Residents' Transformation of Dwelling Units in Public Housing Estates in Lagos, Nigeria: Implications for Policy and Practice

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Abstract
This study investigated the physical transformations of dwelling units in low-income housing estates in Lagos, Nigeria using the New Lagos Re-housing Estate (Phase 1) in Surulere and Federal Low-income Housing Estate in Ipaja as case studies. It was motivated by the paucity of studies on the pattern of physical transformations of dwelling units in public housing in Nigeria. A cross-sectional survey of 614 household heads in these estates was carried out in 2009. It was observed that most of the respondents who were low-income earners expressed dissatisfied with their living, dining and kitchen spaces as well as bedrooms, and thus have transformed these areas of their residences. The levels of transformations were however higher in bedrooms than in other areas and were motivated by the need to create more domestic spaces and for income generation. The study implies that spontaneous transformation activities in social housing schemes can be reduced if adequate attention is given to the design of main activity areas in dwelling units, and by promoting core housing strategy.

Keywords: Public Housing; Low-income Earners; Physical Transformations; Dwelling units;
        Lagos.

1.0 Introduction

In recent times, research on the different aspects of social housing is on the increase in developing countries and globally. This has become imperative for a better understanding of the extent to which housing provided with public funds are meeting the needs of the residents and promoting livable and healthier urban neighborhoods. In Nigeria, the existing studies (e.g. Ukoha and Beamish, 1997; Olatubara and Fatoye, 2007; Fatoye and Odusami, 2009; Jiboye, 2009; Ilesanmi, 2010; Clement and Kayode, 2012; Ibem and Amole, 2012) focus mainly on residents'

satisfaction with, and factors influencing this in public housing, while others examined the quality (Ibem, 2012) and adequacy (Ibem and Amole, 2011; Ibem et al., 2012) of public housing. From these studies, it has been established that the quality of public housing in the country is generally poor, and that this is more pronounced in housing estates inhabited by the low-income earners. These studies have also exposed the different aspects of public housing which residents are satisfied and dissatisfied with in the country.

Lagos, one of the fastest growing megacities in sub-Saharan Africa and where its intractable housing challenge and teeming population have led to a high concentration of public housing schemes in Nigeria; researchers (including Olatubara and Fatoye, 2006; 2007; Fatoye and Odusami, 2009; Jiboye, 2009; Ilesanmi, 2010) have observed that the residents of these housing schemes are most satisfied with the building design features but least satisfied with the physical environment of the estates. Across the different categories of public housing estates, satisfaction is however least among residents of low-cost housing schemes; suggesting that the consequences of housing dissatisfaction are most likely to be more pronounced in low than medium or high income housing estates in the city. Mohit et al. (2010) noted that where dissatisfaction with housing is reported, some forms of housing adjustments, which seek to reconcile the disparity between what the residents expected and what they have in their current residences may exist. These adjustments may take different forms, including the revision of housing needs and aspirations or improvement of housing conditions through housing transformation or movement to another place that brings housing into conformity with users' aspirations or needs (Mohit et al., 2010). This simply means that households can react to residential dissatisfaction in three basic ways: adaptation, transformation or mobility. Among these behaviours, studies (Lu, 1998; Kimet al., 2005) however suggest that remodeling or modification or transformation of the dwelling units is tangible and measurable, and thus has far reaching implications for policy and practice. According to Mirmoghtadaee (2009:70), this is because changing the physical characteristics of the environment is much easier than intervening in one's social and cultural norms.

From the review of literature, it was found that a large proportion of the existing studies on housing transformation are in developing countries (see Shiferaw, 1998; Tanaka. et al., 1998; Tipple, 2000; Manalang, et al., 2002; Mirmoghtadaee, 2009), but with a relatively smaller number (e.g. Adegbehingbe, 2011; 2012) in Nigeria. Although the existing studies help to provide insight into the general forms housing transformations take, the motivating factors and their implications; the differences among countries in terms of household composition, cultural values and norms, housing design standards, housing quality and needs as well as home ownership structure, suggest that the process and pattern of housing transformations, motivations and their implications will most likely differ from one country to another. In view of the socio-spatial implications of housing transformations as highlighted in the literature (Shiferaw, 1998; Makachia, 2005; Landman, 2006) and the fact that there are very few published works focusing on this subject in the Nigerian context, this study sought to investigate housing transformations in public housing estates in Lagos, Nigeria, using two of the oldest low-cost housing schemes- the New Lagos Re-housing Estate (Phase 1) in Surulere and Federal Low-income Housing Estate popularly known as Shagari Estate at Mosan-

Abesan in Ipaja, as case studies. The objectives were to: (i) examine the socio-economic characteristics of the residents of the two housing estates (ii) analyze the physical transformations of the residential buildings in the estates, and (iii) explore the implications of these transformations for urban housing policy in Nigeria.

