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The Status of Upgraded Elements Through Participatory Approach in Korogocho and Soweto East in Kibera Slums

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Abstract
The Government of Kenya in its national slum policy seeks to encourage, facilitate and secure community and stakeholder participation on slum upgrading. The study conducted the assessment of elements upgraded through participatory approach in Korogocho and Soweto East in Kibera slums. The study established the status of economic activities, residents' length of stay and elements that were upgraded through a participatory approach in Korogocho and Soweto East in Kibera slums. The capabilitiesapproachtheory guided the study. The study adopted a descriptive design approach using multistage and systematic random sampling while employing Taro Yamane's table of samples;this yielded 199 and 201 totaling to 400 respondents from Soweto East in Kibera and Korogocho slums respectively. Questionnaires, interview schedule, observation guide and focus group discussions were used during field inquiries. The study found out that basic elements of housing units, cabro and tarmac roads, and perimeter wall and storm water drainage were erected at Soweto East in Kibera slum. The tarmac road, foot bridge, multipurpose hall and primary school; gate, perimeter fence, common hall and playground were upgraded in Korogocho slums. The study concluded that at Korogocho and Soweto East Zone A in Kibera slums a substantial number of facilities were upgraded into permanent structures through manipulations and tokenism level of participation. Finally, the study concluded that the use of direct resident participation on slum upgrading processes was significant and instrumental in influencing the sustainability of the upgraded slum facilities. It was recommendedthatupgradingagenciesshouldtransposecommunityparticipation fromnon-participation and tokenism to citizen empowerment to involve the community to be part of the project and hence work towards its sustainability.

Keywords: *Status of elements, upgrading, economic activities, participation, length of stay, sustainability*

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I. INTRODUCTION

There is significant diversity in the urbanization levels reached by different geographic regions. The most urbanized geographic regions include Northern America at 82 percent, Latin America and the Caribbean 81 percent, Europe 74 percent, and Oceania 68 percent (UN, 2019). The level of urbanization in Asia was approximately 50 percent. In contrast, Africa in 2018 remained mostly rural, with 43 percent of its population living in urban areas (UN 2018). But this is bound to change. While today's global average of city dwellers is 55%, the UN forecasts more than two-thirds of the world's population will live in urban areas by 2050 (UN 2018). Africa and Asia will drive this increase: Of the two and ahalfbillion people added to theworld's urban population, 90%will beAfricans and Asians (UN 2018).As the world continues to urbanize, sustainabledevelopment depends on the successful management of urban growth, especiallyin low income and lower-middle-income countries where most rapid urbanization is expected by 2050 (UN 2019). Therefore, integrated policies to improve the lives of urban dwellers are necessary.Due to the increase in urbanization, cities all over the world have increasingly faced the scarcity of housing, especially for the urban poor. Nevertheless, numerous public housing efforts have been made to solve this deeply rooted problem, however,

there seems to be no government that has effectivelysucceeded (Boonanan, 2013).Nonetheless, during the past few years, Participatory slum upgrading and community-based development projects have been practiced across the globe (ibid).The government of Kenya in its policy formulation for national slum upgrading and prevention policy seeks to encourage, facilitate, and secure community and stakeholder participation, transparency, and accountability in integrated approaches of slum upgrading and prevention, redevelopment, rehabilitation, and improvement programmes (ROK, 2016). UN-Habitat's Participatory Slum Upgrading Programme (PSUP) advocates for multi-sector, multi-stakeholder, human rights, and principle-based approaches to incremental participatory slum upgrading and sustainability. PSUP gives an opportunity to bridge the unfinished business of MDG 7.D (improve the living conditions of 100 million slum dwellers) and SDG 11.1 (By 2030, ensure access for all to; adequate, safe, and affordable housing and basic services and upgrade slums).

Objectives

The study objectives were to:

1. Find out the daily economic activities of the residents of Korogocho and Soweto East in Kibera slums.
2. Establish the residents length of stay within Korogocho and Soweto East in Kibera slums,
3. Examine the status of elements that were upgraded through a participatory approach in both Korogocho and Soweto East in Kibera slums.

II. LITERATURE

Reid (2000) and Baskin (2020) concur that the benefits of the involvement of key stakeholders from project conception to completion are summarized as follows: first, it permits theincrease of project design effectiveness by way of allowing a development that resident participants are associated with and ready to incur expenses on it. Secondly, the community participants enjoy equal access to local information, which helps them to conceptualize the project by seeking answers to any unqualified matters of interest. Thirdly, it enhances the effectiveness and sustainability of the project maintenance through demand-responsiveness, which is critical in boosting economic sustainability; and resident tenure of projects that are relevant in impacting social sustainability. Fourthly, itincreases asenseof valueadditionand commitmenttoward ownership of facilities and amenities by the residents. Fifth, it contributes to predominant goals such as democratization, good governance, and minimizing the shortage of local capacitybuildingnecessary for interacting with authorities and other relevant agencies for implementing mutual goals. Therefore, boostingpublicparticipation createsvibrant channels forpublic sectorinvolvement in making choices, and giving participants a chance to influence the actions that determine their lives. Studies by Ambeyi(2009) established thatthe evaluation report on upgrading Korogocho programmeindicatedthatinadequatedrainage facilitiesfor rainwater and liquid waste resulted in severely polluted neighborhood streams. These studies further observed that there were very shallow drainage tunnels to major roads and the leading paths, which flooded either due to liquid and solid wastes, or storms. These wastes are drained into rivers Nairobi and Gitathuru. Therefore, the study sought and documented the existing status of the drainage patterns in Korogocho and Soweto East in Kibera slums in Nairobi?

