

Tenure-Infrastructure-Livelihoods (T-I-L) Nexus in Slum Upgrading: *An Emerging Paradigm*

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Received on 23rd September, 2020; Received in revised form 20th October, 2020; Accepted on 2nd November, 2020.

Abstract

The world is progressively moving towards linked up approaches, reinvigorated by the current emphasis on indivisibility in the global goals on sustainable development. However, a lot more remains to be done to fully realise the integration of the three dimensions of sustainable development - economic, social and environmental. One such area is in the slum or informal settlements upgrading. Although it is currently seen as the best strategy in addressing the growing challenge of slum proliferation, it is constrained by compartmentalization of interventions. There is limited knowledge on interlinkages between tenure, infrastructure and livelihoods in upgrading interventions, a gap which this study sought to fill, with specific focus on the interventions of tenure security, infrastructure and livelihoods. The study, carried out in Huruma, Munyaka and Kamukunji settlements located in Eldoret town, explored the different slum upgrading approaches. Additionally, it examined the interplay of tenure, infrastructure and livelihoods improvements in the process of upgrading informal settlements. Using a mixed-method approach to data collection and analysis, a dominant sectoral approach to upgrading, a bias towards physical aspects, a neglect of livelihoods and yet uncovered links in the interventions of tenure, infrastructure and livelihoods are presented. There is a nexus in tenure security, infrastructure and livelihoods in upgrading that should be harnessed to make upgrading efforts more impactful and sustainable. This paper recommends, for policy and practice of slum or informal settlement upgrading, a reorientation in upgrading strategies. The paper further points to the need for actors to embrace approaches which take into account tenure, infrastructure and livelihoods in order to provide comprehensive solutions to slum residents. The Tenure-Infrastructure-Livelihoods (T-I-L) nexus approach is advocated for since it provides a more inclusive approach to challenges in informal settlements in an integrated and sustainable manner.

Keywords: Informal settlements, Infrastructure, Linkages, Livelihoods, Tenure, Upgrading.

INTRODUCTION

The world's urban population has grown exponentially to reach 55% in 2018, and although the population in slum areas dropped to 22.8%, the number of people in these areas actually increased from 807 million to 883 million (UN, 2019). This calls for pragmatic and intentional action to curb slum expansion and its negative effects. Strategies for addressing this challenge have evolved over the years- from the ineffective approaches of ignoring, eviction, eradication, demolition and resettlements (Usavogitwong, 2012; UN-Habitat, 2003)- to tolerance and official recognition of such settlements (Fernandes, 2002) through interventions such as improving

housing (Turner, 1968), site and service schemes (Syagga, 2011; Otiso, 2003) and slum upgrading (Payne and Durand-Lasserre, 2013; UN-Habitat, 2003). Currently, slum upgrading is seen as best practice in addressing this challenge (Mangira et al., 2019a; Muchadenyika and Waiswa, 2018; UN, 2019). Sustainable Development Goals (SDGs) have made it a strategy for making cities and human settlements inclusive, safe, resilient, and sustainable. However, slum upgrading- though it has made a positive impact in some countries- has made little impact in Sub-Saharan Africa, Kenya included. This begs the question, how can slum upgrading work better for the poor? Part of the current challenge lies in the prevailing single sector approach that compartmentalizes

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interventions in slum upgrading processes. Interventions have been viewed and implemented too narrowly along sectoral lines without linkages leading to less impact and the unsustainable use of resources. Integrated, cross-sectoral approaches and linkages in the interventions have received limited investigation. This research sought to contribute to this knowledge gap by investigating linkages in slum upgrading interventions, specifically, the interplay of tenure security, infrastructure and livelihoods in slum upgrading processes. This was done with a view to drawing lessons and making recommendations for policy and practice of informal settlement upgrading approaches. Although there is a growing literature on various aspects of tenure, infrastructure, and livelihoods, limited research has been done on the interconnections between these elements. Understanding the ways in which these elements interact is critical for policy and implementation of upgrading programs. This study sought to answer these questions and contribute to the knowledge gap on links amongst these elements.

