

# Enhancing Resilient Housing in Informal Settlements of Lusaka

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**Abstract:-** Resilient housing in informal settlements implies adaptability for a sustained access to proper housing. Establishing the ability of housing to withstand vulnerabilities in informal settlements can help the majority of people in the world because most people live in urban informal settlements, which are, places of unplanned houses below minimum standards as defined by the Hedonic House Pricing (HHP). This study considers Lusaka's Kalingalinga and Mtendere East informal settlements where, a total stratified sample of 60 households, 30 from each area were studied. Findings reveal that; intention to extend houses, improvisation, social cash transfers, and involvement in community action are the most important grassroots initiatives in the two settlements. A one-way ANOVA 2 sample variant test at alpha level 0.5, 1 tailed, indicates greater potential for enhancing resilient housing in the two settlements using variables such as; intention to extend, space for upward adjustment, proximity to service pipes, and improvisations. Meanwhile, despite such potential, the statistical (ANOVA) test has also revealed that the existing housing situation (that is below minimum planning standards) has not improved despite the existence of such grassroots initiatives. Therefore, the paper has sought to resolve this aberration by reconciling grassroots initiatives with institutional arrangements using an integrated planning approach known as Polycentric Planning Strategy (PPS). To achieve this, a system of interlinkage has been mapped out, connecting existing grassroots initiatives and structures with planning authorities and other stakeholders to raise solutions for enhanced resilient housing in informal settlements.

**Keywords:-** Resilience, Grassroot Initiatives, Housing, Integration.

## I. INTRODUCTION

Owing to unprecedented shifts of global climate and economy which affects housing for majority population in recent times, this paper endeavors to highlight the housing challenges existent in Kalingalinga and Mtendere East settlements of Lusaka city in Zambia due to the lack of urban resilience. It labors to show case the resilient housing initiatives at grassroots level among the residents, then measures the degree of potential that the two areas sustain for enhanced resilient housing. After that, the paper assesses the extent to which the grassroots initiatives are adapted to the housing challenges. Through this, it seeks to unveil lacunars in the grassroots initiatives to indicate where deliberate planning can play a role to enhance resilience. Furthermore, it establishes how spatial planning can enter

upon the shortfalls of grassroots initiative to boost them and make them more effective in fostering resilient housing. In order to map out such a strategy, the study has adopted the PPS that devolves planning to lower levels of the community. It is worth indicating that, although the concept of resilience may not be well understood by some people at the grassroots level, it is nonetheless something they are already attempting to achieve through some means of adapting their houses to physical, social, and economic shocks within their environment. In their own way, they have formulated what can be referred to as 'grassroots make-shift solutions' to solve their eminent challenges. This paper explores them and emasculates the hidden lacunars and potentialities for enhanced resilience. Most importantly, the paper offers a solution through an integrated planning approach tailor-made for the situation at hand.

Kalingalinga and Mtendere East are informal settlements in Lusaka city characterized by high population density following few houses, most of which are below minimum planning standards. The housing units of these areas reflect on a wider scale the desperate situation preeminent in many informal settlements of the city. Three main problems arise from this state of affairs. One is the limited number of houses accommodating a disproportionate mass of population, and two is the depraved conditions in which the houses are because most of them lack minimum standards. The first challenge culminates into overcrowding in houses which are often relatively small in size. This compromises the people's standards of living in terms of access to sufficient shelter, space, privacy and safety, thereby posing health and security concerns. The second challenge is the dwellers' limited access to adequate water and descent sanitation, which poses health challenges related to water-borne diseases. Thirdly, the limited strong building materials, lack of drainage infrastructure, and limited roofing poses threats of possible calamity in events of natural disasters such as floods, lightning, storms or strong wind. On city-wide scale, the depraved condition of housing in the two settlements has compromised the beauty of the city as it adds to urban blight. The state of affairs in the two settlements shows that people are not living in a space that is safe and habitable.

The aim of the study was to assess the grassroots initiatives that sustain resilient housing in Kalingalinga and Mtendere East so as to establish how they can be enhanced by spatial planning.

The objectives of the study were:

- to explore the grassroots initiatives of resilient housing in Kalingalinga and Mtendere East;
- to assess the extent of adaptability which the grassroots initiatives sustain for securing resilient housing in the two settlements; and
- to establish how spatial planning can improve the grassroots initiatives for the enhancement of more resilient housing in the two settlements.

From the foregoing, the hypotheses were:

- $H_0$ : There is low potential for enhancement of resilient housing in Kalingalinga and Mtendere East settlements.
- $H_1$ : There is high potential for enhancement of resilient housing in Kalingalinga and Mtendere East.

- $H_0$ : Existing grassroots initiatives of resilient housing in Kalingalinga and Mtendere East are not well adapted to meet minimum standards of housing.
- $H_1$ : Existing grassroots initiatives of resilient housing in Kalingalinga and Mtendere East are well adapted to meet minimum standards of housing.

Kalingalinga is located about seven kilometres east of Lusaka's Town Centre along Alick Nkhata road. It is bordered by Kabulonga in the south, Helen Kaunda in the east, Munali in the north, and Mass Media in the west. Meanwhile, Mtendere East is situated about 10 kilometres east of the Town Centre, about one and a half kilometres on the south of the Great East Road. It is bordered by NRDC in the north, Ibex Hill in the south, Salama Park in the east and Kalikiliki in the west. The location of the two settlements is as shown on the map in Figure 1.

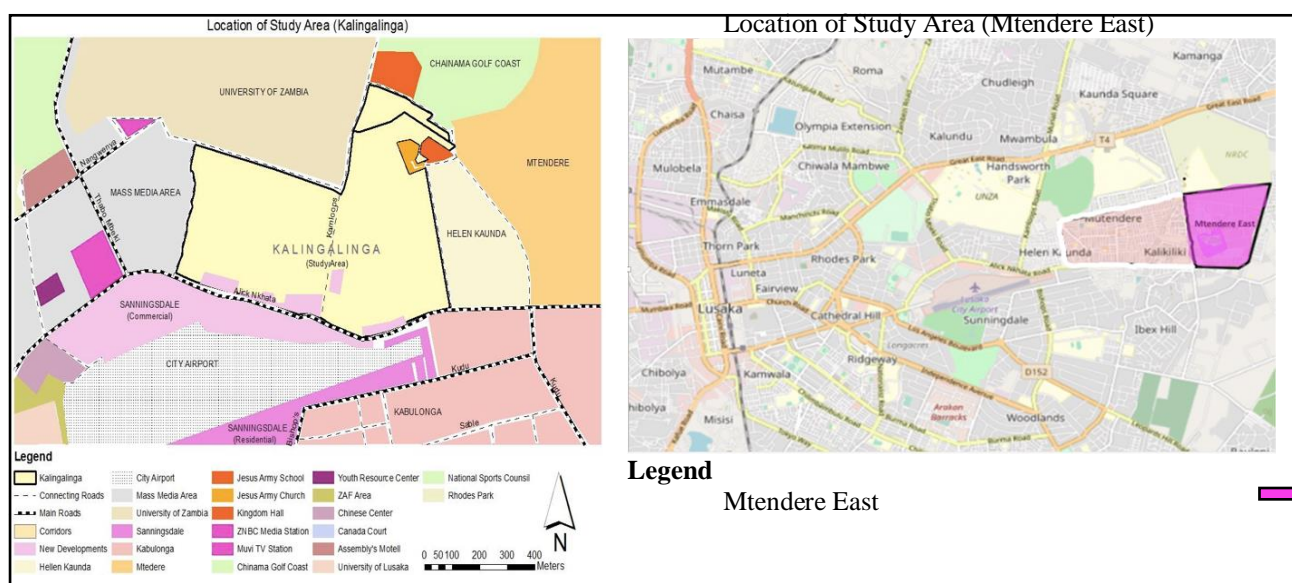


Fig. 1: Location of Study Area (Kalingalinga and Mtendere East)

