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Leveraging the potential of school playgrounds as shared Public Open Spaces in informal settlements.

A Just City Approach to Addressing scarcity of open spaces in Nakuru City in Kenya.

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Abstract

In most African Cities, urbanisation is occurring without proper structural shift in their economic dynamics. The typical urban dwellers are composed of inhabitants without secure and well-paying jobs and without a social security cover. A greater percentage of urban dwellers are individuals and families who have immigrated from their rural ancestral homes due to a variety of factors, including violent conflicts, climate change, and the desire to pursue better education or employment. For many of the migrants, often, their hope for better living standards and opportunities are not met in these cities. Majority of them end up in the unjust informal settlements, working in unstable environments, usually in the informal sector, without social protection or job contracts. The scenario is not particular to Kenyan Cities, but most African cities, owing to the rapid urbanization that is often not commensurate with the economic growth. The requirement to accommodate expanding populations has increased due to rapid urbanisation, frequently at the expense of open areas, especially in these low-income neighbourhoods. The influx in population has strained infrastructure, leading to overcrowded informal settlements where open spaces for recreation and community gatherings are scarce.

By restricting access to spaces necessary for social interaction, recreation, and community well-being, this disregard for open space planning has exacerbated urban inequality. The research investigates the Just City planning concept, to address this discrepancy through the application of spatial justice principles, drawing from Fainstein (2010). To create secure and easily accessible recreational places in informal settlements, it investigates the adaptive use of school playgrounds as public open spaces outside of school hours. The research aims to answer two key questions; *How can shared use of school playgrounds contribute to spatial justice in informal settlements? And what strategies are necessary to manage these spaces sustainably and equitably?* The proposal responds to the urgent need for equitable recreational and social space, in Nakuru.

Building on research by Soja (2010), Seth Low's work on public spaces as a vital resource for social justice, providing several advantages, including enhancement of urban aesthetics, creation of a more just and dignified urban environment. Open spaces also improves both the public's physical and mental health by encouraging physical exercise and boosting local economies through social cohesiveness and small business opportunities. The study offers a framework for inclusive urban planning that puts health, social quality, and safety first, imagining a fair and resilient city for all citizens in Nakuru City, while addressing potential issues like playground maintenance and dispute resolution that may arise from this shared space.

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CHAPTER 1

1.0 Introduction.

Nakuru is the fourth-largest city in Kenya, located in Kenya's Rift Valley. Nakuru City has experienced a swift transition to one of the nation's fastest-growing metropolitan areas. The urban growth has produced a diversified and vibrant population, conversely, it has also presented many difficulties, especially in the areas of urban planning and the supply of basic amenities like public open spaces. Being a relatively new city, Nakuru offers a special chance to put creative urban design techniques that put social justice and inclusivity first into practice, establishing a standard for other communities in comparable situations. In Nakuru, informal settlements have proliferated due to the city's rapid population increase, and many of its citizens now live in impoverished circumstances with inadequate access to basics amenities. A major problem that contributes to several social, health, and environmental issues is the lack of open spaces in these communities. Urban ecosystems depend on open spaces because they offer places for social contact, recreation, and community involvement—all of which are critical components of resilient, healthy neighbourhoods Low (2005).

Residents of many of Nakuru's informal settlements are forced to navigate congested zones without the advantages that these places might provide due to a lack of accessible open spaces. Vulnerable groups, especially children, are disproportionately impacted by this insufficiency since they lack safe spaces for play and physical activity. In addition to having an adverse effect on physical health, a lack of open spaces reduces social cohesiveness and community development by reducing the number of possibilities for inhabitants to socialise and engage in group activities (Kearney, 2006). Furthermore, social inequality is made worse by the disregard for open space design in the face of fast urbanisation, which marginalises low-income areas and perpetuates poverty cycles (Madanipour, 1996).

For Nakuru City, the Just City paradigm is especially relevant, as it stresses the values of diversity, justice, democracy, and dignity in urban design (Fainstein, 2010). Just City design ideas have recently been applied in Nakuru in a trial project by adopting Transformative Change Making approach as a strategy for delivering on its local development agenda aimed at improving slum conditions in the Kenya Meat Commission communities. Transformative Change Making, a new approach to revolutionary change employs selectively created narratives and carefully constructed catalytic actions. It improves policymakers' ability to reach out to broader audiences, boost private sector contributions to the common good,

strengthen civil society's strategic capability, acquire knowledge from diverse players, and increase political literacy among all stakeholders. This project is an illustration of the local government's dedication to tackling spatial inequality and creating inclusive urban settings.

Future urban development in Nakuru can rectify the historical spatial inequities in urban areas by using these concepts. Being a new city, Nakuru is at a turning point in its history; its planning choices have the potential to transform the social fabric and provide a standard for other developing towns facing comparable difficulties. The effective implementation of fair open space planning in Nakuru could impart to other Kenyan and international cities important lessons about how to foster sustainable urban growth that prioritises the needs of underserved populations. In order to contextualise the larger difficulties of urban planning in rapidly expanding cities, this chapter attempts to give a summary of the problems related to open space scarcity in Nakuru City. This project aims to investigate creative approaches that will enhance access to recreational places, ultimately promoting a more just and equitable urban environment by emphasising the significance of including open space considerations into the design of cities.

1.1 Significance of the study.

The absence of easily accessible open spaces in informal settlements in Nakuru City, like in many other rapidly urbanising cities, exposes an obvious indicator of spatial inequality. Low-income communities are disproportionately denied access to public places, particularly recreational areas that are vital for social interaction, physical activity, and communal well-being, according to research on urban spatial justice. The main issue in Nakuru's informal settlements is not only the lack of open spaces but also the lack of facilities for them, which leaves underprivileged groups with little opportunities to enjoy the advantages of parks and green spaces. The goal of this study attempts to bridge this gap by investigating a beneficial and creative strategy: using school playgrounds as common community areas outside of regular school hours. Several schools in Nakuru are situated close to residential neighbourhoods and already have open spaces that might be used as easily accessible places for social interaction and recreation. To minimise potential conflicts and promote a sense of communal responsibility, this study suggests a multi-use approach that incorporates local communities in the supervision and maintenance of these shared spaces by concentrating on a realistic management model.

Spatial justice concepts, which support equitable distribution of urban resources and opportunities among all social groups, serve as the foundation for this strategy. By promoting fair access to green spaces, the study upholds the values of Just City—diversity, democracy, equity, and dignity—and builds a more welcoming urban environment where everyone may enjoy accessible, safe open spaces. Additionally, the community-based participatory management model fosters social cohesion and empowers locals to take an active role in maintaining their neighbourhoods, in addition to addressing immediate access difficulties. With the use of evidence-based frameworks and successful case studies from other cities in Western countries that have successfully adopted multi-use models of a similar nature, this study provides Nakuru with an alternative, situation-specific solution. Nakuru can establish a precedent for spatial justice by increasing the availability of open space through shared administration and collaborative planning. This will show how a pragmatic, community-focused approach can help create a more liveable, just city that benefits all its citizens.

1.2 Research Objectives

1. To assess the current state of public open spaces in Nakuru City and highlight the existing spatial disparities.
2. To evaluate the feasibility and social benefits of utilizing school playgrounds in informal settlements as public open spaces.
3. To propose strategies that promote community- inclusive governance of shared spaces to ensure equity and sustainability.

The research seeks to achieve these objectives by answering the following questions.

1. What are the main barriers to accessing open spaces in informal settlements?
2. How can school playgrounds in informal settlements serve as equitable public open spaces in line with Just City Principles?
3. What are the potential conflicts that may arise and hinder shared playground use?
4. What are the necessary strategies that can be applied to manage these conflicts?
5. What are the school's stakeholder's main concerns about the proposal for shared use of the school playgrounds?
6. How can community stewardship be incorporated to maintain the quality and accessibility of these playgrounds?

1.3 Scope of study

The study investigates the potentials solution for addressing Public Open Space scarcity in Nakuru informal settlements. It first examines how the current distribution of public open spaces in Nakuru City reflects injustice. It seeks to investigate the spatial accessibility of these public open spaces by checking their proximity to residential areas and its access. It also addresses the degree of social inclusivity, basically how these spaces accommodate the needs of the community in terms of age group and the activities it offers. The research area is located in the Rift valley region of Kenya as shown in the figure 1 below:



Figure 1: Location of Nakuru (Kenya National Bureau of Statistics, 2013)

CHAPTER 2

LITERATURE REVIEW

2.0 The Just City

Just City, an urban theory of social justice as coined by Fainsten (2009), has gained a lot of popularity in the present age where the world is urbanizing rapidly. In her work, Fainsten describes a just city as one in which people's rights are respected and each citizen is given the opportunity to not only participate in and shape the city, but also to actualize himself or herself. The concept of the just city assumes that there is a right to the city in the first place.

In Kenya, the concept of a just city is built on a strong conviction in human dignity based on African values as the beginning point for city living. The next pillar of just city concept is fairness and the right to equitable treatment, which are evident in African values and among proponents of the just city. The research borrows elements of Fainstein's ideas about the just city, such as democracy, diversity, and equity.

2.1 Principles of Just City in Kenya

There are four core principles of Just City in Kenya. To begin with dignity, which refers to a person's or a group's right to be appreciated, respected, and treated ethically. It is to recognize the value of a human being or a group of people. It denotes esteem for an individual or a group regardless of their perceived socioeconomic or political standing. Secondly, equity and diversity which emphasizes equitable sharing of all resources amongst all and recognition of all people without any exclusions. The third is right and responsibilities which basically translates as a city that respects the rights of all citizens and visitors. These rights are balanced by citizens accepting responsibility for city affairs and for the development of their community. Lastly, the principle of democracy, where residents adopt collective decisions guided by informed majority rule, but in a way that respects the dignity of all and takes equity and diversity into account.

Regarding the principles, Kenya is lagging in most of them. For instance, within the context of urban planning, Kenyan cities have not fully embraced diversity. The reason being most cities are neither planned nor designed to be inclusive. Kenyan cities are by and large unwelcoming to children, individuals with disabilities, women, elderly people, and those in poverty, among others. Pedestrians and cyclists are invariably not considered in the designs of city streetscapes.

Violation of dignity is evident in the inhumane living conditions particularly in the informal settlement. These are places where people live, with no access to necessities such as a clean environment, shelter, proper waste disposal and management, sanitation, and recreational spaces. Other manifestations of human dignity violations include open defecation, a lack of access to water and sanitation, forced evictions, and homelessness. Children, persons with disabilities, women, and the elderly all have their human dignity assaulted on a regular basis. As a result, the just city must safeguard the dignity of all its citizens and visitors in "its legal, ethical, and performative aspects."

2.2 Conceptualization of Just City in Kenya

The concept mainly focuses on the process of providing goods and services through public participation. The conceptualization is largely influenced by Susan Feinstein's work on the Just City. The concept is also aligned with the Sustainable Development Goal 11 as it is particular about the efficiencies in cities, as well as The Kenyan Constitution Article 43, which guarantees provision of public goods and services. These include provision of education, public transport, affordable housing, water, health and other support infrastructure. Within the context of the African continent, the Agenda 2063 of African Unions shares the same just vision for the African cities.



