

Housing Modification as Predictors for Residential Satisfaction in Apo Resettlement, Abuja Nigeria

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Abstract: For more than 15 years resettlement housing has been associated with Abuja development policy for resettling of its aboriginal inhabitant people, implemented by the Federal Capital Development Authority (FCDA). The housing scheme is significantly undergoing a periods of housing modification, which the study is evaluating with regard to changes made to both internal and external features and how the residents perceived their building in the immediate environment. A cross-sectional surveyed sample of 250 housing units representing about 28.51% of the total number of housing dwelling in the resettlement scheme, were administered questionnaires to respondents from each of the five (5) extension zones. A total of 186 questionnaires representing 74.40% of the distributed questionnaires were retrieved and used as valid response, which indicate a very high response rate. Data from 5 point likert were used to analyze residents' satisfaction with their housing modification were 30 variables associated with building modification, Data from uni-variate analytical method and inferential statistical revealed that housing satisfaction of Apo residents 'were as a result of it open spaces configuration that were identified as a key predictors which impacts on housing modification. This exploratory research gives an insight into the potential for accessible architecture to impact in improving and developing future of housing resettlement projects and policies decision in a country permanently exposed to displacement and also the sustainability of new housing developments.

Keywords: Apo-Abuja, Built-Environment, Housing-Modification, Resettlement, Residential Satisfaction

1. Introduction

Housing is man most sort mean of existences and is a strategic asset to its inhabitants irrespective of their socio-economic status in the society. Housing provides the base from which a family life is organized and structured, since it is man hierarchy of need after food. The rapid urbanization and sustainability of housing modification growth has only occurred in Apo resettlement scheme. This is occasioned with an increased demand for land both in the expansion to accommodate more individual homeowner housing type and for physical development of attached extra dwelling. The overall investment by government in the provision of resettlement housing of a befitting dwelling for the aborigine inhabitant of the Federal Capital Territory (FCT) has been on the rise in few decades. The delivery of large scale proto-type core housing scheme in the Federal Capitals City and it satellite towns has been existing government policies and practices that has supported the public housing approach in

housing delivery system. [1] Opt the study area as a consequence of the fact that an understanding of the functional housing needs of these residents does not precede the development of the schemes. [2] Consequently, posit that the aspiration of Nigerians for homeownership has been overwhelming since housing plays significant cultural, socioeconomic, environmental and political roles in the lives of individuals, households and nations. Apo resettlement housing scheme has witness enormous pressure and access to land for effective housing development that is orchestral by its proximity to the cities center [3, 4]. This has seen the mountainous resettlement enclave's being a prime choice for urban settlement in recent time especially by individual homeowner development. This is also in rise with influx of government and non- governmental staff, people in business and people providing support services who chose to live close to their employment centers have created upward pressure on the demand for residential housing. These studies found that internal housing-related attributes such as

bedroom, living room, dining kitchen, and external related attributes of attached housing dwelling were essential in homeowners' modification preferences. This takes its bearing from the fact that the majority of estate developers in Abuja are private sector-led strategies that are found to be too strict in housing transformation of prototype development that are expensive and outrageous not fulfilling their home aspirations [5, 6].

However, the inclusive of this prototype housing design has been constructed to allow for future expansion, more so that it is attributed to necessitate the new approach of research into user transformed layouts in searching for solutions to homeowner housing problems. The failure of prototype housing in Nigeria, are quick to lose their planned concepts to unplanned layouts upon possession, attaching a sense of physical attributes of this noticeable uniformity of house form across nation [7]. Consequently, the housing units in the resettlement housing scheme show significant modifications of the exterior and interior spaces which considerably affects the site and resettlement landscape and layouts. The constant modification of this resettlement housing scheme amongst other needs has contributed to the deserved change in housing skyline with its rapid expansion which has continued to increase density of the built environment. However, there is little evidence on the housing-related predictor attributes preferred by the homeowners' modification. The needed housing modification and transformation taking place has been in the topology prototype of homeowner dwelling as envisaged by the Federal Capital Development Authority (FCDA) and this development has harnessed and improved the quality of life for the residents of the area. Hence, this research seeks to fill the gap that currently exists in literature by investigating predictor for resettlement housing-related attributes (modification attributes) among different residential occupants. The focus of this study is the modification of homeowner residential housing satisfaction in Apo resettlement, Abuja. The built environment in Apo town is emerging as predominated by individual remodeling, conversion redevelopment, changes, alteration and conversion taking place to satisfy the house owner accommodations [3, 4].

The study therefore aims to empirically examine housing satisfaction and its impact with plan modification in Apo resettlement scheme Abuja. This was with a view to analyzing and bringing to the fore the impact and extent of these plan modification and providing information on housing predictor that could aid policy decisions as well as its general consequence on the neighborhoods. The specific objectives of the study were to (a) to examine housing characteristics-related attributes (b) to explore the residential history and aspiration of the resettlement scheme, and (c) analyze the process of transformation of the houses within the resettlement (d) analyze the physical modification in the plan organization and use of the buildings; The choice of Apo was formed by the need to gain fresh insight into housing expansion and modification in a resettlement scheme, which is crucial in the quest to increased housing dwelling in

the now fast becoming cosmopolitan city of Abuja.

2. Literature Review

Apo resettlement has witnessed increased economic activities, resulting from the integration of several relocation layout, expansion of the existing scheme and integration of individual residential development without topology plan as most found in other private developed estate within the federal Capital territory and environs [3, 4, 8]. The modification of the existing topology to accommodate spatial changes over a long period of time where households carry out far-reaching alterations, extension, modification, redevelopment and addition to the original forms [9, 3]. This transformation affords households an opportunity in conformity with their needs, expectations and aspirations [2, 10]. Housing redevelopment in non-compliance with planning regulations [11], developing additional structure on plot [12], the predominantly building development were residential to commercial, change in urban growth revolves around public building use, residential, retail and office property as the major determinants of urban growth were identified as social, economic and spatial political factors [8]. The elements of transformation may not conform to the expectations of the generality of the residents but the fact remains that this has continued uncontrollably [13]. Furthermore, occupants of such houses make unauthorized, but unlike in Apo resettlement quite considerable changes and extensions to their dwellings for their own uses and for renting out [14, 13]. These changes and extensions are generally known as "transformation," and may contain useful models for future policy concerning existing housing estates and policy on new developments [15]. Housing transformations are a common in government housing estates in many developing countries, whose modification is a situation where households carry out far-reaching alterations, extension, modification and redevelopment [3] or addition to the original forms, extent and patterns of their buildings including their immediate environment [16, 17].