Duetohighpopulationgrowthinmostdevelopingcountries,thesocialandeconomicfactors,and expansive changes in demography, have outstretched local municipalities and cities' potential to provide adequate housing services. Sverdlik*et al* (2020) concur that the steady growth of urbanization in the world will influence every phase of human activities now and in the coming years. These parameters include environmental, social, economic, and health.In many parts of developing countries, the soaring rates of urban growth have come about due to poor planning unaccountable governance, and slow economic growth. The trickle-down effect of all these is the creation of abject poverty thriving in informal settlements and slums, especially in urban centers and cities (ROK, 2019). The unforeseen growth of slums and informal settlements in the world specifically in developing countries, and a persistent lack of adequate housing is a major threat to urbanization presently.

Gilbert (2016), andAwais*etal* (2021) established that most ofthe research findings failed to investigate policy interventions among slum upgrading and sustainability issues. In absence of functional policy interventions, such housing units and the hosting environment could be condemned to social and physical deterioration. However, some of the possible triggers of this deteriorationincludeman-madeandnaturaldisasters,stressanddensificationonthebuiltenvironment and environmental hazards.It is foreseen that as houses deteriorate in age then consolidated informal settlements in near future could become the slums of the city. Therefore, the study answered the question "As time lapses, could this be the case of the deteriorating upgraded Korogocho and Soweto East in Kibera slums in Nairobi?

Based on these observations Czirják, (2019) & Anderson and Mwelu, (2013) it was evident that concerning economic and labor market analysis, KENSUP fell short of providing a viable solution to the Kibera slum residents. This is because the large-scale and highly priced houses resulted in increased housingexpenses. This rendered the slums residents' to lose ownership and hence sustainability of upgraded project outcome becomes questionable. Furthermore, the long-term social impact of the slum housing upgrading project was not

beneficial to the intended parties. On the contrary, this threw a substantial number of slum residents deep into the open to start a slum life adjacent to the upgraded facilities.Ipamba(2019) &Ambeyi (2009)indicatedthatdrainagefacilitiesforrain waterandliquidwaste inKorogochowereinadequateanditresultedinseverelypollutingtheenvironment.Thesestudies further observed that there were very shallow drainage tunnels along major roads and leading paths, which flooded either due to liquid and solid wastes or rainstorms.The solid and liquid wastes are drained into Nairobi and Gitathuru rivers. Therefore, the study sought anddocumented the existing status of the drainage patterns in Korogocho and Soweto East in Kibera slums in Nairobi.

Theoretical underpinning

CapabilitiesApproachTheoryby AmartyaSen

This theory was pioneered by Amartya Sen and it perceives development from a different orientation. Thus, for a while advancement and growth were gauged as the key indicators of economic development and industrialization (Sen, 2004). This was expected to be achieved throughthestateanditsinstitutionsforthebenefitofthepeople.However,Senbroughtina unique perspective that views people as active participants during the process of development and not mere cogs as passive onlookers. This approach is made possible by enabling the key stakeholders with the appropriate and interactive environment (Martha, 2003). This technique brings in the ideas of work, potential, and performance. The deprivation of participants of fundamental potential rights means they cannot live a positive livelihood they cherish in a free participatoryenvironment (Sen, 2004).Therefore, the idea cementing this view is that once slum residents are enabled to fundamentally participate and exploit their potentials fully in a democratic space they can achieve their deliverables in slum sustainability to enhance their living conditions.

The study conceptualizedthe direct involvement of resident participants' in the slum upgrading project as an enabler towards attaining sustainability. Thus, the conception of the idea of involving stakeholders in slum upgrading and convincing the slum residents to accept the decision to upgrade the informal settlement is critical. The residents accepting to be relocated for some time, involving all residents in critical decision-making like choosing their representatives, providing feedback in any occurrence and paying attention to everyone's suggestions among others took centre stage in this review.

III. METHODOLOGY

The study adopted a descriptive research design approach to holistically assess the contributions of community participation in the sustainability of upgraded Korogocho and Soweto East Zone A in Kibera slums in Nairobi. The design enabledpresentation of accurate manifestation ofeventsandofferedanopportunityto gain new insights into the study variables (Kothari, 2004). The descriptive design enabled the study to explore how the independent variable (sustainability) would change in response to the change in the dependent variable (community participation). As aresult, the descriptive design enabled the researcher to establish how the sustainability of the upgraded slum affected adopting a participatory approach in the upgrading process.