Figure 2: Loresho planned settlements adjacent to an informal settlement (Miller 2016)

Figure 2 above illustrates a form of injustice whereby a section of settlement is well planned whereas the adjacent settlement is the total opposite, yet both should be equally resourced.



Figure 3: An Expressway without consideration for pedestrians and cyclists. FES 2020

Figure 3 above, is another example of an injustice. It is one of the recent investments in the country that makes economic sense by cutting traffic and reducing the amount of time spent on roads. However, it only caters for the few people who can afford cars or better still pay the daily toll fee, which is the cost of using the expressway. It completely disregards the larger percentage of Kenyans who do not own cars, those who rely on motor bikes and those who walk to the city.

Despite all these injustices, the rate of urbanization in Kenya is remarkably high. People from rural areas move to the urban areas with the aim of getting better opportunities, better services, better education or even being close to family. Ideally, for them, urban areas have better facilities as compared to rural areas. Contrary to this, these aspirations and dreams of rural immigrants are not always fulfilled because often, they end up disappointed and living in the informal settlements with limited access to water and sanitation, public transport, and quality education and clean and safe environment for recreation.

2.3 Right to the City.

'Right to the City' is a vital principle to achieving Just Cities. However, this concept has become difficult to establish, particularly in Kenya. One of the greatest impediments to this goal is the imminent belief amongst urban dwellers that 'home' is their ancestral lands or villages where they came from and not in the cities where they might have dwelled in for long periods. It then means that the city is primarily populated by villagers who migrated to the cities and are yet to properly transition into urban individuals and they retain a rural worldview. Consequently, those in command of the city are equally relocated villagers with merely a passing concern for the city's well-being, a prevalent attitude and mindset in most African cities. Basically, urban inhabitants with rural links struggle to adjust to and participate in a cosmopolitan and independent metropolitan environment.

Holding on to rural or ancestral roots is a problem exacerbated by colonial practices that forbade African male to travel to the city for work with their families, Warah, R. (1999). As a result, Africans saw urban areas as essentially places to generate money that could be sent "back home" to their family. Many city dwellers see themselves as transients who will soon return to their rural areas. Consequently, civic action to address deteriorated or nonexistent services has been unusual, owing to a lack of ownership of the city.

Fortunately, there is an evolution of the second and third generation "migrants" establishing themselves in the city. A few civil society-led groups are demanding improved services and have even gone to court to get them. The presence of these civic participation reveals the shift of rural loyalists, who then begin to perceive the city as their home and are willing to fight for their right to it. To foster a sense of belonging and ownership of their urban setting, Nakuru city should adopt new measures to ensure that the public is involved in important decision making. With the core vision of being a just, livable and prosperous city in Kenya. The vision of Nakuru is ideally matched with the "just city" ideals of dignity, equity, and diversity, rights and duties, and democracy. It is based on Kenya's constitution, which enshrines socioeconomic rights and liberties and requires public participation in decision making. Given its recent conferment to city status, it is young and is developing and hence, Nakuru's model city might be a game changer, providing an incentive for other municipal and city councils in Kenya and beyond to improve the way their cities and towns are governed and planned.

2.4 SPATIAL JUSTICE

Spatial justice has evolved into a field of a wide range of theoretical, political and normative ramifications and has been a long debatable subject in the academia. The term "refers to a deliberate and focused emphasis on the spatial or geographical aspects of justice and injustice," to adopt the minimum definition provided by Soja (2009). Thus, spatial justice directs political and analytical attention towards how resources are distributed over space and how people's abilities are either limited or enhanced by their spatial patterns of life Pirie (1983) and Soja (2009). Justice is inevitably a paramount social value, yet it lacks an absolute universal definition owing to its variance depending on location and history. However, it can be discussed using specific keywords like social justice, distributive justice and spatial justice. Social Justice, as alluded to by Cooper & McKenna (2008) embodies ways in which human rights bespeak in our day-to-day life across all societal stature, whereas distributive justice accentuates the just allotment of both tangible and intangible benefits earned from the public policy. Fainstein (2014) elucidated that while distributive justice sets to ensure equal application of freedoms and rights to everyone, it tends to emphasize more on equity, where extent on the needs is prioritized as opposed to general equalization. Conversely, Young (2011) implies that emphasis on people's rights, drawbacks of power and oppression should be the genesis of solving uneven distribution of services and public goods. Consequently, she points out the inadequacy of distributive justice in addressing unfair share of non-material benefits of public services, since this concept fails to accommodate the mechanism and social framework behind it.

The assertion builds up from Lefebvre (1996) work where he belabored on spatial right and the right to the city. In his work, Lefebvre highlighted the right of fair involvement of urban dwellers in urban space production process, the right to enjoy the benefits produced by the city, the right to be access public services and the right to protection from any form of segregation. Consequently, Lefebvre introduced the vital role of urban dwellers in participating in decision making as a practice of their democracy. Spatial justice on the other hand, discloses the resultant spatiality of social justice and its inclusivity of democracy and human rights, Soja (2010). Spatial justice is a latter concept that has since given justice a spatial dimension and not just as an affixed background to impact the realization of social justice through its influence on social justice. Through the lens of spatial justice, this research seeks to review issues pertaining to the distribution of public open spaces and especially in the low-income neighborhoods of Nakuru City.

2.5 Public Open Spaces

According to Kevin Lynch (1984), Public open spaces can be termed as spaces where users can recreate, and experience contact with nature especially within urban settings where such resources may be highly contested for development. They comprise of variety of interactive spaces such as parks, waterfront promenades and urban plazas. For these spaces to qualify as Public Open spaces, they need to be freely accessible to everyone regardless of their economic status, age, race or culture. As alluded by (Chen, Liu, & Liu, 2016; Jennings, Larson, & Yun, 2016; Krellenberg, Welz, & Reyes-Päcke, 2014; Yung, Conejos, & Chan, 2016) such spaces play a vital role of improving the quality of lives of urban dwellers by fostering quality interactions, both physically and socially and by boosting individual's mental health. Given the massive positive contributions gained from urban green spaces, it is essential that city managers cease to consider such spaces as optional luxuries. Public open spaces are a form of public investment, Rigolon (2016), and hence should be fairly distributed amongst the various communities. It is important to emphasis on the proximity of these green open spaces to the users. These open spaces should be incorporated into the urban system at all scales; both large extensive parks, medium- sized parks, community gardens, pocket parks, green strips, potted plants and green live walls; to rule out the arguments of unavailable land area for such provisions. Basically, by designing green in sizes S, M, L an XL, we explore all possible opportunities to bring nature closer to the people, Gil (2015)

Unfortunately, different driving factors have limited this equitable distribution of open spaces and may at times be totally absent in the low-income neighborhoods. It is in these low-income neighborhoods where human density is extremely heightened, and this characteristic evokes the subjective, psychological and literal state of crowding. However, sociologists have proven a correlation between societal happiness and individual room. It means that people can stand each other more when they are aware that eventually they can retreat and escape the crowding. The emphasis is not much on the square footage of the space but more on the fact that sole ability to deliberately moderate contact with other people. In the context of informal settlements where both streets and homes are crowded, people would appreciate a space to retreat to and this may be a quiet open space close by. However, through research there is clear evidence of uneven distribution of open spaces owing to private ownership and absence of harmonious management of open spaces given the various social and economic profiles among communities, (Low & Iveson, 2016).

2.6 Case Study application of Just City Planning in Nakuru City

2.6.1 Transformative Change Making.

It is an approach to revolutionary change that employs selectively created narratives and carefully constructed catalytic actions. It improves policymakers' ability to reach out to broader audiences, boost private sector contributions to the common good, strengthen civil society's strategic capability, acquire knowledge from diverse players, and increase political literacy among all stakeholders. With the aim of unpacking the Just City concept, and translating it to a methodology, a consortium Friedrich-Ebert-Stiftung (FES) in partnership with local government of Nakuru adopted Transformative Change Making. It is an important approach that aims to bring people together to address urban issues and help achieve the Just cities. The process of Transformative Change Making (TCM) entails suggesting alternative visions that are different from the existing condition in our present unjust cities. At the macro level, transformative Change Making seeks to define the identity of the just city, it's citizens whom the city is being built for.

Consequently, at the intermediate level, the methodology seeks to describe what the just city is anticipated to look like, for instance the city's level of inclusiveness, the capacity of the city to provide goods and services and the presence of public participation. This stage's emphasis is to introduce a strong narrative and help the people visualize it and finally convince them that it is achievable at the micro level. At this final stage, focus is on demonstrating how achievable the new narrative is and can be done through coming up with the right policies, selecting specific pilot projects and by choosing the right platforms to engage and generate knowledge that would shape the process. Basically, the Transformative Change Making begins with the alternative vision upon which requires a change narrative, and finally demonstrating that it is practical and achievable through catalytic projects that eventually cause the changes that are desirable.

The city is made up of its citizens and its leadership, where everyone has their own set of priorities, some of whom may be focused on profit taking, efficiency, and security. However, the common denominator is that all parties require public goods and services and all the shared resources. With these dynamics, it is evident that in order to achieve a just city, there is need to recognize the existing struggle between the status quo; those benefitting from the services as they are and the progressives, who represent the few groups that have already been convinced that a Just City is possible. This struggle necessitates the need to build a

transformative alliance to win and build alliance around a narrative that describes a better future to which the majority are likely to subscribe to.

‘Smart cities’ idea is the current dominant narrative that is business oriented, emphasizing on efficiency, security, centralized control instead of privacy, self-determination and decentralized control through public participation as opposed to the Just city concept. It is mainly supported by bankers, financiers and governments, mostly profit-making agencies, and are less likely to be open to the Just City movement. On the other hand, ‘Just Cities’ which is a more people centered is supported by gender activists, Non-Governmental Organizations, protestors for human rights. However, there are in-betweeners like the professionals in the built environment, urban planners, architects and some members in academia. Identifying these key resource people is a great step in forming the Transformative alliance group that will help foster the narrative that it is possible to have just cities.

2.6.2 Urban Collective Design Environment (U_CODE)

Just cities are primarily focused on spatial justice through inclusive urban planning. In principle, citizens' participation in urban planning is essential but difficult to actualize, especially for large-scale projects. Residents', environmentalists', corporate representatives', and legislators' competing interests can clash. Massive objections, lawsuits, and delays can occur when the general population believes it is not fully included in the planning processes. The project Urban Collective Design Environment (U-CODE) is an innovative platform allowing Expert Planners to Co-create and engage with citizens in Urban Design, which the European Union supported through the Horizon-2020 program (CORDIS 2016).

The U-CODE is an instrument of design that creates techniques and tools that allow citizens to participate and assist in preventing radicalization. It is an online environment where individuals and professional planners can interact and discuss ideas. It is a platform where the public can exchange ideas and discuss their recommendations, contributing to formulating plans based on wide societal consensus. As a project playground, it facilitates gathering project-related data, producing preliminary thoughts, and the debate of proposals during the initial stages of design. U_CODE also evaluates ideas on a semantic and emotional level with the objective of devising the onset of project reluctance beforehand and preventing the accumulation of undesirable public attitudes.