The growth and physical expansion of this resettlement has been accompanied by planned urban layout with provision of adequate modern basic facilities, which is accompanied with sprawl and free from environmental decay and deterioration. Housing redevelopment changes the living pattern and skyline of existing dwelling [3]. The increased and integration in residential development and influx of people due to urbanization has exerted more co-existence, social cohesion and satisfaction with the built environment over the last 15 years, which has been described as being sustainable. The process aligns with the dynamism in building adoption by the development authority for the needs of household future expansion of their structure which makes housing provision a continuous process even after occupation as a growing structure [18]. They argue that public mass housing cannot satisfy the needs of all the occupants because by its very nature, it must be built in the absence of consultation with future occupants [19, 20]. Moreover, it may be

impossible to predetermine occupants 'requirements as these can only become apparent through their activities in the dwellings. The situation is often aggravated by the flexibility in the building as a predictor– for configuration and socio economic status of inhabitants. Thus, the need to envisage future changes at conception in order to improve household livability becomes essential. The view that housing modification is a major livelihood strategy among low-income households in urban formal and informal settlements, which is carried out sometimes out of desperation [21]. Studies have revealed that housing transformation is a major livelihood strategy amongst households in urban formal and informal settlements [22]. Ascertaining that those who engage in modification practice has far reaching implications for them. These include promoting the asset base of owner households and the local economy of the settlements, and providing easy access to their social needs. Housing transformation, modification, redevelopment, conversion and remodeling as used by different researcher identified with housing in change from its original state of as-built form. The benefits that could have afforded optimization of transformed houses that will users' performance, raise housing values, minimize cost to owners, and overall enhancement in users' satisfaction [19].

Housing transformation is common in developing countries of the world and despite its diverse justifications; has widened the gap between housing needs and provisions [14, 23]. Study has showed that the resettlement scheme failed in addressing the socio-cultural values and life style of their dwelling, this research has adequately show it large modification in it building plan addressing house needs and the used of space [24]. To this end, it has been realized that a successful housing design is one that meets the needs and aspirations of the end user [25, 26]. However, the consistent occurrence of housing programmes / schemes planned for and targeted at the low income population in the urban areas end up being occupied by higher income earners [27]. The knowledge about these contexts-establishing indicators that inspire public housing transformation and linking them with cultural background remain unharnessed [19]. Study focusing on housing satisfaction housing policy housing adjustment [32] housing quality [33] and housing evaluation [28, 29, 30, 31, 34].

Study shows that residents who have lived longer in an environment become dependent and attached to the area, thus satisfaction is higher among older residents compared to new occupants and this bring about housing redevelopment modification which have identified the need for Configuration / flexibility inclusion in public housing design [35, 8, 4, 27]. The built expansion and implementation of these development are increasingly being modified on quarterly basis [27]. Study further submitted that housing is bound up with concepts such as shelter itself, personal property, safety, privacy, location, environmental amenity and investment [36]. The rate of residential housing transformation to other uses most

especially for commercial uses impacted on reducing housing stock which that results to overcrowding, high rent, slum, and squatter settlements in urban areas [4, 8, 34, 37, 38]. The significant of housing ownership as a social status among the urban dwellers that express individuals' social class and as well as redevelopment that enhance homeownership determinant of neighborhood satisfaction with residential housing transformation process without considering its impacts on the built environment [39]. Study revealed that housing transformation in public housing is inevitable and carried out irrespective of income status of residents [17]. Housing transformation brings about an alteration of socio-economic setting and change of lifestyle composition of the residents to adapt to varying housing conditions and needs [16, 10, 35, 40, 41, 42]. Unlike what is experience in most research of housing modification that were bound to be illegal constructed of their residence dissatisfying. The results in focus were house owner redevelopment of their apartment culminating adequate housing units that satisfied the needs. This support the study that housing transformation generates a series of urban congestions and also constitutes environmental damage to urban streetscapes, through unauthorized and poorly executed user requirement or socio-economic status [43, 44, 45].

Transformation incidents can results from both internal and external reasons, which can either generate from demographic or economic changes, and external reasons that changes in the physical condition of the houses that see the nature and the degree of transformation as being contextual and whose study showed that internal reasons as the major contributors towards transformation decisions [46, 47]. Study has that no one can live satisfactorily within a fixed environment in which they have no input; thus, the acts of alteration and extension to mass housing environment would then appear to be inevitable [20].

Housing transformation has attracted policy decisions on housing issues in developing countries which has led to some effective conventional shelter strategies and exploration of a wide range of policy options [2]. But despite the prevalence of modification, much has not been documented and researched upon concerning the details of how transformation in public housing scheme takes place. Hence attempted to further extend knowledge on transformed public housing, focusing on plan configuration as a predictor for housing satisfaction which the homeowners forestall in design-construction and how this buildings were modified. This has become crucial as user's experience is perceived to enrich design considerations thus, provide in design by the developer of Apo housing scheme where the design where intentional constructed to accommodate extra modification spaces as well with the large plot size to inculcate these modification to suite the homeowner paradigms with potentials towards bridging the gap between housing satisfactions.