Thestudywas carried out in upgraded Korogocho and Soweto East Zone A in Kibera slums in Nairobi. Korogocho slum is situated in Kasarani division at the northern part of Nairobi City, 11 Km from Nairobi's central business district. It is at an altitude of 1,604M above sea level and its geographical location lies at 1° 13′ 0″ S, 36° 55′ 0″ E. On the other hand, Soweto East Zone A in Kibera slum lies at an altitude of 1745 M above sea level; southwest of the central business district approximately 5 Km from Nairobi City center; at a geographical coordinates of 1.3122^{o}S, 36.7914^{o}E (Agayi&Serdaroğlu, 2020).

Accordingly, the Kenya national demographic census of 2019 recorded that Korogocho had 36,900 people with 18,967 and 17,933 males and females respectively. Soweto East Zone A in Kibera slum had a population of 20,767 in 2019 comprising of 10,782 males and 9,984 females respectively (KNBS, 2019).

A multistage cluster sampling was utilized to sample 8 and 21 villages of Korogocho and Soweto East in Kibera while utilizing Taro Yamane's table of sample sizeto obtain a sample size of 400households**(**Yamane,1967).Using systematic random sampling in each multistage cluster sub-samples of 201 and 199 respondents from households in Korogocho and Soweto East in Kibera slums respectively were obtained.The study utilized an interview guide, questionnaires, focus group discussions (FGD), and an observation guide to collect data.

Pearson Correlation Coefficient

Pearson's correlation coefficient (r) was applied in measuring the extent of interdependence between two variables. It is utilized to measure the strength of association between independent and dependent variables. According to Freeman, and Rogers (1994), the applied Pearson's equation for r is:

$$r = \frac{\mathbf{n\Sigma xy - (\Sigma x\Sigma y)}}{\sqrt{\boldsymbol{n\Sigma x^2 - (\Sigma x)^2}}\sqrt{\boldsymbol{n\Sigma y^2 - (\Sigma y)^2}}}$$

IV. RESULTS AND DISCUSSIONS

Introduction

The study targeted 201 and 199 respondents from Korogocho and Soweto East Zone A in Kibera slums respectively. Out of a sample of 400 respondents, only 344 respondents participated in the study as shown table 1.

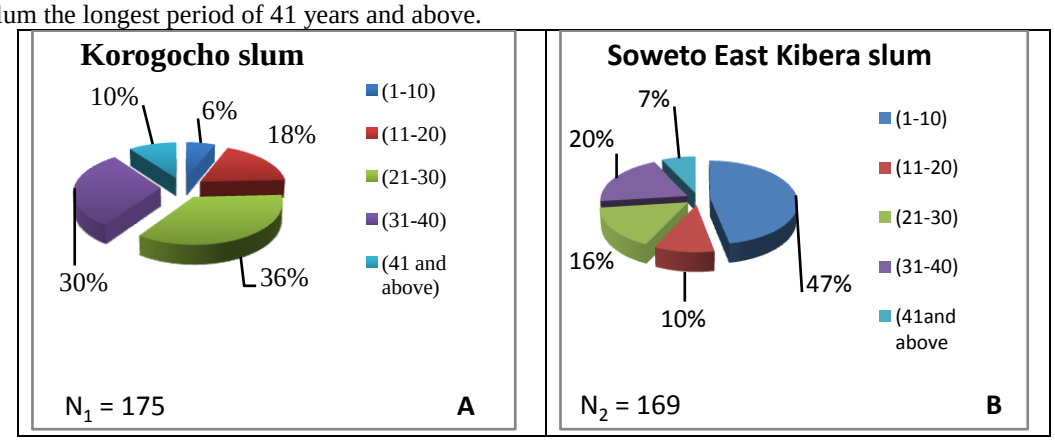
Table 1: Responserateofrespondents

#		Korogocho			Soweto East in Kibera		
	Participants	**Sample size**	**No. of respondents**	**Response rate**	**Sample size**	**No. of respondents**	**Response rate**
1	Assistant chiefs	3	3		1	1	
2	Committeeleaders	8	6	75.0%	8	7	87.5%
3	Householdrespondents	190	166	87.4%	190	161	84.7%
	N= N_1 + N_2	*****means **N_1 = 175**		**N_2 = 169**	**Source:** Field data, 2023		

Table 1 presents questionnaires rate of returninKorogochoand Soweto East inKibera with 87.4%and84.7%respectively. The FGD with committee leaders attracted a response rate of 75% and 87.5% i n KorogochoandSoweto East Zone AinKiberaslum respectively. All the four sampled assistant chiefs participated in the study. These responses captured much of the data from respondents.These findings were supported by Mugenda and Mugenda (2003) who asserted that a response rate of 70% and above is considered to be very good for data analysis and reporting.