This paper proceeds in four sections. The first is the review of literature on housing transformations and theoretical clarification, followed by discussion of the method used in conducting the research. Next is the presentation and discussion of study findings. The paper ends with some concluding remarks, including implications of the study. It is expected that this study will bridge some gaps in the literature, inform housing policy and design practice as well as urban planning in Nigeria.

2.0 Literature Review and Theoretical Clarifications.

According to the Longman Dictionary of Contemporary English (2007), transformation simply means a complete or partial change, usually into something with an improved or disfigured appearance or usefulness. Transformation is synonymous with words like alteration, adjustment, modification and improvement as well as change. In the context of housing, Tipple (1991) defined the transformation of a dwelling as the alteration or extension involving construction activity using locally available materials and technology. Kim et al. (2005) described transformation as the remodeling of completed buildings resulting to a change in the appearance or character of building envelope components. Popkin et al. (2012) also described housing transformations to include activities ranging from the rearrangement of internal furniture and painting a room to structural amendments like addition of more rooms or even demolition of some housing units. Putting these definitions into context, housing transformations can be said to be the changing of the original form and spatial configurations of a dwelling unit by the occupants in order to meet current needs and expectations.

From literature search, we find out that a number of theories have been put forward to explain housing transformations. One of such theories is the housing adjustment theory. According to Morris and Winter (1975), people generally judge their housing conditions based on specific family and cultural norms. Mirmoghtadaee (2009) explained that this is because settlements are naturally designed and built to meet the needs, social norms and lifestyles of people. Norms in this context refer to rules and regulations that determine the way of life and conduct of people in the family or society. Therefore, when a household's current housing conditions do not confirm with the established norms and lifestyle as a result of changing needs over time, family life cycle such as increase in household size (e.g. arrival of new babies, elderly relatives) and income (Tipple, 2000a), there is bound to be what is called "housing deficit" which Mohit et al. (2010) argued can manifest in housing dissatisfaction. This may eventually trigger housing stress, shocks and demand for adjustment actions by the households. Seek (1983) insisted that people always crave to overcome housing stress by adjusting and re-adjusting their levels of tolerance, but Carmon (1987) noted that when this reaches a critical point and in order to cope with the stress, people will either have to improve their housing conditions through the transformation of their residences or move to a better

housing if they have the means and permission to do so. In a the same vein, Quercia and Rohe (1993) explained that households always seek a satisfactory residential environment at all times, and if the characteristics of their housing and/or neighborhood no longer satisfy them because of changes in housing or neighborhood conditions, or because of demographic or socioeconomic changes in the household itself, then the household experiences stress. They argued that housing transformations are essentially aimed mitigating the impact of housing stress on family members. This appears to be in line with the proposition by Mohit et al. (2010) that improvement of housing conditions through housing transformations affords households an opportunity to bring their housing environment into conformity with their needs, expectations and aspirations. Therefore, the theory of housing adjustment which provides insight into housing transformations has a strong link with housing satisfaction.

The existing studies (Tanaka et al., 1998; Tipple, 2000a; 200b; Manalang et al., 2002) suggest that in the developing countries, housing transformation is largely accomplished through spontaneous private initiatives. As Salim (1998) rightly observed, it is common for owner-occupiers, through their own initiatives and efforts to alter or extend their houses so as to improve their housing conditions and at the same time meet the growing needs of their households. Tipple (2000a) noted that housing transformations in developing countries are often illegal and involved modifications and extensions of the external and internal parts of dwelling units or both. He asserted that most transformations in these countries are done by small scale contractors and single artisans using locally available materials and labour, and are so extensive to the extent that the original dwelling units could hardly be recognized. Manalang et al. (2002) also viewed housing transformations as self-built improvements, which apart from helping in understanding the adjustment behaviours of the residents, also indicates how the residents have augmented for the deficiencies in their current residences. This implies that housing transformations are most often an initiative of housing owners and seek to improve housing conditions by providing more spaces to accommodate household needs.

