CULTURAL SUSTAINABILITY OF RESIDENTIAL ADJUSTMENT STYLES OF SEMI-URBAN ABUJA AND CORE DHAKA NEIGHBORHOODS

Moukhtar M. Mai
Universiti Teknologi Malaysia, 54100 Kuala Lumpur, Malaysia

&

Mahbubur Rahman
Universiti Teknologi Malaysia, 54100 Kuala Lumpur, Malaysia

Abstract

Informal settlements constitute the bulk of urban housing stock. Culture specific dwelling units in the developing countries are transforming fast to commercial style housing due to drastic urbanization, globalization and their attendant acculturation. This paper focuses establishing commonalities and disparities of the situations in Abuja, Nigeria, and Dhaka, Bangladesh, in terms of the transformation process - the predicating denominator, and the driving force - motivation. It analyses comparatively the changing residential patterns specific to this pair of Africa and Asia cities over a period of several decades. This research qualitatively compares physical, social and psychological adjustments observed in traditional family compounds typical of Abuja; and the commercial subdivision of old Dhaka houses. In line with the post positivists' epistemology, an emergent-grounded theory triangulates qualitative outcome with quantitative evidence and field observation. The research findings suggest a fusion of isolated Gbagyi housing units into a hollowed-out structure physically; and fission of the tribal group socially. Individualism replaces communal responsibility psychologically, with Islam and Christianity as moderators in Abuja. But in core Dhaka, housing transformation pattern emphasizes on spatial economization through subdivision, addition-subtraction, conversion and reconstruction, motivated by convenient fraternity of respective socio-economic classes, who are united in housing themselves. These findings give evidence of economic precedence over cultural sustainability in the process of housing transformation. However, the capitalist tendency of the twenty first century's choice of income first, jeopardizes local identity and spatial rhythm in favor of modernity. This trend could have a global implication on cultural sustainability of vernacular housing within the urban environment of developing economies.

Keywords: Informal settlements, cultural sustainability, housing transformation, informal delivery

Introduction

Households' response to their changing residential needs manifests in a continuous process of spatial adjustment. Such is the essence of evolution of a living city. Housing adjusters' world view, especially religion, moderates their choices of spatial order (Mai, 2008). The political, social, economic and technical forces influence urban growth, and the ensuing morphology. Thus the urban areas avoid stagnancy by remaining relevant in a contemporary setting. Change in the past has been slow and gradual with the old yielding to the new, moderated by unwritten social controls (Rashid & Rashid, 1996). However, the present rapidity and the impact of it on the built environment are vital concern of the conservationists, professionals and policy makers, not change per se.

Housing transformation as a physical manifestation of society's dynamic culture is a dynamic and inevitable response to changing needs brought by the socioeconomics of survival. As universally observed, families require satisfactory dwelling environment throughout their respective life cycles. Shifts in population distribution and mobility, combines with economic and political forces have changed societies and the urban environments like Abuja and Dhaka cities of developing countries. Today, in large cities with high demographic and social mobility, neighbors

have become strangers, individual identity is lost, and the feeling of community and pride in one's own place are gone (Rahman & Islam, 2004). Socially accepted unwritten controls on the environment and people no longer exist. The dynamics of change has divested the community of the socially accepted framework; there is no mechanism to manage it without losing the essential character.

Migration of rural destitute to the urban centers of the developing world is a common phenomenon, putting pressure on the existing amenities to meet the needs of these people, mostly with low affordability that confines them to substandard housing. It is also common to transform the old dwellings to accommodate this particular group of poor migrants turned unskilled workers in many developing world cities like Dhaka. Some social scholars (Castells, 1985; Flanagan, 1990) cited a number of factors for such transformation, e.g. breaking down of the family structure from extended to nuclear, the diminishing of guild system, the diversity of the jobs and the peoples' mobility; the high maintenance cost of the old dwellings, and finally the suitability of such dwellings to be converted into smaller rental units. All these with varying degrees exist in the said cities.

In everyday life and language, the experience of spatial formation is intrinsic as we experience society in an unconscious way (Rahman & Haque, 2001). Psychological, social and cultural characteristics are often expressed by the separation of various groups in localities (Rapoport, 1969). From the past to the present, society played the basic role in the formation of a settlement that modulates the space from basic behavioral level to the social level. This in turn is shaped by society that retains the basis in forming the space, where it physically exists. Space ostensibly physical entity, conserves the social structure within it, guided by the psychological and cultural norms to transform into a non-abstract entity (Rahman & Haque, 2001).

The paper mainly contains six sections. Within the introduction is background of the research sites, Peri-urban Abuja, Nigeria and old Dhaka city, Bangladesh. The theoretical orientation of housing transformation relevant to each section is embedded therein accordingly. The next two parts deal with the research findings in Dhaka and Abuja respectively. The fourth section analyses the similarities and differences between the pair of settings. The fifth part discusses motivation for housing transformation in the case study. The sixth part is paper conclusion on the implication of the apparent transformation patterns to physical planning policy and housing delivery practice in developing economies.