Source: Chirwa M., 2019 and Adapted by Author, 2022

Kalingalinga and Mtendere East were chosen as the area of study because they are informal settlements where grassroots resilient housing initiatives exist. The two settlements seem to have potential for development of more resilient housing systems/structures. Most residents in engage in activities of trying to make housing as resilient as possible. Among the commonest means established as a way of coping with the urban morphological reshaping and social-economic stress that has come with urban gentrification in Kalingalinga, is the selling off of properties to relocate from the area (Chikuta, 2016). For Mtendere East, similar things are happening as in Kalingalinga but what prevails the most in the restructuring or extension of the houses.

The first section of the paper describes the concept of housing resilience and contextualizes it to Africa and Lusaka in particular. The next shows the methodology and results of the study before discussing the dynamics of the findings pertaining to how resilient the grassroots initiatives are and

how planning can play a key role in establishing that. The paper ends by conclusions and recommendations.

## II. THE CONCEPT OF RESILIENCE

Urban resilience is the ability of cities/towns to manage and adapt to change through robustness, flexibility, mitigation and adjustment at all levels (Jones, 2017). Meanwhile, Revell (2010) also defines resilience as, the adaptive capacity of a system to respond to unexpected shocks and unforeseen changes. Therefore, it can be said that, urban resilience is the ability of cities/towns to manage and adapt to vulnerabilities due to change. In this regard Sudmeier-Rieux (2014) advances that, cities sustain a tendency to respond to emergent needs of residents based on prevailing circumstances within their local context. To what Sudmeier-Rieux (2014) elaborates, other scholars such as Jones and Suhartini (2014) add that urban responsiveness to eminent challenges within informal settlements does not only happen within formal institutions and structures but also outside formal and clearly spelled out-legal structures,

only that they are not resilient enough to the shocks, a situation which the study seeks to address.

Informality in urban areas often springs from uncontrolled urban growth as explained by theories/models which map out the genesis and organic spread of urban phenomenon. Von Thunen's land rent theory well propounds this. The theory states that as the process of urbanization takes place, land rent/value at the core of the city or town increases as more agglomeration economies build up and magnetize within the principal node (Johannes, 2020). This situation attracts more people to the urban area giving birth to overpopulation. Today, Lusaka city accommodates a sum total of over 2 million people and yet it was initially designed by professor Adshed to accommodate only 200,000 people. Although JICA has expanded the old boundaries to map-out the 'Greater Lusaka', this expansion seems not to yield its desired objective. It is from this backdrop that informality evolves. Mass of the low-income class occupy unplanned settlements that are below minimum standards of decency. SDG 11 indicators reveal that by 2018, 1 billion people in the world were living in informal settlements (UN Reports, 2021).

#### A. Resilient Housing in African Urban Informal Settlements

Resilient informal housing entails, housing that is able to adapt itself to imminent vulnerabilities and unprecedented changes that may cause stress/shocks. Such perturbations can make life difficult for informal settlers. According to Akinola (2016) many African cities/towns are unable to accommodate the pressure of concentrated social-economic activities; as a result, majority of the marginalized dwelling in informal urban space often end up establishing their own water and sanitation. A review of studies conducted in Angola, Ghana, Kenya and Nigeria by Akinola (2016) reveals stark separation between the interest of informal settlers and their formal governance structures. He further says that, this results in environmental poverty and urban blight, sometimes warranting evictions and demolition of properties by the state. The author points out that there is no linkage between formal planning institutions and grassroot initiatives. This seems to be the case for Lusaka's Kalingalinga and Mtendere East settlements in Zambia. Akinola's review explored the how ineffective a centralized planning system is and adopts a number of planning strategies including the PPS to show how formal planning can integrate with grassroot initiatives to improve housing in informal settlements. This study also adopts the PPP and adapts it to the context of Kalingalinga and Mtendere East.

#### B. Resilient Housing in Kalingalinga and Mtendere East Settlements of Lusaka

Urban resilience has vividly been seen in the limelight of housing in informal areas (Jones, 2017). Lusaka's Kalingalinga and Mtendere East have evolved informal adaptation initiatives to the demands of descent housing. Kalingalinga is an improvement area with its residents having occupancy licenses. The area saw physical upgrading by JICA, and the American Government who installed water kiosks and hand pumps, and service pipes while the LCC surfaced some roads and set-up drainages there. Nevertheless, ever since the upgrading process, most of its dwellers still live under infrastructure void of certain facilities vital to meeting minimum HHP standards spelled out by Tinsley (1997). As a result, the occupants have created resilient strategies to cope with the prevailing situation. Just like Kalingalinga, Mtendere East was also regularized with its occupants being issued land records by LCC. The area then saw the installation of service pipes by the American Government. In spite of such physical upgrading, the story is the same as that of Kalingalinga since most create residents struggle make their housing as resilient as possible.

On the despite, various actions to accommodate informality have been taken not only by local authorities but also international organizations. Local governments have instituted regularization of these areas. In implementing such, residents of these settlements are either issued with occupancy licenses or land records. Inasmuch as policy and upgrading efforts have been instituted to assist people in informal settings, there is not much aid given to harness the resilient housing initiatives applied at grassroot level. Over time, what has emerged clear are the upgrading efforts by various international organizations such as Swedish and American Governments, and NGOs such JICA and PHPPZ in establishing physical facilities to supplement housing in these areas.

#### C. Conceptual Framework

The conceptual framework of this paper is constructed from a build-up of multiple contingencies; first touching the theory that anchors the study, then its ripple effects that culminate into city growth, social stratification, informality, lack of formal support, indecent housing, resilient local initiative, reconciliation of informality with formal planning, then possible enhanced resilience in informal housing. This construct summarizes the conceptual map of the paper. A summary of how the interlinkages in informality can be harnessed by spatial planning to create solution to the housing problem in informal settlements is shown in the figure 2.