2.1. Plan Modification Design of Residential Buildings - Bungalows Residence as an Example

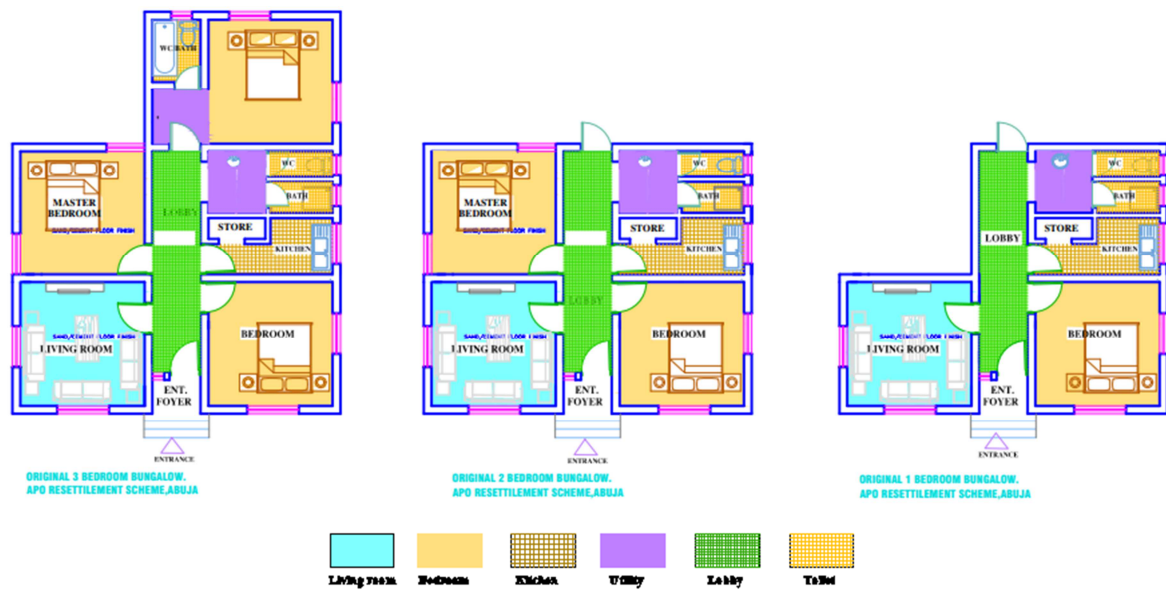


Figure 1. Original building plans of the resettlement scheme. (Source Author field work, 2017).

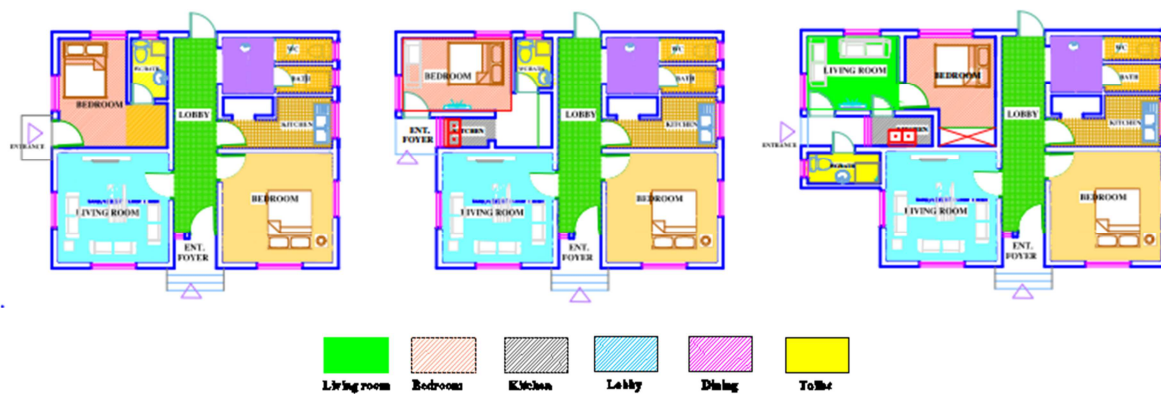


Figure 2. Plan of One Bedroom used of housing dwelling. (Source Author field work, 2017).



Figure 3. Plan of Two Bedroom used of housing dwelling (Source Author field work, 2017).



Figure 4. Plan of Three Bedroom used of housing dwelling (Source Author field work, 2017).

2.2. Housing Modification and Residential Satisfaction

Satisfaction of residential housing modification are concept which assigned prominently as an indicators used by many researchers and analysts as an evaluation measure of both private and public sector building [48]. The possibility of households' needs to meet an examined factors which account for users' satisfaction or dissatisfaction using their housing conditions for appraisal appears to improved housing conditions through housing transformations which affords households an opportunity to bring their housing environment into conformity with their needs, expectations and aspiration [49, 50, 10, 2]. Therefore, the theory of housing adjustment which provides insight into housing transformations has a strong link with housing satisfaction [19]. For homeowner to be satisfy with their building, it must give overall housing satisfaction base on identified five (5) specific features of housing norms: structural type's examples single family, multi family; building features such as functional spaces e.g living room, bedrooms; housing conditions e.g quality of walls, quality of construction, and neighborhood infrastructures [28]. Confirmatory factorial validity method, analyses neighborhood features in South African low-income neighborhoods found attributes of significant concern to residents to include quality of relationship and privacy with neighbors; degree of neighborhood security; walkways; and proximity of dwellings to workplace [51]. The evaluation of user quality performance of public housing estates in Lagos, Nigeria posit areas of concerns to residents to include dwelling units, quality and provision of basic facilities (water, roads, drainages and electricity), adequacy of natural ventilation and lighting, noise level and privacy, and adequacy of space quality [6].

The results from the modification process are influenced by the lifestyle of the households particularly with regards to