2.6.3 Catalytic projects Kenya Meat Commission Settlement Plan.

Catalytic projects are carefully selected projects to implement the Just City concept. It encompasses all the principles of the just city and a practical implementation translating the Just City theory into practice. The Kenya Meat Commission settlement plan is a practical example of how the Transformative change-making method can be applied to attain spatial justice through inclusive urban planning. For a project to qualify as a catalytic project, it has to be transformative and be able to introduce new ideas and new ways of doing things in a game-changing way. It must also be scalable in that it reaches beyond its original ecosystem and impacts millions of lives. It also needs a critical mass of early supporters with the know-how and the means to implement the project. It must also be able to exemplify the new narrative sold to the people as an example of success and can, therefore, be replicated elsewhere. Cognizant of all the parameters of a catalytic project, it is essential to ascertain that it is technically doable, politically sellable and economically viable.

2.7 CASE STUDY CATALYTIC PROJECT (Kenya Meat Commission Settlement.)

2.7.1 Study Area

Kenya Meat Commission settlement (KMC) is an informal settlement in Nakuru City. It is located five kilometers away from Nakuru's Central Business District. The settlement is further located in London Ward and is accessible via prison road. It is almost centrally placed in the Nakuru Town East sub-county. KMC neighbors a forested area to the Northeast, Nakuru golf course to the Southeast and Nakuru Prison to the North. Registered plots occupy the settlement's western part with better living conditions compared to it.

The community originated as an enclosure pen for cattle and other livestock. After the Kenya Meat Commission moved to Athi River in Machakos County, the property plot was shared among twenty older staff members. Since then, the small community has expanded to one hundred and fifty households.



Figure 4: Satellite map showing the location of Nakuru KMC settlement in the Ward. (Google Map2023)

2.7.2 Settlement growth

The settlement has grown significantly over the years and is presently an informal settlement with limited access to public services and infrastructure. As shown in the images below, land has been subdivided over the years, and structures have been built to accommodate the growing population.

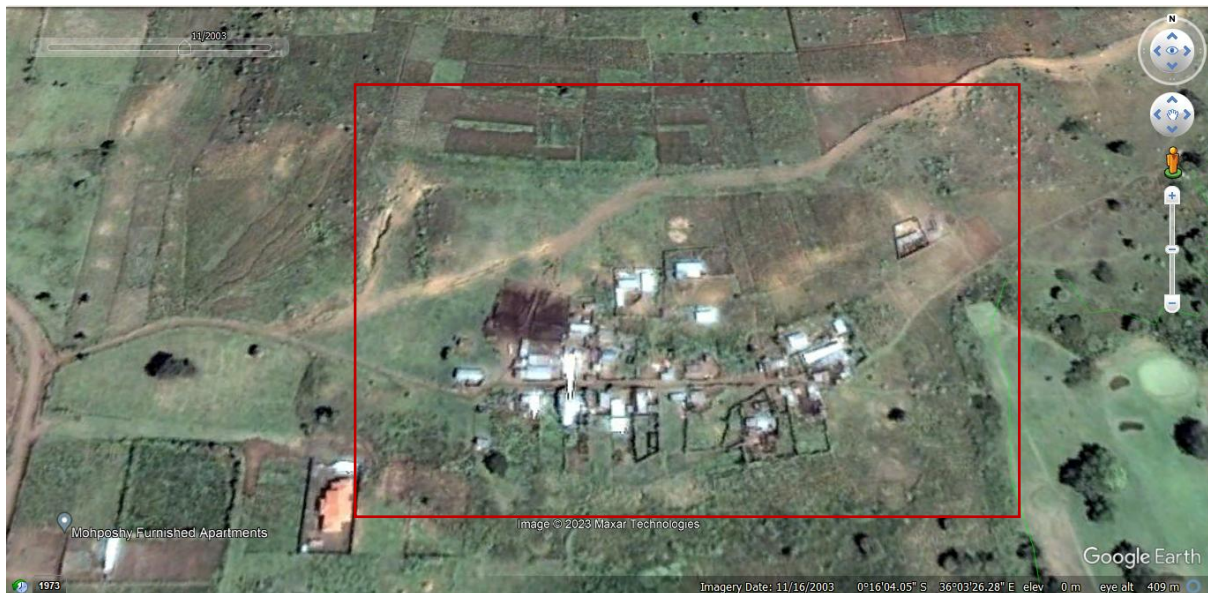


Figure 5: Satellite image of KMC in 2003. Source: (Google Maps 2003)

In 2003, the settlement pattern seems to have been along the major road on both sides of the settlement.



Figure 6: Satellite image of KMC in 2013 Source: (Google Maps 2013)

In 2013, the settlement grew further outwards as the population grew. By 2023, as seen in the figure below, the settlement had fully stretched towards its edges, and many structures were constructed to house the growing population.



Figure 7: Satellite image of KMC in 2023. Source: (Google Maps 2023)

2.7.3 Participatory Planning Process

The local government commissioned a focus group to conduct a participatory planning process with the locals to come up with a slum upgrading plan for them. The initial process entailed a renaissance site visit to establish the existing condition of the community in terms of the accessibility to public goods and services. Data was collected through interviews and photography, informing the site analysis process.

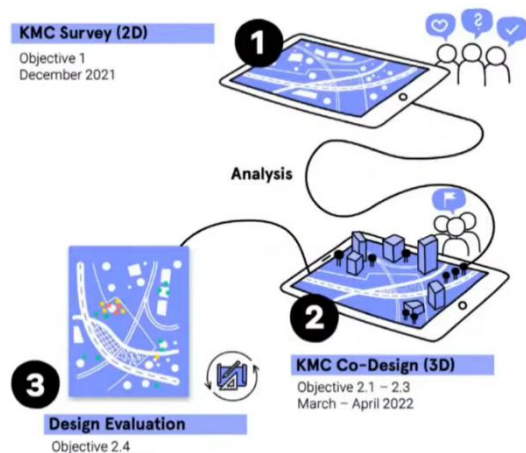


Figure 8: Innovation by KMC locals and planning Experts using the participatory planning tool



The analyzed data was integrated into a 3D online planning platform, a simple rendition of the settlement. The platform highlights the key issues within the planning area and requires recommendations on possible solutions. Upon establishing the 3D models of the site, the planning team embarked on the second stage of a co-design campaign where the community was actively involved. At this stage, the local community was trained to interact with the planning tool and taught how to recommend their desires for the settlement based on the issues they raised. The community could propose their desires with the help of planning experts and other professionals on-site during the campaign. As a result, the local community designed a new settlement plan and handed it over to the county government, which would then begin strategizing on implementing the plan.

2.7.4 Social impacts of the project

The results of the co-design process entailed a fully detailed settlement plan that not only took into consideration the people's needs but also involved them fully in the place-making process. The KMC locals came up with a short-term plan that included their immediate wishes and was in line with the planning guidelines of the county government. They included proper lighting along their roads and footpaths, provision of portable water points within the settlement, provision of sanitation points, which refer to public toilets and proper solid waste disposal points, as shown below.

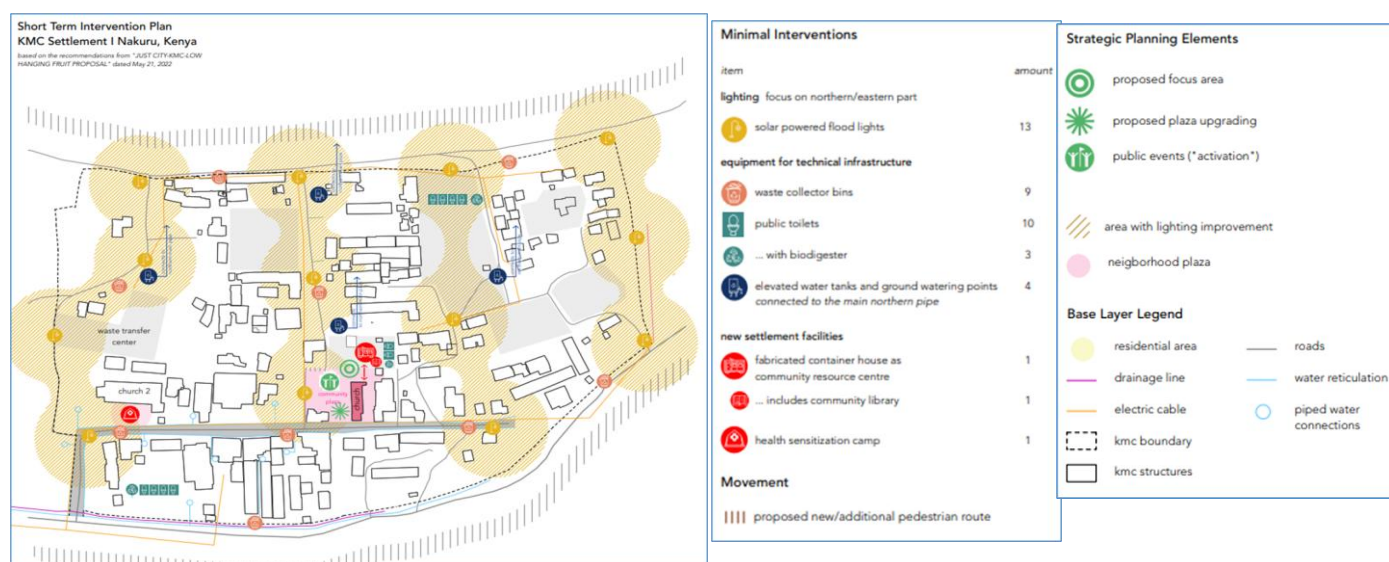


Figure 9: Short-term plan layout. Source (FES 2020)

The long-term plan, as shown in figure below, shows the complete mapped-out plan with the actual location of the proposed service points and infrastructure. In the plan, the locals proposed to have a neighborhood plaza, health facility, library, social hall and an art center within the settlement. In terms of landscape elements, they proposed having decent playgrounds and kids' play areas for recreation and well-lit streets with high mast floodlights and streetlights.

The KMC community also proposed their preferred position for placing technical infrastructure based on their experience as residents of the area, which includes the position of public toilets, water tanks, septic tanks and waste collection points.