Residents length of stay in their current slum

The study established the length of stay of respondents in both Korogocho and Soweto East Zone A in Kibera slum. The reasoning behind this inquiry was to ensure that sampled respondents had a wide experience of slum life ranging from participatory upgrading to sustainability measures put in place within the slum. Figure 1 part Ashows that majority of respondents comprising 36% had lived in Korogocho for a period of 21 to 30 years. Some 30% of the tenants had stayed within the slum for 31 to 40 years. Figure 1 part B shows that 47% and 20% of the respondents had lived in the Soweto East in Kibera slum for a period of 1to 10 year and 31to 40 years respectively. However, 10% and 7% of Korogocho and Soweto East residents respectively had lived in the slum the longest period of 41 years and above.



Source: Field data, 2023

This is an indication that some of these residents were born and brought up in the slums which they knew as their only home.

Occupationsof the respondents

The study finding revealed the respondents' economic activities and their contributions to the sustainability of the upgraded Korogocho slums. Respondents through questionnaire asserted that althoughslumlifeisverychallengingmostoftheslumdwellersengaged into someeconomic activities to earn a living.as presented in table 2.

Table 2: Economic activities of Korogocho residents

Source of income	Frequency	Percentage
Formal employment	9	5.1

Informal employment	70	40.0
Self-employment	45	25.7
Non	51	29.2
Total	**175**	**100**
N_1= 175		**Source:** Field data 2023

From the data analysis in table 2, 40% of the respondents in Korogocho worked in the informal sector and 29.2% had no regular and reliable source of income. Consequently, 25.7% generated their income through self-employment while 5.1% worked in the formal sector. This was evident because the residents could be engaged into various economic activities within Nairobi City.

Table 3:Economic activities of Soweto East Zone A respondents in Kibera slum

Source of income	Frequency	Percentage
Formal employment	27	16
Informal employment	71	42
Self-employment	36	21.3
Non	35	20.7
Total	**169**	**100**
N2= 169		**Source:** Field data 2023

Accordingly, table 3 shows that 42% and 21.3% respondents from Soweto East in Kibera slum earned their livelihood from informal and self-employment respectively. Some 20.7% respondents had no regular source of income whereas 16% worked in the formal sector. From these statistics it was observed that Soweto East residents' engaged in the informal labour market due to lack of opportunities in the formal sector. In supporting these observations, Cuervo (1998) observed that slums are characterized by inadequate economic resources. This explains why the residents of Soweto East in Kibera slum had no source of income. The analysis concurs with ROK (2016) who observed that lack of employment opportunities and underemployment, were prevalent in most slums and informal settlements.

TheupgradedtarmacroadsinKorogochoslum

During the interviews with the key participants from Korogocho, the researcher established that two main roads and several feeder roads were upgraded to tarmac roads. The tarmacking of the roads was done by hired constructors specialized in road engineering works. The casual work of handling some materials, sweeping, cleaning, and directing the movement of people and vehicles,was done by residents. According to the informant the road works were supposed to construct a tarmac road with adequate paved ways of concrete for drainage on both sides of the road with adequate culverts for the smooth flow of storm-water.However, through observation, it was established that adequate numbers of culverts were built but large sections of the roadlacked concrete paved drainage subway.In support of the observations, plates 1, 2, and 3 show the existing roads before and after upgrading respectively.

PLATE 1: A section of the road before upgrading

PLATE 2: Road upgraded into tarmac

PLATE 3: Tarmac is worn out after burning rubbish on the road
Source: Plate 1- KSUP, (2009); Plate 2 & 3 Field data, 2023

The PLATES 1 and 2 show the existing road before and after upgrading. PLATE 3 shows a section of a road worn out after residents heaped and burnt rubbish on it. This hurts the durability of the tarmac as burning wears it out quickly reducing its durability. Through focus group discussions, a respondent articulated that upgrading the roads enabled the promotion of microeconomic activities, and improved the perception of safety thereby increasing the number of jobs. The upgraded streets provided accessibility to public meeting places and improved connectivity of Korogocho with the larger Nairobi City.

The status of the upgraded access roads is presented in figure 2 where 77% of the respondents statedthattheroadswereingoodcondition,21%saidthattheroadswereverygoodandonly 2% observed that the roads were fair. This was attributed to the burning of rubbish on the tarmac roads which wears out the road.