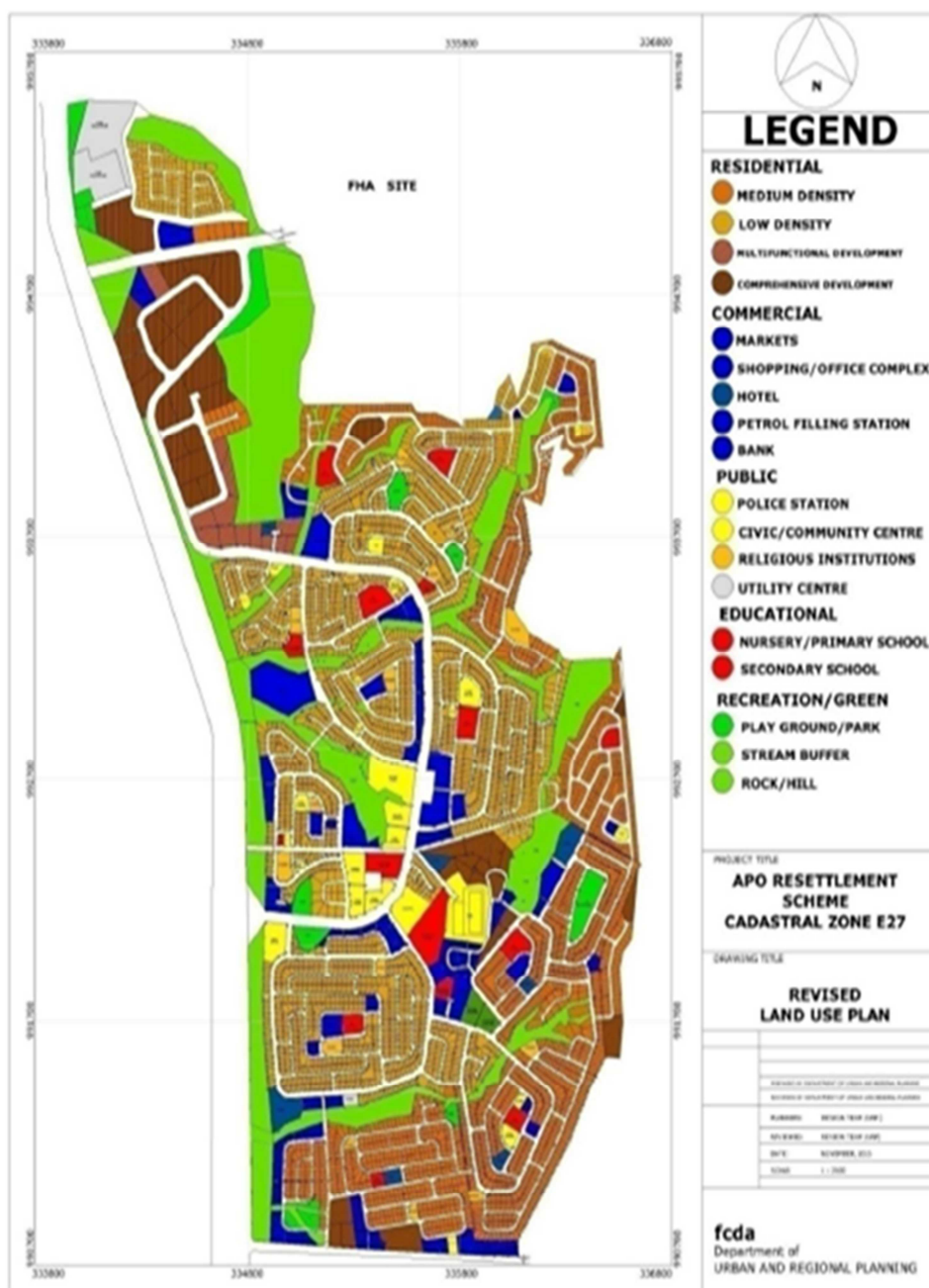
family structure and social activities, level of education and general attitude to housing matters [52]. This implies that sometimes it is not only because of their needs but also because they are not satisfied with the spaces as they are and may need to modify them to suit their tastes. This approach assures user participation which is regarded as significant in sustainable housing development [46]. It reflects the residential mobility and an evaluation of homeowners (residents) perception of their residential environment and improvement of infrastructures existence in the built environment [53, 3]. In view of this housing development in order to improve the quality of housing scheme, it must explore and understand users' needs and expectations as well as the extent to which such needs and expectations are met through regular performance evaluation [54]. This shown that owner-occupiers have higher satisfaction than renters even when their housing units were built of similar quality. This could be attributed to the sense of "self-gratification" which the owner-occupier derives from homeownership [48]. Study posit that the residents of such settlement are not satisfied with the building design features and buildings topology in different areas, but most satisfied with the physical environment which in most cases has necessitated housing modification as a means of self-gratification [55, 6, 10]. The homeowners housing modification gives the residents some psychological pride and hence satisfaction with their house dwellings, which invariably make a non-stoppable approach to housing satisfaction. Housing modification as an assessment of the extent to which the current housing environment of homeowners met their needs, expectations and aspirations are factors which determine residents' satisfactory inputs in monitoring the success of housing construction and policies [56, 57].

3. Material and Methods

Abuja is Nigeria's Federal Capital Territory (FCT)

located in the middle of the country with a land area of about 8,000 km² of which the actual city (i.e. Municipal) occupies 250sq km. It lies within latitude 90 25'N and 9020'N of the equator and longitude 50 45'E and 7039'E [16]. Abuja was created on 3rd Feb. 1976 through the promulgated Federal Capital Territory decree no. 6, Abuja is bounded by state boundaries of Kaduna on the north, Niger on the west, plateau on east and south east, and Kogi on the south-west state respectively. The city has five Area councils: Kuje, Gwagwalada, Abaji, Bwari and Abuja Municipal Area Council (AMAC). The later which accommodate Apo Resettlement scheme. It is along the Outer Southern Express Way (OSEX) around the Phase II

of the FCC and bounded to the North by Guzape District and to the West by Dutse and Wumba Districts of the FCC. The Apo Resettlement Scheme commenced construction in 2007 on a (460 hectares) to accommodate the communities of Apo, Akpanjanya and Garki inhabitants as a result of policy change which began with the *Total Evacuation Scheme* of 1979 followed by the *Kubwa Resettlement policy* of 1980, then the *Integration Policy* of 1991 followed by Garki and currently the new Resettlement Policy of 2005 [58]. The areas covered prime locations in the peri-urban peripheral of Municipal Council due to its strategically location and proximity within the main frame of the Capital City business hub [3, 4].



Source: Urban and Regional Planning Department FCDA, Abuja (2017).

Figure 5. The Landuse plan of Apo resettlement scheme.

