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RESEARCH ARTICLE

SUSTAINABILITY AND SEMIOTICS IN TRANSCENDENT IN SELECTED CULTURAL SPACES AND BUILT-FORMS OF SOUTHWEST NIGERIA

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Abstract

Sustainability is central to all human endeavours including architecture as a built environment and cultural discipline. A case study on semiotics and meaning of built-forms and spaces partly used Yoruba language built-form lexicons for identification, sometimes proper appreciation and interpretation based on the study area's Mutual Contextual Beliefs for transcendent relevance. Semiotics; a language of sign and symbols was used to interpret built-forms in the study area to see if their symbolic characteristics were environmentally responsive, energy, efficient, socially inclusive and economically affordable to be sustainable architecture. This paper aimed to show how some of the study area's cultural built-forms and practices, have transcended past usage into a continued present-day application. These sustainable cultural qualities, of these built-forms and spaces, were discovered in few currently relevant spaces like the impluvium courtyard, the forecourt/balcony and roof-loft etcetera. Semiotic theoretical frameworks theories of Saussure and Pierce, like the semiotic triangle; Eco's, denotation and connotation theories, iconic, lexical and symbolic semiotic classifications were deployed. It was found and concluded that some cultural built-forms and spaces were sustainable and fit for contemporary application.

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Introduction:-

Architecture is about spaces and making forms in a world that might have possibly been a single landmass in the past, the credence to this, is the similarity in some things, found in parts of Africa and Brazil. Form-making is as old as creation and if good must be able to remain functional or symbolic and meaningfully sustained through generations of end-users. Through the ages, civilizations had their architecture often based on cultural values and societal aspirations referred to by (Aremu, 2015), as Mutual Contextual Beliefs (MCB). Therefore most cradles of civilization and places of aboriginal gatherings and activities had monumental architecture. These people's activities included city building, writing systems creation, trials of pottery and metal making techniques, animal domestication and advanced classified, not necessarily iconic socio-religious structures. Examples of these antique civilizations were found in Mesopotamia, India, China, Iran, Central Andes and in Africa; Egypt, Nok, Ife, Ijebu, Benin, Ethiopia, Mali, Zimbabwe and others, some of them were oral-centred (Majekodunmi, 2017).

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The ancient Mesopotamia (Iraq) had the utopian tower of Babylon, Ziggurats and raised platforms of the Ubaid and the early dynastic periods as its built-forms apart from the pre-historic post-Stone Age walled cities. Ancient Egypt's huge geometric temples and tombs often had hieroglyphic decorations, relief paintings, columns and capitals, adopted by subsequent Greek civilizations who built temples proportionally to please gods, in three main orders of; The Doric, Ionic and Corinthian respectively. From the Greek order about the 1st century AD, came forms like arches, vaults and domes, used in building interior, with exterior columns to decorate in ancient Roman, Pantheon, the Coliseum (Flavian Amphitheatre), timber frames with wattle and daub walls, used for smaller buildings.

Later, Byzantine Architecture had its often octagonal but more exemplified by square bay's nave with dome roofs as in Istanbul's Hagia Sophia ((Majekodunmi, 2017; Adewale, Siyanbola and Olayemi, 2015). Architecture became what Majekodunmi (2017), called the cradle of the civilizations in southwest/South Asia, North/Central Africa, Central America and Europe after the Stone Age. Monuments and walled cities emerged from un-walled villages of Mesopotamia to Egypt, Indus valley and the central Andes. Many prehistoric architectural characteristics were found in North Africa and Europe ranging from pit houses, tents and longhouses to individual huts like that of Romulus the founder of Rome which was built of mud, reeds and sticks. This, typical of many other of such were often restored with more enduring materials in their original forms to maintain their symbolism (Siwicki, 2012; Lewcock, 2012).

However, most meaningfully related to the hepatic cultural built-forms of the study area were the institutional Greek orders and houses built around open courtyards evolving from previous two archetypes examples of the Hellenistic times Greek house of Delos. From the typical singular huts came the typical Roman urban villas. Correspondingly, African history including its architecture has a triple heritage culture according to Elleh (1996). The Indigenous Heritage (Traditional) Architecture modestly dated between the 7th and 12th C. (A.D) in time-line, consisting, built-forms, before or relatively devoid of Islamic or western culture-contacts and influences with some faint traces to date. They were usually of indigenous heritage sources, folk forms and methods emphasising process which non-verbally expressed society's tradition as binding tissue overtime. As peculiar built-form(s) from local materials that meet study area's socio-cultural and climatic demands, these include potsherd pavements, moats and city walls like the Ijebu-Ode Sugbon Eredo, the Olumo rock war-time rooms (Ogunfolakan, 2019; Majekodunmi, 2017).

