

In a recent study carried out in Ibule-Soro village, Ondo State, Nigeria in 1999, Olujimi (2000) reports that out of the 216 buildings in the village 132 (61%) were of mud-paste wall with corrugated roofing sheets, 78 (36%) were mud block wall with corrugated roofing sheets, while only 6 (3%) were of sancrete block wall with corrugated roofing sheets. The ceiling materials used were cardboards and wood asbestos.

It is interesting to observe the coincidence in the proportion of houses built purely of mud (61%) in both Babamogba Ogundeji and Ibule-Soro villages. The two locations are in the South West of Nigeria, but are several hundreds of kilometers apart and each study was carried out by independent researchers. What this means in essence is that the pattern of housing in rural areas is the same, especially in the same or similar geographical zones.

NISER and Unife (1982) report that most rooms in the 803 buildings surveyed in 103 villages in nine southern states of Nigeria did not have ceilings (Oyo, 25.7%; Cross Rivers 36.4%, Ondo 29.2%) and whenever they occurred it was limited to one or two bedrooms and that the materials used were from planks and boards. The materials for walls in the same 803 buildings included: mud/mud blocks (47.3%), sun-baked blocks (5.5%), burnt bricks (5.5%), bamboo/corrugated iron sheet (13.9%), (and this occurred in all the nine states sampled), landcrete blocks (5.6%) and sandcrete blocks (20.2%). It is interesting to observe that traditional materials constitute 72.3% of the materials for wall construction.

In Shoko village, Adebayo-Onisile *et al* (2006) report the following building materials used in the construction of the 18 buildings in the settlement (Fig. 18): foundation base/floors were of cement; walls were of bamboos, raffia and coconut palm, forest tree branches (used as columns) and tough plants (to fasten the materials together); roofs were of thatched grass, palm leaves, tree branches and forest wood, while windows and doors were of raffia palm with bamboo frame or planks with corrugated zinc sheets.



Fig. 23: A mud house (over 60 years old) with 5 courses in Babamogba Ogundeji village, Akinyele local government area, Oyo State. See the position of windows, bath space made of used zinc roofing sheets, plastered grave and water pot. (Source: Babajide *et al.*, 2006, p. 19)



Fig. 24: A mud house in Babamogba Ogundeji village. The walls are a mixture of mud and sun-dried briks. The large size window is covered with a coloured local mat. A wooden window frame leans against the wall. The corrugated metal roof is sagging and the top corner of the wall is chopped off. (Source: Babajide *et al.*, 2006, p. 35)

Table 1: Materials in use in Rural Housing

S/No.	Building Elements	Traditional Materials in Use	Modern Equivalent Materials
1	Foundation		
	(a) Footing/Wall	Consolidated lateritic (plastic) mud, and sometimes stone rubbles, sandcrete blocks, built to natural ground level.	Sandcrete blocks
2	Walls		
	(a) Structure	Pounded swish mud, loam (sometimes reinforced with timber/wooden posts, or palm ribs raffia frames), logs, wattle, stones, bamboo, sawn wood, mud bricks landcrete blocks.	Sandcrete blocks, red bricks.
	(b) Finish/decoration	Animal dung (cow, donkey and goat) mixed with pounded indigo leaves, local dye extracted from vegetal materials; cowries, palm or periwinkle shells.	Cement plaster, paints
3	Roof	Thatch, thorn bush, grass, leaves, forest wood, tree bark or climbers or sisal plant as rope, bamboo, palm frond, palm tree/branches, raffia palm, coconut tree, corrugated metal sheets.	Seasoned timber, planks, nails, bolts/nuts corrugated metal sheets, long span aluminum, asbestos sheets
4	Ceiling		
	(a) Frame	Bamboo (whole and split), straw, guinea-corn stalk, sawn	Seasoned timber

		wood/planks	
	(b) Covering	Mud layer, mat, board, asbestos, raffia mat, timber	Plywood asbestos, particle board, plaster of Paris.
5	Floor		
	(a) Structure	Swiss (lateritic) mud, sandcrete.	Concrete
	(b) Finish	Animal dung, indigo leaves, local dye, cement screed.	Cement screed.
6	Windows		
	(a) Frame	Timber, sliced or sawn palm trunks.	Treated timber, metal, aluminum.
	(b) Covering	Mat, timber board.	Timber, louver glass, glass-aluminum.
7	Doors		
	(a) Frame	Timber.	Treated wood/timber, metal.
	(b) Covering	Mat, rough timber board, patterned wood/planks.	Plywood, patterned timber, metal.
8	Wall shelves	Bamboo, forest wood.	Timber, plywood, glass.
9	Lintel	Forest wood, thick timber	Concrete beam, with iron rods.
10	Columns	Wooden posts, timber, carved wooden panels, thick mud, and mud bricks.	Concrete pillars with iron rods.

Source: Author's Compilations (2007).

8.0 Rural Housing Quality

The quality of housing in rural parts of Nigeria may be looked at in two ways: (a) the condition of houses, and (b) the environment of the houses. In either (a) or (b), or both what the conditions appear to be may largely depend on who is making

the assessment or description — that is, the status (social, economic, educational, professional and cultural) of the person. In terms of cultural status, an urbanite will almost certainly describe the condition of a typical rural house as extremely woeful, worst, not fit for human habitation, dark, dull, lifeless, smoky and lacking in basic-facilities and highly recommended for demolition. If the person is a professional in the built environment, the comments may be harsher. Fathy (1973) describes housing condition in their farm in Egypt as consisting of mud huts that are low, dark, dirty, no windows, no latrines, no clean water, cattle living practically in the same room with people. The housing condition in England from the 1600s through the 1800s where "poor people lived in one- or two-room hovels that were airless and windowless" (Altman and Chemers, 1980).

A typical ruralite (especially one that has lived all his/her life in a rural environment) will almost certainly describe the condition of housing in his/her village or the small and unpolluted town as fantastic, lively, pleasant, safe and very good if not excellent. The reason is simple: that rural house and its surrounding environment meets his/her needs in full: low occupancy rate; quantitatively adequate; affordable when constructed and with the cheap periodic maintenance; provides high level of socialization, resource sharing and reciprocal relationship; security (sleeping at night with both eyes closed); unpolluted breeze; diversity of flora and fauna and great opportunity to listen to the sounds of squirrels and the songs of the dove or nightingale.

However, in the spirit of the Global Housing Rights campaigns and, especially housing adequacy and habitability (the contemporary housing standards), the condition of rural housing especially in Nigeria is that of qualitative deficiency. Onibokun (1985, 1987), NISER and Unife (1982), Egunjobi, 1989 and many other scholars have found rural houses to be adequate in quantity but grossly inadequate in quality and

lacking in infrastructural facilities. Obayiuwana (1988) reports that the rural part of Gilan Province in Iran contained 227,000 housing units out of which only 2.2% had electricity and 0.4% had pipe-borne water.

Rural housing problems include the following:

- Poor quality of houses;
- High cost of non-local (factory made) materials;
- Non-availability of modern builders/masons and craftsmen;
- Building technology is local, simple and unspecialized;
- Lack of basic infrastructure (socio-physical);
- Lack of modern housing finance (mortgage) facilities;
- Substandard or total lack of dwelling facilities (toilet, kitchen, in-house bathroom, potable/tap water and electricity);
- Non-adherence to physical planning (including building) regulations (although there is the argument that the prevailing building regulations are unfavourable to the rural dwellers);
- The mud walls exhibit cracks and are highly susceptible to weathering while the thatch roof (though fading out) requires frequent replacement.

In their recent survey of housing conditions in Babamogba Ogundeji village in Oyo State (under the supervision of this author), Babajide *et al* (2006) note that 96% of the 74 houses in the village were residential of which 40% were in poor, 55% in fair, and 5% in good condition. The good houses were those with adequate ventilation, unleaked roofs, uncracked walls, and functional bathrooms. The fair houses were those with moderate ventilation, leaking roof and cracked walls. The poor buildings in the village were those without windows and doors, had leaking roof, dilapidated walls, no toilet and no bathroom (the no bathroom here means no bathroom within

the buildings). Table 2 presents the condition of housing facilities in Babamogba village (see Figs. 23-26).