THEORY

Slum Upgrading Approaches – An Evolutionary Process

Slum upgrading approaches have evolved over time. Studies have shown that they are varied in scope and focus. Previous strategies included ignoring, eviction, eradication, demolition and resettlements, but these failed to effectively tackle the slum problem (Usavagovitwong, 2012; Mbathi, 2011). Turner (1968), argued that sectoral approaches contributed directly to the worsening of housing conditions for the poor yet such settlements were the only solution for large urban populations whose housing needs were inadequately served by society's formal institutions. Turner (1968), advocated for the improvement of settlements with limited state role. Later approaches gave more recognition to settlements (Fernandes, 2002). Slum upgrading strategy has since then been seen as the best option in addressing informal settlements (Mangira et al., 2019b; Saad et al., 2019; Mukhija, 2001). Its main goal is to improve existing informal settlements through a variety of interventions or approaches that include; provision of tenure security, infrastructure, housing improvement, social

support, training, micro-credit, strengthening the institutions and changes in regulatory framework and densification measures (Huchzermeyer, 2008; UN-Habitat, 2003). Despite upgrading efforts, slums continue to grow in urban areas. This is attributed to population growth, in-migration and low supply of formal housing by public and private actors. Since the early 80s, the concepts, working methodologies, and implementation mechanisms of upgrading programmes have evolved (Rojas, 2010) from DeSoto's tenure only approach to a dual entry of tenure and infrastructure, both of which neglected the critical component of livelihoods.

De Soto (1986), advocated for the formalization of informal settlements arguing that legal tenure status would lead to investment in housing and business improvements, and access to credit and eradication of poverty by turning 'dead capital' to 'liquid capital'. Influenced by DeSoto's arguments, countries formulated regularization programs aimed at both upgrading informal areas and recognizing the land and housing rights of the dwellers, thus legalizing their status (Fernandes, 2002). Tenure Security, as perceived as a continuum of rights ranging from informal to formal rights, has been seen as a critical element in upgrading of informal settlements (Uwayezu and de Vries, 2018; Van Gelder, 2009). Securing tenure contributes to improvement in informal settlements because of its catalytic effect on investment in housing and infrastructure, access to credit, increased property values and neighbourhood improvement (Payne and Durand-Lasserve, 2013; UN-Habitat and GLTN, 2011; De Soto, 2000).

This tenure only approach was however criticized on grounds that it did not facilitate access to credit (Calderon, 2004). The approach aggravated exclusion and segregation rather than integration into the formal city, excluded adequate upgrading and other socioeconomic programs. Moreover, perception of security of tenure was seen as effective in informal settlements and dwellers could access informal credit and public services, and invest in housing improvement, even without having legal titles (Payne, 2002; Fernandes, 2002). Theoretical and empirical studies have shown that tenure alone is not adequate in solving challenges

in informal settlements. Titling had little impact on credit access: in Peru and Brazil (Fernandes, 2011), on the labour market in the Philippines (Velasco et al., 2014), on housing conditions and infrastructure in Peru (Almansi, 2009), on livelihoods and living conditions in South Africa (Huchzermeyer and Karam, 2006), and on incomes and employment in Buenos Aires and Peru (Galiani and Shargrotsky, 2005; Ananya, 2005). Moreover, it has been argued that titling may lead to gentrification (Payne and Durand-Lasserve, 2013).