Core Dhaka Settlements

Dhaka, a city older than when it was first recognized as the capital of Mughal province of Bengal in 1608, has gone through Mughal, Colonial and Pakistani rule before becoming the capital of independent Bangladesh in 1971. With around 14 million people increasing at 4%+ rate, it is destined to be the 4th largest in the world by 2020. Like typical developing world's mega cities, Dhaka is plagued with poverty, migration, unplanned growth, poor services, pollution and ill governance. The old core at the south on the river is one of the densest areas in the world, with narrow alleys, crumbling infrastructure, and thousands of neglected traditional buildings that provide refuge to low-income families. The society, predominantly Muslim with about 15% Hindu, is culturally homogenous, though there is a wide disparity between income and education.

Dhaka's warm-humid climate has four distinct seasons with long monsoon and temperature variation of 10-40^{0}C making climate an important factor for the house form. Considerations like south wind, cross ventilation, adequate rain protection and shade etc. are essential in architecture. Introvert rooms around courtyards, a replica of rural form, creates a pleasant microclimate, and ensures necessary light and ventilation in traditional urban houses by acting as a cool sink (Mallick & Huda, 1996). Most parts of these houses are thus single room depth with a veranda (Rahman & Haque, 2001).

Dhaka Transformation: Adaptive reuse of old buildings

Adaptive reuse of old dwellings and historic preservation fall within the purview of 'conservation'. According to Cantacuzino (1990), this is a planning issue that dealt with policies and needed to be evaluated in the context of a given cultural tradition in a society. Imam and Mamoon (1994) pointed out that no policy succeeds without effective implementation strategies by the local authority. For Dhaka, the most important and difficult would be to convince the owners to keep the old buildings, not destroy or reconstruct them for apartments or markets. Different incentives and monetary compensations, grants, subsidies and tax

relief etc. can discourage demolition (Rahman, 2009). In Dhaka, generally policies are formulated but not implemented due to lack of accountability and transparency that enables unethical practices often involving government employees. Here, lack of imposition of strict rules and penalties led to building rules violation.

In Dhaka unlike peri-urban Abuja, many cultural properties are succumbing to high-rise high-density developments under the pressure of urbanization and speculative market– a process that became vigorous in last 50 years. While some of these heritages at risk may be saved at moderate cost, land compensation cost alone will gradually make any such effort prohibitive (Imam & Mamoon, 1994). This has been further exaggerated by the action of the real-estate developers and scarcity of build-able land in right location (Rahman, 1994).

The economic justifications for recycling old buildings in old Dhaka city become stronger if the speculative market can be shunned by reasoning that recycling is not only about maintaining the fabric of an old building and/or continuing its use, but of introducing completely new environmental services and standards to meet the current needs and demands, by way of upgrading. Genuine progress and improvement does not lie in the image of a skyscraper or high-tech assembly, but in these new environmental standards that can transform or improve the existing buildings and the quality of life therein (Cantacuzino, 1990). Thus it only remains to be seen how old buildings can reconcile with modern needs (Rahman, 2003).

The Actors
A good part of the traditional houses in old Dhaka, like the ones selected as case studies, were mainly built by Hindu families (Rahman & Haque, 2001), who started to amass wealth and climbed up the social ranks being in government service, business, and law practice before the Muslims. To express their status accompanying wealth, they used to build these gorgeous and intricately decorated mansions during the late-19th and early 20th centuries by mixing European and local styles (Rahman, 2001, 2009). Most of the 2-3 storied houses had three portions distinguished by separate courtyards facilitating various activities, other than guiding the spatial composition (Rahman & Haque, 2001). The front portion or the outhouse belonged to the male incomers, which would be adjusted to accommodate offices or other business enterprises of the owners, and often to allow the clients or guests to stay overnight.

Major changes occurred after the marriage of the sons of the family in a joint or extended family, which needed a more private area and separate convenience within the same premises. The resulting conversion/ adjustment would mainly occur in the middle part of the house with most of the habitable rooms (Rahman & Haque, 2001). Some of the animal areas, servant quarters, kitchens, etc. in course of time were changed to bed rooms to augment scarcity of space as original need was not there.

The new Muslim owners of old houses gradually adjusted those to meet their needs in the changing context. At the initial phase, conversions were made of places no more relevant to a Muslim Family's way of life. The major transformation happened in last two decades, as the family size increased and often married sons needed private living units. Another important transformation was caused by many of the current generation not getting involved in family business that flourished in the traditional neighborhoods and premises. They migrated to new parts of Dhaka (Siddiqui, 1996).

A demand for smaller rental units by migrants encouraged the owners of such large houses to subdivide them into family units, with separate entrances, toilets, and kitchen and washing areas. However, some of these services could also be shared among low-income families to make housing affordable (Rahman, 1996). Some owners were subletting parts of their houses to individuals, families, or commercial uses, while occupying the rest of the house by themselves. This allowed them to generate additional incomes, and reduce maintenance cost.