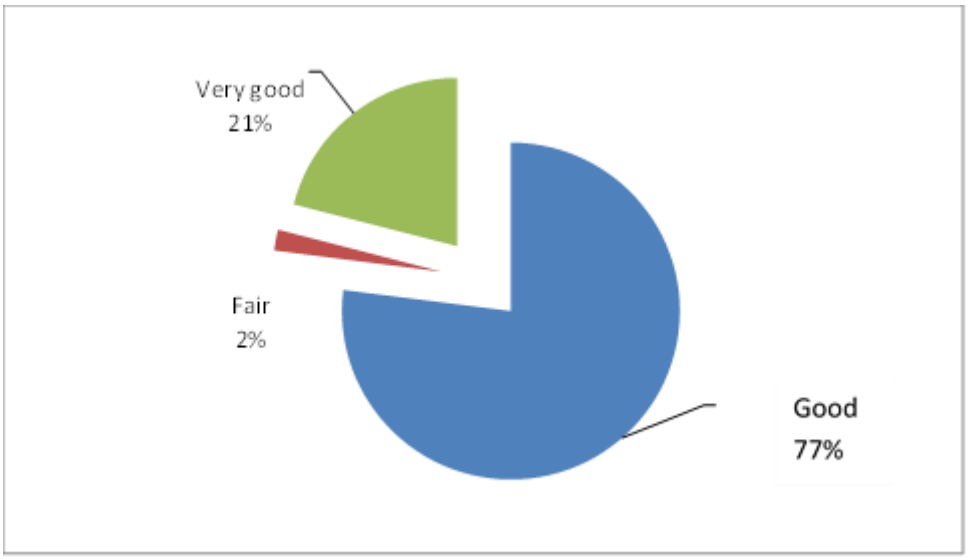


Figure 2: Status of upgraded access roads Source: Field data, 2023

TheupgradedKorogochofoot bridge

Korogocho slum borders Dandora division to the south with river Nairobi as the physical borderline. During focus group discussion, an informant recalled that Korogocho residents had constantly requested for a stable bridge to connect them to the neighbourhood as opposed to crossing river Nairobi by walking a long tight water pipeline. This exposed many pedestrians to the risks of falling and being swept away by river Nairobi especially during rainy seasons. To reduce this risk, a bridge was constructed (PLATE 4) connecting Korogocho slum with Dandora community. The connecting bridge has assisted in accelerating movement of goods and people, therefore improving their economic activities.

PLATE 4: Constructed foot bridge **Source: Field data, 2023.**

The bridge is a foot path and has a pillar at the centre as a barrier that prevents motor vehicles from usingit. On therespondents' perception on thestatus ofthefootbridge90%ofthe respondentindicatedthatitwasverygoodasiteasedtheirmovementin andoutoftheslum.The rest, 10% of the respondents indicated that it was good as presented in figure 3.

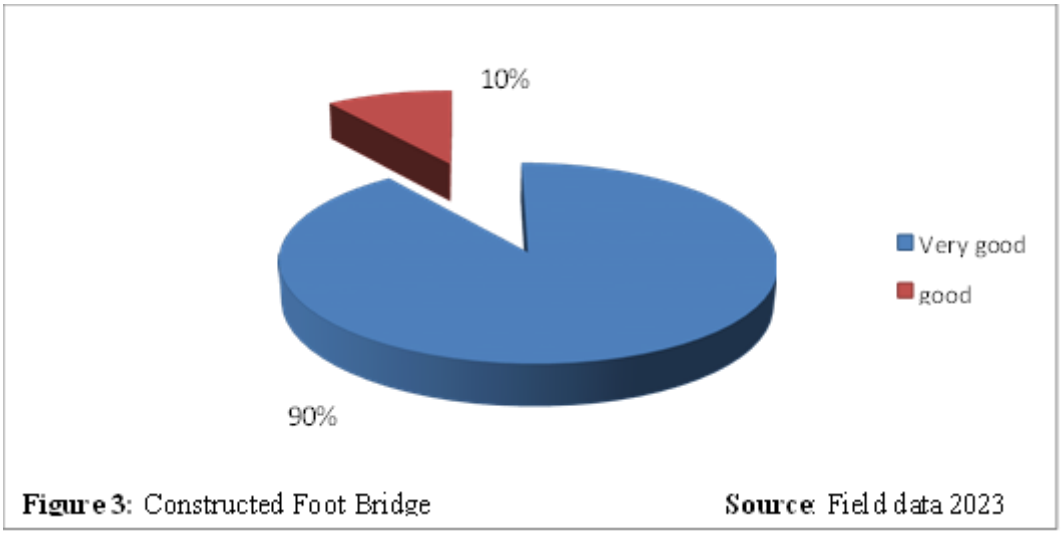


Figure 3: Constructed Foot Bridge **Source**: Field data 2023

Theprimaryschoolstructuresupgraded

During field inquiries, it was established that the Korogocho slum upgrading agency upgraded three structures at Daniel Comboni primary school. Through observation schedule it was found out the multi-purpose hall, the school perimeter wall/gate, and the play grounds were constructed. A respondent asserted that the upgrading of these facilities involved the slum residents who doubled as the parents of the children attending Daniel Comboni primary school. Therefore the idea of upgrading these facilities was supported by the Korogocho residents. The upgraded structures are presented in PLATES, 5, 6 and 7

PLATE 5: Multi-purpose social hall

PLATE 6: Upgraded Play grounds
Source: Field data 2023

PLATE 7: School perimeter fence and the gate

In support of these findings, studies by Nwokaeze, et al. (2022) asserted that perimeter fences around residential units and neighbourhood are a crime prevention strategy that reduces the incidence of crime and enhances residents` feeling of security. The study deduced that the use of perimeter fencing was also expected to be escalated in insecure places.