Payne (2002), however, recognized that tenure was essential to the development of urban land and housing markets but it was not sufficient, in itself, and that it should be part of integrated measures; key among them, infrastructure (Payne and Durand-Lasserve, 2013; Gulyani and Talukdar, 2008; UN-Habitat, 2003). Gulyani and Connors (2002), contended that infrastructure should not only be the primary goal and central component of upgrading projects, but that it should rank at the top of the poverty reduction agenda. It was seen as an essential element in: improving informal settlements and reducing its incidence (Kovacic, 2018; UN-Habitat, 2011), improving slum 'image' and environmental conditions (Degert et al., 2016; Amis, 2001), improving quality of life for settlement residents (Kessides, 1997), connecting to core economic activities, and improved health and positive impact on income and welfare of the poor (Parikh et al., 2015; Komives et al., 2005; Calderón and Servén, 2004). Countries, therefore, adopted this approach to a point where Van Horen (2004), observed that upgrading projects displayed a very strong emphasis on the delivery of physical infrastructure and services over other interventions. Despite this, studies have shown that infrastructure did not address all the problems faced by the urban poor (Boonyabanacha, 2005; Amis, 2001). In Ghana, a study showed the construction of civil works in some parts had to be put on hold for a while owing to disputes over the ownership of the land earmarked for construction (WaterAid, 2009). Durand-Lasserve (2006), therefore observed that secure tenure was a prerequisite for the provision of basic services.

Tenure and infrastructure are regarded as critical elements in upgrading and advocated for a dual entry approach of both tenure and

infrastructure in slum upgrading (Gulyani and Basset, 2010; Collin, 2012). Emphasis on the need for investment in citywide infrastructure and security of tenure (UN-Habitat, 2010; Arimah, 2004) gained traction with Green (2010), giving empirical evidence in Chile, the Latin American Neighbourhood Upgrading Programmes (NUP), which included infrastructure and land tenure upgrading in the 80s.

Although both tenure security and infrastructure have a catalytic effect, Carney et al. (1999), pointed out that it was critical that people had the capabilities to effectively transform these into livelihoods strategies that would be sustainable, resilient and could enhance their well-being as well as cope with, and recover from shocks and stresses. Slum residents are often excluded from economic opportunities, as evidenced by high unemployment rates, inadequate or inconsistent incomes and the high cost of food, housing, transport, health, education, and water; impacting the ability of the urban poor to rise out of poverty (Shah, 2014; Mitlin, 2008). On education, for example, studies indicate that a majority of parents settling in slums postpone sending their children, especially girls, to school, until they are able to manage other expenses, such as food, rent, and transport (UN and GLTN, 2010). However, upgrading has largely focused on physical aspects and not these 'softer' areas of livelihoods. Haidar (2009), advocates for livelihoods approaches that place people at the centre of development and focus on empowering the poor to build on their own opportunities.

Slum Upgrading in Kenya

Kenya's approach to informal settlements corresponds loosely to the global approaches to informal settlements. This initially begun with housing and site and services schemes with funding mainly from multi-lateral agencies. The 1990s, however, marked the period of incorporation of informal settlements in development propelled by the Millennium Development Goals (MDGs), whose global target was to achieve 'a significant improvement in the lives of at least 100 million slum dwellers by 2020' (UN and GLTN, 2010). During this period, both the government and Non-Governmental Organizations implemented

upgrading projects through infrastructure upgrading (Alam et al., 2005; Otiso, 2003) such as provision of water and sanitation services (WSUP, 2019; Binale, 2011) and mobilizing savings (Weru et al., 2018). Though these upgrading approaches contributed to improvement of conditions in informal settlements, they were mainly single sector, stand alone, pilot (Syagga et al., 2002) and piecemeal (Huchzermeyer, 2008).

Recent efforts advocate for collaborative approaches such as the Kenya Slum Upgrading Programme (KENSUP) aimed at improving informal settlements through several strategies including, tenure and residential security, social and physical infrastructure, and shelter improvement (Syagga, 2011; ROK, 2005). This, however, remains a sectoral approach and is overly ambitious. In 2010, the Kenya Informal Settlement Improvement Project (KISIP) was formed. It aimed at improving living conditions in 15 urban areas through enhancing tenure security and infrastructure provision, and was jointly supported by international agencies; namely, World Bank, AfD, and Sida. KISIP's strategy in upgrading was largely physical, it focused on tenure security and infrastructure with no direct support to livelihoods. The current upgrading approach in Kenya is uncoordinated with drawn-out policymaking, conflicting stakeholder agendas and duplicating policy initiatives (Omenya and Huchzermeyer, 2006).