The Pattern
Old buildings in Dhaka despite carrying mixed architectural features on the façade, usually followed indigenous spatial composition— habitable rooms around a multi-purpose courtyard (Rahman & Haque, 2001). The ways Hindu urban families live, and their social behavior pattern, have no marked difference from that of the Muslim families, except some religion-specific spaces due to differing rituals Thus organization of domestic spaces of both Muslim and Hindu families in Dhaka is defined by the common inherent notion of privacy in local culture based on domain

separation (Imamuddin, 1982; Rahman & Haque, 2001).

Most houses were divided into three portions to facilitate various activities, and define and compose the spaces: the front for the business talks, strangers and male guests, the middle with bed rooms facing the courtyard, and the back used for the kitchen, toilets, storages and animals. The female dominated middle and end parts were further from the front entry. Female onlookers use the front balconies and upper veranda around the courtyard— an essential space for various domestic, social and productive activities. Extra bathrooms and kitchens built in the courtyards while subdividing the house into rental units drastically reduced the courts in size, no more able to play the conventional roles (Fig. 2).

The orientation and location of the kitchen, and the *Puja Ghar* (prayer room) adjacent to the courtyard and a sacred tree, were unique features of the Hindu houses. The incoming Muslim families converted the no-more-needed Puja Ghar for other functions. Though taking bath in the courtyard near the well is common for the Hindus, the Muslim families introduced separate closets, mainly for the females. The Hindus would take food usually on the kitchen floor or on a platform in the veranda or the semi-open space adjacent to the kitchen; the Muslims introduced a separate dining room and table for the purpose. However, these were more culturally influenced habits than religious developed over time.

Initially, manually serviced toilets were built at the back of the houses separately from bathrooms. Common toilet and bath facilities together with piped water were introduced later when the Muslim families have moved in. The servant quarters at the back of the house were later transformed or rented out for other functions. Alternate entrances mainly for family members were also made to enhance privacy. Many houses were also extended vertically by the Muslim owners, making the roof-top domestic and socializing space of the Hindu dwellers disappear.

As illustrated in tables 1 and 2, Dhaka core city exhibited all four types of transformations of old buildings; with no particular pattern. Amount of changes during occupation by Muslims was considerably high compared to that earlier (Hindus) as the original Hindu owners were making smaller horizontal extensions to accommodate more of the extended family members, Muslim owners were converting the houses into smaller units for renting out, often extending vertically. This reflects the socio-economic situation of the related periods, and the fact that vertical extensions were done after horizontal changes. On average nearly 70% transformation occurred overall, evident of many changes the old houses are going through. Though spatial morphology offered particular advantages or disadvantages regarding the type of transformation that could take place, no definite pattern were seen.

A complete house is constructed at the onset in Dhaka, mostly without any future growth intended. Also the already densely built forms would generally extend up to the boundary lines in Old Dhaka. These make further construction other than only in the courtyard and the roof difficult. The Hindu families that built the case study houses represented a high income group, but the present occupiers were middle or lower-middle class tenants. Though the owners were usually reluctant to rent out to single bachelors, some houses were converted into dormitories for male bachelors. Popularly known as mess, these have a high demand and good return.

Table 1: Four different categories of transformation as a tool for evaluation in Dhaka and Abuja

a. by Slight Adjustment	b. by Addition & Division	c. by Total Conversion	d. Total Transformation by Reconstruction
Functional change rather than physical change, especially in the interiors. Most old houses adjusted to become like new houses, using electricity and	Enables to increase the number of rooms to meet the needs of the sublet and owner. Additions done to make services suitable for modern lifestyle. Bath rooms and kitchens added within the	Physically converts wholly into another use, introduce new services, or subdivide for more rental units, difficult and costly. Changing life style	Demolition and reconstruction of old houses shows how the new housing type, materials, and technology influence decisions. Commercial conversion increased the land value, encouraged by new

modern facilities. In Dhaka, drawing rooms or stores are transformed into bedrooms. In Abuja, kitchens are turned into bed rooms, shops, etc.	premises as new units are created. Rooftop rooms commonly added in Dhaka, not in Abuja. Division to maximize privacy while the space is shared by more than one family in Dhaka and Karu Hausa Abuja.	made animal or servant areas redundant, converted to new uses, often commercial. The courtyard is easier to convert if there is more than one.	streets and urban clearance in the old areas. Location influences a property's ability and propensity to undergo reconstruction; the more close to the main street, more is likely to be transformed, and used commercially.