According to Adegbehingbe (2012), housing transformations are a common in government housing estates in many developing countries, including Nigeria. Rapoport (1989) opined that people transform their houses as way of communicating some aspects of themselves to others, while Tipple (2000b) argued that transformation was common in public housing because potential residents are rarely involved in the planning and designing of such housing estates, and as such the dwelling units are neither in tune with their socio-economic, religious and demographic characteristics nor a reflection of their expectations and aspirations. In this situation, the residents find their housing units inappropriate to their household needs and way of life, and thus explore avenues of physically adjusting the units to suit their needs and lifestyle. In support of Rapoport's submission, Tamés (2004) also noted that transformations are pronounced in public housing because public housing estates are often uniform and monotonous and offer limited opportunities for self-expression by the residents. On the other hand, Salim (1998) was of the view that the need to have an extra space for the household and for income generation is a key motivation for transformation. This was corroborated by Tipple (2000a) who noted that many households

transform their dwellings because they needed to work in their homes and let out additional spaces created in the course of transformation activities. He therefore concluded that one of the greatest motivations for transformation is to add value to the existing housing stock. Hasan (2006) viewed transformations in public housing from another perspective by arguing that transformation of dwelling units by residents in public housing schemes was a response to the failure of the government constructed housing to cater for the housing needs of the people. This suggests that housing transformations are on the increase due to the perceived gap between what residents need and what they are provided with by public housing providers. It can be inferred from the above that housing transformations are motivated by a number of inter-related factors such as the socio-economic context of households, their housing needs, expectations and their present housing conditions.

With regards to the benefits of housing transformation, Salama (1995) found out that transformation activities initiated by residents in public housing in Egypt not only increased the range of useful spaces within the dwelling units, but also created dynamic multi-functional estates that responded better to the changing needs of households. Secondly, it is believed that transformation activities increase housing supply for low-income households and their tenants and also contribute to improving housing quality in a neighbourhood (Salim, 1998). Thirdly, housing transformations are can bring families together, reduce commuting within the city, enhance employment avenues within residential area and rejuvenate social and economic life of housing estates that are at the end of their useful life (Tipple, 2000a). In addition, Manalang et al. (2002) have also indicated that transformation activities can enhance residents' sense of pride, confidence and feeling of attachment to their dwelling units. As they put it, 'residents could feel at home and secured when they gradually improve and maximize the space within and around their residences'. It is perhaps on this premise that Turner et al. (2009) concluded that housing transformations are beneficial in improving the value of housing, increasing the housing stock within a locality and attracting more residents into the neighbourhood.

In spite of these benefits of housing transformations, several authors have criticized user-initiated transformations for having negative effects on the quality of housing environment. For examples, Shiferaw (1998) identified some of the adverse consequences of uncontrolled transformation to include overstretching of the existing infrastructure, urban services and land use, creating obstruction to vehicular/pedestrian circulation and channels for services. According to Tipple (2000a), deterioration of community facilities may principally be due to the fact due to the fact that transformed houses increase population density more than existing infrastructure can support. Besides, Makachia (2005) and Landman (2006) enumerated some of the negative consequences of transformations to include reduction in the levels of comfort, privacy, natural lighting and ventilation and other physical environmental functions in the transformed buildings. These negative consequences appear to be pronounced where the internal layout of a dwelling unit are changed to the extent that windows are positioned very close to fences and adjacent dwellings. Indeed, from the above, it is clear that housing transformations have both positive and negative

impacts to residents and the environment. Hence, studies on the subject are crucial in informing housing policy and development as well as urban planning and design.

3.0 Research Method

This study is part of the wider research project that was conducted to examine housing transformation in low-cost public housing estates in Lagos, Nigeria. It is focuses on the patterns of physical transformations of the dwelling units in selected housing estates in the study area. As noted in our introduction, the study was carried out in two of the oldest low-cost housing estates where housing transformations are believed to be highly pronounced in the city of Lagos. The housing estates investigated were the New Lagos Re-Housing Estate (Phase 1) in Surulere and the Federal Low-Income Housing Estate popularly referred to as Shagari Estate in Mosan-Abesan, Ipaja. The choice of these two estates was based on the result of the preliminary survey by the researchers, which revealed that they were constructed to provide housing for the low-income people in the study area, share similar characteristics; and also have manifestations of physical transformations of the dwelling units.

A cross-sectional survey was conducted in the two estates between February and May 2009. Data were sourced using well structured questionnaire, interviews guide, observation schedule and photographic materials. As at the time of the surveys, the New Lagos Re-housing Estate (Phase 1) had four housing typologies of 1,356 units comprising 172 single bed-sitters, 636 units of one-bedroom apartments, 380 units of two-bedroom houses and 168 units of three- bedroom bungalows. On the other hand, the Federal Low-Income Housing Estate (i.e Shagari Estate at Mosan-Abesan) had a total number of 1,514 housing units comprising 1,284 units of one-bedroom in rows of two in semi- detached bungalows and 230 units of 3-bedroom in rows of two in semi-detached bungalows. Therefore, the sample frame comprises a total of 2,870 housing units. The multi-stage sampling technique was used in selecting housing units from where respondents were selected. In the selection of the housing units, the stratified sampling technique was used to ensure that the different housing typologies were selected, while the random sampling technique was adopted in selecting housing units from each of the typologies identified. These resulted in the selection of 626 housing units representing about 22% of the total number of housing units in the two estates. Of a total of 626 questionnaires administered to the household-heads living in dwelling units by the researchers and trained research assistants, 614 questionnaires representing 98% of the distributed questionnaires were valid. This shows a very high response rate.