The research focused only on the original built housing dwelling (table 1) which comprises of five (5) zones, A, B, C, D and E. This 5 zone entirely make up the total 877 housing typologies situated on the 400 hectares. This comprises 384 units of one-bedroom bungalow apartments, 398 units of two-bedroom bungalow apartments, 90 units of three and 4 units of four bedroom detached bungalows (Tables 1 and 4). A cross-sectional survey was conducted and data were sourced using well-structured questionnaire, interviews guide, observation schedule walk-through and sketching of the floor plan of the buildings. (Photographic materials were not allowed for security reason) seek to find out why the houses were being modified. The stratified sampling technique was used to ensure that the different housing typologies were selected from the zones, while the random sampling technique was adopted in selecting housing units from each of the (1, 2, and 3 bedrooms) typologies respectively. A total of 250 housing units representing 28.51% of the total number of housing dwelling in the resettlement scheme, were identified and questionnaires were administered to each respondents from the zones. Only 186 questionnaires

representing 74.40% of the distributed questionnaires were retrieved and used as valid response, which indicate a very high response rate. Data from the respondents consisted of three main parts. The first part 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 elicited responses on the extent to which they had modified / satisfied with their housing form, modification of both internal and external spaces. While the third part collect data on the type of modification activities embarked upon by the respondents, A five-point scale for “extremely important”, 4 for “very important”, 3 for “moderately important”, 2 for “slightly important” and 1 for “not important”) [59]. The descriptive statistical tools were used to analyze percentile, mean score and relative importance index respectively.

$$\text{Relative Important Index} = \frac{\Sigma}{AN} \quad (1)$$

Table 1. Showing Plot and Housing Units Allocation According to Community within the Scheme.

| S/NO | Village Allocation Name | No of Plot | Houses Allocation | | | | Total |
|------|-------------------------|------------|-------------------|---------|---------|---------|-------|
| | | | 1 Bedroom | 2 Bdrm. | 3 Bdrm. | 4 Bdrm. | |
| 1 | Garki Village | 780 | 181 | 226 | 48 | 1 | 456 |
| | Gbagyi | 456 | 102 | 123 | 30 | 1 | 256 |
| | Hausa | 1236 | 283 | 349 | 75 | 2 | 712 |
| 2 | Apo | 39 | 21 | 10 | 2 | 1 | 34 |
| 3 | Akpanjanya | 201 | 80 | 40 | 10 | 1 | 131 |
| 4 | Total | 1,476 | 384 | 399 | 90 | 4 | 877 |

Source: Dept. of resettlement and Compensation (FCDA, 2017).

4. Findings and Discussion

4.1. The Socio-economic and Demographic Characteristics of the Respondents

The result in Table 2 shows the *socio-economic, demographic and characteristics* of the respondents in the survey which result reveals that a majority (57%) of the respondents were *male* as against 43% who were *female*. The respondents were (72%) observed to be between ages 25 years and 60 years; suggesting that they were mainly working class household heads. 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 study conforms to the findings which pointed out that the capacity of individuals that transform their house for income or monetary exercises is a factor of their level of education and wellbeing status [42]. The income eventually emerged as a significant

and positive predictor of residential satisfaction [40, 45]. The *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*. The result with respect to *tenure status*, 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. *Household sizes and age* as well the sizes of housing units that they lived in, is expected of the respondents to embark on modification of their residences This is because; a 1-bedroom housing unit is grossly inadequate for a household of over 5 persons. Also since most of them are *owner-occupiers*, the probability that they will modified and maximize every opportunity to make their residences more suitable in meeting their personal needs and socio- economic expectations is very high. Hence, the only way to achieve this is through physical modifications of the dwelling units.

Table 2. Socio-Economic and Demographic Characteristics of Respondent.

| Variables | | Zone-A Freq. % (n=47) | Zone - B Freq. % (n=58) | Zone -C Freq. % (n=35) | Zone - D Freq. % (n=14) | Zone - E Freq. % (n=22) |
|--------------------------------|---------------------|--------------------------|----------------------------|---------------------------|----------------------------|----------------------------|
| Gender of Respondents | Female | 12 (25.53) | 19 (32.76) | 8 (22.86) | 2 (14.29) | 7 (31.82) |
| | Male | 35 (34.47) | 39 (67.24) | 27 (77.14) | 11 (78.57) | 15 (68.18) |
| Age | 20-40 | 2 (4.26) | 9 (15.76) | 12 (34.29) | 2 (14.43) | 3 (13.64) |
| | 41-60 | 14 (29.79) | 29 (50.00) | 14 (40.00) | 9 (64.28) | 13 (59.09) |
| | 61-80 | 31 (65.95) | 20 (34.48) | 9 (25.71) | 3 (21.43) | 6 (27.27) |
| | 81-100 | - | - | - | - | - |
| | 101 and above. | - | - | - | - | - |
| Marital Status | Single | 14 (29.79) | 16 (27.59) | 13 (37.14) | 4 (28.57) | 5 (22.73) |
| | Married | 31 (65.96) | 38 (65.52) | 21 (60.00) | 9 (64.29) | 14 (63.64) |
| | Widow/ Widower | 2 (4.25) | 1 (1.72) | 1 (7.14) | - | 2 (9.09) |
| | Divorced/ Separated | 3 (5.17) | - | 1 (2.86) | - | 1 (4.54) |
| | No formal education | 2 (4.26) | 1 (1.72) | 3 (8.57) | - | - |
| Educational Level | Primary | 5 (10.64) | 3 (5.17) | 2 (5.71) | 1 (7.14) | 3 (13.64) |
| | Secondary | 7 (14.89) | 9 (15.52) | 1 (2.86) | 5 (35.72) | 3 (13.64) |
| | Tertiary | 33 (70.21) | 45 (77.59) | 29 (82.86) | 8 (57.14) | 16 (72.72) |
| | Less than N30,000 | 1 (2.13) | 3 (5.17) | 2 (5.71) | - | - |
| Average Monthly income (naira) | N31,000- N70,000 | 7 (14.89) | 10 (17.24) | 6 (17.14) | 8 (57.14) | 5 (22.73) |
| | N71,000- N100,000 | 14 (29.78) | 14 (24.14) | 11 (31.43) | 3 (21.43) | 9 (40.91) |
| | N101,000-N350,000 | 23 (48.94) | 28 (48.28) | 15 (42.86) | 3 (21.43) | 8 (36.36) |
| | Above > N351,000 | 2 (6.38) | 3 (5.17) | 1 (2.86) | - | - |
| | Private rented | 16 (34.04) | 21 (36.21) | 17 (48.57) | 7 (50.00) | 11 (50.00) |
| Tenure status | Owner occupied | 28 (59.57) | 32 (55.17) | 16 (45.71) | 7 (50.00) | 10 (45.45) |
| | Inherited | 3 (6.38) | 5 (8.62) | 2 (5.72) | - | 1 (4.55) |
| | Govt. allocation | - | - | - | - | - |
| | Free house | - | - | - | - | - |
| | Christianity | 25 (53.19) | 36 (62.07) | 24 (68.57) | 9 (64.29) | 17 (77.27) |
| Religion | Islam | 15 (31.91) | 14 (24.14) | 9 (25.71) | 3 (21.43) | 5 (22.73) |
| | Traditionalist | 2 (4.26) | 7 (12.07) | 1 (2.86) | - | - |
| | None of the above | 5 (10.64) | 1 (1.72) | 1. (2.86) | 2 (14.28) | - |
| | Farming | 2 (4.26) | 1 (1.72) | - | - | 1 (4.54) |
| Occupational Structure | Trading | 7 (14.89) | 10 (17.24) | 10 (28.57) | 3 (21.43) | 3 (13.64) |
| | Civil servant | 21 (44.68) | 27 (46.55) | 11 (31.43) | 7 (50.00) | 8 (36.36) |
| | Wage employment | 17 (36.17) | 20.34.49) | 14 (40.00) | 4 (28.57) | 10 (45.45) |
| | Low | 7 (14.89) | 2 (3.45) | 8 (13.79) | 4 (28.57) | 1 (4.54) |
| Income classification | Middle | 27 (57.45) | 29 (50.00) | 16 (45.71) | 7 (50.00) | 12 (54.55) |
| | High | 2 (2.26) | 6 (10.34) | 11 (31.43) | 3 (21.43) | 7 (31.82) |
| | Not sure | 11 (23.40) | 21 (36.21) | - | - | 2 (9.09) |
| | < 4 or less | 19 (40.43) | 25 (43.10) | 20 (57.14) | 6 (42.86) | 17 (77.27) |
| Family size | 5-9 | 25 (53.19) | 30 (51.73) | 15 (42.86) | 8 (57.14) | 5 (22.73) |
| | 10 and above | 3 (6.38) | 3 (5.17) | - | - | - |