## MAPPING LINKAGES IN INTEGRATED PLANNING OF INFORMAL AREAS

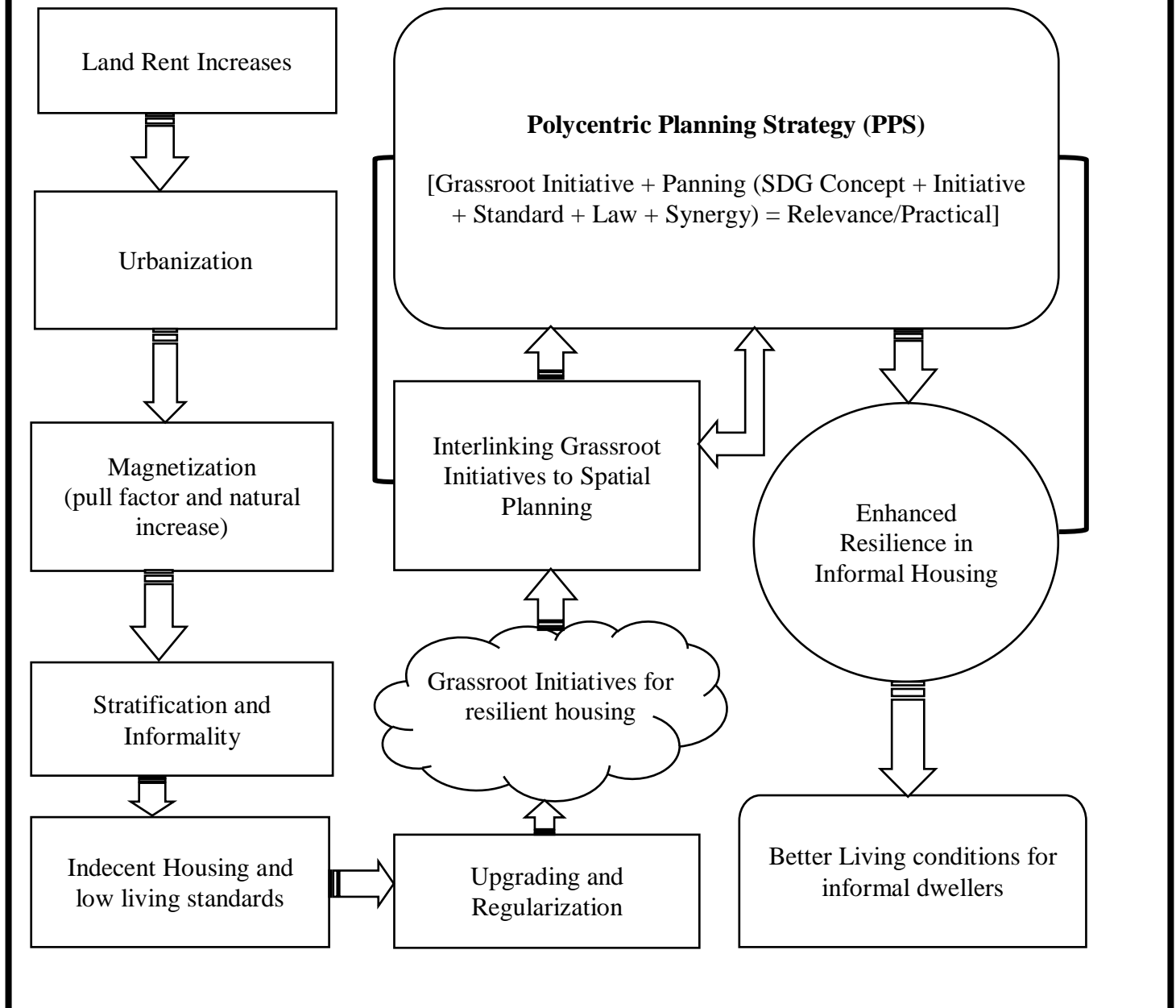


Fig. 2: Conceptual framework of Interlinking Grassroot Initiatives to Spatial Planning for Enhanced Resilience in Informal Housing

Source: Adapted by Author, 2022

### III. RESEARCH CONTEXT AND METHODOLOGY

This case study design with a mixed (qualitative and quantitative) approach, that considered Kalingalinga and Mtendere East settlements of Lusaka. The design was adopted for the sake of narrowing the focus. This was done to uncover specificities surrounding the grassroots initiatives within the context of an African urban setting. Similar case studies have been done on informal settlements in Africa on Angola, Kenya, Ghana and Nigeria, using the design narrowed to specific contexts. Such studies surfaced

sufficient data that was used to formulate linkages between the PPS and grassroots efforts for planning resilience in informal settlements. More to this, the study runs a statistical test to measure the extent of adaptability to vulnerability of grassroots initiatives for sustained resilient housing in the two areas of study.

Random systematic sampling procedure was used on the two settlements, selected because of their nature of informality. Thirty households from each area were selected from main streets. The selection criterion followed one



house after every four, for the sake of randomization. The procedure of selecting the housing units was replicated in both areas bringing the total sample size to 60. Five key informants comprised of LCC officials and community leaders and PPPHPZ representatives were also purposively selected. Therefore, the sum total of respondents for the

study was 65. Each stratum comprised of six selected households from five selected streets. The households are identified and labelled according to the number in the selection process as h1, h2, h3, ...and so on and so forth, until h30 and replicated in both settlements. The procedure and sample size are shown in figure 3 and table 1.