Since the units of analysis were the household heads residing in the selected dwelling units, the questionnaire instrument used in collecting data from the respondents consisted of three main parts. The first part one was designed to collect data on the socio-economic characteristics: sex, age, religion, ethnic group, marital status, level of education, estimated monthly income, occupation, tenure status and length of stay, household size and the type of housing units occupied by the households. The second part of the questionnaire elicited responses from the respondents on the

extent to which they were satisfied with the main activity area (living, dining, bedrooms and kitchen) of their dwelling units. There were also questions meant to obtain data on whether or not the residents have transformed their housing units, how and why the transformations were carried out. The third part of the questionnaire was used to collect data on the type of transformation activities embarked upon by the respondents. Among the residents whose housing units were found to have been physically transformed, data on the patterns of transformations were also collected through physical measurements and the observations were recorded using the observation schedule and photographic materials. In addition, the layout plans and architectural designs of the building before and after the transformation activities were carefully studied and free hand sketches of the transformed buildings were also made.

Going by the fact that the study was both exploratory and descriptive in nature, and data used were both qualitative and quantitative, descriptive statistics and content analyses were used in analyzing the data. Whereas, data derived from the questionnaire instrument were analyzed using descriptive statistical tool with the help of SPSS V.17, data obtained using the observation schedules were subjected to content analysis. The results are presented in tables, percentages and using graphic illustrations.

4.0 Study Findings and Discussion
4.1 The Socio-economic and Demographic Characteristics of the Respondents

The result in Table 1 shows the socio-economic, demographic and cultural characteristics of the respondents in the survey. Examination of the result reveals that a majority (57%) of the respondents were male as against 43% who were female. This shows the dominance of male over female household-heads in the study area. As would be expected, a larger proportion (57%) of the respondents were found to be of the Yoruba ethnic origin, followed by 35% who were of the Ibo ethnic origin and 9% who were of the Hausa tribe. Also most (72%) of the respondents were observed to be between ages 25years and 60 years; suggesting that they were mainly working class household heads. In fact, the result shows that a majority (85%) of them were actually workers. Whereas 71 % were employed in the private sector, 14% were public sector employees. In line with our sampling technique, most (91%) of the respondents have experienced marriage relationship, but at the time of the survey 51% were still in marriage relationship. Although it was difficult to ascertain the actual income status of the respondents, the result indicates that a majority (64%) of them were low-income earners, followed by 25% who claimed to be middle-income earners and 9% who indicated that they were high-income earners. This result clearly shows that a larger proportion of the respondents were low-income earners. This is quite understandable as the housing estates were constructed for the purpose of providing housing for this category of people in the city. On their highest level of educational attainment, most (58%) of the respondents had education up to secondary level. This may help to explain why a majority of them were low-income earners and private sector employees. Despite the fact that they were mainly low-income earners as the result suggests, around 82% of them had household sizes of four persons and above, and more than one-half (52%) lived in 1-bedroom bungalows (see Figure 1). The result in Table 1 also shows that a

majority (60%) of the respondents were owner-occupiers as against 36% who were renters, and that most (78%) of them had lived in their current residences for over 10 years, which of course is enough period for one to undertake the task of modifying his/her residential environment.

From the result on the respondents personal characteristics, especially, with respect to tenure status, household sizes and age as well the sizes of housing units that they lived in, it is expected that the respondents would most likely embark on transformations of their residences barring financial and other constraints. This is because; a 1-bedroom housing unit is grossly inadequate for a household of over three persons. Also since most of them are owner-occupiers, the probability that they will maximize every opportunity to make their residences more suitable in meeting their needs and expectations is very high. Hence, and the only way to achieve this is through physical transformations of the dwelling units.