Table 2a: First Phase of Transformation (Hindu Owners) in Dhaka

Case	Adjust	(%)	Add/ Subtract	(%)	Conversion	(%)	Reconstruct	(%)	
Case 1: Gupta Bari (Dal-potti)	-bed & study room to law office -1st floor bed rm to family sitting -bedrm into Pujghar -animal area at the open backyard	4 4 2 3	- bathroom and toilet in courtyard - tube well, water point in 1st floor bathroom - 2nd floor flat -store, kitchen and servant's room at the back -remove animal house at back	2 1 1 5 5	-animal area into toilet -kitchen into study room for children	1 2			
		13		23		3		39	
Case2: Sen Bari (Sutra-pur)	-Dining room into bedroom -garden in the roof top space in the 1st floor	4 5	-kitchen and servant room at the back -extended kit. to dining + Pujaghar in the courtyard -adding1st fl'r Br WC	6 3 2 4	-part of bed rooms to WC -kitchen to servants qrt. -2nd floor bed room to kit & bath	4 3 1			
		9		15		8		32	
Case 3: Lahiri Bari (Bangla-bazaar)	bedroom into puja ghar -bedrm into family sitting in the 1st floor	2 3	-servants quarter and WC in the courtyard	3	+ Bath to bedrm. veranda into storage -converting part of drwg room to office/lib	2 4 2			
		5		3		8		16	

Table 2b: *Second Phase of Transformation (Muslim Owners) in Dhaka*

Case	Adjust	(%)	Add/ Subtract	(%)	Convers'n	(%)	Reconstruct	(%)	

Case 1: Gupta Bari (Dalpotti)	5 rental units -study into printing press office -veranda for book binding -guest room in the 2nd floor	3 4 3	-tube well in the courtyard -2nd floor bed room and bath -guestroom in the 1st floor	1 3 3	-drawing room, bedroom to printing press -pujaghar to kitchen -WC with drawing room	9 3 5	Demolishing the back part & reconstructing the 2-storied dwelling unit	16	
		10		7		17		16	50
Case 2: Sen Bari (Sutrapur)	2 rental units kit, servant rm, dining into guest rm veranda to patient waiting	4 2	-Drwg and bed room in the 1st floor	5	-guestroom into clinic & chamber -bedroom to kitchen, store puja ghar into kit	5 3 3			
		6		5		11			22
Case 3: Lahiri Bari (Banglabazaar)	adjustment of 3 rental units -rental parking at the entrance -new side entry	10 1	-one storied bachelor house at the back unused space	12	-bedrms into grocery shops -puja ghar into bathrm -veranda into store and living	7 3 5	- 1-storied separate sublet unit at the back.	12	
		11		12		15		12	50

Figure 2: Types of transformation in Old Dhaka (L-R) - courtyard, the center for domestic activities and spatial composition, a space for further addition and subdivision; verandas converted to storage or additional bed room; conversion to shop-houses.

Fig. 1a: L-R Transformation of the Old houses in the 3 neighborhoods in Dhaka, DalPatti, Sutrapur & Bangla Bazaar.
Source: Authors' fieldwork

Transformation in Abuja

Evaluation of spatial order of Abuja peri-urban squatter settlements enhances the appreciation of the structures and processes embedded in Abuja's urbanization (Gilliland & Pierre, 2006). Abuja is now a heterogeneous society where economy submerged in social relations. Therefore, the evaluation of spatial order is relevant to housing design and development socially, economically and physically. Reuse of building materials is an economical approach to housing reconstruction and adjustment in peri-urban Abuja.

Incipient stage (1976-1986)

At the settlement level, the typical Gbagyi perceived houses on neighborhood domestic center, myth and ancestor worship, religion, and development control. At the compound level were courtyards, building shapes, access to toilets, home granaries, fencing of compound premises, multiple open spaces, kitchens, and boknu (guest reception hall). Others are self-help housing delivery and core housing provision. These could be grouped into three general categories: physical (nature of original compound, layout, location, plot demarcation), social (occupancy, typology) and psychological (self-help delivery, core provision). For instance, the availability of rural housing features e.g. home garden, animal shed, chicken pen and boknu varies from 40-80% of compounds. Multiple

kitchens existed in over 60% of those compounds. The rural setting was also manifested in the hierarchy of open spaces and/or courtyards, most dwellings having two levels for family use.

Earlier Gbagyi settlements assumed roughly curvilinear periphery; individual compounds within them could be circular. However, rectilinear plots and settlement layouts have now replaced this practice. There was minimum modernization of Gbagyi residential character during the incipient era (1976-1986) as the indigenes retained their rural housing norms characterized by scattered dwellings, interspersed farmlands, criss-crossing footpaths, etc. Survey shows that more compounds combined rectilinear and curvilinear structures, few were only rectangular. That mixed form was prevalent in the incipient era supported Balogun's (2001:100) assertion (rectangular 'West Coast' type and the round 'Sudanese' type).

Toilet provision in many compounds was scanty; like in rural environments; backyards, community or refuse fields were used for convenience. About half of them had pit toilets in addition to open-air secluded bathrooms in a corner of the compound. In Bangladesh, the provision a kitchen and toilet to most households was a priority, there was poor regards for such services in peri-urban Abuja. Outdoor kitchen attached to the granary was mostly

used; seldom indoor kitchen would be located next to the woman's bedroom.