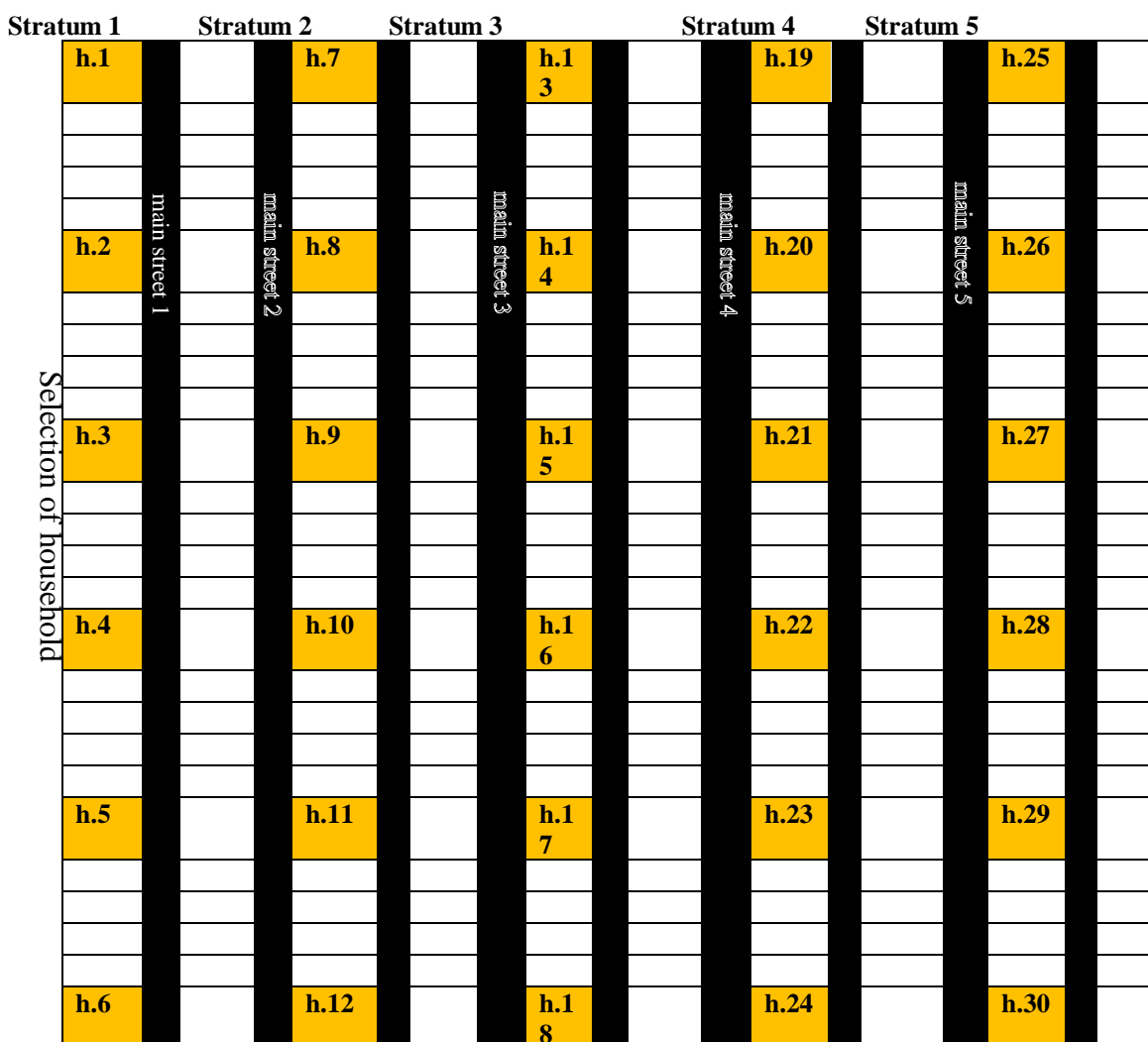


Fig. 3: Systematic sampling technique for selecting the 30 households in each settlement

Source: Adapted by Author, 2022

TARGET	KEY INFORMANTS		HOUSEHOLDS		TOTAL
Sample	LCC	PPHPZ	Kalingalinga	Mtendere East	
Sample Size	4	1	30	30	65

Table 1: Sample Size

Source: Author, 2022

The data was collected from the respondents, primarily using two instruments which are a questionnaire and an interview guide patterned after the research questions and hypotheses.

Validity of the data was ensured through triangulation of data and the two instruments used enabled cross checking, and for more depth and robustness. Two areas

were chosen in order to fill in gaps where other data was missing. There was also physical observation done to ensure triangulation of the data. The respondents were not coaxed or bribed into revealing information. The interviews and photos were taken with their full consent. To assist the launching into the households, consent letters from the institution was used and community leaders were contacted

to help introduce the researcher. After the research, the responses will be shredded and burned.

Thematic and content analysis were used on the data. The grassroots initiatives were thematically arranged and the content was explained. The extent of adaptability of the grassroots initiatives to meet minimum housing standards according to the HHP, 'access to social services', CSO (2010) and JCTR (2010) 'measures of household poverty' (Chibuye, 2014) were assessed using a one-way ANOVA 2 variant sample test at alpha level 0.5, 1 tailed. The same test was used to assess whether the minimum housing standards have been reached in the face of grassroots initiatives. Marginal errors were reduced using mathematical constructs such as alpha level 0.5 which is 95% level of confidence. Finally, the integration of grassroots initiatives to

formal planning for enhanced resilient housing will be done using the PPS within the context of two settlements.

#### IV. RESULTS

This section presents the findings based on the study objectives, namely the existing grassroots initiatives for resilience, extent of resilience due to grassroots initiatives and potential for resilience, as well as the housing situation in the face of existing initiatives.

##### A. Respondent Characteristics

##### a) Gender of Household Heads in the Kalingalinga and Mtendere East

Findings show that there were more (52%) male-headed households than female (48%) headed households in the Kalingalinga and Mtendere East. This is shown in figure 4.

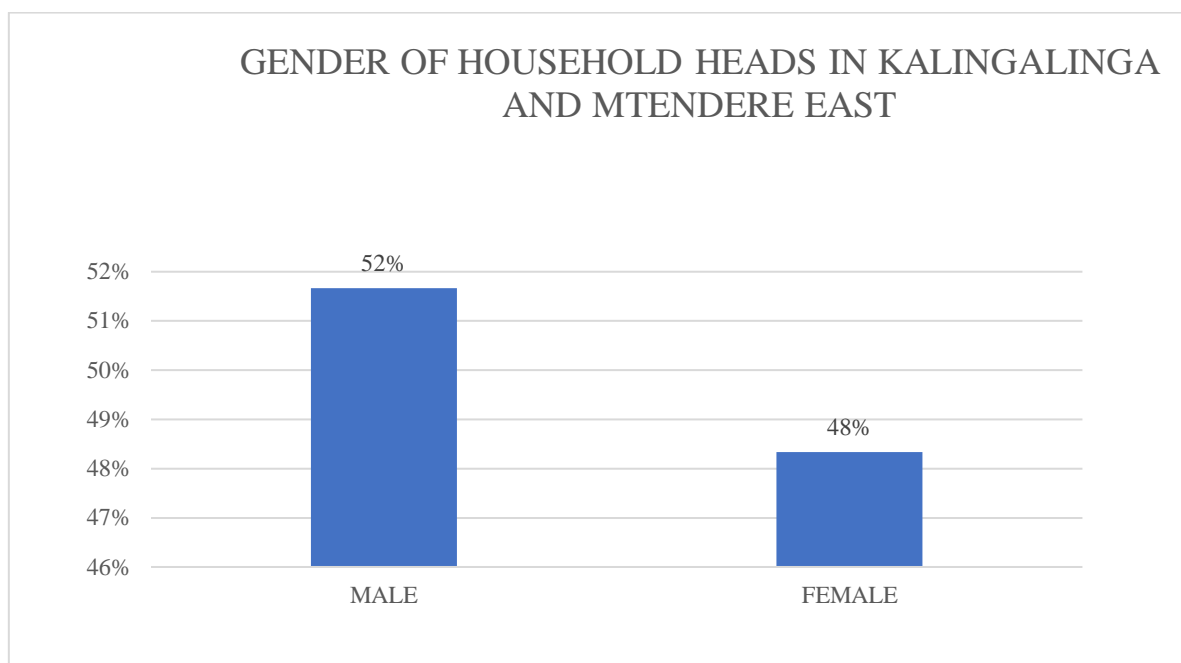


Fig. 4: Gender of household head in Kalingalinga and Mtendere East

Source: Field Data, 2022

- b) Household Size and average number of rooms in Kalingalinga and Mtendere East  
Most (17%) households constituted of 9 persons per household followed (15%) by 7 and 5 persons per household. This is shown in Figure 5. Meanwhile

there are mostly (45%) of 3 roomed houses in the two settlements occupied by an average of 9 persons, meaning that an average of 3 persons occupy a room per house in the two settlements as shown in figure 6.