RESEARCH METHODS

The research adopted a case study methodology. The study was undertaken in Eldoret Municipality. The municipality is a fast-growing cosmopolitan secondary city with a population of 475, 716 in 2019 which grew exponentially from 289,380 in 2009 (KNBS, 2019). However, this growth is not matched with adequate services, leading to challenges of informality in its urban space. Some of the informal settlements have, however, benefitted from upgrading and three of these; namely, Huruma, Munyaka and Kamukunji, were purposefully selected as case study settlements. The select settlements presented an opportunity to investigate the three factors of tenure, infrastructure and livelihoods.

The research used multiple methods for primary and secondary data collection. Household surveys, focus group discussions, key informant interviews and observations were used to collect primary data. Secondary sources included existing literature and documents. A random sampling method was used to obtain the sample for household surveys. A sample of 200 households spread in the three settlements according to each settlement's household population was obtained. 100, 60 and 40 households in Huruma, Munyaka and Kamukunji respectively were sampled. The focus groups comprised of opinion leaders, settlement executive committees, and tenants and landlords/structure owners from each of the settlements. Key informants were selected from the relevant institutions and from community leaders. The diverse sources of information enabled triangulation, and thus deeper understanding of the slum upgrading dynamics within study areas.

Qualitative data were analysed through content analysis that looked at key themes on tenure, infrastructure, and livelihoods in regard to their approach and interlinkages that emerged from the focus group discussions and key informant interviews. From this analysis, themes and patterns emerged. Further, the data was subjected to Network Mapping and Nexus Analysis to analyse the linkages amongst the elements of tenure, infrastructure and livelihoods.

RESULTS AND DISCUSSION

Informal Settlement Upgrading in Eldoret and its Approaches

In the three settlements, upgrading was fragmented and sector-based. The upgrading was also substantially oriented towards improvement of physical aspects, specifically tenure and infrastructure, and thirdly, upgrading neglected direct support to livelihoods. Tenure security processes commenced in the 60s and concluded in Huruma and Kamukunji in the 90s with the issuance of titles to dwellers. However, the processes were still incomplete and ongoing in Munyaka at the time of the study in 2016, more than 30 years after the process began. Tenure system was mainly freehold for Huruma and Kamukunji settlements indicated by 75% and 85.7% respectively, and leasehold indicated by 10% and 11% respectively.

For Munyaka settlement, however, the majority (62.5%) were still holding share certificates as proof of ownership. Infrastructure, on the other hand, was upgraded in the 70s-90s, but this comprised isolated standalone water, electricity and murram roads. Infrastructure development was done without regard of existing plans and in areas not formally titled. This resulted in infrastructure development conflicts and led to extra project costs to correct some of the problems caused by uncoordinated infrastructure development. The settlements benefitted from tenure and infrastructure upgrading but were limited on direct support to livelihoods. 94%, 86% and 97.5% settlements in Huruma, Munyaka and Kamukunji respectively had benefitted from tenure security and infrastructure upgrading.

Unlike the direct upgrade of infrastructure and tenure, livelihoods upgrade was limited in the three case study settlements. The data showed limited livelihoods indicated by low skills, with only 38.8%, 40.6% and 27.5% households with formal skills in Huruma, Munyaka, and Kamukunji respectively. Low levels of employment, both formal and informal, was evidenced at 32.7%, 35.6% and 22.5% in Huruma, Munyaka and Kamukunji respectively, and similarly, business/commercial trade was at 20.4% in Huruma, 22.0% in Munyaka and 42.5% in Kamukunji. Housing units were mainly permanent in Huruma, indicated by 59.2%, whereas permanent housing in Munyaka stood at 37.3%, and only 27.5% in Kamukunji. Low average

incomes were also evident; 20.4% of households in Huruma had an average income of Kshs. 18,001-22,500, 30.5% households in Munyaka settlement had an average income of Kshs. 6,001-9,000, and 22.5% households in Kamukunji had an average income of between Kshs. 13,001-18,000, as shown in **Figure 1**.