It needs be mentioned that 37% of the houses in the Babamogba Ogundeji village were age 31 years and above, 51% were between 11 and 30 years while 12% are 10 years and below. One of the buildings was over 60 years old (Fig. 23).

Olujimi (2000) reports that in Ibule-Soro village 136 (62.84%) of the buildings had mud unplastered walls with cracks, 5.07% mud unplastered walls without cracks, 27.02% mud plastered walls with cracks, while 5.07% others were well plastered and had no cracks. The overall quality of the buildings in the village were described as very poor (4.63%), poor (84.72%), fair (7.43%), very fair (2.31%), and good (1.01%).

In a recent survey of 56 buildings in six villages (Alapintin, Olude, Osebele, Akintola, Seeni and Ajimajasan) in Iddo LGA of Oyo State and 23 buildings in Oni-Okun village in Ife-East LGA of Osun State (under the supervision of this author), Bello *et al* (2006) report the following conditions of a total of 79 buildings: 78.4% of the walls were sound and in good condition, 8.8% had cracks, 7.5% were dilapidating while 5.3% had dilapidated. Also, 78.4% of the roofs of the houses were in good condition, 16.4% leaking, and 5.2% sagged. In regards to toilet facility 55% of these houses made use of nearby bush; 40.5% used pit latrine located as out-house (about 10m from the main buildings) while 4.5% used WC flush toilet. In regards to ventilation, only 18.9% of the 79 houses were fairly well-ventilated while 71.1% were considered to be poorly ventilated.

Table 2: Housing Facility and Condition in Babamogba Ogundeji Village, Akinyele Local Government Area, Oyo State, Nigeria

Facility	No. of Houses	Percentage
(a) Kitchen		
Open fire space	16	22
Kitchen within building	34	46
Kitchen detached	21	28
None	3	4
Total	74	100
(b) Toilet		
Pit latrine	2	2
Open receptacle (dump)	16	22
Bush	56	76
Total	74	100
(c) Bathroom		
Bathroom within building	9	12
Enclosed washing space	37	50
None	28	38
Total	74	100
(d) Building Defects		
Dilapidating wall	10	14
Cracked walls	25	34
Leaking roof	30	41
Poor ventilation	50	68
Inadequate facility	65	88

Source: Compiled from Babajide *et al* (2006).



Fig. 25: A four-layer mud house in Babamogba Ogundeji village. In the foreground is the corrugated metal-roofed shed used as kitchen. By the back-door of the house are two metal drums used in collecting rain water from the house roof. (Source: Babajide *et al*, 2006, p. 27)



Fig. 26: A mud house in Babamogba Ogundeji village with fallen walls. The room spaces within the fallen walls are used as kitchen pending the time the walls would be rebuilt. The two windows by the left wing of the house are covered with used zinc roofing sheets while the entrance space is yet to have a door frame and covering. (Source: Babajide *et al* (2006), p. 36)

NISER and Unife (1982) report that in the 103 villages surveyed in nine southern states of Nigeria only 20% of the buildings were sound and in good condition of maintenance, 36.9% needed minor repairs, 33% needed major repairs while 7.8% were dilapidated.

8.1 Roles of Government in Improving Rural Housing Conditions

Governments at all levels have a significant role to play in any effort aimed at improving housing conditions in rural areas. In the case of Nigeria, the Federal, State and Local Governments have specific, but sometimes over-lapping, roles to play.

The 1991 and 2006 National Housing Policies for Nigeria both pledged to give priority attention to housing and habitable environment for the rural dwellers. The 1991 policy had a four-point strategy to alleviate the problems which the Federal Government was to pursue to alleviate the problems of rural housing (FRN 1991). These are to:

- (i) direct financial and mortgage institutions to recognize collective guarantee schemes under the aegis of cooperative societies as a support collateral for individual members or joint application for facilities for housing;
- (ii) develop guidelines and provide incentives to financial and mortgage institutions to branch out into rural communities and direct substantial portions of their portfolio on housing and ancillary projects to the rural areas;
- (iii) provide through established government agencies essential social and physical infrastructure so as to ensure the upliftment and improvement of the living environment of rural communities, and
- (iv) extend the benefits of new technological findings on building materials and construction to the rural

communities so as to improve the quality and reduce cost of rural housing.

In addition to the above, the 2006 National Housing Policy (NHP) proposed the following five strategies to be pursued by the Federal Government to solve rural housing problems (FRN 2006):

- (a) all past strategies formulated on low-income housing are to be vigorously pursued in the rural areas;
- (b) economic activities are to be introduced in the rural areas to empower rural dwellers;
- (c) social and economic housing are to be planned for rural dwellers;
- (d) housing programmes with adequate infrastructure which meet the special needs of rural dwellers are to be promoted, and
- (e) traditional responses and partnerships approaches to meet the housing needs of rural dwellers are to be utilized.

The 1991 NHP identified two strategies which state governments were to pursue in the area of rural housing. These are:

- (a) to support and further develop existing local thrift, credit and mutual finance associations as vehicles for financing rural housing, and
- (b) to ensure that all relevant strategies earlier formulated with regards to low-income housing are vigorously pursued in the rural areas.

Quite disappointingly, only three institutional roles are assigned to the local government (FRN 2006) (which is widely considered as grassroots (rural) government) namely:

- (a) implement rural housing programmes;

- (b) maintain rural infrastructure and be responsible for environmental sanitation, and
- (c) partner with other government agencies and private sector companies and others in the delivery of housing *either* in the rural areas or in towns and urban areas (the underline of the word *either* is mine to show that a local government has the *statutory option* of whether or not to embark on housing programme in its rural areas). It is unfortunate that the grassroots (rural) government has very scanty (next to nothing) roles to play. This gap can mar the successful implementation of the programmes that may be put in place in pursuance of the strategies prescribed for the federal and state governments in the rural areas. If properly and adequately empowered, the local governments, in concert with traditional institutions, are well placed to pursue affordable, highly sanitary and adequate housing for their rural populations.

Arising from the foregoing, a case is being made here for a separate, distinct, comprehensive, and realistic housing policy made for the rural areas of Nigeria. Treating rural housing under one page in a 56-page document is an indication of a further/continuing neglect, discrimination and marginalization of the rural people and their housing. Scholars, governments and public commentators will have no reason to condemn the type, and poor condition of houses and the environment of these forsaken ruralites. The people may have to be allowed to provide the houses of their choice based on their local resources and level of affordability which they can always improve as their economic capability improves.

In order to achieve improved rural housing, there is the need for concerted actions on the part of individuals, village groups (youths, men, women, and artisans), grassroots government, and the private sector. Whatever programmes or actions that

are taken need to consider cultural, social, economic and technological values, needs, and resources of the people for success to be recorded. The following suggestions may be considered for action by the public, private and popular sectors:

- stabilization of mud wall materials;
- application of organic or mineral fibres in reinforcing local earth materials, and
- training and re-training of local craftsmen and soil men (vernacular builders) in the use of improved construction techniques.

Whatever programmes and actions that are taken should reflect such factors or aspirations as:

- (i) cultural (in terms of house design, size, height, decorations and facilities);
- (ii) social (occupancy rate, privacy, space relationship and utilization);
- (iii) construction technique (indigenous building knowledge/local technique, installmental building concept, the use of vernacular builders and local artisans and labour);
- (iv) economic (non-cash finances, sweat labour, traditional micro finance);
- (v) local resources/materials (the use of familiar, locally available and sustainable/renewable building materials), and
- (vi) administrative (indigenous housing management technique, group sanitation and facility maintenance methods, domestic conflict resolution and security approaches).

The non-recognition of any or all of the above-listed factors, imposition of alien concept(s) or methods, and, the worst of all,

the non-inclusion of housing beneficiaries and the traditional rural/village administrative structure may mar a well-intended, well-packaged rural housing project even when it is on gratis.

