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MAKING OF BATAMMARIBA **TRADITIONAL ARCHITECTURE**

Abstract

The desire to revitalise indigenous architecture and the built environment through socio-cultural, political and bio-physical relevance has created a strong need for the understanding of cultures and traditional built environments, especially in the developing countries.

The methodology used in this paper emanates from the perspective of social anthropology. It includes informal interviews with local informants, participatory observation and reading, and interpreting written documentation of the Batammariba people and their indigenous knowledge systems. Information regarding prevailing technical know-how is obtained through investigations into readily observable facts and a comparative analysis of structure, context and style. It emphasises the importance of process rituals, building processes and technology, and an analysis of architecture in the context of both everyday use and special events.

1.0 Introduction

This paper aims to fill the gap in understanding indigenous knowledge in relation to the production and maintenance of traditional architecture and settlements. This can be achieved by examining how such knowledge is depicted and communicated by the traditional master builder in the absence of written language; as well as exploring the forms, quantities and measurements, structural processes, thermal control and waterproofing systems used by

the builders, and ecological resource management.

1.1 Traditional technologies and alternative materials in Batammariba architecture

There are many wonderful building styles and technologies worldwide that can inform designers and builders through their shape, materials, arrangements, decorations, etc. Some of the most wonderful indigenous building forms originated on the African continent. African design sense is often more than pretty; it has a social meaning that can be read by those who understand its symbolic meaning and subliminal cosmological and other cultural characteristics.

A wide range of alternative/appropriate/natural building technologies is available. This section of the paper covers the most well-known materials and technologies relevant to Batammaribaland. While materials do not necessarily determine the form and content of architecture, it is obvious that the form of any art is conditioned, to a greater or lesser degree, by the medium through which it is expressed.

Culture, tradition and innovation, as well as the craftsman's response to his material of expression have to blend harmoniously before great architecture can result. A European journalist visiting Boukoumbe at the beginning of this century, just after the French had completed their occupation of Northern Benin, made a perceptive remark about the use of natural materials by Batammariba builders: "There is a right and wrong method of doing most things and Boukoumbe people know the correct method of building with natural materials".

1.1.1 Earth materials

Earth has been used in building construction for thousands of years and is still used today. It is estimated that more than one-third of the Earth's people live in earthen structures (Eisenberg, 2002). Earth is composed of stones, gravel, sand, silt and clay, in decreasing order of particle size. Although earth is widely available, versatile and highly workable, it is not as strong as other materials, especially in tension, and must be protected from water and earthquakes (Kennedy, 2002).

- **Clay**

Clay is an essential ingredient in any earthen building system. Cracks in the ground are usually a sign of soil with high clay content. Some types of clay shrink considerably as they dry, making it essential to add sufficient amounts of sand or fibre to prevent cracking (Kennedy, 2002).

- **Gravel**

It is useful for filling drainage trenches and rubble ditch foundations, as it is strong in compression and allows water to flow through. This type of foundation prevents water from reaching natural materials such as adobe or straw bales, which can easily be damaged by moisture (Kennedy, 2002).

- **Sand**

Sand is smaller than gravel. It is an essential ingredient (mixed with clay and/or other fibres in a variety of proportions) in cob, adobe, plaster, rammed earth, etc. Angular sand is best for most purposes but is often created by destructive mining practices. Well-graded (a variety of different grains) sand is the best for building purposes. Rounded sand found in streams or riverbeds is not as strong, but can be used and in some cases may even be preferred – for example for plaster (Kennedy, 2002).

- **Mud ball (*tabodi*)**

The basic building element, the mud-shaped, moulded *tabodi* is the primary unit for most construction work in Batammariba architecture. This important element goes by several names such as, *dibbo* and *kentege*. Another technique of wall construction still popular in the rural areas is what Prussin (1986) terms, "pottery techniques". This technique employs a wet mud *tabodi* with prior moulding.

The builder's term for this method is *butiesimmu*, literally, "building-by-squeezing" which paints a vivid picture of what happens. It is a pottery technique par excellence. It is possible to achieve wall thickness of only three or four centimetres using this technique. The granary *dibbo* resulting from this method of construction often has a bell-roof section, which is enclosed in a thatch of grass as protection against the heat of the sun and rain. However, the interior has a smooth clean shell ceiling, with a high reflectivity.

Of paramount importance to the builder are the correct sizes and shapes for his *tabodi*. To the untrained eye, all *tabodis* look alike, a conical or egg-shaped lump of mud. For the builder, the *tabodi* has a face, the more flattened face that looks towards him as he lays his courses; a back, the roundish hunch that faces away from him; a bottom, the flat base of the cone; and a head, the apex of the cone. These features guide him in aligning the *tabodi* as he builds.