4.2 The Respondents Levels of Satisfaction with Main Activity Areas of their Residences

The result of the analysis also reveals that 62% of the respondents and buildings sampled were in Shagari Housing Estate, while 48% were in New-Lagos Re-Housing Estate, Surulere. Table 2 shows the extent to which the respondents were satisfied with the main activity areas (e.g. living, dining, sleeping and kitchen) in their residences. It is evident from the result that in the Federal Low-cost Housing Estate, Ipaja, majority (64%) of the respondents were dissatisfied with their bedrooms, 42% were dissatisfied with the sizes of their dining and kitchen spaces, while 36% said that they were not satisfied with the sizes of their living rooms. Similarly, a majority (62%) and (57%) of those in the Re-Housing Estate, Surulere, were respectively, dissatisfied with their kitchen and bedrooms, while most (64%) of them indicated that they were satisfied with their dining space. This result indicates that a majority of those encountered in the survey were dissatisfied with their kitchen and bedrooms. This result was to be expected as a majority of the respondents lived in 1-bedroom apartments and had household sizes of four persons and above. Generally speaking, the result goes to suggest that the main activity area in the dwelling units as shown in Figures 1 and 2 are not adequate in meeting the residents' current housing needs and expectations; therefore, the possibility of the residents taking some steps to address these inadequacies appears to be very high. What this means is that it would not be a surprise if most of the transformation activities are focused on addressing the perceived gap in the numbers of bedrooms and sizes of living, dining and kitchen spaces in the dwelling units.

4.3 Motivations for Physical Transformation of Dwelling Units

The result on the proportion of the respondents who had carried out some forms of transformation activities shows that in the Federal Low-Income Estate, Ipaja, a larger proportion (72%) of the respondents indicated that they had in one way or the other transformed their houses, while 28% said they had not embarked on any form of modification in their residences. Similarly, in the New Lagos Low-income Housing Estate, it was observed that a majority (83%) of the respondents said they had carried out transformation activities in their houses, while 17% had not. Although, this result suggests that more residents in the New-Lagos Re-Housing Estate had

transformed their houses than those in Shagari Estate, one common feature that was observed in both housing estates is that on the average, over 89% of the open space around each of the buildings has been used up in the course of transforming the dwelling units. This has invariably reduced the available open space needed for adequate circulation of air and human traffic as well as outdoor activities.

On the why the respondents have embarked on transformation of their residences, the result also reveals that 26% of those who have transformed their houses did so for economic reasons, that is for income generation through rent they get from extra rooms and shops added to their houses. About 63% of them had transformed their houses because they needed to provide more and better spaces to accommodate their growing families, while 11% carried out transformation activities because they needed to provide more rooms to accommodate their families and also make spaces available for worshiping and other religious rituals. This result can be explained within the context of earlier findings showing that a majority of the respondents were low-income earners and would want to increase their household income by using their homes for economic activities. Also the large percentage of those who transformed their houses to provide additional spaces for their family members can also be explained by the resulting indicating that most of the respondents had relatively large families and were living in 1-bedroom houses, which may not have be adequate for them. In support of previous studies (Friedman, 1996; Salim 1998; Tipple, 2000a; Turner et al., 2009), this result clearly shows that the main motivations for transforming their dwelling units as indicated by the respondents were to improve the chances of their current residences to meet their housing needs; and improve the economic status of their household as well as the value of their properties.

4.4 Forms of Housing Transformation Activities

The study also found out that most of the people who have transformed their houses did so by adding one or more bedrooms to what they already had (see Figures 2; 3 and 4). Generally speaking, 65% of the respondents indicated that they have transformed their bedrooms while 35% have not. In fact the result shows that in the Federal Low-Income Estates, Ipaja, one- half (50%) of the respondents have added two bedrooms to their houses, 30% added as much as three bedrooms, while 11% have added just one more bedroom to their houses. In the New Lagos Housing Estate, most (52%) of the respondents have added up to three more bedrooms to their houses, 16% have added two bedrooms while only 12% added only one more bedroom. This result was to be expected as a majority of the respondents were found to be dissatisfied with the bedrooms in their houses. There is no doubt that the bedroom is a vital component of any residence, and as such its availability in the right quantity and size in line with each household's needs contributes to privacy, security and comfort of the family members. The large percentage of those who have transformed by increasing the number of bedrooms in their houses is quite understandable as most of them have children and perhaps dependants that needed sleeping spaces. Indeed, the result reveals that 73% of the respondents have transformed their houses to accommodate children's room. The 27% who had not transformed their bedrooms may probably be younger families who were yet to have

children, those living in 3-bedroom apartment or those who do not have the financial capacity to do so. Another reason why some respondents added rooms to their houses is that in the original houses, no provision was made for guest rooms (see Figure 1). Some of the residents who were interviewed said they do not have a need for guest room as it was a luxury which they can do without for now; as one of them noted: *"I cannot afford a separate room for my guests so anybody who comes visiting would have to share or sleep in the parlour"*. This statement clearly suggests that some of the respondents believe in share their sleeping space with visitors. On the contrary, very few (10%) of the respondents indicated that they had a need for guest room, and thus have added a space designated as a guest room to their residence.