TheupgradedelementsinSowetoEastZone AinKiberaslum

The upgrading of Soweto East Zone A in Kibera slum was conducted bythe UN-Habitat and the Kenya Government through KENSUP agency via a Memorandum of Understanding (MOU). Unlike in Korogocho, where elements were upgraded one at a time, the Soweto East upgradingof various elements took place seamlessly. During the focus group discussions an informant revealed that although the tenants and land lords feared losing their land and the shelters; residents were coerced to accept the idea and constructions took place seamlessly. However, the sensitization of residentson the need for upgrading the slum was controversial and many residents did not agree to the idea for fear of losing their shelter. Another respondent asserted that the land lords and residents who had registered a case in court of law against eviction were persuaded to withdrawal the case; which they did, Theinformantsreportedthatthetenants had toberelocatedata cost of the project implementing agency to a decanting site next to Langata prison's to pave the way for building of houses. Therefore, the study established that the following facilities were constructed in Soweto East Zone A; A perimeter wall round enclosing Soweto East Zone A, tarmac road from Soweto linking Mbagathi road, cabro pavements, concrete drainage subways, 822 housing units,aboreholeandastoragewatertank, Streetsecuritylighting, Communityhall,publictoilets and three garbage disposal concrete bins.

These findings were agreed with Adegun, (2012) who established that the drainage systems in the main road were not covered while those between adjacent houses were covered by concrete slabs. Therefore, there was much to be done about the drainage systems towards maintenance of the drainage system to minimize blockages.

TheperimeterwallinSowetoEastZone Ain Kiberaslum

Duringthefocusgroupdiscussions,a respondentinformedthattheperimeterwallwasthefirsttobe constructed so as to secure the site (plate 8). The perimeter wall was important to secure the construction site and keep off the unwanted persons. However, PLATE 9 shows part of the perimeter wall which had collapsed.

PLATE 8: A section of the short perimeter wall

PLATE 9: The collapsed section of perimeter wall

Source of plates 8 & 9: Field data, 2023

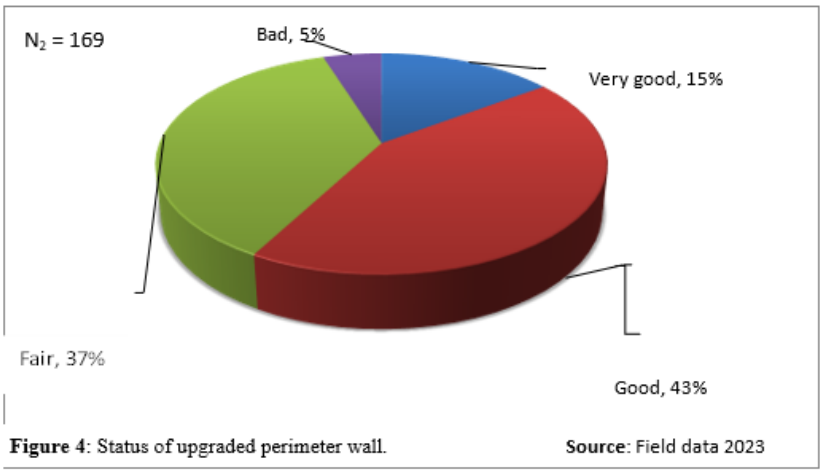


Figure 4: Status of upgraded perimeter wall. **Source**: Field data 2023

The study established the status of the upgraded perimeter wall.The statistics on questionnaire analysis showed that some respondents rated the wall 15% as verygood, 43%as good while 37%as fairly done and 5% as badly done as presented in figure 4. During an interview with the key stakeholder, a respondent stated that the perimeter wallneeded immediate repair to preventoutsiders from intruding into the estate.

AccessroadfromSowetoEast ZonelinkingMbagathiroad

Accessible roads in a place are one of the economic enablers as it helps in transporting both people and goods from one place to another. An respondent duringfocus group discussions pointed out that Soweto East Zone A was very muddy during the rainy seasons rendering the roads impassable. So, the completion of Mbagathi road facilitated the movement of goods, vehicles and people in and out of the Soweto zone A. Using observation guides, it was found out that the paved cabro-block roads linking the estate through the gate to the housing blocks were well done as shown in PLATE 10. Therefore, it was clear that the cabro roads and pavements within the estate facilitatedsmooth movement of people to and fro the Soweto village.However, in some sections of the road, the paved blocks had worn out.

PLATE 10: Paved cabro road | Source: **Field work, 2023**

It was observed that there were no signs of repair to enhance sustainability. Figure 5, shows the results of analysis ofquestionnaire responses on status of the cabro road. Some 77%oftherespondentsopined thattheroadstatuswasgood whereas 21% said that the upgraded access roads were very good. Only 2% of the respondents explained that roads status was fair. This was attributed to luck of repairs on the worn out sections of the road.