Informal housing in indigenous settlements threatened physical planning and development control of FCT-Abuja due to their spontaneous growth not meeting these regulations (Mai, 2008). Since rural

houses had no fences, typical of African culture of imaginary housing and settlement boundaries (Denyer, 1978), compound fencing was not considered. However, with incoming migrants, household security became imperative; migrant tenants too demanded improved compound security.
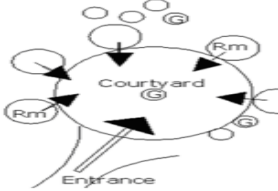
Figure 3a: Courtyard housing Concept

Figure 3b: A modern manifestation of Gbagyi courtyard housing typology in Karu Peshe

Figure 3c: Courtyard Compound in Karu Zhimi, Abuja. Source: Authors' field survey 2006.

Intermediate stage (1987-91)

To establish a transformation pattern in the second decade of Abuja, the study focused on retained, lost and emergent housing features in comparison to the previous period. This is further examined for dominant pattern, animated model, and talking typology (Richards, 2005:132-145) to establish a pattern by constructing: the big picture (pattern), pathway (stages), x-ray view (explanation), and process. The big

picture indicates modification of physical housing features, socialization of migrant tenants with their hosts, and gradual decline in communal responsibility among indigenes at both extended family and community levels. Survey shows massive extensions and new construction, along with internal alterations and fencing. These portray transformation complexities in building form, housing occupancy, bachelor core housing provision and self help delivery mode.

Figure 4: L-R Samples of Karu-Abuja situation. A shop curved out of the family block; View of illustrating the multiple functions of courtyard regardless of size.

From the features analyzed at the incipient period (1976-86), the three identifiable categories could serve as a basis for the development of the model. These are lost features (symbolic tombs and ancestor worship, hierarchy of granaries, concept of hidden toilets, multiple kitchens, open space hierarchy), emergent features (rental house, bungalow, shop-house, sharing of kitchen, en-suite water closet, reduction in open spaces, loss of boknu to economy), and retained features (single granary, self-help housing delivery and core housing provision, courtyard layout).

Consolidation stage (1992-2006)

Housing transformation patterns of the preceding periods could be viewed in terms of rural and urban norms respectively. The incipient era was characterized by variety of generous spaces and building form, consistent with rural lifestyle and technology. A social and physical modification to this setting was inevitable, due to accommodation shortage. Population shift into Abuja diluted the rural economy and affected the cultural values.
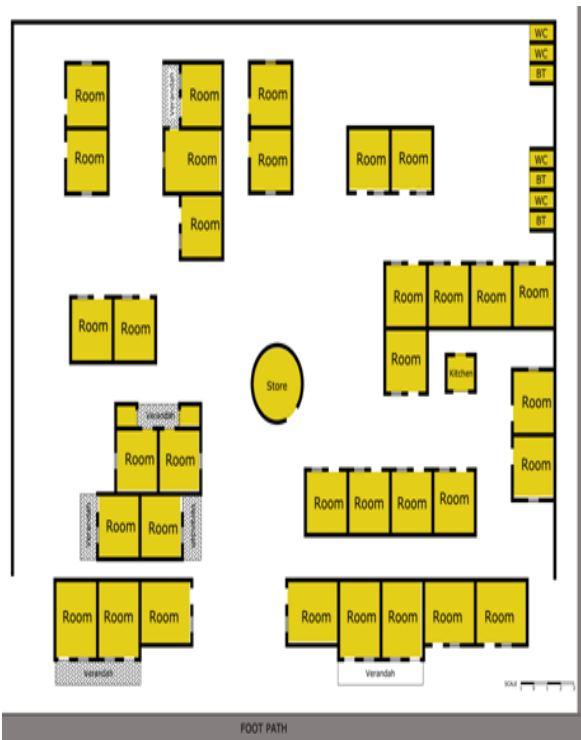

Figure 5a: Typical Face-to-Face Rental in Karu Hausa, Abuja. Source: Fieldwork, Mai (2008).

Changes in gbagyi (peri-urban Abuja) settlement pattern

The Gbagyi people have demonstrated changes in many aspects of their lifestyles including clothing and architecture that can be classified as round Sudanese cum West Coast compound dominant and face-to-face

rental (modified form of compound in West coast). Both have their imprints in most old cities and in different parts of Abuja. Balogun (2001), Bature (1990) used this classification to describe peri-urban Abuja, mostly inhabited by Gbagyi.

The Gbagyi cosmology is tied to round spatial pattern (Balogun, 2001:100-109). As such, their settlements and compounds traditionally follow curvilinear arrangement, typical of African settlements (Bascom, 1955; Denyer, 1978; Oliver, 2001:7). However, it has no preferential orientation. Balogun (2001) highlighted three main processes of growth in peri- urban Abuja.