For this study, these strictly indigenous (traditional) built-forms were found more utopian than real. Traditional built-forms were made of reusable mud walls (some later cement plastered) with their natural stem supported, palm-fronds or ewe-gbodogi (a very wide local leave) roof covering (Rapoport 1969). These built-forms are hardly found physically in the case studies except as Oruwa, Odede or Oode (family lobby), small rooms and window, an interior burial mound, mud plinths and aja (roof lofts). Very few indigenous monuments were found in the study area where the shrines were built on purpose with low entrances for obeisance.

Literature Review:-

In the recent past, there had been rapid development in semiotics as an important subject with multi-disciplinary applications in philosophy, linguistics, psychology, transportation and information. Present contexts make sustainability come as direct or symbolic generational transcendent durability therefore semiotics which entails seeing architecture as being beyond the functions of built-forms but to also the symbolic and overall significance relevant. The ornamental qualities of a wall may for instance make it do more than sheltering, supporting, and enclosing. However, it is the consideration of function along with extrinsic meaning that makes semiotics practically relevant to the society. Semiotics is thus a basis of presenting and appreciating architecture that includes but is more comprehensive than using merely drawings.

Durable objects are those, able to maintain their characteristics over time and still be useful for longer periods and ability to meet required building project standards is the measure of their quality. Durability unlike sustainability in general terms is quantifiable as a measure of how much a material maintains its original requirement. If the material is highly durable it will require lower time and resources for its maintenance. Concrete structures are built for service provision over a limited period, usually with plans for scheduled maintenance, unlike with machines and equipment, the conception does not cater adequately maintenance except in specialised situations of according to Mora 2010 who quoted Radoniski 2009 in a specific situation of an oil rig construction for which calculation for progressive material deterioration had to be made. Mention also was made of exceptions of some bridge constructions in Poland.

It is necessary that for functional and aesthetic reasons, some work must be with inbuilt or intrinsic transcendent quality by designers and builders. Funerary, religious monuments, monoliths, mastabas, and pyramids the fact of our ancestors building for eternal use.

Most heritage built-forms were such that met the intended design purpose of function and transcendence. Some of such lasting heritages that were built of adobe bricks and cob include the 4th C. (B.C) Agar-Gufin the Middle –East, the wall of Horu in Idfu (Egypt). Other such lasting primitive concrete constructions include the Roman coliseum 2nd C. (A.D) and the 4th C. (A.D) Hagia Sophia Cathedral in Istanbul. Durability. Life-cycle and sustainability are related to phenomena associated with built-forms and materials. Transcendence necessarily comes, for works which through design, construction and use have their durability extended beyond a single human generation. For instance, the continued existence of ancient Roman terracotta roads (some beneath modern-day highways) enables efficient link with the Roman Empire.

Heritage works built by the Romans and older cultures such as roadways, aqueducts etcetera should be assessed as “transcendent structures”. This is because they possess durable aesthetic values having survived for more than a generation. This is relevant because the natural environment is impacted continually by urban infrastructural growth via the use of materials and consumption of raw materials and energy, especially in new works. Therefore transcendent built-forms which require minimal maintenance will impact or affect the environment less than new works given a less likelihood of release of obnoxious gases. Increasing population also requires larger and expensive infrastructure built to last. The mention of Lagos among the fastest growing cities of the world was of particular interest to ensure durable constructions. In the immediate future, urban growth and its infrastructure will continue to produce a maximum impact on the natural environment through the use of materials and energy. Progress in construction work, required concerted efforts for the sustainability paradigm, that demand increased durability for minimum negative environmental impact.

The use of Life Cycle Assessment (LCA), defined by ISO-EN-UNE-14.040 regulations as; consecutive and interrelated stages of a product system for the acquisition of raw materials or the generation of natural resources until its final elimination leads to minimizing negative environmental impact (Ezema, 2015). The environmental effect from the construction, the lifetime, considering the possible reuse, or recycling or recovering of materials or the place of preventive maintenance as against sporadic remedial actions involving repair, restoration or reconstruction aimed at deteriorations threatening the structure or its services. LCA studies must in its consideration of environmental impact, consider more than maintenance, even abandonment and demolition. Careful demolition ensures total or partial re-use. This leads to material management (reduction, re-use, recovery etcetera) in releasing materials that were part of the work as one of the main keys to sustainability.