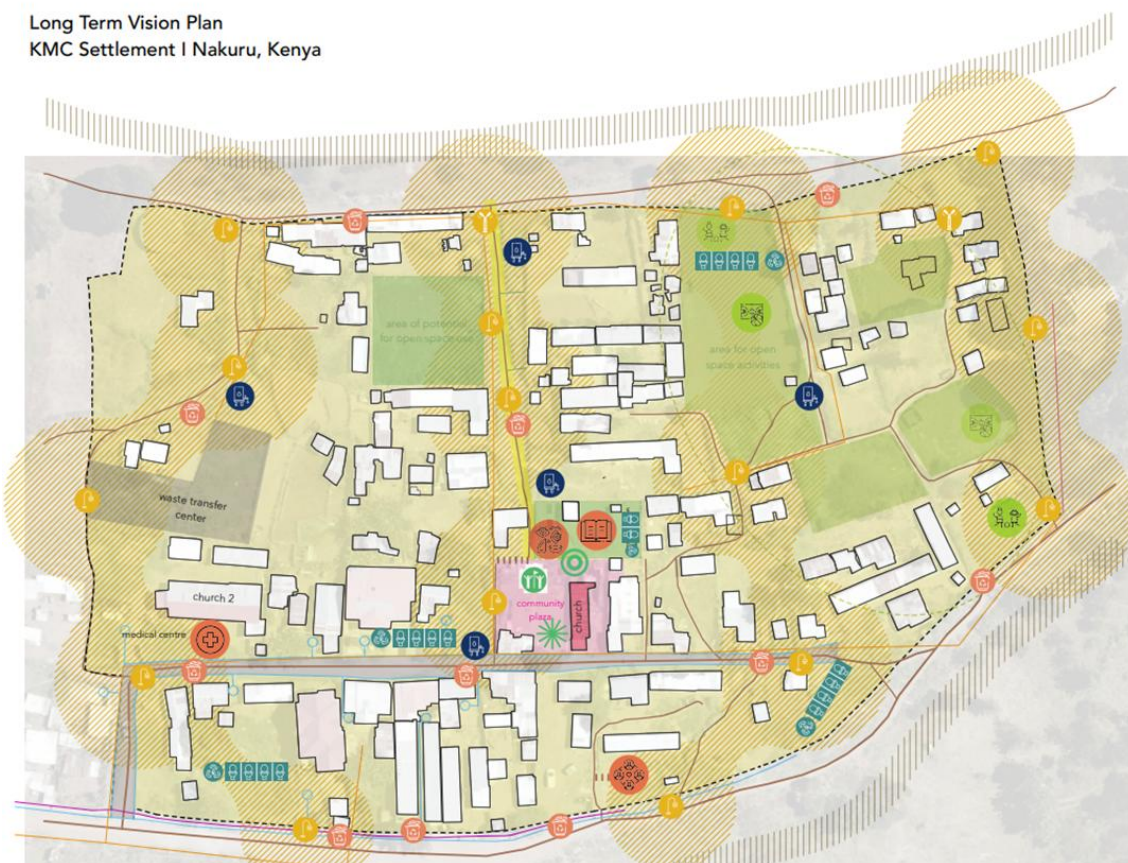


Figure 10: Long term-plan for KMC settlement in Nakuru. Source (FES 2020)

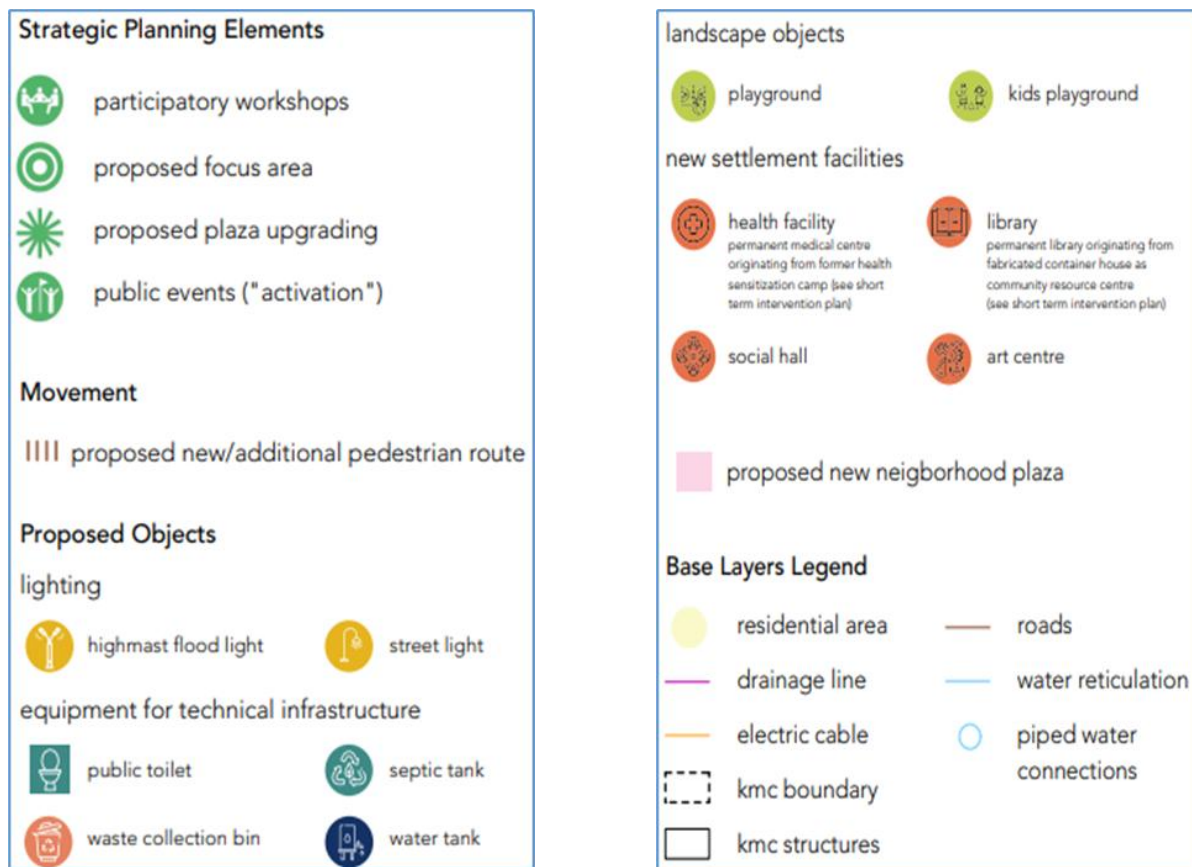


Figure 11: Legend illustrating the allocated activities on Masterplan. Source (FES 2020)

The Kenya Meat Commission settlement's slum rehabilitation project is an outstanding example of how the Just City design approach can address persistent problems with spatial inequality in informal settlements. This project's application of the values of equity, democracy, and dignity resulted in significant improvements in living conditions, mostly due to the community's active participation in the planning and execution stages. The accomplishment of this project shows that Just City ideals are crucial for creating inclusive, sustainable spaces that represent the needs and goals of all inhabitants, in addition to being applicable to slum rehabilitation operations.

This instance demonstrates the transforming power of community-centred design and emphasises how important local involvement is to attain spatial justice. It reaffirms that communities become empowered stewards of their places and contribute to their long-term success when they are actively involved in their shaping. This catalyst initiative offers a strong foundation for expanding the approach to open space provision since it clearly demonstrates how Just City ideals combine with the community's active engagement in

creating equitable environments. This study suggests using school playgrounds as accessible public open spaces in informal settlements, building on the lessons learnt from the Kenya Meat Commission experiment. Through the implementation of a participatory management model and a transformative, change-making strategy, Nakuru can guarantee that these places are efficiently used, preserved, and appreciated by everyone. By addressing the lack of open spaces and upholding the principles of the Just City, this strategy establishes a foundation for equitable, sustainable urban development that places a high priority on spatial justice for all citizens of Nakuru.

CHAPTER 3

3.0 STUDY AREA

Nakuru City is situated in Nakuru County, 160Km Northwest of Nairobi City, along the Nairobi- Eldoret Highway. At an average elevation of 1850 meters above sea level, it is located on the floor of the Rift Valley between latitudes 0° 15' - 0° 31'S and longitudes 36° 00' – 36 °12'E. It is the fourth largest City, after Nairobi, Mombasa and Kisumu. Additionally, it serves as Nakuru County's headquarters. Naivasha, Gilgil, Molo, Subukia, Elburgon, and Njoro are also important towns located within the county. The study area is located within Nakuru West constituency, at the informal settlements of Kaptembwo and Rhonda.

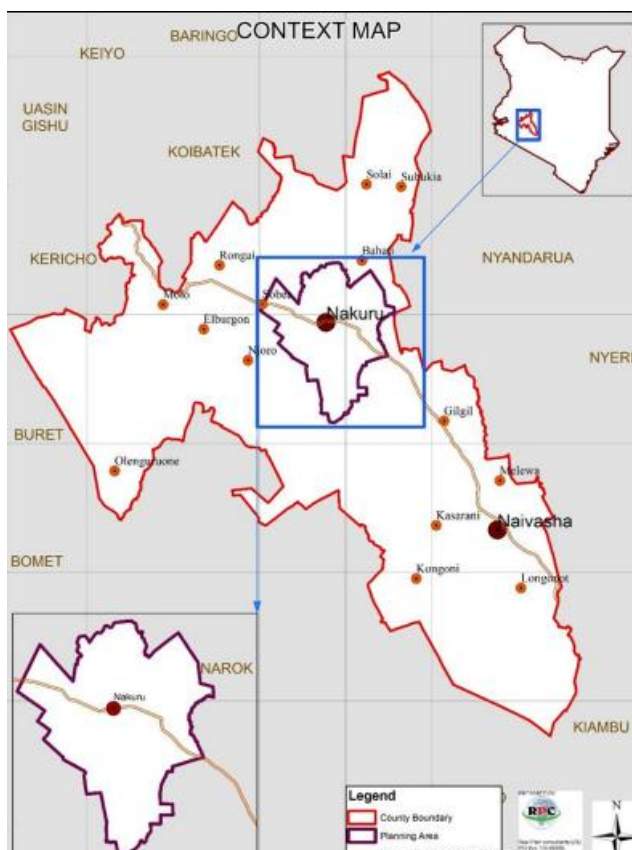


Figure 12: Study area context map. Source (Nakuru ISUDP 2015-2035)

Nakuru city is divided into four sub counties: Nakuru West sub county, Nakuru East sub county, some parts of Gilgil subcounty and Rongai sub county. Important physical features in Nakuru City include Lake Nakuru National Park to the south, the Menengai Crater to the north, and the Bahati Escarpment to the northeast. It is in the centre of Nakuru County and sits on the floor of the Rift Valley.