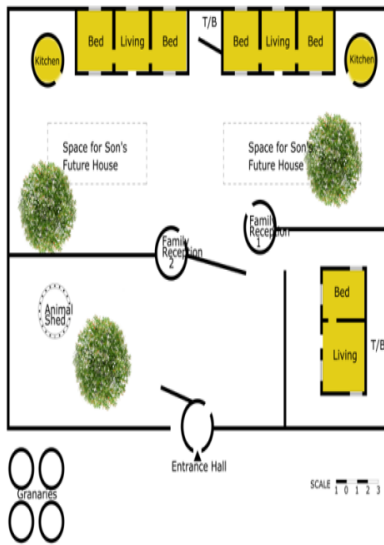**Figure 5b: L-R - Owner/Tenant Compound with hierarchy of Spaces. Source: Fieldwork, Mai (2008).**

Fig 6a: Typical Gbagyi Muslim Urban Compound.

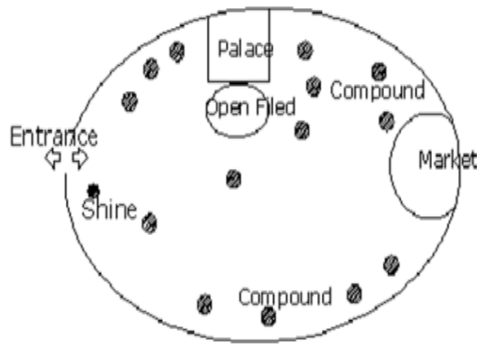**Source: Field Survey, Mai (2008).**

Figure 6b: Conceptual Gbagyi Settlement Layout.
Source: Field Survey, Mai (2008)

Transformation of house form

In Gbagyi traditional housing unit, the compound follows the courtyard as in other societies. It has undergone changes in construction method, materials, and spatial organization in three decades, with a decline in traditional patterns. Consequently, the mix round and rectangular housing layouts of the incipient stage was gradually regularized to a rectilinear form— a process described as "loss of multiplicity of building shapes and forms" (Mai, 2008). Compound components varied in size and number across the periods. For instance, granaries were completely lost in many compounds; open spaces were restricted to only a central courtyard, except for a few community compounds.

Gbagyi spatial organization could be traced to the 1914 introduction of Christian concept of 'one man one wife' to the community (Wambutda in Je'adayibe, 2005), resulting in the segregation of Gbagyi in the study area along Muslim, Christian and

In both Peri-urban Abuja and Old Dhaka, courtyards remain essential spaces for regular domestic uses, social uses and varieties of production and income generating activities, in addition to being the climate modifier in a house. The findings

pagan enclaves. Gbagyis responded to this by copying the missionary bungalows (Oluyemi, 1993:65). The freestanding bungalows fused gradually with lateral expansion into the typical Gbagyi united compound. There was one such structure in the samples dated 1987-91, developed in a traditional compound by gradually demolishing the mix round and rectangular rural compounds.

These compounds are true to the Christian doctrine of a bungalow to every nuclear family, as shown in Figure 7 of retained individualized bungalows. However, these share toilets and kitchens. The freestanding one on the left grew into an amalgamated whole by extending into the gaps. The right one shows separate dwelling units sharing toilets and kitchen. A certain level of 'spatial specialization' with high-density use of furnishings is the main feature in this phase. The multi-functional nature of the rural space was transformed to specialized spaces.

Contrasting transformation patterns
show a number of additional bathrooms and kitchens in the courtyard, constructed when the main houses were subdivided into rental units. Thus reduced courtyards were unable to perform socio-economic and physical-climatic roles (see Fig. 7 and 8).

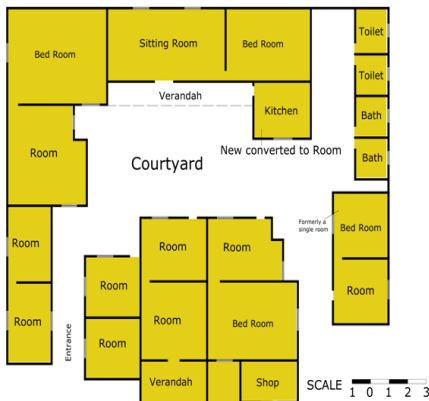**Figure 7a: Owner/Tenant Compound with hierarchy of Spaces. Source: Mai (2008)**