Generally, Sustainable development in architecture and construction can only stand if placed on the triple bottom lines of environmental protection, social equity and economic growth, with the addition of culture as a fourth bottom line since it is a tree on which peoples’ identity is rooted. For a balanced economic and social system that enhances peoples’ living standards, there must be a conservation and maintenance-oriented method of resources exploitation (Adebamowo 2017, Edwards, 2010; Adeyemo 2010). The economic implication of long term exploitation of resources is a necessity to sustainably manage a business, through the use of natural resources in a renewable and not exhaustive mode as a way of ensuring overall sustainable development.

Sustainable development is a necessary paradigm shift to allow sustainable growth to avoid the resultant environmental depletion, pollution and deterioration from past careless exploitation of resources. Sustainable architecture and construction, either in terms of the building process built-form or space construction involve the use of materials, energy and land; it can then only be sustainable if the use is made in a renewable manner. It is important that both energy and materials are made renewable, to the extent of ensuring the recycling or use of construction waste as was the case with traditional potsherd pavement. The pavement was a product of waste from pottery and palm-oil industries, which might have been responsible for the increased durability of the original ones relative to recent attempts at its reproduction. The method of re-using wastes helps in reducing further production of wastes that are harmful to the environment, such as carbon-dioxide; whose global 7% emission the construction industry is responsible for. The deliberate use of waste has been seen to ensure durability. Examples are; the German use of world war-devastated cities’ rubbles for new buildings, as well as the use in the 1992 construction of the games village for the 1992 Olympics in Barcelona.

Revered fathers of modern semiotics or semiology (as interchangeably used) Saussure and Peirce sought to understand sign structure, looking at how the structure could facilitate a better understanding of how meaning was extracted from a sign. Our ability to read this purpose occurs much in the same way as a book is read and understood. The primary theories of Semiotics are monadic (one term) signs. Many theories emanated from them and by many other scholars with many terms with possible different combinations as possible sign structures. There is the dyadic sign (two terms) by Saussure and subsequent sign theories especially the triadic model (semiotic triangle) by Peirce, worked on by other semiotic experts. Morris theory divided semiotics into syntactic, semantics and pragmatics respectively.

Eco and other scholars posited on Denotation and Connotation such as the term house 'ile', its literal meaning and yet more deeply a home and the basis of an extended family system, other cultural value and world views, as well as built-form assign possibly being iconic, lexical or symbolic (Osasona, 2011, Rappoport, 1969) (Eco, 1979). However, semiotics is both a scientific study of meaning-making and a philosophical artificially and naturally constructed languages way to interpret messages. It was observed that the study area's local built-forms had meaningful design process culture, best understood by linguistic semiotic principles (rules of syntax). Many current views are that metaphor and symbolism are tools linking language to visual perception, thus concepts and meanings. These are therefore used to link earlier and lost indigenous source of the traditional architecture of the study areas for sustainability (Adeyemo, 2018, 2019; Lewcock, 2007).

Study Area

The southwest Nigerian geopolitical zone majorly oral-centred, Yoruba people have a symbolic, lexical semiotic, rich but endangered language with which they communicate meaning, the way they used built-form, lexically, like language to express and guide living style and culture (Aremu, 2013; Sheryl, 2011). A great link existed between 'words' and 'the house' in a way that could help the transcendence of forms that had been inadvertently or otherwise lost.

Methodology:-

The historical research has the cultural interior spaces and the layout of the built environment alluding to Lewcock's universal courtyard and generative concept that comes from within the architect's (Akole-Inu) proving architecture being long transcending in past Yoruba civilization was analysed. Yoruba 'common statements' assign significant cultural metaphors have linguistic symbolisms were used to show inherent meanings in cultural built forms (many no longer physically existing) as Mutual Contextual Beliefs (MCB), (Aremu, 2015; Boudier and Minh-Ha, 2011). For a comprehensive appreciation of the case studies beyond visual quality, the archaeological method (Saidi 2018) was adopted.