Source: author field work (2018).

Reason for Modification- finding (table 3) indicate that of the respondents have modified their houses for *Income Value* 40.74%, while 23.81% *economic value* reasons and social status 26.98% modified their houses because they needed to provide more and better spaces to accommodate their growing families. *Modified Spaces Added-* has equally shown that most homeowner modified their houses purportedly for *rooms for rent* 51.85% while growing families 26.57% respectively. *Type of Modified-* the percentage of modified houses is higher than unmodified houses, which may be related to the continuous homeowners work carried out by the predictors of the built houses. The type of *planned modifications* 80.95%, carried out in the housing design occurred in all zones A, B, C, D and E while *unplanned modification* has a minimum 14.82% and a negligent none of either planned or unplanned homeowner modification were 4.23% are the only modifications allowed by the occupancy conditions,

and therefore, FCDA supported their construction. Unplanned modifications cannot be considered permanent, because legally, they can be removed. *Professional Involve-* the percentage of residents who hired skilled workers for their construction is higher. No doubt that professionals were involve in the houses modification since FCDA are aware of the ongoing modification. This has 34.39% *Architects*, 23.28% *Builders* and 18.52% *Civil engineers* and 16.93% *Town planners* involves in the respectively construction modifications. These findings support the position of [43] who opined that, the roles of building professionals in designing, planning, and monitoring residential housing transformation cannot be over emphasized. But study of [11] largely discovered that despite professional involves in housing redevelopment, they contravene building regulations. The quantity of residential housing stock extent agreed to be on the average which is expected to reduce with timely policy

implementation on housing transformation in Nigeria [37]. This will enhance optimum performances of building fabrics, mitigate ills associated with transformations [39] and redevelopment of the neighborhood environment [3].

Table 3. Housing modification and Characteristics.

| Variables | Frequency (F) | Percentage (%) |
|-------------------------|---------------|----------------|
| Reason for Modification | N=189 | |
| Income | 77 | 40.74 |
| Economic Value | 45 | 23.81 |
| Social Status | 51 | 26.98 |
| Others | 16 | 8.47 |
| Type of Modification | | |
| Planned | 153 | 80.95 |
| Unplanned | 28 | 14.82 |
| None | 8 | 4.23 |
| Modified Spaces Added | | |
| Rooms for rent | 98 | 51.85 |
| Growing families | 54 | 28.57 |
| Rental Shops | 25 | 13.23 |
| Security House/ Store | 12 | 6.35 |
| Others | 0 | 0 |
| Professional Involve | | |
| Architects | 65 | 34.39 |
| Builders | 44 | 23.28 |
| Civil Engineer | 35 | 18.52 |
| Town Planner | 32 | 16.93 |
| None | 13 | 6.88 |
| Reason for Modification | | |
| Poor Material Usage | 11 | 5.82 |
| Poor Workmanship | 17 | 8.99 |
| Using Modern Material | 23 | 12.17 |
| Increase no. of Family | 38 | 20.11 |
| Commercial values | 95 | 50.26 |
| Building Deterioration | 5 | 2.65 |
| Age of Modified | | |
| 1-4 Years | 98 | 51.85 |
| 5-8 " | 72 | 38.10 |
| 9-12 " | 19 | 10.05 |
| Above 13 years | 0 | 0 |
| Duration of Occupancy | | |
| 1-5 Years | 26 | 13.76 |
| 6-10 " | 85 | 44.97 |
| 11-15 " | 78 | 41.27 |
| Above 15 years | | |

SOURCE; Author field Research 2019.

