* Initiative by the National Government, increased incidents of vandalism of public facilities such as UGS fences, and uncooperative behavior among the public, leading to littering and improper waste disposal within these spaces.

## Recommendations

Managing and conserving Urban Green Spaces (UGS) in Dandora needs an integrated approach that addresses both existing problems as well as future challenges.

*Policy and Legislation:* It is necessary to carry out an in-depth analysis of existing policies such as the 2010 Kenya's constitution and the 2019 physical and land use planning act. The review must seek to fill any gaps in UGS management, as well as outline inclusive planning guidelines especially for UGS below the metropolitan level.

*Institutional Collaboration and Capacity Building:* A coordinated approach to the management of UGS should involve cooperation among various institutions like the NEMA, the Ministry of Land, Housing and Urban Development, the Nairobi City Council, and the CBOs. Capacity building programmes need to be instituted to equip necessary officials and even NCC personnel about the laws and policies on UGS.

*Public Awareness and Education:* The government should launch public awareness campaigns that inform people about UGS, the laws, policies and institutions frameworks on conservation of these areas, and how they can participate. These include efforts like developing responsible approaches in the Dandora Community and schools for conservation.

*Financial Support and Resource Allocation:* The county government should provide appropriate funds to the NCC for the effective management of UGS. Sustainable maintenance practices can include exploring public-private partnerships.

*Planning and Design Guidelines:* Revised guidelines on planning, specifically as stipulated under The Physical and Land Use Planning Act would go a long way into embracing different kinds of green areas that are common within urban spaces. Inclusion in planning would consider all types of UGS (not just parks and stadiums).

## Conclusion

Finally, the status of UGS in Dandora illustrates that there exists a discrepancy between policy implementation, legal provisions and institution collaborations. While there is Kenya constitution (2010) as well as physical and land use planning act (2019), other relevant policy documents, these instruments have not been properly implemented because they are inclusive and have not adequately considered the slum dwelling areas. An amendment to the Environmental Management and Coordination Act (1999) is necessary to clearly define how UGS will be managed. There are problems for various governing institutions like NEMA, Ministry of Land, Housing and Urban Development, and Nairobi City Council regarding limited funding, erratic enforcement, and absence of community engagement. These challenges can be addressed by implementing an all-inclusive strategy that encompasses policy reforms with stronger partnerships especially with the local CBOs and NGOs, behavioral change communication programs, and more financing. Conservation and sustainable utilization of existing UGS in tune with international standards are essential for creating lively and healthily space for both current and future population also in the slums.

## References

- Awuah, K. G., Hammond, F., Block, R., Proverbs, D., & Booth, C. (2010). Sub-Saharan Africa urban land use planning systems: The need for an economic appraisal. *Construction, Building and Real Estate Research Conference of Royal Institution of Chartered Surveyors*. Paris.
- Baycan, T., & Leeuwen, E. S. Van. (2002). *Development and management of green spaces in European cities : a comparative analysis*. February.
- Baycan-Levent, T., & Nijkamp, P. (2004). Urban green space policies: performance and success conditions in European cities.
- Egbu, A. U., O, O. P., & Gameson, R. (2011). A neo-institutional economic critiques of the system for allocating urban land and development rights in Nigeria. *Habitat International*, 121-135.
- England, P. H. (2020). Improving access to greenspace A new review for 2020 About Public Health. England.
- Env-, M. C. (1997). Good Practices for Urban Greening. *May Journal*.
- Feltynowski, M., Kronenberg, J., Bergier, T., Kabisch, N., Łaszkiwicz, E., & Strohbach, M. W. (2018). Challenges of urban green space management in the face of using inadequate data. *Urban forestry & Urban greening*, 31, 56-66.
- Howard, E. (1902). *Garden City of Tomorrow*. 84. Retrieved from <http://ar.wikipedia.org/wiki/%D8%A7%D9>
- Kenya Alliance of Resident Association. (2017). Protection of Kenya's green spaces from individuals with selfish interest .
- Kimani, B. (2021). *NMS Responds After Reports of Uhuru Park Grabbing*. Nairobi: Kenyan.co.ke.
- Kironde, J. M. (2009). The regulatory Framework, unplanned development and urban poverty; Findings from Daresaleem, Tanzania. *Land use Policy*. , 460-472.
- KNBS. (2019). Kenya Population and Housing Census Results: Dandora's population. *Kenya*
- Kronenberg, J., Haase, A., Łaszkiwicz, E., Antal, A., Baravikova, A., Biernacka, M., ... & Onose, D. A. (2020). Environmental justice in the context of urban green space availability, accessibility, and attractiveness in postsocialist cities. *Cities*, 106, 102862.
- Latitude. (2018). Longitude and latitude of Dandora. Retrieved from: <https://latitude.to/articles-by-country/ke/kenya/60481/dandora>
- Mac Harg, I. L. (1971). Design with Nature. *Landscape Journal*. 1-20



Mensah, C. A. (2015). Sustaining Urban Green Spaces in Africa: A Case Study Kumasi, Ghana. *University of Birmingham Research Archive*. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6209905/>.

Muiruri, W. P. (2003). *Emergence and Management of Competing uses of Public Open Spaces In the City of Nairobi (PhD Dissertation)*, University of Nairobi

NAT GEO. (2019). This City Aims to be the World's Greenest: As Singapore Expands, a novel approach preserves green space. *Urban Innovator*, 3.

National Environmental Action Plan. (1996). *Environmental Action Plan Report*. Nairobi: Government Printer.

Nation Media. (2020, July 26). Karura Forest's grabbed 2,000 acres revert to State. Nairobi : Nation News. <https://nation.africa/kenya/news/karura-forest-s-grabbed-2-000-acres-revert-to-state--430054>

Victor, J. & Ikawa, O., (2015). *The Impact of Policies on the Development and Management of Recreational Spaces in Nairobi, Kenya*.

Zulauf, W. E. (2012). Legal, institutional, and operational structure of urban green-area systems. *Urban Greening Seminar held at Mexico City*. Nascimento, Mexico: Universidad Aut\noma de Chapingo.