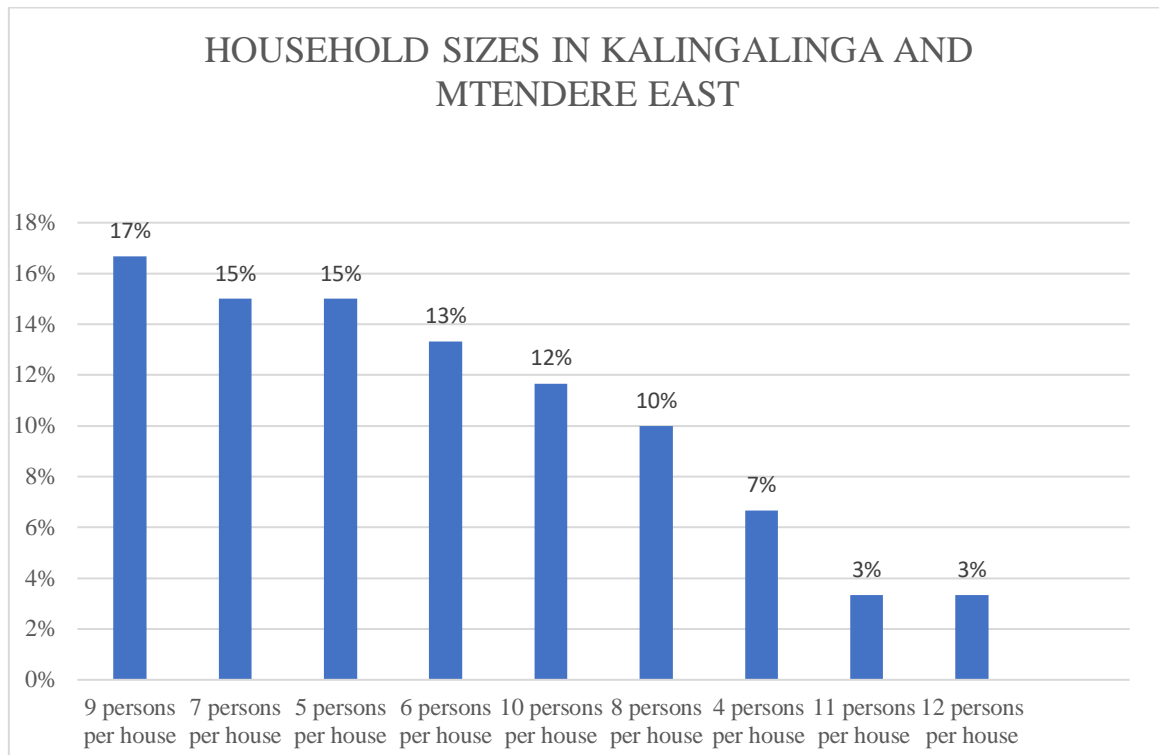


Fig. 5:Household size in Kalingalinga and Mtendere East

Source:Field Data, 2022

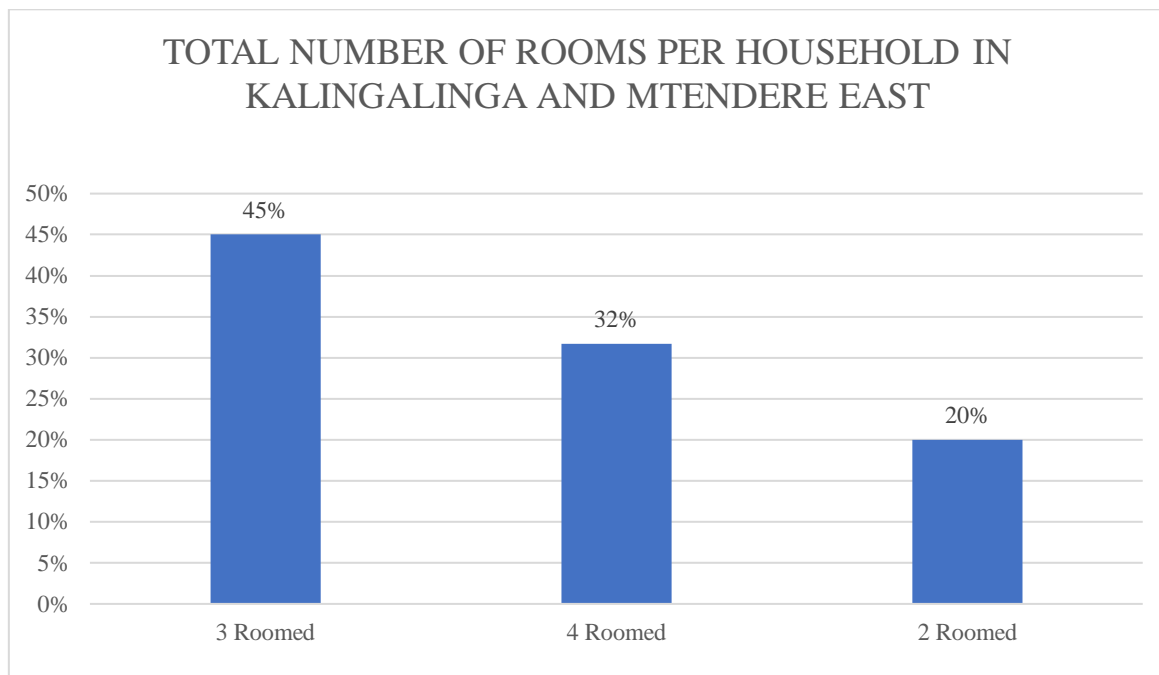


Fig. 6:Household size in Kalingalinga and Mtendere East

Source: Field, 2022

- c) Level of Education for Household heads in Kalingalinga and Mtendere East  
Most (37%) of the household heads had grade 9 education, whereas the second majority (33%) in the

two settlements had grade 12 education. The rest (13%) are grade 7s, in tertiary, and (3%) grade 8s and (2%) grade 10s, as shown in figure 7.

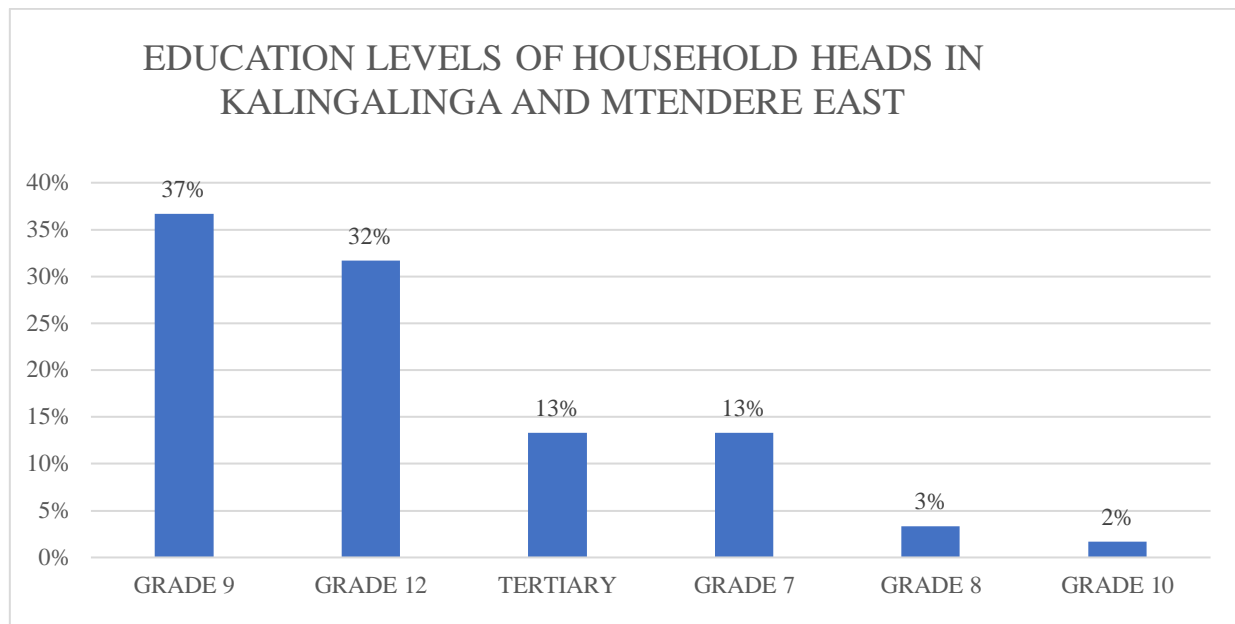


Fig. 7: Level of education for household heads in Kalingalinga and Mtendere East

Source: Field Data, 2022

- d) Occupation of Household Heads in Kalingalinga and Mtendere East  
The most important (30%) occupation in the two settlements is trading followed by unskilled labour employment such as homecare (12%) security (10%),