Rural Development Centres (RDC) was established in Gilan Province of Iran and Government laid out the periphery of each centre into housing plots provided with basic infrastructure of roads and piped-borne water from boreholes and sometimes with electricity. Villagers were encouraged to voluntarily hook on to the site and services programme by obtaining a plot at normal fee and build their houses in conformity with the model houses designed for the centre (Obayiuwana, 1988). A modified version of the Gilan RDC model may be necessary in the case of rural Nigeria:

- (a) Every village should have a structure plan while the undeveloped residential tracts are laid out with maximum inputs of the villagers.
- (b) No house model or design should be forced on the villagers, because the houses the rural people build are the houses they can afford to build and maintain.
- (c) Each person or family should be encouraged to provide toilet, bath and kitchen and safe water source (e.g. well) in their housing units.
- (d) The developed parts of the villages should have an improvement programme whereby kitchen, toilet, bathroom and well facilities are provided for each housing unit or shared by a maximum of two units.

A waste management programme should also put in place for groups of houses (between 15 and 20) through the provision of designated waste dump where their wastes (mostly biodegradable) will be sorted out and the biodegradable parts converted manually (or semi-mechanically where they can afford the locally fabricated machines) into organic manure to be used on

their farms while the non-biodegradable wastes are put aside for recyclers to pick.

There is the urgent need to resuscitate the indigenous building skills of the rural folks through the identification of the few remaining traditional builders and carpenters who would be engaged to train young school leavers and the unemployed/able-bodied men and women the art and science of earthen house construction. A few earthen houses should be constructed in some pilot villages with a complete documentation of the process. A training kit should be developed which can serve as a practical guide for use in training relevant environmental-based programmes in colleges, polytechnics and universities.

Furthermore, available, affordable, and maintainable building materials are to be encouraged; the present level of rural technology and an improved technology that will not create socio-cultural, economic, physical and psychological problems for the rural people and rural house construction methods (aided self-help, core housing/installmental construction) should be considered. Most of the thousands of houses built during the second Republic in Nigeria totally ignored the life style of rural dwellers (Obayiuwana, 1988).

Awotona (1988) observes that in Nigeria existing minimum housing standards have been set without consideration of the economic, social, cultural backgrounds of the housing user. He suggests that the definition of what is "adequate housing" should be left to the targeted families and communities.

9.0 Rural Building Technology

Residential housing production is the process by which building materials, labour and land are combined to become housing (UNCHS, 1996). Rural housing production encompasses the construction of a new house and the continuous maintenance of existing units.

House building in African rural communities is a communal activity (a highly cooperative venture) carried out jointly by members in a collaborative, cooperative, and reciprocal manner, right from site preparation to roofing. This is in contrast to what goes on in big towns and cities nowadays when house building has become a paid and specialized venture (Wahab, 1997).

One characteristic of Nigerian rural architecture is, in the words of Dmochowski (1990), "the technological perfection obtained [by the local people] in spite of the relative fragility of building materials and the simplicity of the working tools". The introduction of western ideas in house construction has led to the modification and gradual abandonment of indigenous building practices in contemporary societies. As de Blij (1993) rightly observes, acculturation during the period of European colonial expansion had affected the local practices that are being replaced by other technologies in Africa, Asia and the Americas. However, it is interesting to note that in areas where local culture still has relevance, people still build their rural (indigenous) houses according to the centuries-old principles and tradition. It is also interesting to observe that in 2007 in some peri-urban areas of Ibadan a few people still put up mud-walled houses although roofed with corrugated metal roofing sheets (with or without ceilings) and provided with panel (batten) windows. In this case, the floor plan remains traditional and 'rural', but the materials are a mixture of traditional (local, indigenous) and modern (imported, factory made).

House building is usually a major occasion in which men, women and youths of a village cooperated. Through the voluntary and custom-backed inclusive participation, members acquire construction skills over time and such skills are passed down by members of one generation to those of another. Men prepared the site, set the monolithic adobe (mud) walls while the women undertake the roof thatching. The bread-loaf-

shaped dwellings of the Zulu of South Africa were constructed mainly by women including weaving and plaiting the grass covering while the construction of the egg-shaped clay dwelling of the Musgu of Lake Chad area was by potters rather than masons (Hull, 1976).

A wealth of custom or tradition surrounds the construction process in various societies. With the help of villagers, a house (which materials were already assembled) could be completed in a day as in the case of the Kikuyus where custom 'decrees' that a "building must be completed in a day as leaving it overnight would be an invitation to evil spirits" (Babajide *et al*, 2006). While the Mesakin Nuba took two years to complete a compound, in Southwest of Nigeria a mud house with 5 layers of monolithic adobe takes a minimum of 25 days for the wall to be completed as each layer is allowed to dry before a new one is placed on it. On the third day, the wet wall is trimmed with a cutlass (*ada*) to make it look smooth. Wall construction is done in the dry months of the year between December and April when there would be no rains to disturb the work and there is little to do on the farms.

Earthen (mud) building construction is being revolutionized by researchers, academics and NGOs in some developing countries such as India and Nigeria. The objective is to emphasize that the solution to the problems of rural housing and housing of the urban poor lies in the "use of locally available building materials which should be processed cheaply with appropriate technology and in designs they can be conventionally utilized through the application of available local building skills" (Mr Damas Nwoko quoted in Uwaegbulam, 1999). Uwaegbulam report a two-bedroom apartment built of mud in Anambra State, Nigeria in 1997 by two NGOs namely: Build With Earth (BWE) and Ama Dialog. This was followed with the construction of two big domes with raw earth bricks aimed at proving that raw earth technology can be adopted in the rain forest region of Nigeria and West

Africa. One of the objectives of the mud dome project at Nsugbe, Anambra State is, according to Richard Lang, "to prove to everybody, even the ... illiterate(s) that once you put a dome of simply mud and nothing else, no reinforcement, no roof, no steel, it can resist the torrential rain in rain forest belt" (Richard Lang quoted in Uwaegbulam, 1999:29).

9.1 Rural House Construction Process

The rural house construction process has nine stages which are presented below:

- (i) Land acquisition;
- (ii) Resource community/mobilization;
- (iii) Site preparation/clearing;
- (iv) Foundation layout and construction;
- (v) Wall construction;
- (vi) Fixing of doors/window frames;
- (vii) Roof construction;
- (viii) Construction of ceiling, and
- (ix) Smoothing of inner walls and floors.

Agbola (1988) observes that the construction of the buildings was simple, often relying on the local, self-help work system ('owe') and that the process usually began with the intending landlord (house developer) informing his relatives, in-laws, and friends of his intention to construct a house. A very basic issue in rural building construction process is the real (not window-dressing) participation by the rural people in the process. The supposed house-owner, in conjunction with his immediate and extended family relations, friends and neighbours, all participate actively and willingly in housing projects of individuals in their area. This is done under a framework of reciprocity and collaborative organization that is faithfully and religiously pursued. Participation in a rural housing programme (be it a new construction or maintenance

of existing units or of the environment) is a serious obligation entrenched in the socio-cultural norm of the people. In such rural areas where tradition holds sway, defaulting attracts a social sanction.

One inherent, but largely obscure merit of mutual self-help in rural housing development is that by participating in the construction and maintenance of a house (through material, labour, time or financial contribution), each participant has 'signed-in' or acquired the status of a stakeholder and so becomes actively and genuinely interested in the affairs of the house throughout its life span. He/she would not want his/her investment (financial, sweat-labour, material donation and time resource) in the project to come to naught. Therefore, further participation in the future maintenance, security, continuous functioning, ownership, use etc of the house is of concern to the stakeholders.

(i) Land acquisition

In rural communities, land is owned by all the bonafide members, but held in trust by the village or community head. Whenever any member needs a piece of land for housing, all he has to do is to request from the family or community head and a piece of land is released gratis. The would-be developer gives kolanut (*obi*) and first-grade (undiluted) palm-wine (*emu*) or gin (if available in the locality) to the Head. The acceptance of the gift signifies the consent of the Head and so the land is released forthwith ad infinitum.