The result also reveals that in Federal Low-Income Estates Ipaja, a majority (60%) of the respondents have extended their living room; while 40% claimed to that they have not. In the same vein, 69% claimed that they have not transformed their dining spaces; while 31% have extended or transformed their dining space. It is noteworthy that the 69% who claimed not to have transformed their dining room space were mainly those who did not have dinning spaces in their houses at the initial stage and did not bother to add it as well as those who had and have not extended its size, while the 31% who had transformed comprise those who had but were not satisfied with its size as well as those who did not have but have a need for it and went ahead to include it to the existing structures. The situation was not too different in New Lagos Low-Income re-housing estate where 58% of the respondents were found not have added or extended their living room; while 42% have. This result might be a reflection of the earlier one indicating that only very few (2%) of the respondents was dissatisfied with their living rooms in the estates (see Table 2). Similarly, in support of the result in Table 2 showing that one-half of the respondents were satisfied with their dining spaces, only 15% of the respondents in this housing estate were found to have modified their dining spaces; while 85% had not. Again, the large percentage of those who had not transformed their dining space included those who did not originally have dinning space in their houses and did not bother to add it. This result underscores the relative importance people attach to living and dining spaces; and it goes to show that people tend to attach more importance to the number and sizes of bedrooms than the sizes of living and dining spaces. This may further help explain why more transformation activities appear to be on bedrooms than in the living and dining spaces in the dwelling units in the two housing estates investigated.

With regards to transformation of the kitchen space, as noted earlier, most of the respondents in the survey were men; and the kitchen is regarded as the working space for the women. To this end, 48% of the respondents in the in Federal Low-Income Estates Ipaja, confirmed that they have added to their kitchen space; while most (52%) said there had been no transformation done to their kitchens. Similarly, 33% of the respondents in New Lagos Low-income re-housing Estate, Surulere, indicated that they have transformed their kitchen space; while 67% said they have not transformed their kitchens. This result appears to be in contrast with the resulting in Table 2 showing that the majority (62%) of the respondents expressed dissatisfaction with their kitchen. The fact that most of the respondents were men who may not be too familiar with the kitchen space may have contributed to this result. Comparatively, it is evident in the study that of the four main activity

areas investigated, the dining and kitchen spaces have witnessed the least transformation activities. This implies that even when the dining and kitchens spaces were inadequate in the residences as the survey data suggest, the households have over the years developed adaptive and coping strategies, which reduced their desire to physically modify these spaces. However, the same cannot be said for the bedrooms and living rooms, which are very important activity spaces in residences.

In addition to the main activity areas in the residences, some of the households were found to have carried out other forms of transformations. It was observed that greater portion of the transformations outside the main activity area included the addition of shops or sales outlets either by direct attachment to the existing structures; placing them within the compound or as part of the perimeter fence (see Figures 2 and 4), while perimeter fencing constituted very small proportion of this form of transformations (see Figure 5). Generally speaking, evidence in this study is in support of findings in literature on the nature of and motivations for transformation in public housing in the developing countries (see Salim, 1998; Tipple, 2000a). Indeed, findings of this study have further shown that the physical transformations in of public housing are basically a reaction to the inadequacies of public housing by the residents as pointed out by Hasan (2006).

5.0 Conclusion

This study which examined residents' physical transformations of dwelling units in two low-income public housing estates in Lagos, Nigeria has shown that physical transformations of dwellings units in the two housing estates were bold attempts by the residents to augment for the inadequacies in the design and construction of main activity areas in their dwelling units. These inadequacies were clearly manifested in the sizes of living spaces and number and sizes of bedrooms. Consequently, these aspects of the dwelling units witnessed more transformations than other areas in the houses. Besides the transformations of main activity areas, the addition of spaces for business activities was also observed, which further contributed to a drastic reduction in the quantity and quality of open spaces in the housing estates.

Findings of this study have a number of implications that are noteworthy. First and foremost, the study implies that the spatial attributes of the main activity areas of the dwelling units in the two housing estates are not adequate in meeting occupants' needs and expectations, and as a result most the respondents in the survey were not satisfied with the main activity areas of their dwelling units. Physical transformations of these areas by the residents were therefore an attempt to improve the spatial attributes, and by extension enhance satisfaction levels with these aspects of their dwelling units. Therefore, housing providers need to pay adequate attention to the spatial characteristics of main activities areas in order provide houses that meet the need of low-income earners.

Secondly, the study also implies that open spaces which are necessary components of healthy and livable housing environment may eventually become non-existence in these public housing estates due to unplanned and spontaneous transformation activities by the residents. This, no doubt, has implications for the health and well-being of the residents and the environment.

Hence, it is suggested that housing for low-income people be based on core housing strategy, which enable households to undertake modifications or upgrading of their dwelling units in a planned and orderly manner that is not injurious to the environment.