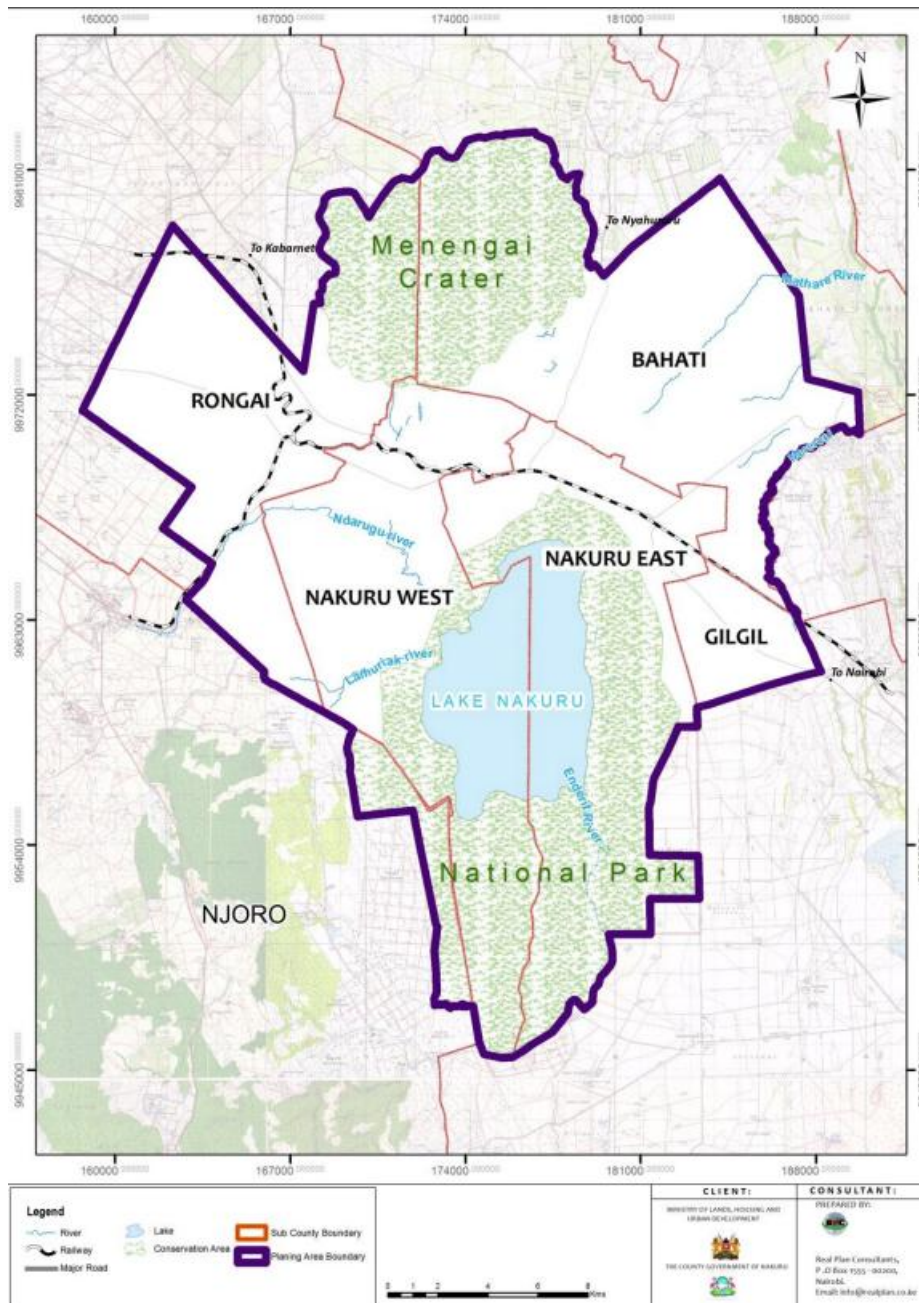


Figure 13: Nakuru Sub County Delineation. Source: (Nakuru ISUDP, 2015)

The slope character provides a range of spatial development potential, which in turn provides a range of urban development opportunities. The town's prevalent fertile loam soils and good climate encourage agricultural activity. On the other hand, landslides in Ngata and Kiamunyi provide evidence of the town's geologically fragile locations. Development in these places is suggested to be limited or regulated. Lake Nakuru, the Menengai Crater, the National Park, and the riparian reserves are among the ecologically delicate places that need to be preserved.

3.1 Nakuru Historical Development.

In the early 1900s, Nakuru town was founded as a railway outpost after the Kenya-Uganda line was constructed. The new town was surrounded by Maasai grazing fields, and the railway station was situated between the Menengai Crater and Lake Nakuru. The railway brought European settlers to the surrounding areas during the colonial era (1910–1960), when they purchased sizable farms. The town then developed as a railway station and a hub for European and Asian traders. Due to the extremely productive farms in its hinterland, it saw tremendous growth at this time. To process farm produce, the community built agricultural processing industries. To supply agricultural machinery, other industries were also formed. The town served as the administrative centre for the Rift Valley Province and Nakuru District, making it a significant seat of administration.

All the aforementioned factors raised the need for accommodation among government employees, railway workers, traders, and industrial workers. Nonetheless, there were limitations on the size of the town's local African population. Africans occupied the farther southern sections of the Bondeni-Kivumbini area, Asians occupied the areas next to the railway station to the south, and Europeans occupied the northern parts of the town. After gaining independence, the town became available for the habitation of the indigenous population in the 1960s and 1970s. Numerous municipal and government housing initiatives were established because of the significantly elevated demand for housing and other services. Several staff-housing schemes were established by industries such as the Pyrethrum Board, Kenya Railways, the Ministry of Works, Survey of Kenya, and Kenya Farmers Association as a result of certain tenants purchasing housing projects in partnership with the national Housing Corporation. During this time, numerous European farms were acquired by African land-buying cooperatives and private individuals.

Rural-urban migration rose even more after the year 2000. The rise of a very active land market led to an increase in land subdivisions. Many individuals choose to settle in the town rather than the perceived less secure rural areas because of the intermittent political and land-related violence in the town's hinterlands. The town's growth dynamics were greatly impacted by the most recent and largest population explosion, which occurred in 2007. The construction of the County headquarters in the town fuelled additional growth.

3.2 Land Subdivision

In Nakuru City, subdivision is still the most prevalent type of plan that affects private land. The peri-urban areas and the former Nakuru municipality are especially affected. Originally, land buying corporations and cooperatives owned most of the property next to the municipality. They divided their land and distributed it to their members. The town's increasing population density, particularly in the informal settlements of Kiamunyi, Kiamunyi, Mwariki East, Mwariki West, Naka, Wanyororo, Barut, Ronda, and Engashura, was largely caused by the planning of large-scale subdivision programs. Some of the subdivisions, including the Engashura, Kiamunyi, and Kiamunyi farms, produced thousands of subplots. Private planners helped the land-buying corporations draft the designs, and private surveyors carried them out.

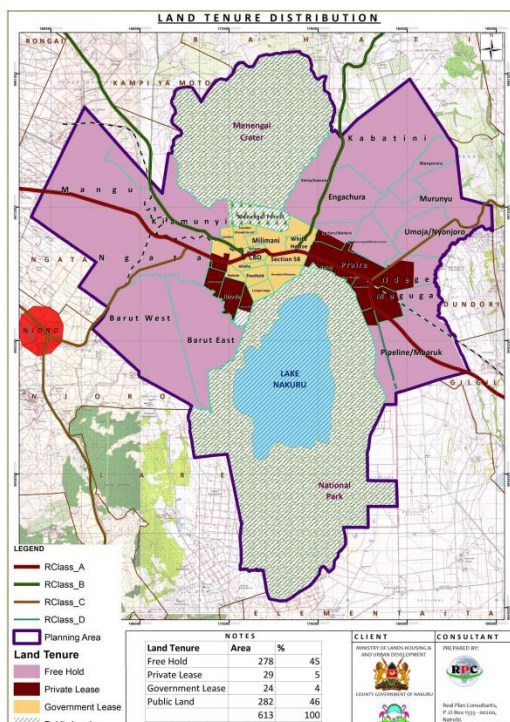


Figure 14: Land tenure distribution. Source (ISUDP, 2015)

To illustrate the extent of land subdivision, in April 2012, twenty (20) sub-division applications were submitted to the Town Planning Committee of the previous Municipal Council of Nakuru.

Prior to now, several subdivisions were not properly prepared and/or approved. In freehold land, when land subdivision rules and regulations are frequently not followed, this is particularly prevalent. Effective planning and development management are hampered as a result. Effective management of the property subdivision requires adherence to the established policies and processes.

3.3 INFORMAL SETTLEMENTS IN NAKURU CITY.

The informal settlements are largely located within the private leasehold land tenure divisions, that account for 5% of land within the city extents. According to KPHC1, 2019, Nakuru town has an estimated population of 570,674, making it one of Kenya's five most populated urban districts. Bondeni, Manyani, and Lakeview in Nakuru East, and Ronda, Kaptembwo, and Githima in Nakuru West are the main informal communities in the town (Nakuru CIDP2). Delineating the boundaries of formal and informal settlements in the city is difficult due to their nature. Using spatial data technology, our survey approximated the boundaries of the key areas covered by informal settlements.

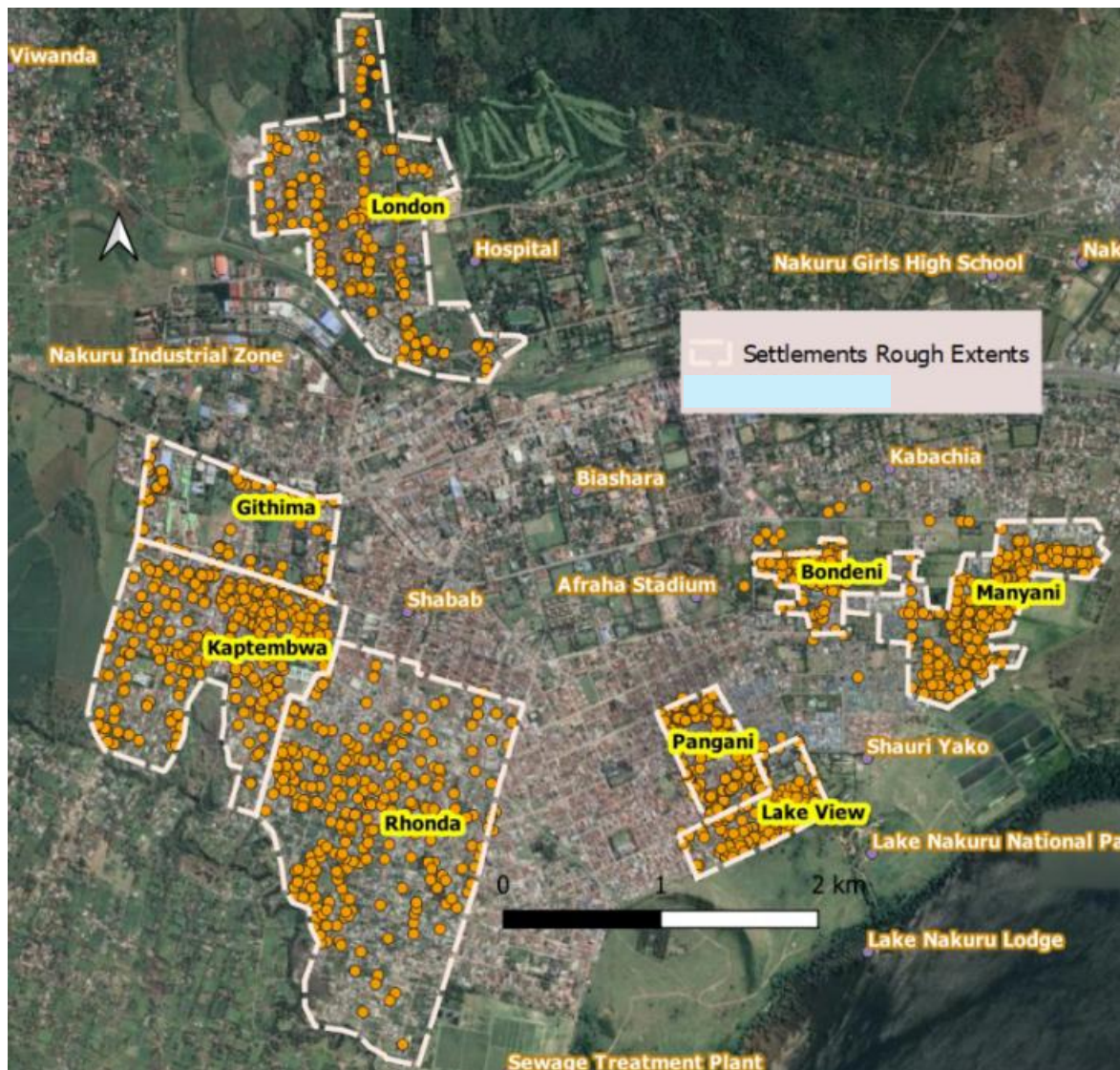


Figure 15: Informal settlements Estimated extents. UN-Habitat, 2021

According to the KPHC (2018), the average family size in Kenya is projected to be 3.9 people, and most households in the settlements examined have three to five individuals. The

biggest percentage of large families are seen in Bondeni, Githima Lake View, and Rhonda, where at least 20% of households have more than six people. This suggests that there is probably congestion because most families live in single- or double-room buildings.