(ii) Resource Mobilization

Once a piece of land is secured, the next thing is for the landlord to mobilize the resources required for the construction of the house. These include materials for building (especially for walls and roof) and for feeding the construction team/participants (including foodstuffs, bush meat/ingredients and

drinks); labour that will work in all the stages of construction (men and women-relatives, friends, neighbours, potters, carvers and building artisans among others), and the finance to purchase those materials the landlord may have to pay for. Depending on how buoyant or prosperous the landlord is or how much donation he receives from relatives and friends, it may take just one planting season (one year) or several for him to secure the whole materials and financial resources required.

(iii) Site Preparation

As soon as the required resources are secured the landlord announces a date to members of his immediate family when building site would be cleared preparatory for foundation laying. It needs be stated that only the portion of the land that will be covered by the proposed building is cleared of existing vegetation. Simple implements such as cutlass, hoe and axe are required.

(iv) Foundation Layout and Construction

The fact that the house, to a rural African, represents the totality of the life of the individual and group makes the laying of the foundation of a building to be preceded or done simultaneously with a religious ritual or ceremony. Prayers are offered and libation is poured. The most valued drink in the community is used to pour libation to the gods or ancestors of the individual or family embarking on the building project. Foundation laying is a big event in which the prospective owner, his relatives, friends, neighbours and a few hired workers participate.

The foundation is the floor plan of the building containing different spaces for specific activities such as sleeping rooms, corridor/passage (*odede*) and sometimes verandah where cooking takes place as in the case of the traditional compound. Certain methods are employed in measuring out the size of

spaces. Waháb (1997) informs us that the traditional builders used their legs (through pacing) to measure out various components of the floor plan; eye gauge (which served as plum) to set the walls straight; human physique or figure (anthropometrics method), especially the height of the tallest person in the family, to determine the breadth of the rooms and height of the ceilings, while the width of a passage or corridor was determined by "the length of a tallest person lying flat (fully stretched) plus a little extra (1m-2m) space to allow two adults standing or walking side by side" (Wahab, 1997). Khan (1996) observes that the dimensions of a room in the traditional house form in Karimabad, Pakistan are based on a human module, that is, three times the span of the outstretched arms.

In most cases, the foundation footing and wall are of adobe or swish mud. In few cases, especially in rocky areas, the foundation footing and foundation wall are of stones. The mud foundation is usually allowed to dry for between 4 to 5 days before the construction of building walls commences. As a way of protecting the foundations of mud houses against rain erosion, stones may be used for the foundation raised to a height of between 0.3m and 0.6m.

(v) **Wall Construction and Fixing of Door/Window Frames**

This is usually carried out by the building owner, his relations and friends and some experienced local builders. The materials used for the walls varied from entirely mud, mud reinforced with wooden posts/timber at strategic corners or position on the walls (Fig. 10), raffia palm branches or bamboo splints or palm ribs lashed together (Figs. 18 and 19) and covered on both sides with mud. Sometimes used are sundried mud bricks joined together with mud paste (mortar), or bamboo splints plus slender wood branches (e.g. acassia) lashed with thatch on the outside (as in Odogun, Dagilegbo and Alfa Okolo II villages

in Oyo State), or as in Hausaland, where mud mixed with straw is used and are sometimes coated with mud plaster.

Mud walls are erected in layers or courses and the number of courses is a function of the intended height of the building to be constructed. However, the average is five and in few cases six courses (foundation course inclusive) whether in Babamogba Ogundeji, Ilaju-Ijaye, Alabata, Akan, Bola, Ajimajasan, Tapa, Arijo or Olomoloro villages in Oyo State or Ara and Omi-Okun villages in Osun State or Gidan Mangoro village in the Federal Capital Territory of Nigeria. 64% of houses in Alapintin village (Oyo State) had five mud courses while 36% had six courses in contrast to the 39% of houses in Olude village with five courses and 61% with six courses (Bello et al 2006). In Babamogba Ogundeji village, Oyo state, 97.8% out of the 45 houses built of mud had five layers/courses (Figs. 23, 24 and 26) while only 2.2% had six layers of mud (see Fig. 27) (Babajide *et al* (2006).

Each new course is allowed to dry for four to five days before another one is placed on it while the final course is left for several days (3-5 weeks) to dry before it is roofed so that it can carry the weight of the roof. Where sundried mud bricks are to be used, the procedure is the same with the bricks laid in horizontal rows and bonded with mud mortar (or in very few cases, cements mortar).

Wall construction usually starts shortly after the late rains (November–December) when continuous sunshine dries up the layers of mud and lasts till late March when the early rain is expected to begin (Wahab, 1997). In few cases construction may take place during the wet season in which case the top of the mud layer is covered with thatch, banana leaves (or in recent times discarded corrugated zinc roofing sheets) to prevent rain drops falling directly on top of the wet mud wall.

The mud is usually processed into a malleable mass by men mostly, but at times also by women stamping the mud with their feet (Wahab, 1997). Women supply the water needed to

mix the swish-mud into the required quality to make mud balls (round mounds) and the mix is left to ferment for a few days before it is used to construct the wall. The mud balls are "thrown" by male adults, using large hoes, to the male builder or mason, who sets out the balls into layers of walls (Wahab 1997). Each course is about 600mm high and 400mm thick. The site from which the mud/clay or loam is dug becomes a pit used as refuse dump (*akitan*).

In coastal or swampy communities where bamboo, stilts, raffia palm and tree branches are the wall materials, the materials are vertically arranged and are braced with slender forest woods that are arranged horizontally in 3-4 layers. The raffia palm stalks or ribs are cut to size and arranged to align with erected wooden posts/poles (which serve as columns) to divide the building space into rooms. Tough creeping plants are used to lash all the materials together.

In Shoko village in Badagry LGA of Lagos State, the major corners of a house are reinforced with matured forked forest woods which carry the wall plates to which other roof members are lashed. The same method is in use in Onigbongbo village at Km 10 along Iseyin-Ado Awaye road, Oyo State. While the walls are being constructed, door and window openings are created as appropriate. The openings are not in perfect rectangular or square shape because, while the base is of the required dimension, it widens up to the required height—reason being that the door or window frame is not erected until much later sometime after the roof is put in place. Most rooms have no windows and the few available ones are deliberately made to be very small (500mm x 500mm) for security reasons and also because the rooms are used mostly at night when day lighting is unavailable and the night weather very old. The single-swing door and window openings are spanned with timber, raffia or bamboo lintels (Wahab 1997). The windows, which are at above eye-level (Figs. 27 and 28), are covered either with mat, unused cloth, woven thatch or palm fronds.

Door covers include mat, woven guinea-corn stalks, woven thatch (especially elephant grass), or wooden panel (sometimes carved) made from strong forest woods (e.g. *Iroko*, *ogano*). However, many ruralities are nowadays able to install simple batten (wooden) or boarded doors and timber (casement) windows in their rooms. Because the entrance door is left open whenever people are around, a short (lockable) wooden barrier (*eran-oje*, *aganrandi*) is installed to ward off domesticated animals.

(vi) Roof Construction

Most rural houses either have full-pitch/saddle (sometimes half pitch), flat-, (or terraced as otherwise called), round- or conical-shaped roof. 62.3% of the houses surveyed in seven villages in Oyo and Osun States (under the supervision of this author) by Bello et al (2006) had gable roofs while 37.7% had pitched roof. Gable and hip roofs are the two types of roof in Onigbongbo village near Iseyin.

Sometimes the roof frame is constructed (laid-out) on the ground and then mounted on the structure, but most times the roof is constructed in-situ on the walls. Mud flat roofs are constructed by laying short poles in a V-shape or herringbone pattern parallel to each other on top beams and then plastered with mud. The beams are laid from wall to wall or pillar to wall. As mentioned in previous paragraphs, women undertake roof construction fully in some rural societies whereas in some others, men fix the roof frame while the women do the thatching or the men handle the entire roof construction with women merely preparing the meals.