A *tabodi* that is too squat would require more daily courses to achieve the desired height of wall, while a *tabodi* that is too slender will adversely affect the thickness of his wall, unless he decides to compensate by increasing the number of *tabodi* in a row. For example, he could use four *tabodis* where he would normally employ three. With these stringent specifications from the *otammali* it is therefore not surprising that *tabodi* making has grown into a speciality in its own right. Warengo's builders spoke of a *tabodi* maker at Natta who is so agile

when he moulds his *tabodi* and who produces such a perfect finished product that when he is employed to work on a site he is paid the same amount of money *per diem* as the top master *otammalimwas*.

1.2 Thermal control / heat exchange in batammariba architecture

Shelter from the climate is usually regarded as an important function of a building. Batammariba buildings are designed to control the climate so that the interiors are dry and occupants remain comfortable during periods of intense heat or cold, when humidity is high and during the rainy season. This conceptualises a building as a filter between the external and internal environments, mitigating the harsher features of the climate to ensure the comfort of its users.

This view of the *tata* as a climatic filter may be extended to include large areas of the built environment, so that building groups may be analysed in terms of the shelter provided for outdoor activities. At a simplistic level, traditional Batammariba architecture conforms to this generalised model: buildings for man's use are designed so that the interiors are dry and comfortable. Externally, buildings, walls and trees are arranged to provide areas of shade in hot dry periods, while maintaining ample space for breezes to circulate during the hot humid times of the year.

The idea that a building is designed to control climate has to be modified to take account of the psychological interpretations of climate, the level of understanding of the problem and the cultural preferences of the group using and constructing the building. Although there is evidence that man has adapted physiologically and psychologically to some environmental conditions, he generally attempts to change the environment to meet cultural and physiological needs.

For example, in Batammaribaland during the cool evenings of the Harmattan when a European, not yet acclimatised, is comfortable, local people require a fire for warmth: a common feature of homes in this part of the world is a mud bed built like an oven over a hearth. Design for comfort in the context of traditional architectural forms should not be confused with the overt application of scientific methods to the problems of building design in order to achieve prescribed internal environmental conditions. The phrase “designed for comfort”, in the sense that it is used here, refers to the builder's skill in using tried and trusted traditional forms of structure, developed over many generations for a particular group of people.

This is true of Batammariba culture; therefore, climatic control should be viewed as an essential part of the architectural programme imposed upon the Batammariba builder by his society. How far society is willing to pursue the goal of environmental comfort depends on its priorities, which in turn depend upon cultural norms. For example, the two-storey entrance hut with its mud roof is probably the form of architecture most suited to the hot dry conditions on the margins of the desert, yet it became a common feature throughout Batammaribaland. It penetrated the more humid outlying regions to the south and was a status symbol for families. The Batammariba have developed a built form which has by and large mitigated the effects of local climatic conditions.

With the possible exceptions of nomadic herdsmen and agriculturalists who practise shifting cultivation, all societies attempt to build as permanent structures as levels of technology permit. In this sense, the Batammariba are no different from any other settled society. Traditional Batammariba buildings however, are constructed from the all-pervasive and

readily available laterite, a material quickly eroded in this area where heavy rain falls during the wet season. Permanent shelter built using this material requires the invention and use of a range of waterproof finishes. Prolonging the life of a building made from laterite depends on constant maintenance.

The annual chore of wholesale re-plastering means that building profiles are in a constant state of flux. The ever-changing outline of the Batammariba building takes the 'line of least resistance'; battered walls curve sinuously in two planes, roof lines sweep upwards into pinnacles and roof water is channelled down deep vertical grooves.

The resulting form has some of the quality and appearance of the natural shapes used by those other great mud builders, the termites, whose mounds compete with man's structures in this landscape. Mud-earth is a good thermal mass material, holding heat and cooling well. However, it has very low insulation value. Therefore, walls made of mud-earth need some means of insulation to maintain comfort in the building.

1.3 Batammariba cultural attitudes toward land resources

Among the Batammariba, land which is called Impurima is more than a physical entity or a source of economic subsistence. It has an essence. It contains the earth force embodied in the earth goddess called Butan who is widely regarded as the principle of fruitfulness and continuity. Thus land, whether it refers to family/compound or communal land or simply waste land is encrusted with rituals.

For example, compound land is associated with rituals of the cult of the family known as mueotie. These rituals are performed, for

example, when a man plans to build a house. They ensure the prosperity of the family domain well as the well-being of its members. Village land has a cult which is known as Babwotwota otanti among the Somba Batammariba; the corporateness of the lineage is shown in the common ownership of the clay mound of fertility known as Koubalakonkou. Land is thus the mainspring of life.