Generally, the qualitative methodological approach was adopted for all the objectives due to the nature of the research problem, questions; the philosophical and theoretical orientation. Data was generated through interviews, from people both individually and collectively. As an interpretive qualitative research, the study was done in natural settings to make sense and interpret the phenomena with emphasis on the meanings people attach to them including current perception and state of symbolism in the cultural architecture of Southwest Nigeria, which entailed the exploratory use of semiotic principles as a tool. Holscher (2014) semiotic overview of the art and architecture of ancient Greece and Rome expressed meanings on five different levels: factual meaning, conceptual meaning, explicit historical meaning of images, implicit historical meaning of images, and actualized meaning of images (Dare-Abel, Obaleye, Oyesode, and Adeyemo, 2019, Adejumo 2012). The study covered cultural built-form, spaces and practises within the 'African triple heritage' classification across the six-state of southwest Nigeria.

Finding and Discussion:-

The 'African triple heritage' classification of architecture gives a balanced holistic understanding of the reality of a dateline approach from the indigenous, the Islamic and the western heritage. From studies of cultural built-form, spaces and practises of the study area the relevant ones that belong to the indigenous heritage class stands out the potsherd pavement as a sustainable resource conservation art. Resources conservation is an effort at accomplishing more with less, substitution of rare material with the one very available, minimizing of material waste in the building process and at its best, re-use of waste materials. Besides, this can further be in the recycling and the use of passive energy design such as natural ventilation, landscaping by vegetation, use of water bodies for evaporation and cooling and proper building orientation.



Figure 1a and 1b:- Herringbone and straight Potsherd Pavement as found indifferent in the study.
Source: Author Field Survey, 2020

Space and Material:-

A model reuse and conservation were observed in the Yemoo Grove, Ile-Ife that was identified as a Yoruba traditional architectural built form. Potsherd pavement despite the fact of being broken pots wastes turned to wealth was used for the walkway presenting a strong decorative yet durable surface. They were laid in rhythmical tightly fixed together straight short pieces rows pattern, which with green growth intermingling with hard landscape elements as ideally allowed by design. The Yemoo grove potsherd remains well maintained a remarkable sight of waste to wealth material and art practise that allowed minimal use of new resources, they are found to have remained in use over one thousand years given being around sacred places. See in-set plate showing the Ife Yemoo grove.

The interpretations of the Yemoo grove vary from being a historic tourist attraction to its original meaning and use by devotees for rites, this was observed being done white the basins during the time of the last visit. The grove possesses the Holscher (2014)'s five levels of meaning in seeing potsherd pavement as a work of art and serving as what has transcended globally into city greening. This is like the Ogun Laadin shrine also in Ife palace (picture taking was disallowed) with purposed designed potsherd pavement still preserved. However, the story was not the same in Ile-Ife the expansive Ita-Yemoo site where most potsherd site is lost to an erected multi-purpose hall.

There was also potsherd found at Osogbo on a site presently used as a mechanic workshop most of the potsherd pavements are almost gone. Potsherds in the Ibadan Ope-odu sub-urban area apart from locating the spot where it was found, it is only the pictures taken by earlier archaeological researchers that prove they ever were there. This shows the careless stance of stakeholders even when potsherd retains its naturally transcendental cultural sustainable quality.

Built-form floor plans:

Mostly, cultural built-forms in the study area are vernacular building that may look ordinary to the eyes but are conceptually very rich in a plan, forms, spaces, building elements and artefacts that function complementarily together. During the field trip, the hinterland less urban smaller but historical towns were found to have less of the cultural built-forms demolished, even though they might have been abandoned or not fully occupied. It is in this light that three similar built forms and their spaces and features something similar in the present alluding to them are presented one after the other. The common strand between them is the vernacular evolution (from rooms around

Oruwa; family hall)of the room and parlour and two or three rooms opening into the patriachs’ parlour, these seemingly evolved to present-day flats.The Awotiku House,Igbara-Odo Ekiti has abeautiful dormer roof, a raised full stretch frontage veranda open into a corridor leading to the patriarch’s parlour and a row of 2 rooms on the rightas western vernacular heritage. The left is a shop having 2 rooms quarter-turned behind it with the circulation spaceoruwa (a wide family hall), leading to the impluvium courtyardrepresentingindigenous and cultural architectural heritages making it a total house in terms of housing types. Texcote paint seem to have allusions to the rough texture of adobe back wall as in figure