The roof members are simple timber/tree branches framing lashed together with tough creeping plants or tree backs serving as ropes or nails. Palm fronds, raffia palm, banana leaves and elephant grasses intricately woven together are placed on the roof frame in layers starting from the eave of the

roof and working to the top of the king post. Mud roofs are often reinforced with timber. The leaf or thatch roofs are laid to facilitate fast run/flow of rain water to the ground. Mud gablets are reinforced with bamboo or cassia tree branches which are fastened to a beam at wall head/eave level and to the sloping roof timbers. Many rural houses in contemporary times have corrugated metal roofing sheets replacing thatch where the house owners could afford the ₦10,200.00/bundle (April/May 2007 price). A corrugated metal roof makes rectangular construction easier, faster and more permanent (Hull, 1976) than circular, oval or cylindrical house construction.

(vii) Ceiling Construction

It is not every room, passage/corridor and verandah that has a ceiling in most rural houses. The ceiling appears to an average rural person as unnecessary since the heat from the afternoon sun rays would have vanished by night falls when the inner spaces are to be effectively utilized.

In houses where the ceiling is present, men undertake the construction. Splints of bamboo and raffia or palm ribs are usually lashed to whole bamboo logs and palm trunks or rafters of palm in a closely-knit network or arrangement (Figs. 29 and 30). The upper side, next to the roof chamber, is then dressed with clay/mud to make the ceiling strong, provide adequate cooling effect (Wahab, 1997), prevent termite attack and dry up rain drops that may leak from the roof. The space between the roof and the ceiling functions as a storage space where food-stuffs and household effects needing preservation are kept.

(viii) Smoothing of Walls and Floors

The floors of a rural house are made of mud or termite-mould clay (ant-hills). The mud floor is compacted or rammed by men

beating the mud severally with wooden beaters until it becomes properly settled and hardened. In order to make sleeping on the mud/clay floor comfortable, it is smoothened with a mixture of animal (especially cow) dung (*boto* or *igbole aja*) and other vegetal materials (e.g. indigo leaves or *elu*) which women rubbed into the floor to produce a smooth texture. The balls of indigo leaves are used as applicator (brush) to apply the *boto* on the mud floor. In Zulu houses the mud is mixed with charcoal or with cow dung and then smeared with ashes.

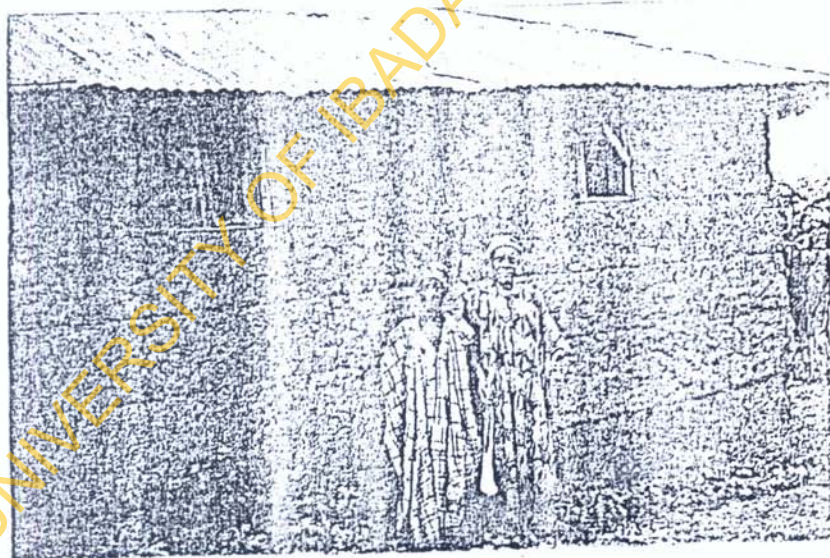


Fig. 27: A mud-walled house of six courses and corrugated zinc roof in Bola village, Apata area, Ibadan. Note the size and position of the two wooden windows relative to the heights of the two male residents. (Source: Adesina *et al*, 2006, p. 15)



Fig. 28: A rural mud house in Modomawa Community in Birni Mogaji LGA of Zamfara State. Note the entrance door made of corrugated zinc roofing sheet, and the two rectangular openings to monitor the outside from inside the house. In the foreground is a pit containing waste water from a UNICEF-assisted hand-pump well. Sugar-cane is planted in the pit to utilize the waste water. (Source: Author, 12/9/07)

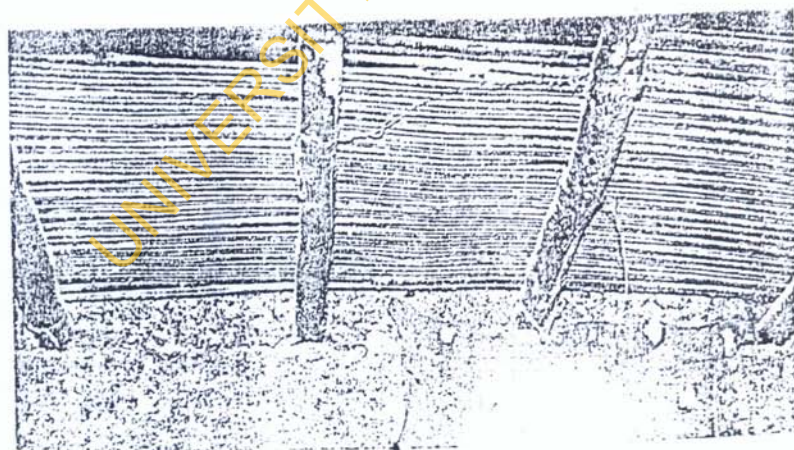


Fig. 29: A mud house with ceiling in Bola village, Ibadan. Note the bamboo splints and raffia ribs lashed to whole bamboo which are inserted into the mud wall. The top of the eye-level window touches the base of the ceiling frame. (Source: Adesina *et al*, 2006, p. 12)

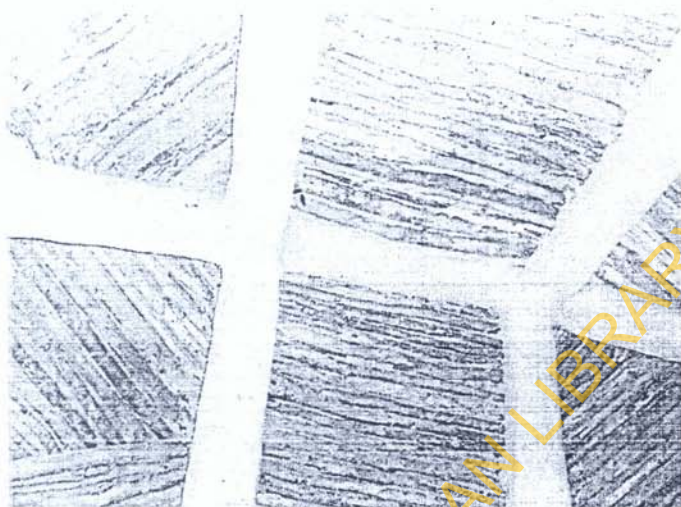


Fig. 30: Round-mud roof ceiling in the house of the Community Head in Kadadaba, Maru LGA of Zamfara State.

Source: Author, 12/9/07.

The animal dung and vegetal matter mixture, which is vermin and pests repellent, is also applied on the lower part of the inner wall up to between 1.5 and 2.0 meters from the floor by the women. In many farmsteads, the mud walls of houses may not be so smoothed or dressed. The mixture is usually applied every five days on the average "to maintain constant smoothness of the floor and inner walls" (Wahab 1997).