Fig. 7b: Another version of face-to-face rental in Karu Hausa, Abuja. Source: Mai (2008)
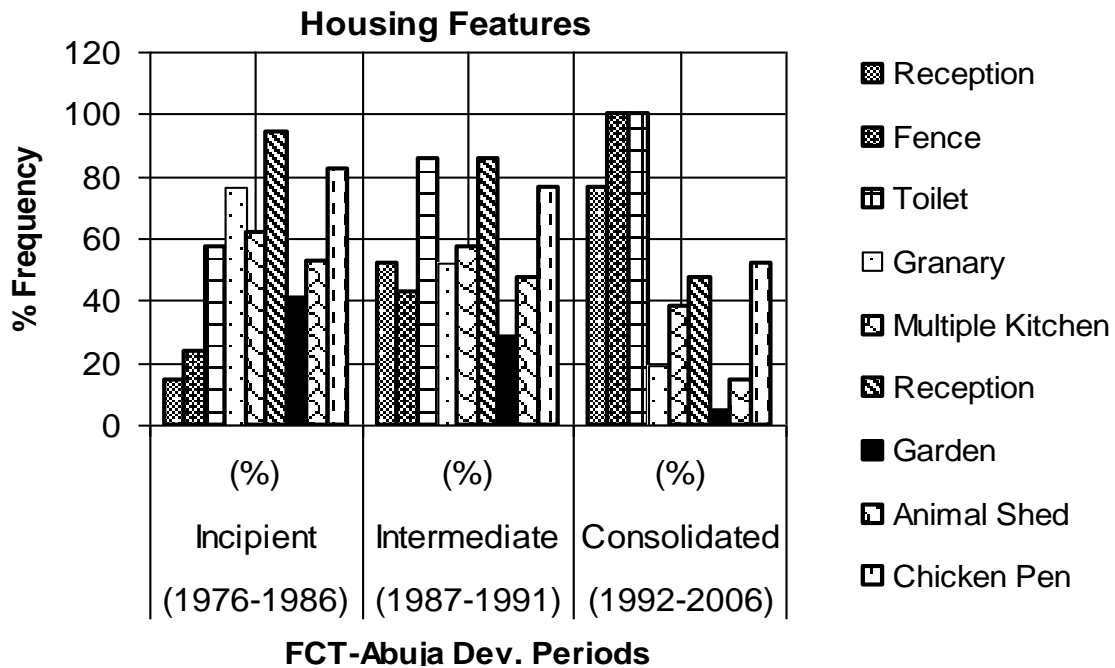

Figure 8: Transformation Pattern of Housing Features.

Source: Authors

Gbagyi Housing transformation was predicated on socio-culture, acculturation, development control, rental income, nature of existing building, and retained core values. Acculturation, development, rental income, and socio-culture related more to 'motivation'. However, retained core values are housing characters. The nature of existing buildings is physical housing features that could motivate transformation.

Therefore, it was a concept that fitted both motivation for housing transformation and transformation of housing features. Figure 8 illustrates physical transformation pattern manifested in the three periods.

Motivation for Transformation

Identified Core Dhaka and Peri-urban Abuja housing characters, transformation and motivation could be linked to each other on the basis of a priori themes or components of behavioral, cultural, socio-economic and spatial (Turgut, 2001:17-25). Behavioral components relate to privacy, territoriality and personal space. Cultural components involve norms, lifestyle, and family and kinship structure. Socio-economic components are made up of income, occupation and education. Spatial components are concerned with the physical features of a dwelling such as its dimension, location and form (Turgut, 2001:17-15).

Spatial setting deals with physical attributes of dwellings, e.g. size or dimensions, location or setting, and aesthetic qualities like building materials, appearance and layout. These include anthropometrics, plot coverage, starter house, granaries, domestic space, settlement and compound layout. Traditional anthropometrics involves the use of different body parts to take various measurements. All the four Peri-urban Abuja housing transformation themes: behavioral, spatial, cultural and socio-economic were manifested in one way or another in the three decades of Abuja and the six decades of old Dhaka city. Transformations in Abuja and Dhaka manifest common characters. These are conversion of drawing room to bedrooms for rent; conversion of rooms adjacent to streets to shops, extension of dwellings to meet increased family needs, modification of spaces to cater for socio-cultural demands of privacy; face lifting of dwelling as a status symbol, etc. Nature of original compound is expressed qualitatively in the concepts of courtyard housing, location and plot demarcation or residential boundaries.

Rooms around courtyard(s) are a physical feature of almost all of the sampled dwellings. The owners of these houses realized the potentiality to be subdivided into rental units and shops to generate income. One major impact of globalization especially in the developing cities like Dhaka and Abuja is the migration of skilled and unskilled labor to the urban centers. New opening for markets both in the national and international level further accelerated this process, whereby an acute accommodation shortage prevailed (Lo and Yeung, 1998; Kayasu, 1997). To meet this enormous demand, a number of traditional dwellings have been transformed in these cities.

After 1992, only a few areas in Abuja retained agrarian residential features of large courtyards and granaries. Karu Zhimi in particular, in spite of its location within an urban setting, manifested traditional rural value by retaining extended family, domestic animals and birds, and back gardens. The typical Peri-urban Abuja compound differs from the modified Muslim urban type basically in the hierarchy of spaces. While the Muslim type segregates men from women via territorial domains, the non-Muslim typical type maintained less strict privacy within the compound. The territorial boundary is limited to deterring intrusion from outside only. Once inside the compound, visual privacy is more in-door than out-door.

Unlike the Hindus who construct their dwellings around the hearth in a kitchen, Peri-urban Abuja traditional compounds focus on the family granary, which integrates with the kitchen. As such, circulation within such compound is influenced by the centrally placed family granary, with other facilities radiating from it, which has parallels in other societies (Al-Naim & Mahmud, 2004). Moreover, Peri-urban Abuja Muslims avoid straight axis for residential entrances to achieve visual privacy. Peri-urban Abuja pagans belief in deity, ancestral gods, and symbolic gods from nature, as well as in witchcraft, has influenced the nature and size of small windows (Jarumi in Je'adayibe, 2005: 48-59).