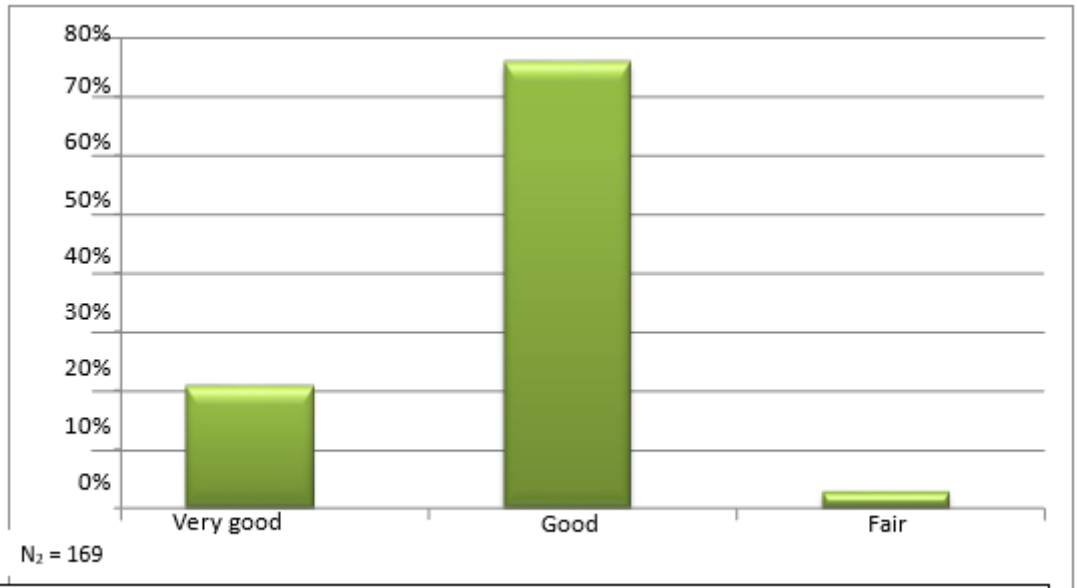


Figure 5: Status of upgraded roads and cabro paths **Source**: Field data 2023

During FGD a respondent asserted that the *cabro*walkways made the place clean and facilitated smooth movement of the residents even during the rainy seasons. By using observation guide it was observed that the upgraded roads had curved in parking lots next to each building block as shown in PLATE 10.

Concretedrainagesystemconstructedwithin thevillage

Duringinterviewwitha n informant,itwasrevealedthata4Kmstormwaterconcretedrainage subways were constructed within the Soweto East village. PLATE 11 shows a section of the 4 Km storm drainage as captured during field inquiry. During the field work at Soweto East Zone A, it was observedthatthe upgradedhousingunitsuse flashtoiletswithsewagedrainedthrough sanitation pipes as shown in PLATE 12. The drainage was supported by sections of permanent wall along sloppy ground to prevent soil erosion as shown in PLATE 13.

PLATE 11: Storm water drainage subway

PLATE 12: Rain water and sewage pipes

PLATE 1 3 : Stone wall supporting the soil to prevent erosion

Source: (PLATES 11, 12 & 13) Field data, 2023

Responses generated from questionnaire analysis on the status of the drainage are presented in figure 6. The statistics revealed that majority of the respondents 56% said the status of the drainage sub-way was good, 38% observed it was very good whereas 6% opined that it was fair.

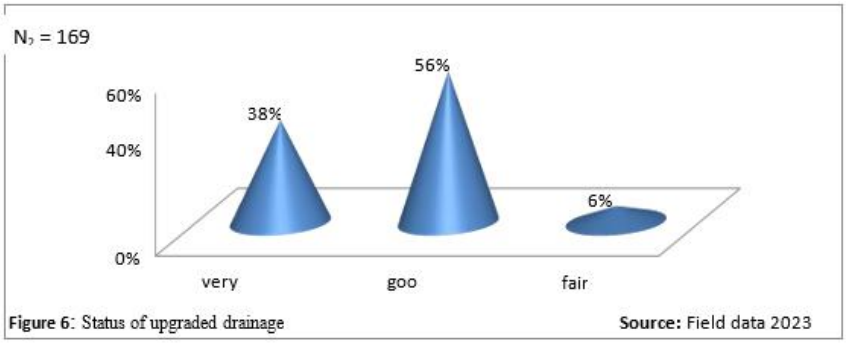


Figure 6: Status of upgraded drainage **Source:** Field data 2023

In support of these findings a respondent during theinterviews observed that the drainage system in Soweto East Zone A in Kibera slum was good and this accorded the estate some dignity compared to a slum life. On the contrary, findings by Magalhães, et al. (2012) established that majority 15% of the Brazilian slums lacked infrastructural support of water, drainage systems, sanitation, street paving and social services. These findings disagreed with the current study.

Summary of Pearson's Correlation of Coefficients

A summary of correlation coefficient between dependent and each independent variable are presented on correlation matrix in table 4.