It should be mentioned that a number of ruralites are changing their mud floors to concrete and cement screeded floors when they can afford it. This makes the floor smoother, easier to clean/wash and do not require any frequent maintenance. Bello *et al* (2006) find out 85% of houses in Omi-Okun village had unrendered earth floor while 15% had concrete/cement screed floor. Also, the walls (especially inner walls) are smoothed by applying sand-cement plaster. Such

rooms with cement-plastered walls may later have a simple ceiling installed as part of the upgrading.

10.0 Rural Housing Finance

One of the most serious problems of housing in the rural areas is the shortage of finance for housing development (Onibokun, 1987). This opinion is shared by many scholars and especially those who live outside of the rural areas. Average typical rural dwellers may not agree that there is a shortage of finance to develop a rural house that is not different in design, composition, materials, and technique of construction since his kinsmen and other villagers are to collaborate with him to develop the house according to the laid-down practice. However, as Olaseni (2004) observes, the communal self-help by direct labour is no longer assured.

There are different methods of financing rural housing (Onibokun, 1987; Agbola, 1988; Olujimi, 2000; Egunjobi, 1989; NISER and Unife, 1982; Olaseni, 2004). They are:

- (i) Personal savings
- (ii) By kind
- (iii) Loans (interest free) from friends and relatives
- (iv) Loans (with interest) from money lenders
- (v) Funds/materials from thrift society (housing cooperatives).

(i) Personal Savings

This is the most wide-spread of all the sources of finance for rural housing. The intending house-owner saves a reasonable proportion of his personal income from all sources (through a process of *ajo*) and utilizes it to procure or assemble materials needed for his proposed building. NISER and Unife (1982) report that 78% of villagers in nine Southern States of Nigeria constructed their houses from their personal resources. It may take between one to three years' savings depending on the

level of productivity of the main (e.g. size of farm and the yields) on the one hand, and his financial prudence/discipline on the other. In Ibule-Soro village, Olujimi (2000) report that savings were accumulated between 5 to 10 years by the villagers to build the houses they inherited from their deceased parents. However, a fund from this source is hardly sufficient to cover the entire expenses and other sources are often tapped to augment the personal savings.

(ii) By Kind

This is another very popular traditional method of rural housing finance. Here, the labour and services of friends, relatives and co-villagers or neighbours are sought by the house owner and are willingly and enthusiastically offered as well by the people themselves. These voluntary helpers participate very actively in all the stages of the construction process from land clearing to floor smothering. The sweat labour, building skill and building materials (thatch, forest' woods, straw, vegetal matters, clay) that are contributed/donated by kinsmen, friends and neighbours cover a significant proportion of the overall cost (up to between 70 and 80 per cent) of the house. The house-owner being assisted supplies enough food and local drinks for the workers at the construction site for as long as the work lasts. It needs be stressed, however, that the mutual help or assistance (*owe* in Yoruba or *uyay* in Huancayo, Peru) rendered is reciprocal in principle and implementation in which case the man being assisted is expected to, as a strict rule, willingly assist others in the construction of their own houses anytime in future.

(iii) Loans from Friends and Relatives

The mutual labour contributed by friends and relatives is described by Monzon (1990:189) as "loan". When the personal savings made by a prospective house owner plus materials and

labour contributions from relatives and friends are inadequate to cover the anticipated cost of the proposed house, the developer often resorts to borrowing money and/or materials from friends and relatives. Such financial and/or material loans are "interest-free" (NISER and Unife, 1982) and are often redeemed through a system of collective reciprocity and/or exchange. They are also non-collaterised. Olujimi (2000) reports that 10% of the people in Ibule-Soro village borrowed from friends and relation towards the construction of their buildings. 10.0 and 2.1 per cents of the loans were provided by relatives and friends respectively in the studies reported by NISER and Unife (1982).

(iv) Loans from Money Lenders

Loans may be secured from money lenders operating in the locality. A house developer may resort to this source when unable to obtain loans from kinsmen and friends. Loans from this source are usually with interest which rate is "usually very high ... as a result of the absence of formal financial houses in the rural areas" (Onibokun, 1987). Collaterals range from the family or neighbourhood head serving as a guarantor to a portion of borrower's farm pledged in case of a default.

(v) Co-operative Thrift Societies

Cooperative housing is "a form of home ownership in which the resident and his neighbours own their property jointly. It differs from public housing in that the overall policies of the projects are controlled and determined by its members" (Liblit, 1964) quoted in Awotona, 1988).

In rural areas thrift societies constitute a veritable source of financing rural housing. Agbola (1988) informs us that the *Esusu* of the Yorubas, the *Isusu* of the Igbos and the *Adastre* of the Hausas represent the collaborative phenomena where co-operative society members contribute money, collect proceeds

in rotational forms and use for house building. The cooperative societies provide short-term cash loans or materials to their members to finance their housing projects. Loans or materials are given at comfortable rates and on comfortable terms decided by all the members of the society. In a number of cases, members of a rural cooperative society are well acquainted with one another to the extent that they participate in the construction process which in itself is a way of monitoring the utilization of loans offered a member. 86 per cent of house owners in Ibule-Soro village, Ondo State, financed their houses through their contributions in their community-based thrift societies (Olujimi, 2000).

Agbola (1988) observes that the most pressing of the rural housing problems are finance and the procurement of building materials. He opines that the formation and organisation of rural cooperative societies would solve the problems.

Some of the roles that rural cooperatives should play in rural housing development include:

- (a) creation of access to credit facilities for members to executive housing projects;
- (b) undertaking bulk purchase of building materials for members' use;
- (c) offering technical advice in the areas of land purchase, site and building plan preparation and approval;
- (d) pooling together physical and material resources towards housing construction for members;
- (e) attracting infrastructural facilities/services from public and private sectors including development partners) into the rural areas particularly the members' housing estates, and
- (f) organizing regular maintenance of members' houses in rotation by utilizing the skills of members.

The self-help concept as applied to housing has its beauty in its ability to mobilize individual and group resources (material, financial, sweat labour, time, experience and skill) in housing development. Some of its merits are captured by Dietz *et al* (1965) in the following words:

The self help method reduces money costs because people work with their own hands instead of paying others to work for them. Moreover, people largely use otherwise unproductive time for such work [as is the case in rural north and West of Nigeria in the dry season when house construction take place mostly]. Since the worker uses his spare time for this purpose, total output of the economy is expanded and this output is capitalised at once in the form of an increment to the housing stock. (Dietz et al, 1965 quoted in Awotona, 1988:140)

Sule (1976) notes that a number of studies indicate that the cooperative builds good quality housing that are superior to public housing and also provides affordable, less expensive houses compared with either the public or the private sector built housing units. He goes further to justify the use of cooperative approach as a housing development option in Nigeria in view of the following: (a) the limitations imposed by huge overhead building construction costs (b) the small median family income (c) small per capita income and (d) the technological needs of housing development. He goes further to identify four types of cooperative housing system (i) the consumer sponsored (ii) the builder sponsored (iii) the membership sponsored, and (iv) the investor sponsored (Sule, 1976).

(vi) Institutionalized Sources

Onibokun (1987) observes that institutionalized sources are also made use of by the rural dwellers for housing finance. These sources include Banks, Insurance/Finance Companies, Central/Local Government Housing Loan Scheme/Boards,

Building Societies/Mortgage Bank, and Cooperative Societies. However, in most rural areas even up till the present (2007), the "average rural folks do not benefit from these loan sources" (NISER and Unife, 1982). The rural banks established in 1979 in each of the 19 states of Nigeria under the Rural Banking Programme hardly benefited the ruralites not the least in the area of housing development.

10.1 Towards Guideline on Rural Housing Finance

With the gradual infiltration of rural areas through the urbanization of peri-urban settlements, rural housing process is becoming commercialized as each stage is getting subtly specialized. The communal self-help scheme is being gradually 'watered down' as some of those things that could be obtained for free may now have to be paid for. As Agbola (1988) rightly observes, contemporary house building process in rural Nigeria is gradually losing the cooperative or communal method of housing production "as a result of the increasing monetization of the economy".