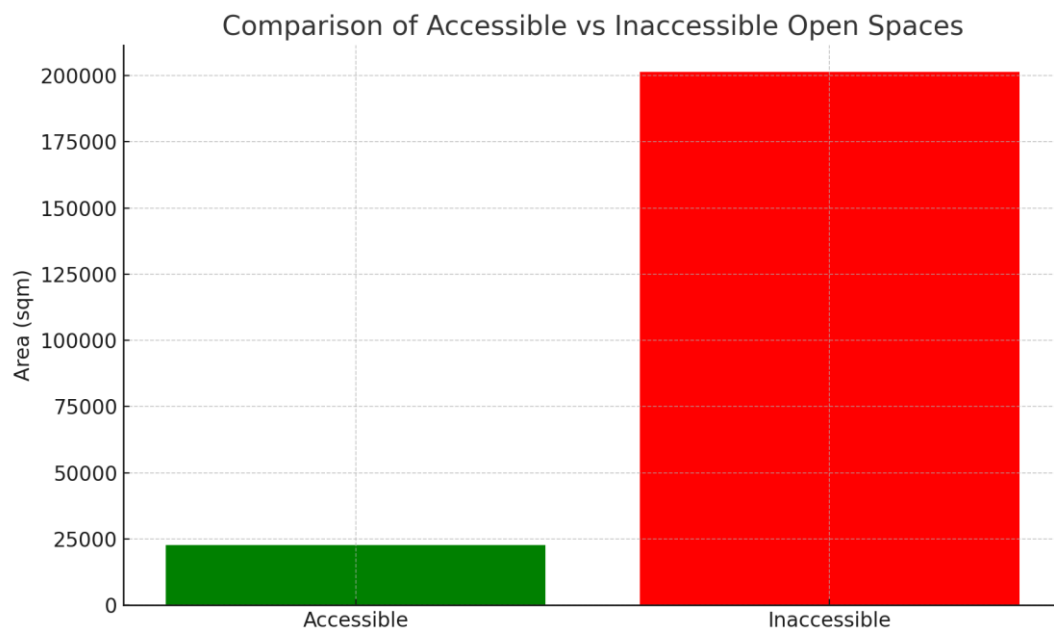


Figure 16: Bondeni informal settlement view. Source (Google Map 2023)

3.4 ASSESSMENT OF OPEN SPACES IN NAKURU INFORMAL SETTLEMENTS

The study aims to assess the current state of public open spaces in Nakuru City and highlight the existing spatial disparities. Nakuru City's recreational areas include Nyayo Park, Nakuru Athletics Club, Afraha Stadium, Nakuru Golf Club and Lions Garden. In addition, there are smaller playgrounds situated mainly in residential neighbourhoods, hence are poorly maintained and inadequate.

Although Nakuru town is home to several green spaces, the people who live in the informal settlements may only access a small number of these public open spaces. For example, the largest recreational facility in the town, Afraha Stadium, is only 500 meters from Bondeni; nonetheless, admission to the stadium is always charged. SDG indicator 11.7.1 states that it is ideal for urban dwellers to have access to open and recreational areas within 400 meters of their residences. The existing open spaces are not in close proximity to the residents of informal settlements, hence, are not accessible. Hence, the research explores the possibility to open school playgrounds for recreation through collaboration of the community and the municipality.



Graph 1: Open space distribution in terms of accessibility (Author)

Out of the five mapped Public open spaces, only two can be accessed freely, hence these spaces remain inadequate and inaccessible to the majority of the residents in the informal settlements. Hence children do not enjoy the privileges of experiencing open spaces and active recreation areas and resort to playing along dangerous and dusty road reserves and undeveloped lands.

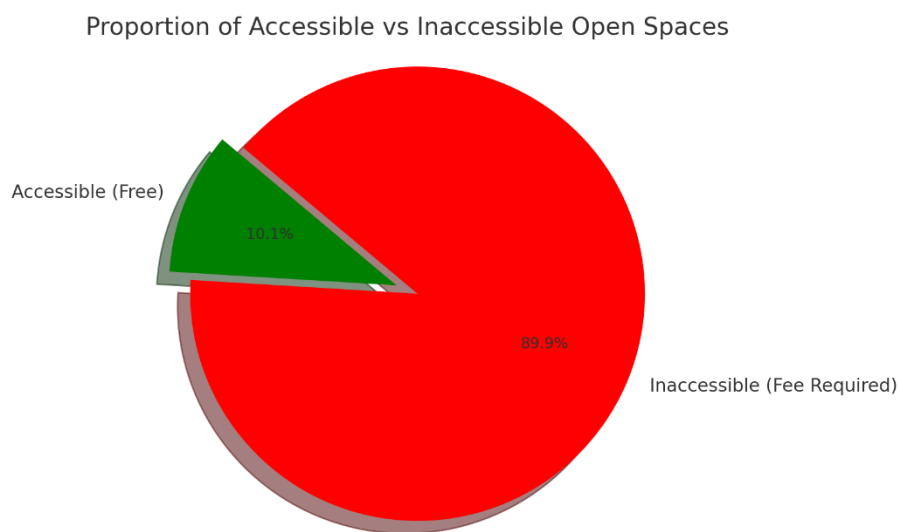


Chart 1: Distribution of free open spaces to charged spaces. (Author)

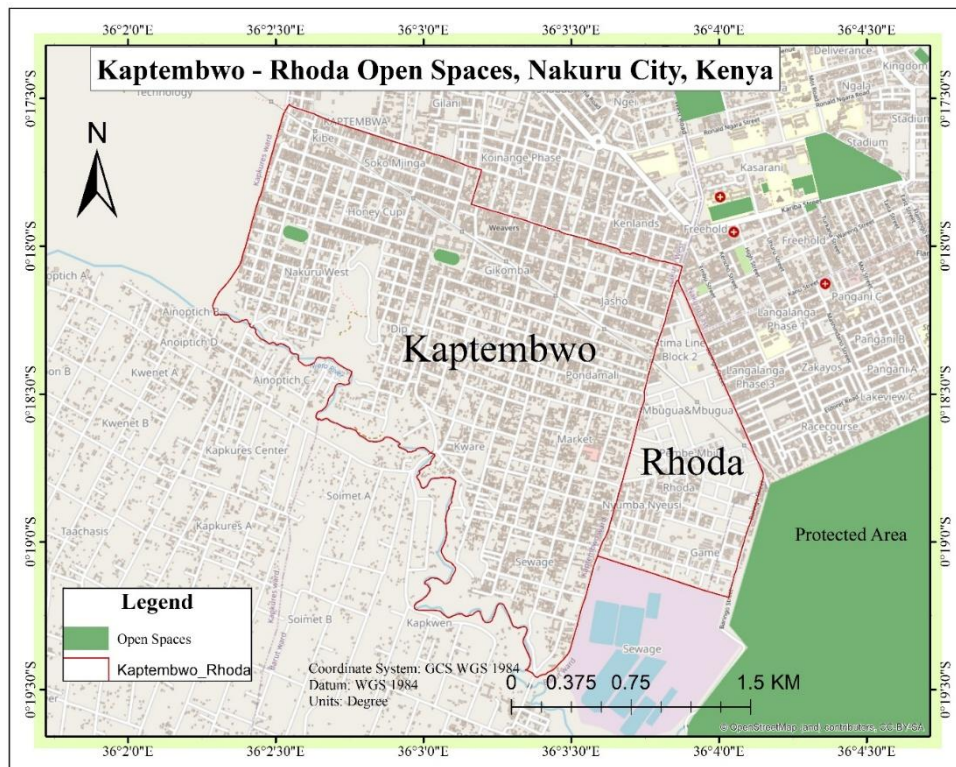


Figure 17: Map of study area in relation to recreational spaces. Source (Author)

The Green spaces within the study area demarcated by the red borders are school playgrounds. The City's public open spaces are located further away from the study area.

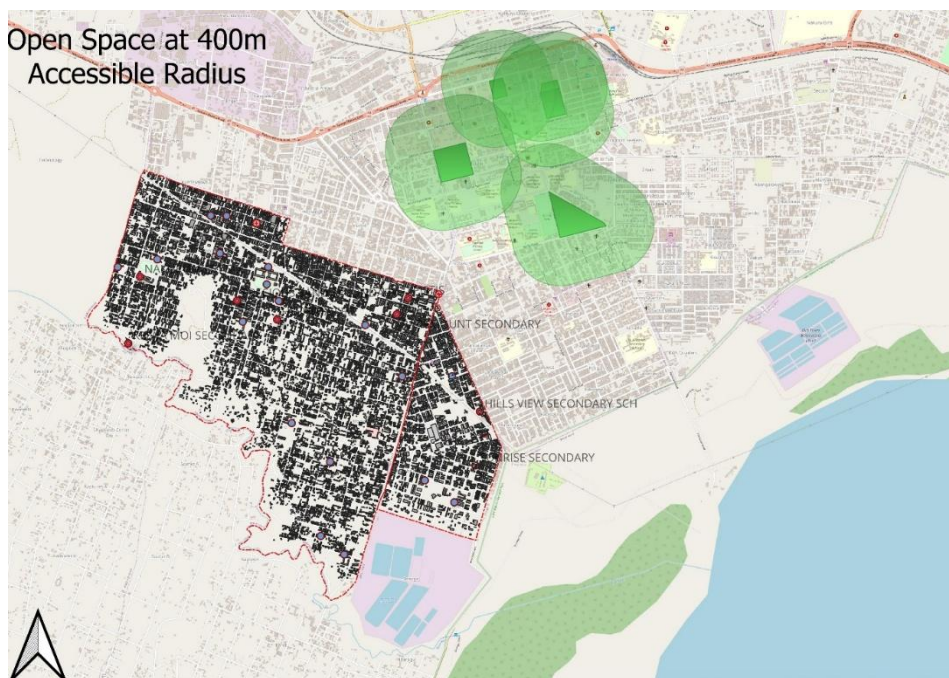


Figure 18: Illustrating the 400m accessibility radius of the existing public open spaces. Source QGIS Generated (Author)

School playgrounds are the main open space in our study area, and they present an unrealized potential to increase green space per capita in accordance with UN guidelines. Without the need for significant new construction, we can create green areas that are accessible to the community and help locals in many ways by turning existing areas into green spaces.