The implication of these findings is that whereas tenure security and infrastructure improved conditions in the settlements, the inadequate attention to the 'softer' areas of skills, employment, incomes, health, education capabilities, assets and livelihoods activities limited the dwellers' potential to lift themselves out of neediness and to achieve meaningful and productive livelihoods.

Tenure-Infrastructure-Livelihoods Nexus in Upgrading

The findings point at a strong linkage between the three elements of tenure, infrastructure and livelihoods in upgrading. This was determined by the Chi-Square Test of Independence (association), at a -0.05-significance level and Phi coefficient and Cramer's V coefficient was used to measure the strength of the association, resulting in several observations.

First, tenure security and infrastructure were linked in both processes and functions or outcomes. Using network mapping analysis,

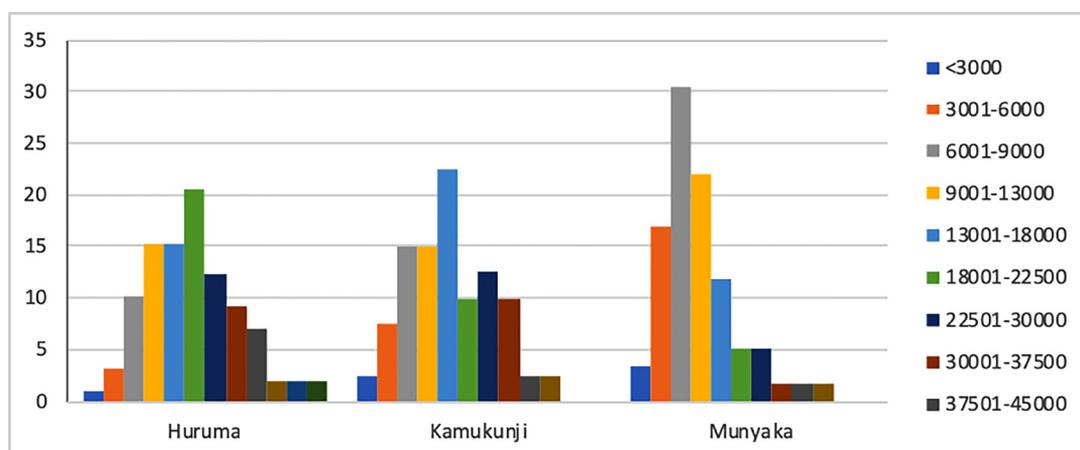


FIGURE 1
Percentage of average income by settlement
Source: Field data 2016

this study showed that the two interact through processes and their functions or outcomes. On processes, there were processes that were common to both interventions and secondly, there were those that directly impacted the processes of the other. The shared processes were mainly found in preliminary activities meant to lay the ground for the project, whether infrastructure or tenure security upgrading. Those activities that directly impacted the activities of the other were mainly implementation processes such as surveying, titling and construction of infrastructure. On functions or outcomes, tenure and infrastructure were similarly interlinked.

The nature of water source was found to be dependent on the tenure in the three case study settlements. Those without security of tenure did not have piped water from a private individual connection inside the housing unit or borehole. Similarly, tenure was linked to sanitation. Households with tenure security had some form of sanitation as indicated by 69.6% in Huruma, 86.7% in Munyaka and 69.2% in Kamukunji. On the contrary, those without the security of tenure had minimal sanitation with only 4.3% in Huruma, 6.7% in Munyaka and 5.1% in Kamukunji having private toilet and bathroom inside the house or shared pit latrine.

Electricity was also found to be connected with tenure determined by the Fisher's Exact test. The households with tenure across the settlements had formal electricity connection in their housing units. The households without legal tenure status mainly relied on informal electricity connection to the housing unit.