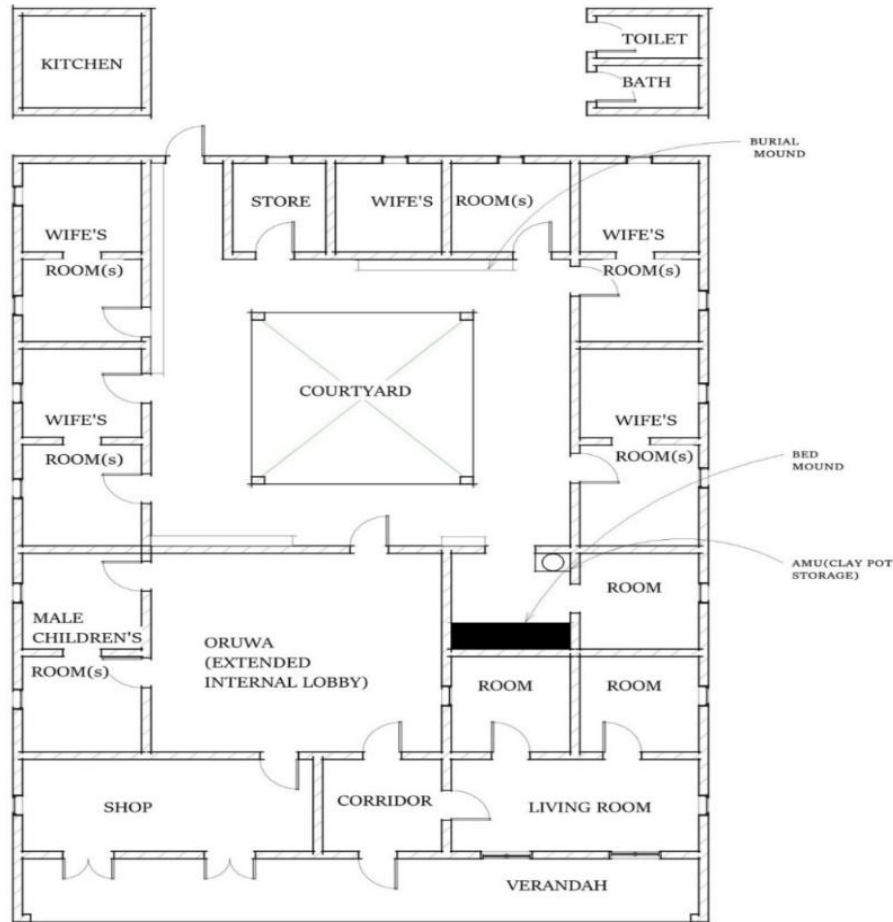


Figure 2:- Plan of Awotiku House, Ile-Oluji.



Figure 3.a, b, c, d:- Raised Entrance with dormer roofThe impluvium Courtyard and back earthen wall and openings.

The Akindileni and Fagbamiye house in Ile-Oluji, are bungalows with indigenous and vernacular features, however as shown on the plans in figures respectively. They both have a frontage area in which entrance narrow corridor leads into a parlour which is relatively far bigger than other adjoining sleeping rooms, however smaller than the general connecting family hall oruwa. The parlour whose modern-day sitting room is a feature of the patriarch or male area of the house, in the two houses, two or three rooms open into it. It is also noticeable that this arrangement

is replicated to the left and right of the entrance corridor in Fagbamiye house, the replication is flipped back and front on the right of a rather wider family entrance hall in the Akindileni house. The attempt by western heritageculture of the petesi The styleof the room(s) around a parlour was found prevalent all over the study area transcending into present-day one, two or three bedrooms.