In view of this situation, it has become necessary to formulate some guidelines on rural housing finance to enable the rural dwellers build new houses and improve the existing ones. NISER and Unife (1982) suggests the following policy guidelines:

- identify the problems and difficulties currently faced by the rural people;
- find out the forms of assistance the ruralites have obtained in the past;
- know the form of assistance the rural dwellers require at present;
- find out the types of accommodation the rural people will prefer;

- find out if the rural dwellers will be prepared to make down-payment and what kind of repayment arrangement is preferred;
- identify the kind of rehabilitation works needed on some existing fairly good houses, and
- find out their membership of thrift societies.

11.0 CONCLUSION

Folk cultures rarely leave behind much in the way of written records (Jordan *et al*, 1994). This is a pertinent observation which requires the concerted efforts of researchers in housing, settlement planning, architecture, anthropology, rural geography and indigenous knowledge system to document the material and the non-material aspects of rural housing in all its ramifications, not only for posterity but the benefit of the present generation and, especially the teeming population of the Nigerian poor who can not, by all known standards or criteria, afford or have access to 'modern' houses, yet desire a house that meets individual taste, aspiration and affordability level.

The traditional materials and rural building technology are seriously threatened, vastly becoming disused or discarded not so much for their 'inflexibility' or 'primitiveness', but for the influence of westernization compounded by the ever-increasing political, economic and social pressures. The high level of poverty (rural food poverty in 1999 was 34.1% as against the 21.7% urban food poverty (UNFPA 2005)) and low purchasing power of the Nigerian rural poor may slow down the pace, however, at least for another two to three decades, such that the affordable rural houses (though improved with basic facilities — kitchen, bathroom, toilet and wells) can be built and used by those who cannot afford higher-grade houses.

It is necessary to stress here the need to allow the rural people have maximum input in the choice of house design and composition in particular, and the selection of materials to be used to construct their buildings. Even where a public authority, private sector organization or philanthropist or a development partner is providing the house **gratis** to a rural people, the end-users must be fully mobilized for their involvement, support and consent. The case of the 4,320 new and fairly modern houses built by the Niger Dam Authority for the 44,000 people formerly living in the 205 rural settlements affected by the construction of Kainji Dam in Nigeria is instructive. The settlers were not involved in the design of the new houses and thereby substantially modified the houses to their tastes by "replacing big windows made of transparent louvres with small wooden windows" (Negedu, 1973 quoted by Olujimi, 2000). The reason for the settlers' action is simple: louvre/glass window was not only totally alien to them, they did not possess the financial capacity to sustain the use of the 'fragile' windows which may take ages to replace if broken.

Without appearing as a 'prophet of doom' or sound pessimistic, any housing programme targeted at the ruralities that will not recognize indigenous building practices or allow them freehand or input in the design, choice of materials, construction team/technique and procedure, method of finance, and completion time among others, may be very hard to sell or promote.

References

- Abiodun, J.O. (1976). "Housing Problems in Nigerian Cities". *Town Planning Review*, Vol. 47, No. 4.
- Adebayo-Onisile, S.A., Fetuga, I.A.O., Adenuga, A.A., Ahmed, D.K., Abegunde, M.B., Ogunnubi, A.M. (2006). "Rural Housing Projects: A Case Study of Shoko Village, Badagry Local Government Area of Lagos State" Term Paper (unpublished)

- submitted to the Department of Urban and Regional Planning, University of Ibadan, Ibadan (16 pages).
- Adeniyi, E.O. (1972). "Housing in Nigeria National Development". *Nigerian Journal of Social and Economic Studies*, Vol. Xiv, No. 3, pp. 25-30.
- Adesina, K., Ayeni, A., Ilesanmi, A.S., Adetunji, A., Olaoye, K., Babaranti, E.A., Akinmoladun, A., and Akintola, O. (2006). "Prospects and Problems of Local Building Materials in Nigeria." Term Paper (unpublished) submitted to the Department of Urban and Regional Planning, University of Ibadan, Ibadan (22 pages).
- Agbola, Tunde (1986). "Institutional Constraints on Housing Development in Urban Areas of Nigeria: The case of Land Use Decree and the Building Plan Approval Process". *Habitat International*, 11(22): 113-120.
- Agbola, Tunde (1988). "The Housing Construction Process in Nigeria". *CITIES*, May, pp. 184-192.
- Agbola, Tunde (1988). "Cooperative and Community Participation in Rural Housing Provision". Paper presented at the Workshop on Rural Housing and Integrated Rural Development organized by the Directorate of Food, Roads and Rural Infrastructures, held at Concord Hotel, Owerri, April 12-14.
- Agbola, Tunde and Olatubara, C.O. (1989). "Housing Subsidy, Mortgage Default and Housing Replicability in Nigeria: A Case Study of Public Housing Delivery System." *African Urban Quarterly*, 4 (1 and 2): 90-97.
- Agbola, Tunde (1991). "The Mobilization of Finance and Credit for Rural Housing Improvement and Development in Nigeria". *Journal of International Development*, 3 (5): 515-529.
- Agbola, Tunde (1998). *The Housing of Nigerians: A Review of Policy Development and Implementation in the Housing Sector*. Research Report 14, Ibadan: Development Policy Centre.
- Ahmadu Bello University (1982). *Rural Housing in Northern Nigeria*. Zaria: Ahmadu Bello University.
- Akinbamijo, O.B. (2000). "Housing Finance and Construction in Rural Nigeria: An Agricultural Produce-Marketing Proposal", In Akinbamijo, O.B., A.S. Fawehinmi, D.R. Ogunseni and A. Olotuah (eds.), *Effective Housing in the 21st Century Nigeria*.

- Akure: The Environment Forum, Federal University of Technology, pp. 151-156.
- Altman, I. and Chemers, M.M. (1980). *Culture and Environment*. Cambridge: Cambridge University Press.
- Awotona, Adenrele (1988). "Housing: The Key to the Evolution of Appropriate Community Development in Nigeria". In Nweze, A. (ed.) *Perspectives on Community and Rural Development in Nigeria*. Jos: Centre for Development Studies, University of Jos, pp. 135-146.
- Babajide, E.O., Ajayi, B.O., Adeboye, F.A., Adeosun, J.O., Kafidipe, T.M., Okedare, D.K.O., and Oteniara, W.O. (2006). "An Appraisal of Rural Housing Design and Construction Team: The Present and Future Challenges". Term paper (unpublished) submitted to the Department of Urban and Regional Planning, University of Ibadan (51 pages).
- Bello, T.K., Oyebanjo, O.O. Oyedele, A.J., Ogundare, O.K., Ojo, A.A., Sangodoyin, L.O., Dosumu, G., Olawale, S.B. (2006). "The Future of Mud Houses in Rural and Peri-Urban Areas". Term paper (unpublished) submitted to the Department of Urban and Regional Planning, University of Ibadan, Ibadan (31 pages).
- Best, R.H. and Coppock, J.T. (1962). *The Changing Use of Land in Britain*, London.
- Beyer, H. Glenn (1967). *Housing and Society*. New York: Macmillan.
- Cloke, Paul J. (1985). "Whiter Rural Studies". *Journal of Rural Studies*, Vol. 1, No. 1, pp. 1-9.
- Crooke, P. (1966). "Sample Survey of Yoruba Rural Buildings". *ODU*, Vol. 2, No. 2, pp. 44-71.
- de Blij, H.J. (1993). *Human Geography: Culture, Society and Space*. New York: John Wiley & Sons Inc.
- Deffontaines, P. (1958). *Geographie et Religions*. Paris: Librairie Gallimard.
- Denyer, Susan (1978). *African Traditional Architecture*. New York: Africana Publishing Co.
- Dietz, A, Koth, M.N., and Silva, J.A. (1965). *Housing in Latin America*, MIT Report No. 1, Massachusetts.
- Dmochowski, Z.R. (1990). *An Introduction to Nigerian Architecture, Vol. Two: South-West and Central Nigeria*. Lagos: National Commission for Museums and Monuments.