Table 4: Correlation Results Matrix

		SUS	RIPIPI	RISUP
Sustainability of upgraded slum facilities (SUS)	Pearson correlation (2 tailed)	1		
		.000		
	N_1	175		
Residents involvement in slum upgrading processes (RISUP)	Pearson correlation (2 tailed)	.493**	.493**	1
		.000	.000	
	N_2	169	169	189

**Correlation is significant at the 0.01 level (2-tailed)

The findings in table 4 are correlation coefficients of the relationship between dependent variable (sustainability of upgraded slum facilities) and independent variables (direct resident involvement in slum upgrading processes) were +.493 and (direct resident participation on identification, planning and implementation process) +.479. The two independent variables were found to have significant correlation with sustainability of upgraded slum facilities against P-values of .000 at level of 0.01. Therefore, the correlation results concluded that the two independent variables had a direct positive significant correlation with the sustainability of upgraded slum facilities.

Regression Analysis

Direct residents' involvement was employed in correlating slum upgrading processes versus sustainability of slum-upgraded structures at Soweto East Zone A in Kibera slum.Table 5 presents the findings of application of direct residents' participation on slum upgrading processes against sustainability of upgraded slum facilities that generated a gradient of .384 against unstandardized coefficient.

Table 5: Coefficients of the use of residents' participation on slum upgrading processes against sustainability of upgraded slum facilities at Soweto East in Kibera slum

Model	Unstandardized	Coefficients	t	Sig.
1	B	Std. error		
Constant	14.617	11.02	14.019	.001
residents' participation on slum upgrading processes	0.050	6.50	.000	

Dependent Variable: Sustainability of upgraded slum facilities

This was construed to mean that a unit change in the use of residents in slum upgrading processes enhances sustainability of upgraded slum facilities at a rate of 38.4%.

The ANOVA results in table 6 indicated that the change in the use of residents' participation on slum upgrading processes on sustainability of upgraded slum facilities was significant with a p-value of 0.000 ($p < 0.05$). This finding explained the variance on sustainability of upgraded slum at Soweto East Zone A in Kibera slum in Nairobi.

Table 6: ANOVA for uses of direct residents' participation on slum upgrading at Soweto East in Kibera

Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Regression	13141.2	1	13141.2	5.251	.000
Residual	2502.60	169	14.68		
Total	**15643.8**	**170**			

a. Predictors: (Constant), use of direct residents' participation slum upgrading processes

b. Dependent Variable: sustainability of upgraded slum facilities

Table 6 presents ANOVA results for this univariate model. The results were supported by World Bank, (2002) who asserted that when community residents are involved in slum upgrading, it confirms that upgrading priority areas are considered with a view of providing amicable solutions that are cost effective and sustainable.

The goodness-of-fit for R-square for direct resident participation in slum upgrading

From table 7 results indicate that at Soweto East Zone A in Kibera, the goodness-of-fit for R-square for direct resident participation of residents in slum upgrading processes was computed and established to be .2430. This implied that 24.30% of variation could be explained by direct participation of residents in slum upgrading processes. The rest 75.7% of the cases could be explained by the other variables such as government policies, utilization of relevant experts in slum projects and recruits of willing workers as presented in table 7.

Table 7: Goodness of fit for direct residents' participation in slum upgrading processes for sustainability of upgraded slum facilities at Soweto East Zone A in Kibera slum

Model	R	R-Square	Adjusted R-sq.	Std. Error of est.
1	.493 [b]	.2430	.2305	3.0231

b (Constants) Predictor: use of residents' participation on slum upgrading processes

The analysis in table 7 played a critical role in concluding the study by accepting the alternative hypothesis. The hypothesis stated that; the influence of residents' involvement in slum upgrading has a significant effect on sustainability of the upgraded Soweto East Zone A in Kibera slums. Thus, the use of direct resident participation on slum upgrading processes was found instrumental in influencing the sustainability of the upgraded slum facilities at Soweto East Zone A in Kibera slum. This is because it is the residents who bear the costs of sustaining the upgraded infrastructure, cleanliness and general security of the place.

V. CONCLUSIONS

The study concluded that at Korogocho and Soweto East Zone A in Kibera slums in Nairobi a substantial number of facilities were upgraded into permanent structures through tokenism level of participation. Some of these structures include housing units and a bore hole in Soweto, street lights, roads and public social hall and toilets in both slums. Further, the study concluded that some of the targeted structures were not upgraded in both slums such as housing units, access to water points and security despite being captured in the original implementation plan for each slum.

VI. RECOMMENDATIONS

Thestudyrecommendsthat in order to have a sustainable upgraded slum, theupgradingagenciesshouldconsiderfeasible ways of engaging relevant key stakeholders indecision making during the project management processes. This could enable the creation of robust awareness of the objectives of the project.

Thestudyrecommendsthatupgradingagenciesshouldshiftcommunityparticipation fromnon-participation and tokenism to citizen empowerment to involve the community to be part of the project and hence work towards its sustainability. Community participation is clearly articulated in the Kenyan National Slum Upgrading and Prevention Policy of 2016 and is supported by the Kenyan Constitution of 2010, which focuses on encouraging, facilitating, and securing community and stakeholder participation, transparency, and accountability in slum upgrading, rehabilitation, redevelopment, and slum improvement programmes.

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