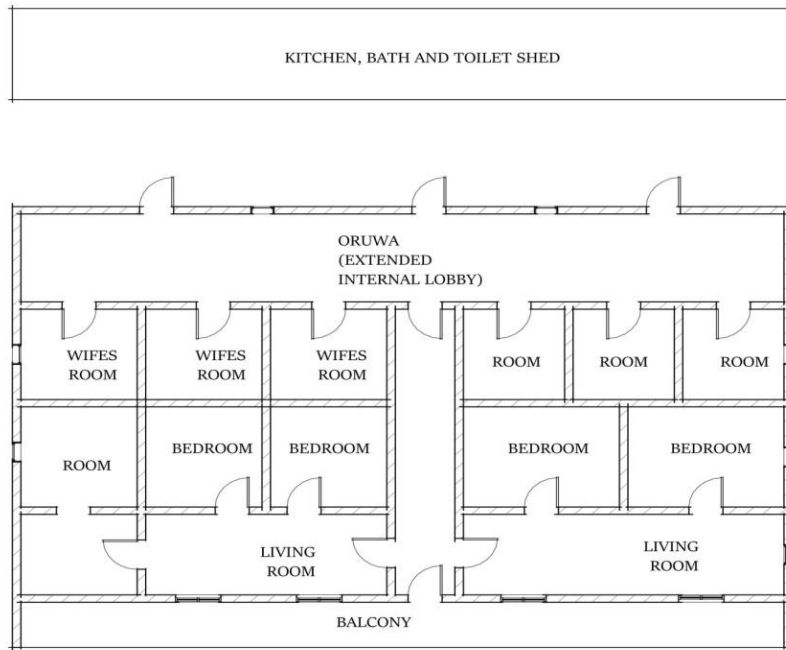


Figure 4:- Plan of Fagbamiye House Ile-Oluji.

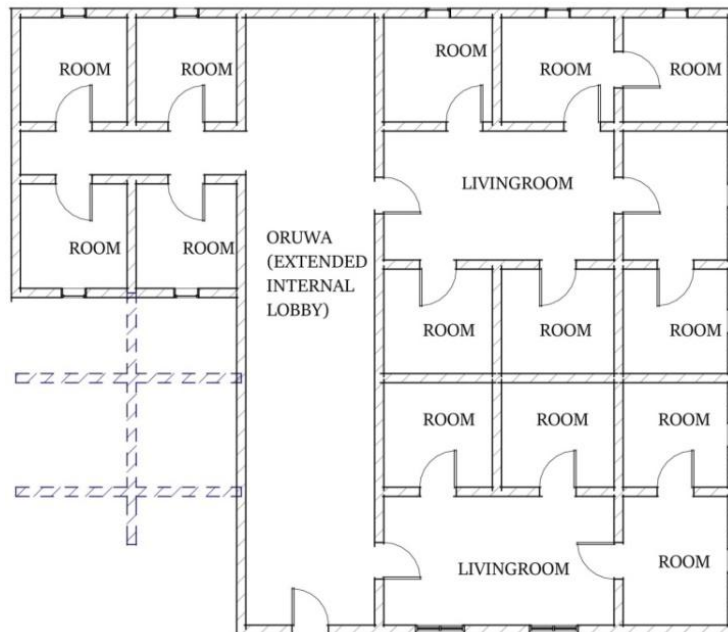


Figure 5:- Plan of the Chief Akindileni ancestral Home.

Theopen or semi-opened and covered Yoruba forecourt spaces, asOjude,(forecourt) aterigbawole (entrance porch), ehinkunle(backyard) etcetera, have transcended as building setbacks on all the sides, the balcony, porches, veranda and as hipped gabled, dormer roofs etcetera. There has been from the past as shown in the plate illustration the interesting indigenous roof-scape of the aafin (palace) of Oyo whichtraditionally had characteristic projected

porches as front verandas, high pyramidal steeples called “aberes” or “kobi”. The kobi; is only for the Oba’s houses, and specially dedicated spots for the deified legends like Sango, as a using architecture to show ranking.

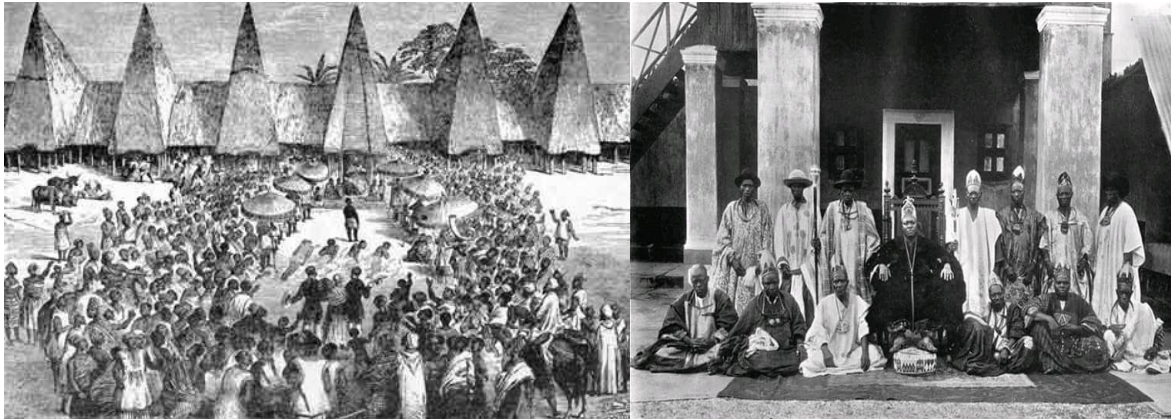


Figure 6a and b:- People in Old Oyo palace with royal pyramidal roofs gables (Kobi)front.
Source: Abiola 2015