- Eaton, Ruth (1982). *Down to Earth*. London: Thames and Hudson.
- Egunjobi, Layi (1980). "House Improvement: Neglected Area of the Nigerian Housing Policy". *Proceedings of the Third International Conference on Housing*, Kaduna, August 10-24.
- Egunjobi, Layi (1986). "Development in Rural Nigeria: Regional Planning as a Basic Condition". Paper presented at the Conference on Rural Productivity and Quality of life in a depressed economy held at University of Ife, Ile-Ife.
- Egunjobi, Layi (1989). "Promotion of Rural Environmental Sanitation through Financial Intermediaries". *Health Promotion Journal*, Vol. 13, No. 4, pp. 341-346.
- Egunjobi, Layi (1998). "The Links Between Housing and Health". In Amole, B. (ed.), *Habitat Studies in Nigeria*. Ibadan: Shaneson C.I. Ltd, pp. 92-102.
- Fathy, Hassan (1973). *Architecture for the Poor*. Chicago: The University Press.
- Federal Republic of Nigeria (1991). *National Housing Policy*. Lagos: Federal Ministry of Works and Housing.
- Federal Republic of Nigeria (2005). *Nigeria Millennium Development Goals 2005 Report*. Abuja: The National Planning Commission.
- Federal Republic of Nigeria (2006). *National housing Policy*. Abuja: Federal Ministry of Housing and Urban Development.
- Flora, C.B., Flora, J.L. Spears, J.D., Swanson, L.E., Lapping, M.B. and Weinberg, M.L. (1992). *Rural Communities, Legacy and Change*. Builder: Westview Press.
- George, C.K. (2006). *Basic Principles and Methods of Urban and Regional Planning*. Lagos: Libro-Gem Books.
- Hornby, A.S. and Cowie, A.P. (1974). *Oxford Advanced Learner's Dictionary of Current English*. Oxford: Oxford University Press.
- Howard, Ebenezer (1965). *Garden Cities of To-Morrow*. London: Faber and Faber.
- Hull, R.W. (1976). *African Cities and Towns before the European Conquest*. New York: W.W. Norton and Co.
- Jinadu, A.M. (2004). *Understanding the Basics of Housing*. Minna: King James Publishers.
- Jordan, T.G., Domosh, M. and Rowntree, L. (1994). *The Human Mosaic: A Thematic Introduction to Geography*. New York: Harper Collins College Publishers.

- Khan, M.A. (1996). "Catching a Passing Moment: The Redeployment of Tradition". *Traditional Dwellings and Settlement Review*, 7, No. 2, pp. 43-62.
- Lagopoulos, A-Ph (1972). "Semiological Analysis of the Traditional African Settlement". *Ekistics*, 195, pp.142-148.
- Liblit, Jerome (1964). *Housing: The Cooperative Way*. Wayne Publishers Inc.
- Lozano, E.E. (1990). *Community Design and the Culture of Cities*. Cambridge: Cambridge University Press.
- Mills-Tetty, R. (1989). "A Sample Survey of Rural Housing in Southern Nigeria". *Third World Planning Review*, Vol. 11(1), pp. 23-47.
- Negedu, A.A. (1973). "The Administrative Problems of Resettlement in the Kainji Lake Basin". In Mabogunje, A.L. (ed.); *Kainji: A Nigerian Man-Made Lake*. Ibadan: NISER, pp. 19-34.
- Nigerian Institute of Social and Economic Research (NISER) and University of Ife (1982). "Rural Housing in the Southern States of Nigeria". *Final Research Report* prepared for Federal Ministry of Housing and Environment, Lagos.
- Obayiuwana, F.O.S. (1988). "Rural Housing Methodology: A Case Study of Iran". Paper presented at a National Workshop organized by the Directorate of Food, Roads and Rural Infrastructures held at Concord Hotel, Owerri, 12-15 April.
- Ogunjumo, A. and Salami, A.T. (1990). Toward an Understanding of Urban and Rural Dichotomy in Nigeria. *Ife Social Science Review*, Vol. II, No. 1 and 2, pp. 16-26.
- Olaseni, A.M. (2004). *Rural Development Planning in Nigeria*. Lagos: Concept Publications Ltd.
- Olatubara, C.O. and Agbola, S.B. (1992). "Cost Recovery in Nigeria Public Housing". *Habitat International*, 16(1): 83-94.
- Olatunbosun, Dupe (1975). *Nigeria's Neglected Rural Majority*. Ibadan: Oxford University Press.
- Olujimi, J.A.B. (2000). "Anatomy of Rural Housing: A Case Study of Ibule-Soro, Ondo State, Nigeria". In Akunbamijo, O.B., A.S. Fawehinmi, D.R. Ogunseni, and A. Olotuah (eds.), *Effective Housing in the 21st Century Nigeria*, pp. 134-144. Akure: The Environment Forum, Federal University of Technology.

- Onibokun, A. (1976): "The Challenge of Housing Low Income People in Nigeria". *Journal of the Institute of Housing Management*, pp. 1-5.
- Onibokun, Poju (1985). *Housing in Nigeria: A Book of Readings*. Ibadan: NISER.
- Onibokun, Poju (1987). "Rural Housing in Nigeria". Paper presented at a Workshop on Physical Planning and Rural Infrastructure Development held at the University of Ibadan, Ibadan. June 22-26.
- Onibokun, Poju (ed.) (1990). *Urban Housing in Nigeria*. Ibadan: NISER.
- Onibokun, Poju and Agbola, T. (1990). "Urban Housing Problems: Implications for the Construction Industry in Nigeria". In Onibokun, Poju (ed.), *Urban Housing in Nigeria*. Ibadan: NISER, pp. 361-391.
- Rapoport, A. (1969). *House Form and Culture*. New York: Prentice Hall.
- Sokomba, M.J. (1987). "Low Income/Rural Housing". An invited Lead Discussion Paper at the Experts' Workshop on the New National Housing Policy for Nigeria, organized by NISER, Ibadan, 3rd September.
- Sule, R.A. (1976). "Urban Housing Development in Southwestern Nigeria: Policy and Administration". Unpublished Ph.D Dissertation, Claremont Graduate School, USA.
- Sule, R.A. (1982). *Urban Planning and Housing in Nigeria*. New York: Vantage Press.
- Sulyman, T.A. (2000). *Introduction to Housing: Basic Concepts and Applications*. Ilorin: OLAD Publications.
- UNCHS (Habitat) (1996). *An Urbanizing World: Global Report on Human Settlements*. Oxford: Oxford University Press.
- United Nations Population Fund (UNFPA) (2005). *State of Nigerian Population 2005*. Abuja: UNFPA.
- Uwaegbulam, Chinedu (1999). "Indigenous Technology Crusaders Build Dome, Intensify Mud Architecture". *The Guardian*, Monday, February 8, pp. 29-30.
- Wahab, Bolanle (1996). "Indigenous Knowledge Systems and the Human Settlements: Towards Integration into Education Curriculum". In Warren, D.M., Layi Egunjobi and Bolanle Wahab (eds.), *Indigenous Knowledge in Education*. Ibadan:

- University of Ibadan, Indigenous Knowledge Study Group, pp. 63-77.
- Wahab, W.B. (1997). "The Traditional Compound and Sustainable Housing in Yorubaland, Nigeria: A Case Study of Iseyin". Unpublished Ph.D Thesis submitted to Heriot-Watt University, Edinburgh.
- Wiltgen, B. and Wahab, B. (1997). "The Influence of Alaafia on the Design and Development of Yoruba Housing: A Case Study of Ibadan and Iseyin". In Warren, D. M. Layi Egunjobi and Bolanle Wahab (eds.), *Studies of the Yoruba Therapeutic System in Nigeria*. Ames: Technology and Social Change Program, Iowa State University Research Foundation, pp. 98-116.
- Yinusa, M.L. (1985). "Rural Housing in Nigeria: Concept Problems and Functional Approach". *JNITP*, Vols. IV & V, October, pp. 52-71.

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