civil service (7%), vocational labour employment (5%), while the remaining fraction (2%) of the population fall in other occupations as illustrated in the figure 8.

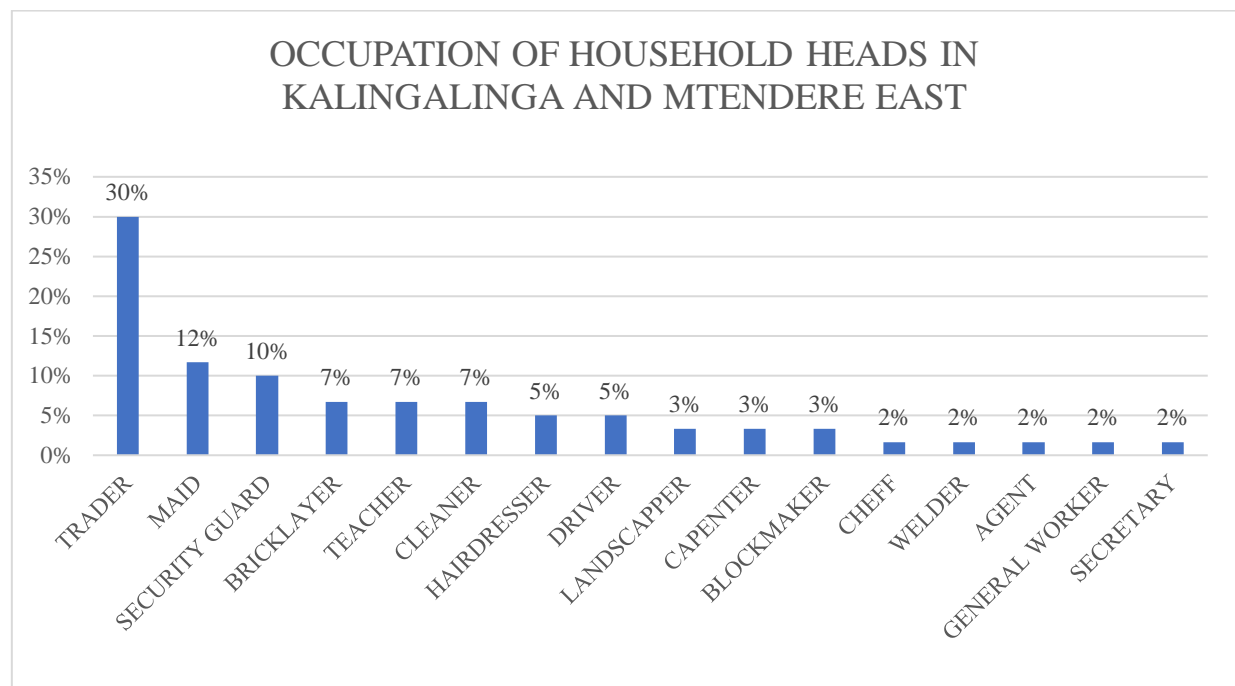


Fig. 8: Showing household size in Kalingalinga and Mtendere East

Source: Field Data (2022)



e) Existing Grassroot Initiatives for Resilient Housing in Kalingalinga and Mtendere East

Grassroot initiatives that are existent so far to foster resilient housing in the two settlements are that, all (100%) of the household heads had intentions of extending their houses, followed by their efforts

(95%) to improvise, then their intentions to resell property (83%), then joining social cash transfer networks (72%) and involvement in community action (65%), least among them being the actual extending houses (43%) as shown in figure 9.

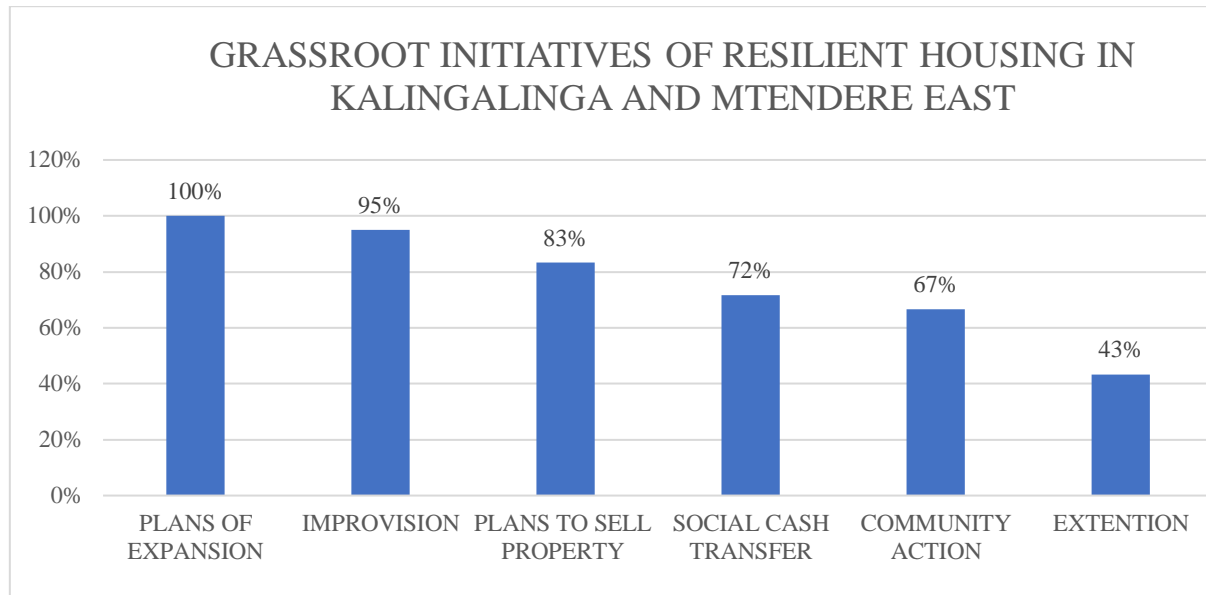


Fig.9: Grassroot initiatives of resilient housing in Kalingalinga and Mtendere East

Source: Field Data, 2022

f) *Potential for Enhanced Resilience of Housing in Kalingalinga and Mtendere East*

According to a one-way ANOVA 2-sample variant F-Test at alpha level 0.5, one-tailed, findings reveal that, there is a high potential of enhancing resilient housing in Kalingalinga and Mtendere East. The test results indicate an F-Value(1) greater than the F-Critical Value

(0.198007), which entails that we reject the Null Hypothesis which states that, 'there is low potential for enhancing resilience in Kalingalinga and Mtendere East', while, we accept the Alternative Hypothesis which states that, 'there is a high potential for enhanced resilience in the two settlements.' This is shown in table 2.