The research mapped a total of fourteen schools, six of which are public schools, owned and regulated by the municipality and eight private schools, which are owned by private entities. Most of these schools are accessible to the population it serves. Also, these schools have playgrounds, that are not well maintained but are still functional. However, these spaces remain underutilized during school holidays when schools are closed. Table 1 below lists the schools mapped within the study area and the approximated areas of the playgrounds generated from QGIS mapping tool.

	Name	Area (Sqm)
1.	Mwariki School	7,105.149
2.	Elieen Ngochoch	11, 557.755
3.	Kibowen	14,984.375
4.	Nakuru West	19,321.445
5.	Kaptembwo	18, 188. 569
6.	Heshima	4,880.252
Total Area		76,037.54 Sqm

Table 1: List of public schools within the study area & their measured sizes in Sqm

Subsequently, the eight private schools were mapped and the sizes recorded as well.

	Name	Area (Sqm)
1.	Pistis	1,616.776
2.	Nakuru Elite	2,431.288
3.	Pyrene Academy	9,919.122
4.	Melon chosen school	5,290.012
5.	Micter Academy	1,788.070
6.	Paramount secondary	2,575.911
7.	Grace Academy	1,413.861
8.	Mother Kevin Academy	3,939.328
Total Area		28, 971.370 Sqm

Table 2: List of private schools within the study area and their measured sizes (sqm)

3.5 Why transforming school playground in Kaptembwo & Rhonda Informal areas would be Ideal.

School playgrounds are the main open space in our study area, and they present an unrealized potential to increase green space per capita in accordance with UN guidelines. Without the need for significant new construction, we can create green areas that are accessible to the community and help locals in many ways by turning existing areas into green spaces. School playgrounds are frequently in the middle of neighbourhoods, making it simple for locals to get to them. They also provide a sizable amount of open space that might be used outside of the typical school day. We can build a more unified, eco-friendly urban landscape and enhance the amount of green space per person by repurposing these sites.

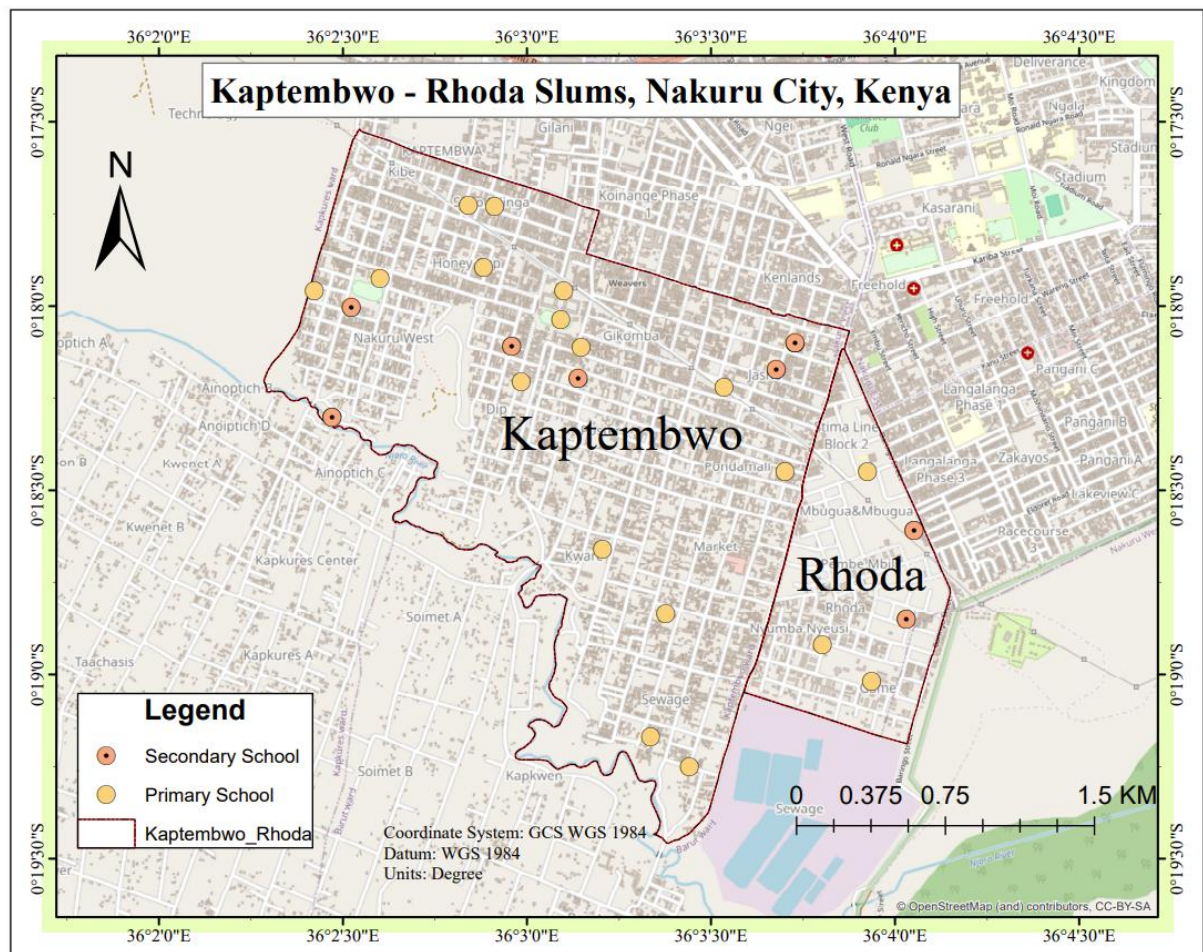
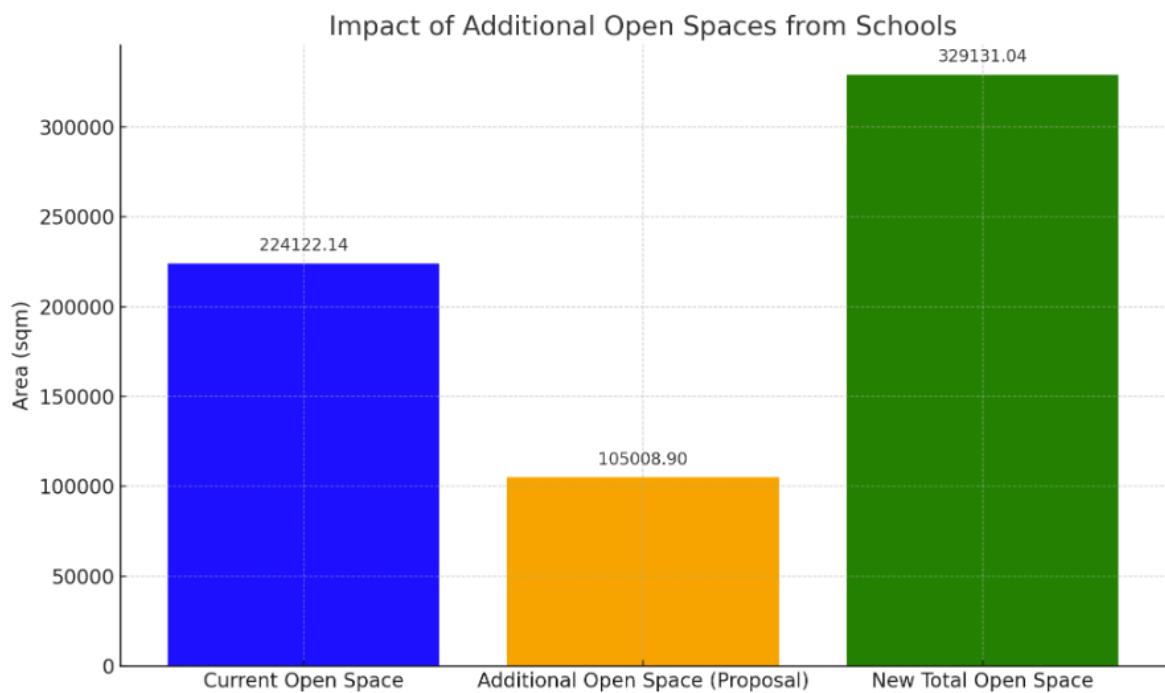


Figure 19: Spatial distribution of Schools in informal areas of Nakuru. Source QGIS generated (Author)



Graph 2: Projected increase in open space distribution when schools are involved. (Author)

- **Current total area** of open spaces (224,122.140 sqm).
- **Additional open space** (105,008.9 sqm) from schools
- A total of 14 schools
 - 8 Private Schools
 - 6 Public schools

With both private and public schools' acceptance to this community open space approach, the city stands to enjoy a total 31.95% increase of open spaces.