Lastly, the study suggests that the integration of home-based enterprise with low-income housing projects has become more imperative now than ever before in Nigeria. To this end there is a need for the provision of spaces for shops and small scale agro-based industries within the residential units in the design and planning of housing schemes for the low-income people. This will discourage spontaneous transformation activities which seek to provide such spaces in public housing schemes, and are injurious to the residents and neighbourhood environment of public housing estates in the country.

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Table 1: The Socio-economic Characteristics of the Respondents

	Frequency (n=614)	**Percentage**
Sex of Respondents		
Male	352	57.0
Female	262	43.0
Age Group in Years		
25-40	142	23.0
41-50	160	26.0
51-60	136	22.0
61-70	79	12.0
71 and above	97	16.0
Marital Status		
Single	52	9.0
Married	314	51.0
No longer married (Widow or Widower)	209	34.0
No longer married (Divorced or Separated)	39	6.0
Highest Level of Education		
Primary	127	21.0
Secondary	226	37.0
Tertiary	261	42.0
Employment Status		
Retired	82	13.0
Public Sector Workers	85	14.0
Private Sector Workers	436	71.0
Unemployed	10	2.0
*Average Monthly Income (Naira)		
Undisclosed	14	2.0
Below ₦38,000 (Lower- income)	396	64.0

₦38,000-₦144,999 (Middle income)	151	25.0
₦145,000 and above (High-income)	53	9.0
Religion		
Christianity	334	54.0
Islam	251	41.0
Atheist	29	5.0
Ethnic Grouping		
Yoruba	348	57.0
Ibo	213	35.0
Hausa	52	9.0
Tenure Status		
Renters	219	36.0
Owner occupiers	363	60.0
Free- houser	2	0.3
Multiple Ownership (family house)	29	5.0
Length of Stay in the House		
< 5 years	67	11.0
6-10years	70	11.4
11-15 years	54	9.0
16-20 years	114	19.0
21-25 years	82	13.0
> 25 years	227	37.0
Household Size		
No Response	4	1.0
Not more than 2 persons	43	7.0
3 Persons	62	10.0
4 Persons	203	33.0
More than 4 persons	302	49.0
Building typologies		
Semi-detached 1 bedroom bungalow	319	52.0
Semi-detached 2-bedroom bungalow	98	16.0
Semi-detached 3-bedroom bungalow	167	27.0
One bed seater house	30	5.0

Table 2: Percentage Distribution of the Respondents according to levels of Satisfaction with the Main Activity areas of their Dwelling Units

Housing Estate			**Levels of Satisfaction**					
		Spaces	Very Satisfied	Satisfied	Neutral	Not Satisfied	Very Dissatisfied	Total (%)
Federal	Low-	Living room	0	30.3	33.2	26.4	10.0	100

Income Housing estate, Ipaja	Dining	0	17.4	33.3	29.0	13.0	100
	Kitchen	0.3	20.0	38.0	29.0	13.00	100
	Bedrooms	0	6.0	30.0	39.0	25.0	100
New-Lagos low-income Estate, Surulere	Living room	0	42.0	56.0	2.0	0.00	100
	Dining	0	50.0	14.0	36.0	0.20	100
	Kitchen	0	0.0	38.0	32.0	30.0	100
	Bedrooms	0	12.0	3.0	44.0	13.0	100
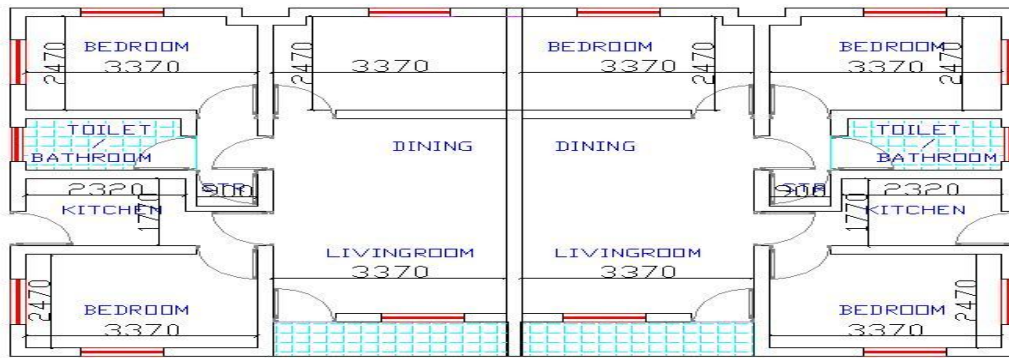
Plate : Original 3 bedroom semi detached bungalow in Federal Low Income Housing Estate Ipaja Lagos Author's field work 2009
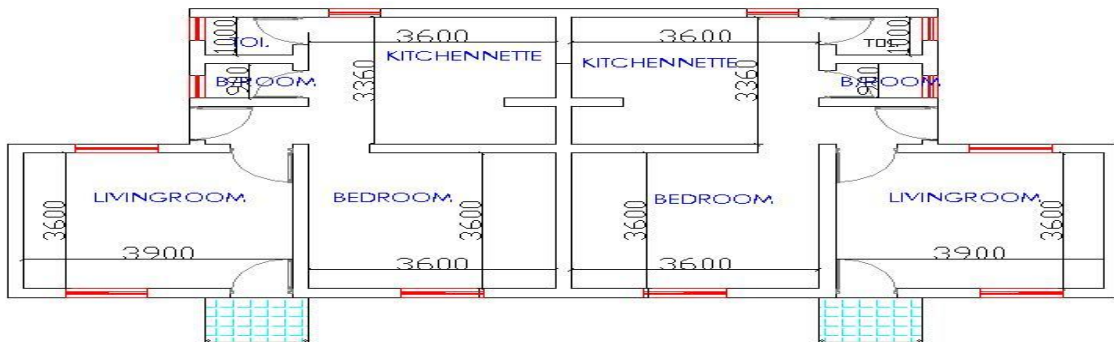
Plate : Two units of the original one bedroom semi detached bungalow in Federal Low Income Housing Estate Ipaja Lagos Author's field work 2009

