REDIRECTING HOUSING TRANSFORMATION AND DISPLACEMENT TOWARDS SUSTAINABLE HOUSING DELIVERY: THE CASE OF NAIROBI, KENYA

Dr. Stephen Diang’a

School of Architecture and Building Sciences, Jomo Kenyatta University of Agriculture and Technology, Kenya
sdianga@yahoo.com

Dr. Rosemary Hayangah

School of Architecture, Planning and Housing, University of KwaZulu-Natal, South Africa
rhayangah@yahoo.com

ABSTRACT:
The provision of low-income housing in Nairobi was for many years the prerogative of the local authority in the form of rental housing. The local authority’s inability to cope with the rising demand for this category of housing saw the manifestation of informal settlements as individuals responded by invading both public and private land and erecting makeshift dwellings. Attempts to redress this situation saw the introduction of varied intervention strategies such as self-help housing, in-situ upgrading and greenfields developments in the 1970s and 80s. These however were not sustainable and gradual displacement of the intended beneficiaries by more affluent private housing developers started to occur with the new landlords either transforming the original houses to increase the number of dwellings or simply replacing them with high-rise tenement blocks as the land was considered more valuable than the original dwellings. This study explores the process of transformations in planned sites-and-services schemes in Nairobi and its implications on planning and housing delivery in the city using case study methodology. Indications are that housing transformations increase desired housing stock but overstretch infrastructure and services to undesired levels.

KEY WORDS:
Housing Transformation, Displacement, Housing Delivery, Planning And Design.
INTRODUCTION

Human settlements are never static and changes or transformations, whether desired or not, do occur at all times. These can be as a result of population dynamics, cultural and economic changes, natural disasters, political instigations, etc., and if not checked may impact negatively on the built environment and the quality of living conditions of the dwellers. Tipple (2000) describes transformations as firstly, modifications of the existing design product by the expansion of plinth area, addition of spaces laterally and vertically, or by adding spatial units like rooms, alcoves, corridors, etc. and secondly, that transformation is qualitatively re-organizing the disposition of the provided spaces, through relocating, resizing of openings between spaces and/or to the exterior environment. Such transformations have been considered from varied approaches by scholars. Some consider housing transformations as transitions from vernacular typologies to modern or conventional typologies (Mirmoghtadaae 2009). Others consider transformation as generated by changing household demands (Makachia 2005). Yet others consider transformations as emanating from urban dynamics in terms of development trends, population pressures, and land constraints (Terekegn 2000). This study focuses on this last approach and considers transformations that occur on planned housing developments. Emphasis is on planned site-and-service schemes of the 1970s and 1980s where the transformations pressure is at its greatest. This paper is based on a case study of Ngei II site-and-service scheme in Nairobi. The study was explorative in nature and applied qualitative research method involving interviews, observations and review of secondary data. Four clusters were selected in the neighbourhood representing 10 per cent of the household population. The criteria used in identifying the clusters included physical characteristics of the dwellings, network of roads and footpaths, open spaces, activities such as commercial, recreation, and sanitation. This convenience sampling involved purposive or deliberate selection of particular units of the universe for constituting sample which represents the universe.

THE CASE STUDIES

Ngei II is located within Mathare Valley settlement which is approximately 6 Km to the East of Nairobi’s city centre off Juja Road [Fig. 1]. There are two distinct planning approaches in this neighbourhood. Part of the neighbourhood was planned with smaller plot sizes of 7 x 21 meters similar to that applied in Dandora which was the first site-and-service scheme in Nairobi funded by the World. The central part of this neighbourhood which belonged to a land buying company had larger plots of 12 m by 25 m. To address the aspect of beneficiary displacements, the planning approach applied comprised of a plot with five to six basic single-room units arranged around a communal courtyard, and each allottee given limited space for horizontal expansion by one additional room [Fig 2]. Toilet, washing and cooking facilities were communal. However, most of such units have since changed hands and investors have replaced the original with multi-storey tenement blocks.

The inability of the City Council’s Development Control Section to regulate and contain the mushrooming of the unapproved alterations and transformation of original houses has seen the area develop into a very high density neighbour and the infrastructural facilities provided are no longer able to sustain the growing population. This is evident by the number of burst sewers in the area and shortage of water from the City Council mains. The endemic corruption problem of the country has also contributed to this development with officials assigned the duties of regulating physical developments in the city being highly compromised.
CLUSTERING OF BUILDINGS

As a site-and-services development, the planning principle applied in the design of the neighbourhood was the dominant economisation of services vis-à-vis the number of plots served. Plots were set back-to-back with roads, water supply, sewer, and storm water drainage in-between. Roads dominate the planning approach applied. The spine road has a width of 12 meters and traverses the neighbourhood with mostly curl-de-sac feeder roads radiating from it. The feeder roads have 9 and 6 meters widths with the 6 meters wide roads developed mostly as pedestrian walkways. Open spaces are none existent save for vacant plots. Original plan of the area indicate that the open spaces in the neighbourhood were provided along the river in areas considered unsuitable for building. [Fig 3] illustrates the planning principle applied. There was no conscious effort made in the planning stages to create distinct neighbourhood clusters and street frontages provide the only meaningful and common identity for the dwellers. However, in a large section of the neighbourhood, the encroachment of commercial activities at the street level has compromised the feeling of belonging at the street level with commercial activities dominating the space. The four clusters identified in the neighbourhood for detailed analysis are discussed in this section.