4.2. Building Typologies Originally Provided

The housing typology as originally built and allocated to the residents are available of three main different typologies within the five zones of the resettlement housing scheme. The data on tables 1 and 4 indicates that a total of 877 building topology were built in the resettlement scheme. One- bedroom house (bungalow) consists of a single bedroom, a living room, kitchen/ store, toilet and bathroom. This numbers are made up of (43.99%). A two bedroom bungalow had two-bedrooms built of 399 units, consist of a living room, kitchen/store, toilet and bathroom, and has a total number of (45.70%) and finally, A three -bedroom house had 3 bedrooms of 90 units, consisting: a living room, kitchen/store, toilet and bathroom, which comprises of (10.31%) total of the housing provision in the resettlement scheme respectively.

Table 4. Housing modification and Characteristics.

| Variables | Freq. (F) | Percent. (%) |
|--|-----------|--------------|
| Housing Topologies Originally Provided | | |
| One bedroom. bungalow | 384 | 43.99 |
| Two bedroom. bungalow | 399 | 45.70 |
| Three bedroom. bungalow | 90 | 10.31 |
| Modification of Dwelling Types | | |
| One bedroom external conversion | (N=163) | (18..59) |
| bdrm. Convert to one bdrm. Flat | 32 | 19.63 |
| 1 bdrm. Convert to 3 bdrm. | 20 | 12.27 |
| 1 bdrm. Convert to 2 bdrm. flat | 16 | 9.82 |
| Attached 1 bdrm. self-contained | 31 | 19.02 |
| Total: | 99 | 51.74 |
| One Bdrm. Internal Conversion | | |
| Extension to Dining Space | 19 | 11.66 |
| Extension of one bedroom | 21 | 12.88 |
| Expansion of Living Area. | 24 | 14.72 |
| Two bedroom conversion | (133) | |
| Single room occupant attach | 30 | 22.56 |
| Attach 2 extra 2 unit bdrm. flat. | 25 | 18.80 |
| Attach 1 bdrm. Self-contain | 35 | 27.07 |
| Two Bdrm. Internal Conversion | | |
| Extension of dining space | 13 | 9.77 |
| Expansion of Living Area. | 18 | 13.53 |
| Change of entrance door | 11 | 8.27 |
| Three bedroom conversion | (38) | |
| attach 2 unit self-contain | 7 | 18.42 |
| Attach extra 1 unit bdrm. flat. | 10 | 26.32 |
| Attach extra 2 unit bdrm. flat. | 6 | 15.78 |
| Three Bdrm. Internal Conversion | | |
| Extension of dining space | 4 | 10.53 |
| Expansion of Living Area. | 5 | 13.16 |
| Change of entrance door | 6 | 15.79 |

SOURCE; Author field Research 2019.

4.3. Types of Physical Transformation Made to Interior Spaces and External Additions

The predominant features of housing modification occurred of adding more rooms due to the large area land allocate to individual plots. The study observed that residents have also embarked on modification to the interior and exterior spaces of their houses to meet their needs as shown in table 5. This shows that one bedroom bungalow has external conversion of 163 buildings (18.59%) rate of conversion of 384 units of one bedroom bungalow. This were made of 32 (19.63%) attachment of one bedroom flat, 20 (12.27%) conversion to three bedroom flat, 16 (9.82%) attached to 2 bedroom flat and 31 (19.02%), while the internal modified spaces were "extension to dining space 11.66%, extension of one bedroom 12.88% and expansion of living area 14.72% respectively. In the case of two bedroom conversion, 30 (22.56%) of the respondents have Single room occupant attach to their houses, 25 (18.80%) attach two extra unit of two bedroom flat, 35 (27.07%) attached as much as one bedroom self-contain bungalow, while the Internal conversion spaces has 9.77% extension of dining space, 13.53% expansion to living area and 8.27% changes to entrance door respectively. Three bedroom bungalow conversion as an alteration of 38 out of 90 units, a total modification of which 7 (18.42%) were attach 2 unit self-contain bungalow, 10 (26.32%) attach extra one unit

bedroom flat and 6 (15.78%) *attach extra two unit bedroom flat* the existing structure while alteration to internal modifies spaces were 10.53% *extension of dining space*, 13.16% *expansion of living area* and 15.79% change of entrance door respectively. This study agree with that homeowners embarked on transformation by carrying out varied forms of alterations to the original building forms [16]. Homeowner's accommodations has made transformation that has grossly reduced built environment by negatively impacted on reduction in the quantity and quality of open spaces in the environment [39]. But invariably this has offered more accommodation for the timid population.

In exploring the resident's priority for modification preferences, the research study used ordinal measurement scale where the four-point scale for measuring the responses of the respondents has been employed [59]. Findings on category of needs that motivate respondent's to modify their homes were presented in this subsection. Research finding of priority area for modification that has been undertaken and future spatial area of modification was given due consideration in this research study and the findings are presented below. In exploring the residents priority for modification preferences as shown in table 5 present the survey of residential satisfaction which indicates *high priority* of the building transformation in, *Attached one room self-contain* (MWV=3.580), *Extra one bedroom apartment* (MWV=3.564), *Bedroom en-situ toilets* (MWV=3.494) and *Attached one-bedroom bungalow* (MWV=3.446) with relative important index of (R.I.I=0.895, 0.891, 0.873, and 0.861) indicates *high priority* and are ranked 1st, 2nd, 3rd, and 4th respectively. The *high priority* area for building modification still includes "*Interior floor finishes condition*" (MWV=3.322), "*attached two bedroom unit attachment*" (MWV=3.241), "*semi-detached self-contained*" (MWV=3.139), "*dining space introduction*" (MWV=2.897) and R.I.I of (0.830, 0.810, 0.784 and 0.724) indicates *high priority* and are ranked 5th, 6th, 7th and 8th respectively. This