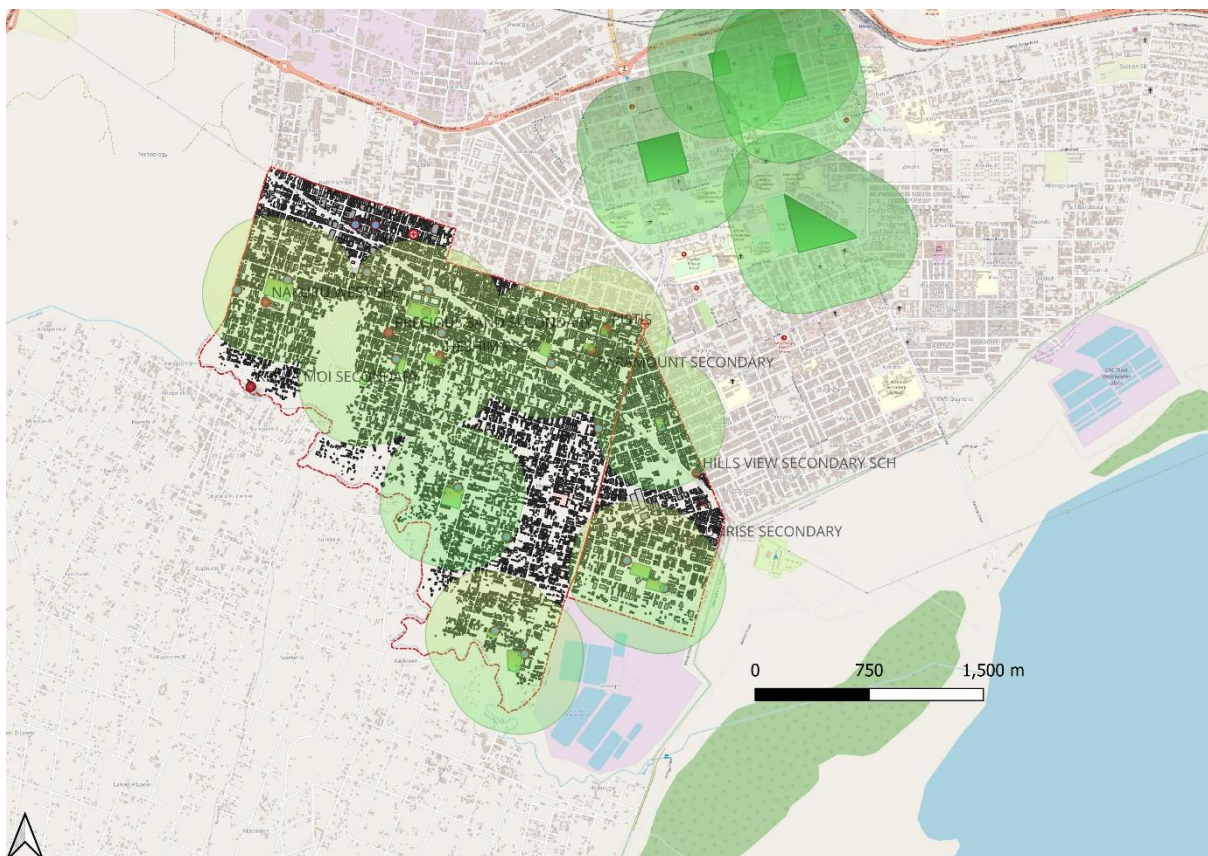
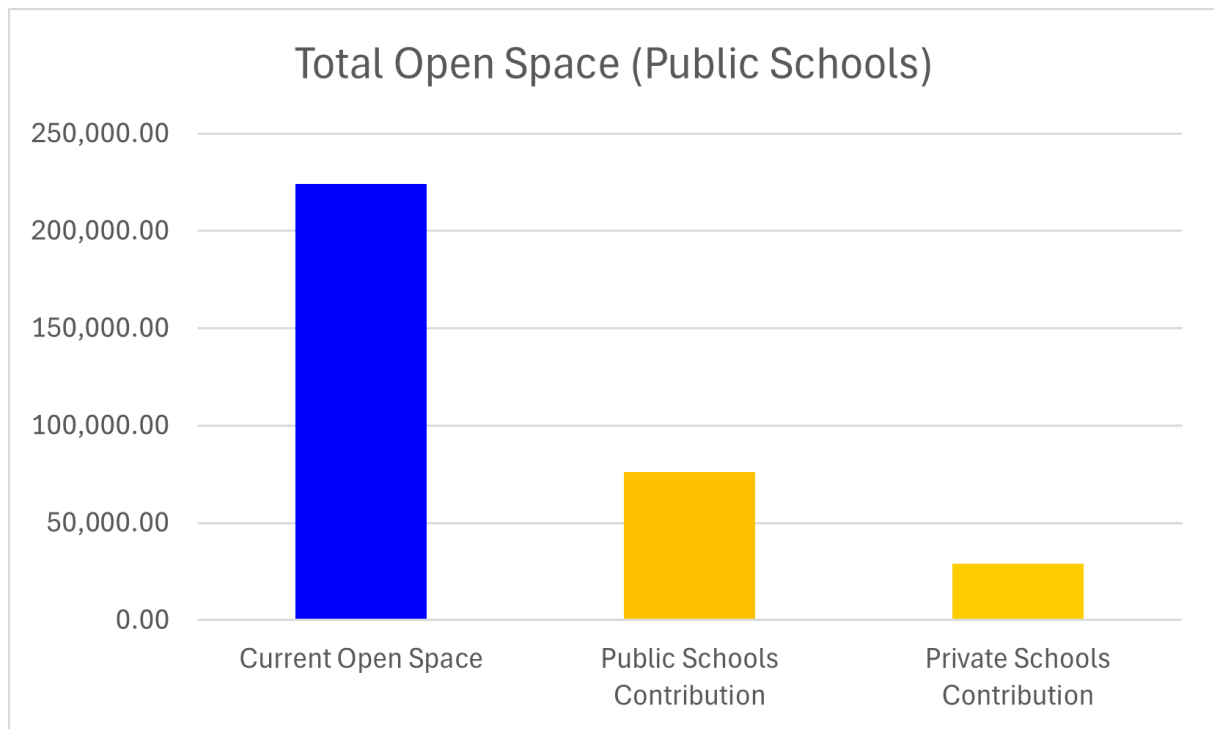


Figure 20: How school playgrounds in the study area can increase open space per capita. Source, QGIS Generated (Author)

According to research, having access to green space nearby greatly improves quality of life and fosters communities that are healthier and more cohesive (Wolch et al., 2014; Maas et al., 2006). By increasing the amount of accessible green space per person, the 400-meter buffer shown in figure 20 above highlights each school playground's ability to improve the neighborhood. Particularly when administered using community-focused strategies, these green spaces give locals access to essential recreational spaces, aid in urban cooling, and promote social cohesion (Kabisch et al., 2015; Jennings & Bamkole, 2019). These school playgrounds might function as community centers by forming shared access agreements, which would be in line with UN objectives for resilient and sustainable urban areas.

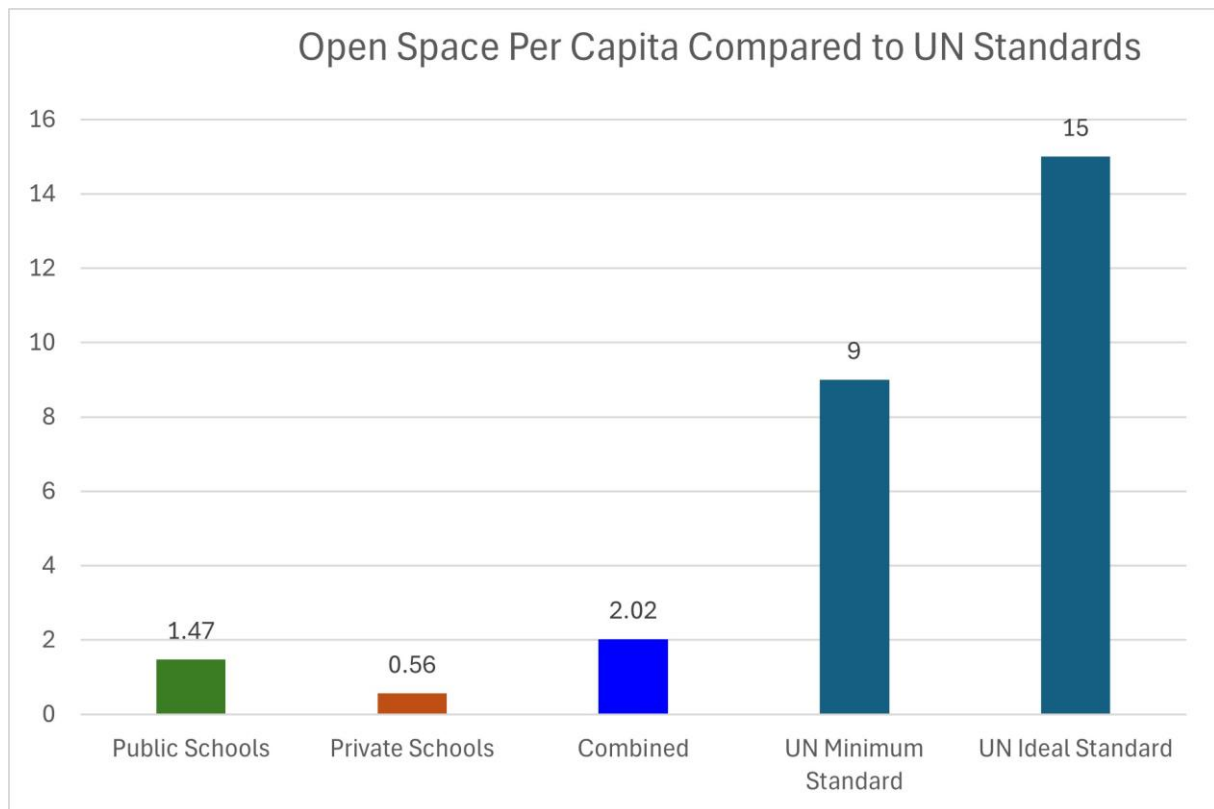


Graph 3: Collective Public schools'/ Private schools' potential contribution to overall Open space. (Author)

In a scenario where private schools may not be open to the idea of opening up their grounds to the public, the remaining public schools still play a significant role and contribute to the desired increase of such spaces. Public schools alone contribute to an increase of twenty five percent of the City's total open spaces.

- **8 Private Schools:**
 - 28,971.37sqm.
- **6 Public schools**
 - 76,037.54sqm.
- **If public Schools only**
 - 25.34% increase of POS

The research goes further to compare the contribution of these schools to the fulfilment of the United Nations Standards of open space per capita. According to United Nations, the minimum open space per capita should be nine square meters, and an ideal of fifteen square metres.



Graph 4: Open space per capita compared to the UN standards for Cities. (Author)

With an approximate population of 51, 856, the existing open space per capita is way below the recommended quantity. With the proposal to open school playgrounds for this same purpose, the open space per capita would increase to 2.02 square metres if both private and public schools agree to join in and have a combined effort for the community's wellbeing. However, in a scenario where the private schools may be unwilling to open their grounds, public schools alone will contribute to 1.47 open space per capita.

Transforming school playgrounds into shared community spaces offers a practical solution to the issue of lack of open spaces in informal settlements, addressing spatial disparities and advancing Nakuru's Urban Development goals. This approach aligns with the principles of spatial justice, ensuring that vulnerable communities gain access to essential recreational and social spaces, often absent in informal settings. Leveraging existing school grounds maximizes underutilized resources, fostering inclusive urban development that prioritizes equity in spatial distribution.

3.6 Developing a Collaborative Strategy

The success of this approach is fully dependent on cooperation. The core strategy is creating a community-based paradigm that combines the school administrators, municipal authorities and the community members. In order to facilitate community use and maintain student safety, school administrators should grant access to playgrounds after school hours. Municipal Authorities are vital to assist the project by implementing security measures, offering maintenance services, and creating legislative frameworks that promote the safe, cooperative use of school facilities. Community members should actively participate in upholding and preserving the common areas, encouraging accountability and solidarity. These parties can work together to draft a cooperative agreement that outlines maintenance and security policies and establishes public access hours, such as weekends and after school hours. Through this agreement, playgrounds may continue to be welcome, safe, and well-kept places for all.

In addition to providing recreational options, these green areas can host social gatherings, educational courses, and small community markets, fostering links within the community and creating chances for unofficial revenue. According to Jennings and Bamkole (2019), these areas can develop into unofficial "town squares" where neighbours can congregate, exchange resources, and even take part in neighbourhood food gardening initiatives that enhance household nutrition. Through promoting the physical and social health of people living in informal settlements, communal green spaces can lessen social isolation, strengthen social support systems, and create a more resilient and healthy community.

Green spaces are not just for recreation in low-income regions; they can be resources that improve quality of life. School playgrounds are positioned as multipurpose community green spaces, which helps to solve immediate social and economic needs, build stronger community links, and set the groundwork for increased local resilience and support. By recognizing and acknowledging the daily struggles of individuals who are most in need, this approach transforms green areas into vital, adaptable resources for their welfare.

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