[Fig 2] Type designs for Ngei II site-and-service scheme. Source: Author
CLUSTER 1
Three distinct characteristics were observed in this cluster. Plots abutting the Mathare North Road that links Juja Road to Thika Road as shown on [Fig 4] are characterised by blocks developed up to 6 storeys. These blocks have been developed with commercial facilities on.
The section abutting the main road booms with commercial activities which cover the entire area including what was intended for pedestrians. Encroachment onto the pedestrian walkway has created a
pedestrian/vehicle conflict. Vehicular parking also takes place along the road adding to the confusion. [Photo 1] shows busy section of this cluster.

[Photo 1] The section of Cluster 1 abutting the busy main road. Source: Author

Commercial activities taking place on the ground floors of this section was planned for according to City Council and these front row plots were not set back-to-back as is the case with the rows immediately behind it. This street is very busy and plot sizes are bigger. The plots have been developed with apartment blocks of up to seven storeys as opposed to the two storeys planned for the scheme. The second zone is located immediately behind this and comprises of plots of sizes that constitute the majority of plots in Ngei II. Low-rise buildings dominate this section with a number of them still retaining the originally planned single storey housing typology indicated in [Fig 2].

There are no open spaces and children are hardly seen playing in the area. Even space for drying clothes is nonexistent and the facades of the apartment blocks are cluttered with clothes hanging from drying line.

CLUSTER 2
Located between the main spine road and Mathare River as indicated in [Fig 5], this cluster has a relatively steep slope to the river. All the eight plots fronting the spine road have busy.
[Fig 5] Cluster 2 showing building types, roads and buildings studied in detail. Source: Author
Redirecting Housing Transformation and Displacement towards Sustainable Housing Delivery: The case of Nairobi, Kenya

S. Diang’a

N-AERUS XII / Madrid 20-22/10/ 2011

[Photo 2] Section of the spine road with commercial activities extended on to pedestrian walk way

Source: Author

[Photo 3] Cluster 2 feeder road showing children playing on the road, clothes hanging from an electric post and access road eroded by surface drains. Source: Author
Cluster 2 is still at a transformation stage with a number of buildings at various levels of vertical expansion. For example, all the building marked 2 storeys in [Fig 5] have provision for vertical expansion and concrete flat roofs have been provided to facilitate this intention. The single storey block shown in [Photo 4] is the only surviving original single storey block. Open spaces are poorly maintained and end up as garbage dumps. The open space shown in [Fig 4] appears well defined on plan but [Photo 5] shows its poor state.

CLUSTER 3
This cluster located on land originally owned by a land buying company portrays a uniquely mixed use development comprising of commercial facilities on the ground floor and a mix of commercial and
residential units on upper floors. It is located on the busy road that connects the spine road to the road serving Hurama City Council housing. Commercial activities overshadow residential element which is only evident on upper floors with its characteristic balconies and drying clothes. An interesting observation is that street vending hardly takes place along this street. This can be attributed to the limited pedestrian circulation space and the well established shops.

This cluster has a high concentration of high-rise blocks with 1 block rising to 7 storeys, 5 blocks rising to 6 storeys, and another six blocks rising between 3 and 4 storeys. The road to the West of this cluster has been repaved with tarmac whereas the one to the East is in poor state of disrepair. This condition has affected the standards of businesses with businesses along the road to the West appearing to be of higher standards than those on the poor road to the East. Here too, pedestrian walkways are interrupted by business activities located on the pavements. Vehicular traffic is thin and pedestrian walk on the roads.

[Photo 6] A section of the busy spine road with shops on all the ground floors and dwellings above. Source: Author
Fig 6: Cluster 3 showing building types, roads and buildings studied in detail. Source: Author

The undeveloped plots have commercial activities in temporary structures built with corrugated iron sheets. Indications are that these plots together with 11 other plots with single storey structures will be replaced with high-rise buildings in a few years. As in Cluster 1 and 2, there is no provision for open spaces and children play areas. The commercial activities are so dominant at the ground level to the extent that residential element within the cluster is not evident at the ground level. Clothes on drying lines along the balconies are what reflect the residential element within the cluster as shown in [photo 6].