HOUSING RESILIENCE POTENTIAL	HIGH	LOW
possession of valid occupancy license/land record	60	0
provision for upward adjustment	60	0
proximity to service lines (within 50 meters radius)	60	0
intentions of extension but limited resources	47	13
evidence of improvisation	60	0
occupation in trade, skills and civil service	28	32
<i>Mean</i>	52.5	7.5
<i>Variance</i>	171.1	171.1
<i>Observations</i>	6	6
<i>df</i>	5	5
<b>F</b>	<b>1</b>	
<b>P(F&lt;=f) one-tail</b>	<b>0.5</b>	
<b>F Critical one-tail</b>	<b>0.198007</b>	

Table 2: Showing one-way ANOVA F-Test Two-Sample Variance Results for the potential resilient housing in Kalingalinga and Mtendere East

Source: Author, 2022

g) *Grassroot Initiatives' Extent of Adaptability to Housing Challenges in the two areas*

According to a one-way ANOVA 2-sample variant F-Test at alpha level 0.5, one-tailed, findings reveal that, the existing grassroot initiatives are not well adapted (not resilient enough) to meet the minimum housing standards of spatial planning in Kalingalinga and Mtendere East. The test results indicate an F-Value (1.911) less than the F-Critical Value (5.050), which

entails that we accept the Null Hypothesis which states that, 'the existing grassroot initiatives are not well adapted to foster resilient housing in Kalingalinga and Mtendere East', while, we reject the Alternative Hypothesis which states that, 'the existing grassroot initiatives are well adapted to enhance resilient housing in the two settlements.' This is based on the multiple variables as shown in the table 3.

HOUSING STANDARDS	NOT MET STANDARD	MET STANDARD
standard wall material over compromised	31	29
complete roofing over semi roofing	29	15
flushable toilet versus pit latrine	23	11
indoor tap water versus outdoor sources	53	7
1 person per room versus more than 1 person	59	1
prospective to sell over no prospective	37	23
<i>Mean</i>	38.667	14.333
<i>Variance</i>	203.867	106.667
<i>Observations</i>	6	6
<i>df</i>	5	5
<b>F</b>	<b>1.911</b>	
<b>P(F&lt;=f) one-tail</b>	<b>0.247</b>	
<b>F Critical one-tail</b>	<b>5.050</b>	

Table 3: One-way ANOVA Two sample variance Test Results for the Standard of Housing Inspite of Grassroot initiatives of resilience in Kalingalinga and Mtendere East

Source: Author, 2022

h) *The Role of Spatial Planning in boosting Grassroot Initiatives for Enhanced Resilience of Housing in the two settlements*

The role of planning to boost grassroots initiatives is mapped out in a framework that interlinks initiatives and

structures at grassroots level to formal planning structures. The mapping strategy has used an integrated planning approach that adopts the PPS to adapt spatial planning to grassroots initiatives as shown in figure 8.

### INTEGRATED PLANNING FOR RESILIENT HOUSING IN INFORMAL AREAS

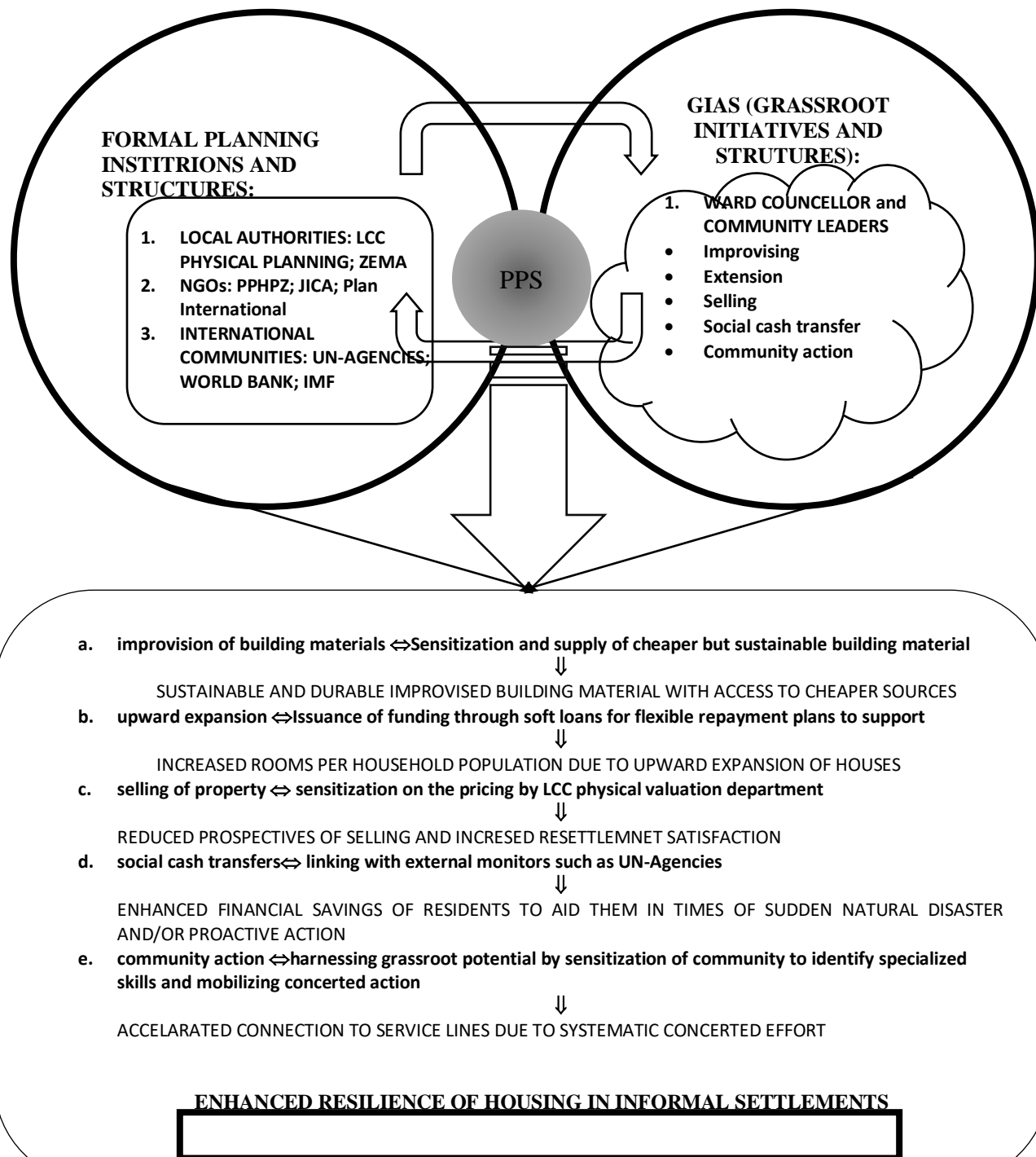


Fig. 10: Integrated Polycentric Planning to harness Grassroot Initiative for increased resilient housing in Informal settlements  
Source: Adapted and Generated by Author, 2022

## V. DISCUSSION

This section discusses the findings of the study by elaborating more on how existing housing crisis, its potential for resilience and how planning can play a role to enhance resilience.