Figure 1: Original floor plans of 1- bedroom and 3-bedroom in Federal Low-Income Housing Estate Ipaja
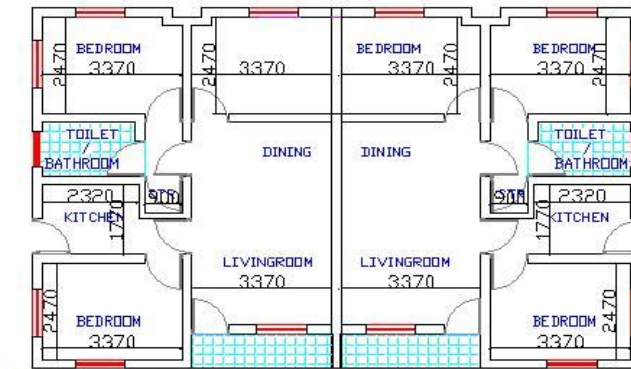
Figure 2: A typical three-bedroom semi- detached bungalow with the additions made by the residents

Figure 3: A house that has undergone transformation in Federal Low-Income Estates Ipaja with the added rooms at the rear
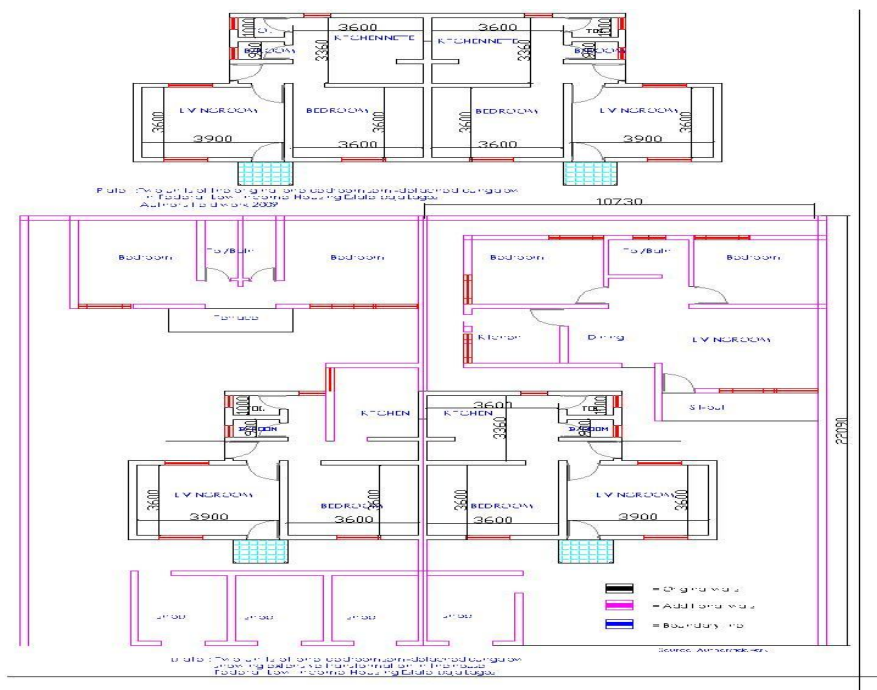

Figure 4: 1- bedroom semi- detached bungalow with the additions made by the residents

Figure 5 : Transformed house in The New Lagos Low-income Housing Estate, Surulere