CLUSTER 4
Cluster four has maintained a larger proportion of its original housing typology of single storey courtyard dwellings on 7 M by 21 M. The site layout plan adopted here allowed for limited vehicular access and some sections are only accessible on foot. It is this restrictive layout that has led to fewer plots being developed with multi-storey blocks. As can be seen in [Fig 7] only two blocks have been developed to 6 storeys and one to four storeys. The multi-storey blocks developed here have serious ventilation and natural lighting problems due to the narrowness of the plots. [Fig 8] is a clear illustration of the layout of rooms on these plots.

There are six undeveloped plots within cluster 4. Two serve as open spaces with no commercial activities. Three have temporary structures while one is used as a timber yard. Limited pedestrian circulation has resulted in few kiosks or shops and those developed were closed at the time of this survey. [Photo 7] shows a street scene along this cluster with very minimal pedestrian activity with women and children sitting along door steps. In the middle of this street are garbage sacks awaiting collection by city council trucks. Youth groups coordinate the collection of the garbage.

[Photo 7] A cul-de-sac road with closed down shops and garbage pileup. Source: Author
[Figure 7] Cluster 4 showing building types, roads and buildings studied in detail. Source: Author
Redirecting Housing Transformation and Displacement towards Sustainable Housing Delivery: The case of Nairobi, Kenya
S. Diang’a

[Photo 8] Steel windows fabrication by the roadside. Source: Author

[Photo 8] shows metal furniture workshop located along pedestrian walkway. This also acts as a display area for finished products for sale. The adjacent undeveloped open space also acts as clothes drying area.

**DWELLING CONFIGURATION**

High-rise tenements present some level of transformation in the neighbourhood systems of settings. These blocks accommodate as many as 90 households on plots that originally accommodated 8 households in single storey structures. Communal facilities in such cases go beyond what is found on ground level. Privacy gradient also changes with corridors in the high-rise blocks becoming more private than is the case with the single storey blocks. In the high-rise blocks the responsibility of providing services such as water and electricity lies with the landlord but at the neighbourhood level some of the communal facilities such as roads, and drainage systems still remain the responsibility of the City Council.

The configuration of these blocks is greatly determined by the plot configurations. Although development control for this area does not allow 100 per cent ground coverage, developers have gone ahead and developed their plots to the maximum 100 per cent coverage. As a result, two typologies have emerged. Blocks sandwiched between others have only the narrow frontage facing the road for natural lighting and ventilation. Corner plots take advantage of their location and have two open sides. To maximize on number of rooms per floor, developers have adopted the use of light wells which source light from the roof and having a central corridor with rooms on either side in the case of sandwiched plots. [Fig 8] is an example of such a development on a 7 by 21 meters plot. Light wells also meant to serve as ventilation shafts are created within the space. These are marked as voids on [Fig 8]. The natural lighting and ventilation provided for these sandwiched plots are grossly inadequate and all the dwellings visited use artificial lighting during the day. The situation on ventilation is worsened by the fact that households use paraffin stoves the fumes from which linger on in the dwellings. [Photo 9] shows a three storeyed sandwiched with the poorly lit corridors shown in [Photo 10] (the camera flash light has brightened the rather dark corridor).
Another factor affecting the setting of dwellings in this neighbourhood is the corner position of plots. Such plots take advantage of having two boundaries fronting the roads. Balconies are located on these two boundaries serving rows of rooms. On 12 by 25 meters plots have three rows of rooms with two rows served with a central corridor similar to the case illustrated in [Fig 9] and shown in [Photo 11]. Where a household requires more accommodation there are possibilities in some apartments of using a link door to the adjacent room. A significant variations to the single roomed dwellings of slums is the provision of toilets and shower cubicles on every floor. Balconies and corridors replace the passages in the slum row housing.
[Photo 9] View of the sandwiched plot illustrated in Figure 8 above. Source: Author

[Photo 10] A dark and narrow corridor within the above building with wet clothes hanged for drying. Source: Author
[Fig 9] Floor plans of a tenement in Cluster 2 fronting the spine road. Source: Author
CONCLUSION

The case study also shows that investment in low income housing by individuals with high income is feasible as all the high-rise tenement blocks are owned by people with reasonably high incomes. Security of tenure and provision of infrastructure attract private developers.

In terms of housing provision, the high-rise development in the area has increased housing stock. Majority of the residents indicated that they were satisfied with the accommodation provided despite the overcrowding. From the planning point of view however, this high-rise development has strained the services provided especially sewerage and water supply. In a study of the same area by Huchermeyer (2007) she observed that in the case of lower-income tenements in Nairobi, the predominance of rooming in buildings of up to eight storeys makes for a residential density that outstrips the densest tenement districts of urban history. The incorporation of commercial facilities on ground floors is an appropriate introduction in the ongoing transformations considering the fact that most of the ground floor dwellings facing streets in the original planning have transformed into commercial facilities.
REFERENCES