Royalty sitting in front of the covered forecourt of a vernacular storey building in Ife palace



Figure 7a and b:- Present Oyo palace frontage with Pyramidal roofs Lean-to roof of on-going Osogbo grove amphitheatre.

The Old Oyo palace roof gables (Kobi) illustrated in Plate from Abiola (2015) and its continuity and reuse in the present Oyo palace frontage with royal gables (Kobi) Pyramidal roofs over the forecourt as shown in Figure, with the latter alluding to the former. This is the communal version of the Ojude that indexed the present annual Ojude-Oba (kings forecourt) festival and now an ultra-modern amphitheatre pavilion venue for the festival sadly rare in the Ijebu-Ode palace. It is like the projection of a veranda into the courtyard. The king's drummers usually sit and mall around here, while also serving the purpose of a place for Alaafin to view his subjects from his courtyards without him being fully exposed and sometimes used as a traditional customary court.

Conclusion And Recommendation:-

The essence of a sustainable environment cannot be overemphasised, and it has been shown that transcendence is a sign of spaces, built-forms and materials being sustainable. The role of semiotics in architecture as represented by the cultural spaces and built-forms of southwest Nigeria in bringing out those functional and symbolic meaning that still make them relevant has been made obvious. Semiotic uses of words made the cultural spaces remain relevant, lexically creating mental pictures in the mind in the case of already lost built-form and salvaging endangered species (lost words inclusive). Yoruba building terms are easily commonly understood based on existing Mutual Common Beliefs (MCBs), for continuity and present-day applications.

Multi-disciplinary application of the archaeological method brought a new vista to this southwest Nigeria study showing the area's built-forms, especially the more indigenous ones, as is often more lexical and symbolic than iconic. The better spatial appreciation through words and the archaeological method strengthens the link that has been established through every step of this work. Therefore while it may not be possible or pragmatic to exactly replicate old best practices, materials and forms, some of them may still be conceptually and symbolically sustainable. A good example is the annual Ojude-Oba (kings forecourt) festival that is now on the level of regional replication' it is held in a modern but conceptually cultural pavilion space. The same is true with groves, just as the Osogbo grove is lexical to sustaining international tourism in the annual Osun-Osogbo festival.

Potsherd pavement spaces, in Ife Yemoo grove also had a quality of reuse, conservation, minimally maintained remarkable sight, of waste to wealth material and art practise that allowed minimal use of new resources, lasting over a thousand years, without being preserved except around sacred places. Two central multi-purpose circulation socialising spaces; the agbala (courtyard; often impluvium) and the oruwa or oode/odede large family hall as an inset in figure 2; creates a sense of unity as a strong physical and social bonding, cosy moderate lit all day, all activity spaces.

There were also external Buildings spaces such as have projected eaves, sloping (storage) roofs over balconies, built around to protect built-form and rooms from rain, protect the building from a high range of humidity, by building raised floors on web basis as well as agarandi or eranje (goat-gate). Other spaces and built-forms that remain sustainably applicable to date are; traditional big balconies, forecourts, slopping deep wide-eaves roofs having the old aja (roof loft) as an attic. The traditional sleeper Wall or raised floor remain relevant in face of global warming-induced floods. Traditional cooperative building by barter was confirmed sustainable by four sets of focus groups. It is, therefore, recommendable to sustainable methods of building using materials that have the minimum thermal capacity, natural ventilation in decentralized, scattered patterns and the cooperative building by barter. Sound preservation policies should be put in place for traditional built-forms and sites such as the potsherd pavements by local professionals as well as a new use in walkways and urban greening.

There should be the use of traditional best practices and materials, even if conceptually such as using the Oyo palace pyramidal roofstyle for the on-going Osogbo grove amphitheatre.

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