results also reveal by [40, 28], that residents are likely to be happier in houses with more than three bedrooms. This agree with [5] that housing transformation in Nigeria causes shortage of residential accommodation; but this not so with Apo resettlement housing scheme since most of the modification are introduction of more residential dwelling of various form. The study of [40] calls for a re-think and flexible designs on the part of planners and architects for possibilities of incorporating more bedrooms in future by residents as the need arises. Other includes: *entrance porch modification*, *modification of ceiling*, *modification of building facades*, *windows and door condition*, *living room modification*, *modification of roof*, *introduction of guest toilet*, *ante-room introduction* and *kitchen size enlargement*, were ranked with Mean Weighted Value and Relative Important Indexes (Table 2). This study view differently in pervious literature that posit housing to be too expensive for the poor and outrageous with their home expectations and aspirations [5]. Which is not sustainable on the long run due to their strict prototype development. The study agree that the aspiration of Nigerians for homeownership has been overwhelming in recent times [1, 2] as well as opined that the failure of prototype housing in Nigeria, are quick to lose their planned concepts to unplanned layouts upon possession, attaching a sense of physical attributes of this noticeable uniformity of house form across nation [7]. The built environment in Apo town is emerging and predominated by individual far-reaching alterations, transformations, extension, remodeling, conversion redevelopment taking place to satisfy the house owner needs [10, 2, 3]. Housing topology are constantly being modified to accommodate more desiring dwelling units [8, 6]. This is in conformity with the occupants of this homeowner make unauthorized (but in this case authorized) quite considerable changes and extensions to their dwellings [14, 13]. Meanwhile, with the consistent and occurrence of targeted housing schemes planned for the low income population in the urban areas end up being occupied by higher income earners [27].

Table 5. Modification for Housing units features.

| Variable 1: Building Structure Transformation | | N | Rating and Weighted Values | | | | SWV | MWV | Std. D | R.I.I | Rank |
|---|---------------------------------------|-----|----------------------------|------|------|------|-----|-------|--------|-------|------------------|
| | | | HPI | PI | MI | NI | | | | | |
| | | | (x1) | (x2) | (x3) | (x4) | | | | | |
| 1 | Attached one room self-contain | 186 | 9 | 15 | 21 | 14 | 666 | 3.580 | 0.0192 | 0.895 | 1 st |
| 2 | Extra one bedroom apartment | 186 | 11 | 17 | 14 | 44 | 663 | 3.564 | 0.0191 | 0.891 | 2 nd |
| 3 | Bedroom en-situ toilets | 186 | 14 | 20 | 12 | 40 | 650 | 3.494 | 0.0187 | 0.873 | 3 rd |
| 4 | Attached one-bedroom bungalow | 186 | 14 | 18 | 25 | 129 | 641 | 3.446 | 0.0185 | 0.861 | 4 th |
| 5 | Interior floor finishes condition | 186 | 12 | 15 | 60 | 99 | 618 | 3.322 | 0.0178 | 0.830 | 5 th |
| 6 | Attached two bed room unit attachment | 186 | 10 | 15 | 81 | 80 | 603 | 3.241 | 0.0174 | 0.810 | 6 th |
| 7 | Semi-detached self-contained | 186 | 15 | 20 | 75 | 76 | 584 | 3.139 | 0.0168 | 0.784 | 7 th |
| 8 | Dining space introduction | 186 | 20 | 25 | 95 | 46 | 539 | 2.897 | 0.0557 | 0.724 | 8 th |
| 9 | Entrance porch Modification | 186 | 15 | 21 | 18 | 132 | 528 | 2.838 | 0.0152 | 0.709 | 9 th |
| 10 | Modification of ceiling | 186 | 17 | 39 | 90 | 40 | 525 | 2.822 | 0.0151 | 0.705 | 10 th |
| 11 | Modification of building facades | 186 | 25 | 41 | 69 | 51 | 518 | 2.784 | 0.0149 | 0.696 | 11 th |
| 12 | Windows and Door condition | 186 | 25 | 35 | 92 | 34 | 507 | 2.725 | 0.0146 | 0.681 | 12 th |
| 13 | Living Room Modification | 186 | 35 | 51 | 42 | 58 | 495 | 2.661 | 0.0143 | 0.665 | 13 th |
| 14 | Modification of Roof | 186 | 42 | 50 | 54 | 40 | 464 | 2.494 | 0.0134 | 0.623 | 14 th |
| 15 | Introduction of Guest toilet | 186 | 45 | 78 | 35 | 28 | 418 | 2.247 | 0.0120 | 0.561 | 15 th |
| 16 | Ante-Room introduction | 186 | 61 | 65 | 35 | 25 | 396 | 2.129 | 0.0114 | 0.532 | 16 th |
| 17 | Kitchen size enlargement | 186 | 7 | 81 | 25 | 4 | 347 | 1.865 | 0.0100 | 0.466 | 17 th |

Source; Author field Research 2019.

5. Conclusion and Recommendations

This study explored residents' modification of housing dwelling in resettlement housing scheme in Abuja, Nigeria has shown that modification is fulfilling's satisfaction of Apo residents as a result of it open spaces configuration that were identified as a key predictors characteristics which impacts on housing dwelling that significantly and persistently addressing house needs and the used of space with increase in modification of plan dwelling within the five zones of the resettlement housing scheme. The housing prototype provided has undergo several technical transformation and adaptation in the last decade. This research has adequately show it large modification in it building plan addressing house needs and the used of space. To this end, it has been realized that a successful housing design is one that meets the needs and aspirations of the end user. This allows the occupant / residents carry out modification of their dwelling units that are largely carried out by professional supervision. The flexibility nature of these houses are achieved due to the large expand of land allocated to each plot of building (occupants), which has made modification significant. Besides the modifications of internal activity areas, the addition of spaces for external housing dwelling was also observed to contribute to the reduction of the quality of open spaces in the housing schemes. Findings of this study have a number of implications, firstly the result clearly shows that the main motivations for modification of their dwelling units as indicated by the respondents were to improve the chances of their current residences to meet their housing needs; and improve their economic status / value of their housing units. Secondly, the provision of open spaces which are necessary components of the built environment will eventually become non-existence in these resettlement housing scheme due to constant modification activities by the residents may has some implications for the health and well-being of the residents due to overcrowding of the built environment. Hence, it is recommended that design and planning of housing scheme for resettlement of it aborigine dwellers should be based on core housing related attributes, which will enable individual households to carry out redevelopment and modifications of their dwelling units.

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