The deduction from these findings is that tenure and infrastructure are intricately linked, implying that they cannot therefore be viewed in isolation. This contrasts the tenure only approach to informal settlements as promoted by Turner (1968) and DeSoto (2000). Tenure and infrastructure interact and their simultaneous deployment is advocated for (Gulyani and Basset, 2010; Collin et al., 2012). However, a critical third dimension, that of livelihoods, emerged from the case studies.

Tenure security and livelihood dependencies were evident in both their processes and outcomes. At the advent of independence, land buying companies bought land upon which Huruma, Munyaka and Kamukunji settlements sprawl today. Informal subdivisions and transactions, construction of rows and rows of unplanned houses, lack of public utilities such as schools, markets, access roads and other basic services degenerated the previous farmlands into informal settlements. These conditions exposed the dwellers to insecurities and vulnerabilities. The government intervened in these settlements in the 90s to regularize the settlements and restore the security of tenure. This process had direct and indirect impacts on livelihoods. Secure tenure protected households from eviction and further enabled them to access credit by using the titles as security. Beyond the processes, tenure security stimulated livelihoods in the areas of income, housing and assets. However, data analysis showed no evidence of linkage to education, employment and skills, suggesting, therefore, that tenure alone is not adequate. Tenure security was also linked to better housing, especially for those with titles. Data analysis showed a significant linkage with most of those with titles having permanent units unlike those without tenure security, the majority of who had temporary, and at most semi-permanent units. This was attributed to the confidence to invest in the improvement of their housing units, which according to findings of this study, was bolstered by property rights engraved in the leasehold and freehold titles that the proprietors had, including rights to sell, lease, take a loan and give out as an inheritance.

CONCLUSION AND RECOMMENDATIONS

Infrastructure and livelihoods interact in their processes and outcomes. Infrastructure-upgrading pathways have generated various livelihood dynamics as dwellers sought to cope with the shocks generated by physical changes in their environments. The construction of infrastructure provided both temporary employment and business opportunities. The highest impact on livelihoods, however, came when the infrastructure was operationalized. Lighting increased working hours, roads in good condition improved transportation for goods and people, water and sanitation improved cleanliness

and health and reduced incidence of diseases; all of which has improved the living conditions.

In view of the above, understanding the linkages amongst the interventions of tenure, infrastructure and livelihoods in upgrading processes is critical for policy and practice of upgrading. This study thus recommends a shift from the sectoral and silo approach, to a new upgrading paradigm of Tenure-Infrastructure-Livelihoods (T-I-L) nexus approach that addresses the top-most challenges in informal settlements in an indivisible, synergistic, integrated and sustainable manner. For policy, this calls for the need to rethink informal settlement upgrading to adopt more comprehensive approaches as opposed to the silo approach. There is need to be focused on people-well-being by incorporating livelihoods interventions as a key component in upgrading. This calls for legal, policy and institutional reforms to facilitate integration and subsequently, more impactful and successful upgrading. The T-I-L approach has the potential to improve living conditions and quality of life, thus contributing to meeting SDGs on ending poverty in all its forms and making cities and human settlements inclusive, safe, resilient and sustainable.

More importantly, the COVID 19 pandemic has clearly demonstrated the need to provide physical improvements as well as economic and social protections to the urban poor that can improve their long-term well-being (Corburn et al., 2020), which is envisaged in the T-I-L approach. Settlement upgrading may be different across the globe, but the elements of tenure, infrastructure and livelihoods are core to all these settings. Governments and local agencies need to embrace comprehensive efforts which offer solutions and long-term sustainability end results.

In summary, the study's recommendations are therefore threefold; the need for integrated rather than silo approaches; the need to put people at the centre of upgrading through the incorporation of livelihoods in the tenure and infrastructure interventions, and the need to transition from the previous tenure only and tenure infrastructure approaches to the more inclusive and integrated Tenure-Infrastructure-Livelihoods (T-I-L) nexus

approach to upgrading for greater impact and sustainability. In this way, upgrading will be more responsive to the needs of the urban poor.

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