If land ritually denotes life, the only appropriate condition for good health and the prosperity of the individual, his family and the village is the preservation of the holiness of the earth force. Batammariba social behaviour is accordingly structured around the principle that if one offends the land through abomination, there is a decline in the quality of the earth force available to man, which is observable as a decline in human economic, social and psychological well-being. Consequently, a system of taboos guides not only inter-personal and group behaviour but also agricultural activities. Rites of purification provide remedies for any failures to meet these social obligations.

The ritual and social collectivity of land among the Batammariba also means that land is an important link between the dead who are said to inhabit the spirit land, iwage, the living, bessodibe and the yet unborn, Dibo. This is another way of saying that although a man needs a piece of land where he can cultivate his farm and build a house, the land "ultimately belongs to the community and cannot be alienated from it." It therefore places on society the moral as well as social obligation to provide each member with land. The land which unites members of a society also provides a continuing link between dead members of a household, lineage or village and their living agnates. It also means that no member of the society should be without

land, for to own a piece of land is to validate membership of one's society.

- **Categories of ecological resources**

The Batammariba's classification of land is based on social and economic needs which range from those of individual members to those of the community. The nature of the needs is reflected in the grouping of land into three categories, subject to local variations, namely, common land, family land and farmland. Meek (1934) uses the term 'common land' to refer to "bad bush" and uncleared forest preserved for magico-religious reasons.

Henderson (1974) suggests that this bad bush may in some cases be an abandoned compound belonging to one of the earliest settlers in a village nucleus which has been over-grown by bush. Its abandonment may have resulted from death by small pox, the swelling disease or suicide (these are regarded as abominations). Hence the bush that overgrows this area is viewed as an evil forest where in the past, twins were abandoned and sacrifices dumped. Or it may simply be a thick forest dedicated to a deity. This common land referred to as "bad bush" constitutes a potent force because it is the medicinal fount for villages as well as diviners and medicine men.

- ❖ **Compound Land and Farmland**

The Batammariba make important ecological distinctions between two categories of land. These are compound land and communal farmland.

- **Compound Land**

This refers to land that belongs to an individual by which is meant the family head. Land-owning rights are thus vested in the nuclear family. In keeping with this form of patrilocal residence, the land that

belongs to a man passes on to his eldest son with each succession to family land and property ritualised in the sacred family symbol.

Thus a man's rights to his land are identifiable with his sacred symbol which socially regulates succession to land and property but also the administrative as well as the ritual headship of the elementary family. The exogamous unit which controls this land is the lineage. When succession to family/compound land ends as a result of recurrent deaths so that no male successors are left, the land reverts to the community.

Family/compound land provides space for residence. It is also permanently cultivated. A man's wife cultivates her crops here as well as vegetable gardens. Home-grown yams are cultivated in land plots around the precincts of the family compound. Economically valuable trees are found in abundance here. They include oil palm, kola, kapok (*Ceiba paenifandra*), breadfruit (*Treculia africana*), iroko (*Chrolophora excelsa*), and calabash (*Lagenaria vulgaris*). Only in a few cases, such as among the Otchaou Batammariba, is compound land not used for any type of intensive agricultural activity.

- **Farmland**

This refers to land jointly owned by the members of a community. It is physically separated by patches of woodland from compound land which forms the residential nucleus. While compound land which belongs to a village is oriented toward the village common, communal farmland is located near the outer limits of the group's territory. The major economic decisions of a village on the use of farmland relate to the swidden cycle. Based on a block system of farming, an area of farmland is selected each year, divided amongst members and cultivated. After harvest, it is left for a

period of say four years to lie fallow and regain its fertility, while other farmlands are subjected to the slash-and-burn cycle. This form of agricultural activity derives from the fact that the farmland is the major source of food for the community.

However, the continuous extensive cultivation of farmland may reduce the fallow period to a minimum so that instead of allowing a period of four years, it is cultivated every two years. The consequence is the gradual deforestation of the original primary vegetation which is replaced by a secondary cover of grassland.

Karmon (1966) refers to this as "derived savannah", while Koffi (1997) notes the large villages or what he calls 'grassland towns' of the northern Batammariba may have resulted from this physiographical change. Varying patterns of land use in relation to changes in vegetation have considerable implications for Batammariba architectural planning. Batammariba social and religious attitudes to land are then carried over into architectural considerations.

1.4 Conclusion

This paper has shown that the works of Batammariba builders demonstrated structural stability, consistency in form, quantities and measurements, site layouts and resource choices in their traditional buildings and settlements. Furthermore, the study substantiated the coding and sharing of such know-how in the absence of a written knowledge system. It therefore demonstrated that there is an unlimited reservoir of aesthetic, technical and conceptual wisdom locked up in the minds of traditional builders in Africa.

Finally, the paper stresses that a traditional architecture and its potential to develop appropriate architecture specifically for the

African continent is a very promising and open field. It can prove useful in furthering both the theory of harmonics in African architectural processes and the development of culture in African modern design.

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