### A. Respondent Characteristics

The ratio between male to female headed households is rather thin in Kalingalinga and Mtendere east, meaning both genders are proactive in running households. This entails that, women who were mostly occupied by SMEs ought to be supported to do more in sustaining their households. The average of 3 persons per room in a single house entailed overcrowding according to physical planning standards. This predicament calls for dire need to expand housing infrastructure. Meanwhile most dwellers of the two settlements do not sustain higher levels of education but at least have some elementary skills. Therefore, in order to boost their efforts to achieve resilient housing, planners have to condescend to their level of operation in order to integrate their initiatives with formal standards. Since trade is the most important economic activity occupying the dwellers, it becomes expedient that empowerment structures through project funding can be done to boost businesses. Using their income levels, soft loans with flexible payment plans can be arranged for the residents to help them increase their earnings.

### B. Existing Grassroot Initiatives that Sustain Resilient Housing in Kalingalinga and Mtendere East

The grassroot initiatives aimed at fostering resilient housing in Kalingalinga and Mtendere East show how zealous the dwellers are to make their housing adaptable to prevailing physical, social and economic conditions in their settlements. All of them intend to extend their houses and would not mind whether they are extended upward or sideways. Besides that, almost all the houses were found with traces of mech-shift improvisation such as cardboard on windows, stones on roofing sheets, cloth or plastic/sacs for doors, and mud as plastering material. Other initiatives were the willingness to sell properties for leverage out of low housing standards, involvement in social cash transfer networks, and deliberate but slow processes of extending their houses. Such efforts indicate that the people are not just watching their desperate housing crisis but have initiated means of adapting to the challenges. Therefore, it is important to recognize such efforts so that implementation of plans can have a more plausible basis. If planners and other helping agencies capitalize on the existing initiatives, strategies are likely to succeed because the dwellers own their initiatives and are likely to feel assisted rather than superimposed and dominated by outside forces.

According to the one-way ANOVA 2-sample variant F-Test at alpha level 0.5, 1 tailed, there is high potential of enhancing resilient housing in Kalingalinga and Mtendere East. Therefore, planners can take advantage of the residents' possession of valid occupancy licenses/land records, provision for upward adjustment, evident mech-shift improvisations, and proximity of the houses to service pipes. Using such existing potentialities, planners can have fertile

ground to foster relevant action targeted at ensuring that these existing endowments are maximized. Also, planners can also take advantage of the dweller's occupations to link them to funding agencies to increase income and then marry this to their determination to extend their houses. This is likely to arouse interest and yield completion of most of their abandoned projects of extending their houses. Therefore, the two settlements present an opportunity where integrated planning can bring together informality and formality into a proliferated union to accomplish one good for habitable settlements.

### C. The Extent of Grassroot Initiatives' Adaptability to Housing Challenges in the two Settlements

A one-way ANOVA 2-sample variant F-Test at alpha level 0.5, one tailed, has also revealed that, the grassroot initiatives have not adequately adapted housing in the two settlements to meet minimum planning standards. Therefore, there is no significant improvement in the housing situation in spite of the initiatives and a high potential for resilience. This is seen in the compromised wall materials, high number of semi roofed houses, use of pit latrines, outdoor sources of water, greater average number of persons per room, and higher prospective to sell despite not understanding the dynamics of informal land markets. Therefore, this raises a need for spatial planners to apply strategies that will foster resilience. Spatial planning can integrate formal planning systems, that have greater influence and social/legal and financial energy to grassroot initiatives, thereby boosting them up for improved implementation to enhance resilient housing in the two informal settlements.

### D. The Role of Spatial Planning in boosting Grassroot initiatives for Enhanced Resilient Housing in the two areas

The mapping strategy for integrated planning to boost grassroot initiatives has used an integrated planning approach that adopts the PPS. The logic is to devolve planning from higher levels to lower levels and make it more relevant and practical. This process is a dual flanked attack on the needs at both institutional and household level. The strategy the concomitant challenge that comes with formal institutions' negligence of informality. Through polycentricity, planning can be brought to the grassroot so that simple but practical initiatives such as the intention to extend the house can be funded through a soft loan with flexible and affordable payment plans; social and economic planners linking those who intend to sell property with relevant agencies that help in valuation of property so that the sellers retain sufficient proceeds for leverage; also, local authorities through stakeholder meetings can combine grassroot initiatives with goodwill from NGOs such as PPPHPZ, JICA and the American and Swedish Government to both guide and boost local initiatives. Following the high potential for enhanced resilience in the two settlements, the PPS finds fertile ground to flourish and have its greatest positive impact on the lives of people in Kalingalinga and Mtendere East.

## VI. CONCLUSION

The study has shown that there are a number of initiatives at grassroot level striving to make housing as resilient as possible in Kalingalinga and Mtendere East. Among these include the intentions to sell properties, the improvisation of inferior materials, the involvement in social cash transfers as saving mechanisms, the involvement in community action, and the actual extension of the houses. In spite of such initiatives, the housing situation in the two areas has not adapted itself to meet minimum housing standards. Meanwhile, it has also been unveiled through statistical testing, that there is high potential for enhanced resilient housing in the two areas owing to the availability of contingencies such as the residents' intention to extend their houses, their possession of occupancy documents and sources of income, space for upward adjustments, as well as proximity to service pipes. Nevertheless, in spite of such high potential for enhancing resilience, a one-way ANOVA 2 sample variant F-Test at alpha level 0.5 showed that there was no significant improvement in the resilience of housing in the two settlements. This justified the need to innovate a planning approach that can harmonize key players so that the engines of implementation can run effectively at both institutional and grassroot level. Using such an opportunity, the study has further mapped out the connection between formal structures of planning with community structures and grassroot initiatives. This way, an integrated planning approach that synchronizes the grassroot efforts and institutional arrangements using the PPS was adopted and adapted to solve the missing links between the two. It is hoped that through such a unified approach, solutions with greater momentum for practicability and relevance can be reached to enhance resilient housing in informal settlements of Lusaka and other cities in the world facing similar challenges.

## VII. RECOMMENDATIONS

- Through dialogue the LCC and Ministry of Finance and National Development Planning establish access to loans for extension of houses with flexible payment plans.
- PPPHPZ hold workshops and meetings with community leaders and conduct survey to find out the specific materials that the residents have improvised and link the people to cheaper sources of such materials. Also, through such interactions, can sensitize the residents, via media platforms on community initiatives/actions.
- JICA and the World Bank can partner with funding agencies to harness processes in the social cash transfer initiative to externally monitor the distribution and management of funds among the residents. They can also further make follow up surveys to evaluate the progress of entrepreneurship ventures of the beneficiaries.
- The LCC can engage the physical valuation department to evaluate properties and disseminate the information to prospective sellers of property. In the same vein, they can also advertise to prospective buyers and regulate the transactions.

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