Another emergent physical typology is the mixed-development that combines residential and commercial uses. In this case, shops are laid out next to the main road, while rental rooms surround inner courtyards. These new developments respond positively to the urge for supplementary income by property owners and tenants. Figure 9 is a typical example of such mixed-development.
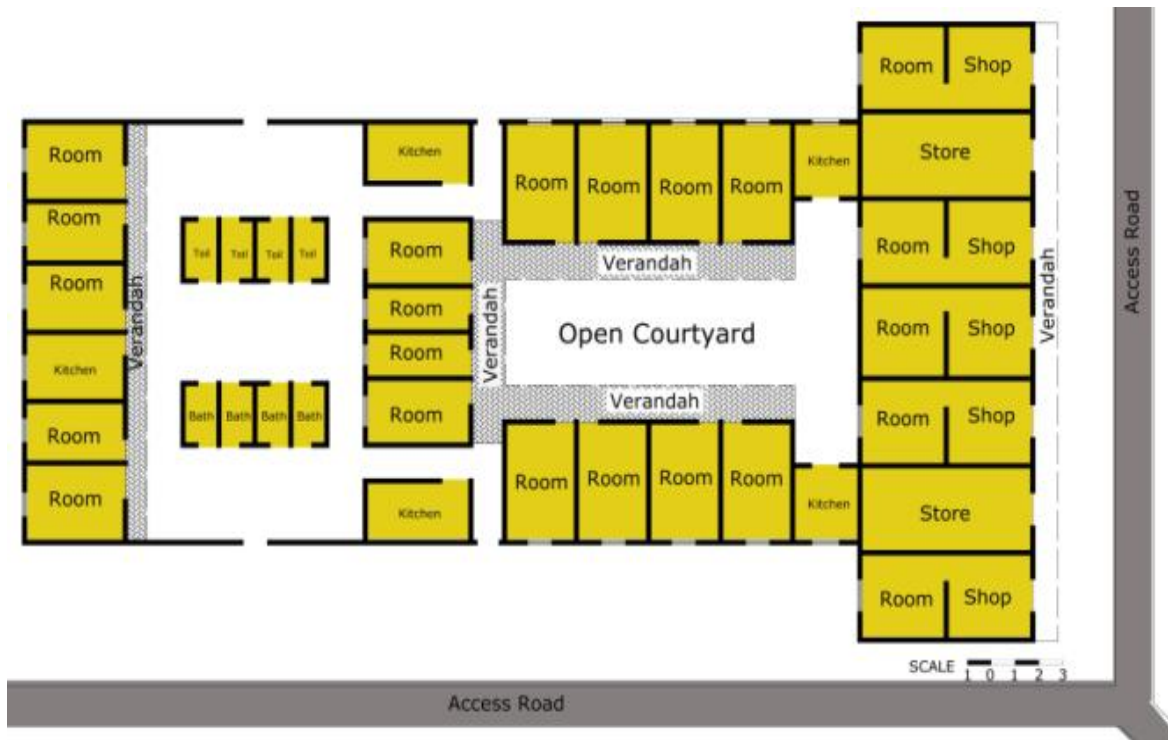
Figure 9: Mix Development Rental Housing Typology

Conclusion

Conservation of the old buildings by saving them from the developers would not be possible without intervention by the public authorities enforcing strong rules. Building public consciousness regarding the preservation of architectural and cultural heritage would be crucial here. This paper showed an alternative way to continue the traditional use of old buildings and enhance their income in the process to the owners with emotional attachments. Thus subdividing of the existing building and renting those out to middle income people could defer the aggression of the developers in Old Dhaka and Peri-urban Abuja. However, many alternations and changes done in the interiors in the process may not have followed proper method so that intricate details to be preserved (Rahman, 2009). Conserving old buildings is an urban design issue that deals with not a single building, but a particular neighborhood or an area. It is hereby submitted that, sections of old Dhaka city and peri-urban Abuja indigenous Gbagyi neighborhoods be selected for heritage conservation. Such settlements could be made lively by encouraging the practice of

traditional art and craft specific to the respective cultures. They could also accommodate food courts that serve traditional delicacies. To this end, Abuja and Dhaka Municipal Authorities, as well relevant development control agencies must cooperate in that initiative.

The composition and typology of the traditional housing pattern presented in this research shows that this housing is a product of a simple and frugal society creating its habitat within its basic means. However, such a community operates within its comprehension of respective households' functional requirements and the potential of the materials at its disposal. The transformation of the ideal traditional dwellings with its three semantic variations for Muslims, Christians, Hindu and pagans to more functional economic models of the 21st century are honest adaptations to needs and context. Artistic quality of the dwelling housings created in the transition period of the late eighties and early nineties were indigenous adjustments inspired by cultural changes within the dictates of economy of efforts.

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