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THE ARCHITECTURE OF BIOPHILIC TOURISM, AND THE POSITIVE IMPACT IN URBAN DEVELOPMENT AND HUMAN HEALTH

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ABSTRACT

Tourism is one of the world's fastest-growing industries and a major foreign exchange and employment generation for many countries, a socio-economic phenomenon comprises the activities and experiences of tourists and visitors away from their home environment. Aqua Tourism and Biophlic design are adding new dimensions in the tourism industry, and connect people with nature by letting them see, hear, and touch water in innumerable ways. It is not in doubt that biophilic design adds values to the deficiencies in modern built environment by initiating new framework for the beneficial occurrence of nature. The effective application of biophilia begins with adhering to the basic principles of biophilia. Biophilic design is argued to have a wealth of benefits for building occupants and urban environments through improving connections to nature. For cities, many believe the biggest proponent of the concept is its ability to make the city more resilient to any environmental stressor it may face. Some argue that by adding physical natural elements, such as plants, trees, rain gardens, and green roofs, to the built environment, buildings and cities can manage storm water runoff better as there are fewer impervious surfaces and better infiltration. Biophilia may have slightly higher costs due to the addition of natural elements that require maintenance, higher-priced organic items, etc., however, the perceived health and environmental benefits are believed to negate this.The growth in the field of aqua tourism, biophilic design and architecture will help to understand the effect of water elements on the users and the environment. However, for that to happen in Nigeria, the poor impression and attitude to tourism, by Nigerians has to change and the people should be educated on the significance of tourism in the human capital development.

Keywords: Landscaping, Development Laws, Gathering, Architecture, Tourism

Introduction

Since the 1980s, with the continuous improvement of the living standards of people in the period of rapid economic development, the demands for traveling have also increased. The development of tourist attractions helps to prevent natural resources from the invasion of social activities, creates employment opportunities, and brings economic benefits (Roxas and Chadee, 2013). In the course of tourism activities, people need to provide services through the various buildings of the tourist areas. With the increase of tourist flow in tourist areas, the number of buildings are also rising; in addition, at the same time, it has caused a series of problems such as ecological damages and

environmental pollution (Qi, Liu and Mei, 2018). In order to solve these problems, the architectural design of the tourist area is also constantly improving. Given the current conditions of diversified tourism resources and fixed tourism products, the quality of the building has a profound impact on the operation of the tourist area, and architectural design plays an important role in the development of tourist attractions (Li G, Xie and Li Y, 2013).

Tourism is one of the world's fastest-growing industries and a major foreign exchange and employment generation for many countries. It is one of the most remarkable economic and social phenomena. The word 'tour' is derived from the Latin word tornus, meaning 'a tool for making a circle.' Tourism may be defined as the movement of people from their usual place of residence to another place (with the intention to return) for a minimum period of twenty-four hours to a maximum of six months for the sole purpose of leisure and pleasure. According to WTO (1993), "Tourism encompasses the activities of persons traveling and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes." The development of technology and transportation infrastructure, such as jumbos jets, low-cost airlines, and more accessible airports, have made tourism affordable and convenient. There have been changes in lifestyle – for example, now retiree-age people sustain tourism around the year. The sale of tourism products on the internet, besides the aggressive marketing of the tour operators and travel agencies, has also contributed to the growth of tourism.

Tourism as a socio-economic phenomenon comprises the activities and experiences of tourists and visitors away from their home environment and are serviced by the travel and tourism industry and host destination. The sum total of this activity experience and services can be seen as a tourism product. The tourism system can be described in terms of supply and demand. Tourism planning should strive for a balance between demands and supply. This requires an understanding not only of market characteristics and trends but also of the planning process to meet the market needs. Often tourists from core generating markets are identified as the demand side; the supply side includes all facilities, programs, attractions, and land uses designed and managed for the visitors. These supply-side factors may be under the control of private enterprises, non-profit organizations, and the government. New and innovative forms of partnerships are also evolving to ensure the sustainable development and management of tourism-related resources. The supply and demand side can be seen to be linked by flows of resources such as capital, labor, goods, and tourist expenditures into the destination, and flows of marketing, promotion, tourist artifacts, and experiences from the destination back into the tourist generating region ( ).

In addition, some tourist expenditures may leak back into the visitors generating areas through repatriation of profits of foreign tourism investors and payment for improved goods and services provided to tourists at the destination. Transportation provides an important linkage both to and from the destination. The tourism system is

both dynamic and complex due to many factors linked to it and because of the existence of many sectors contributing to its success. These factors and sectors are linked to the provision of the tourist experience and the generation of tourism revenue and markets. The dynamic nature of the tourism system makes It imperative to scan the external and internal environment of the destinations on a regular basis so as to make changes when necessary to ensure a healthy and viable tourism industry. Thus, it is now an accepted fact that tourism development can no longer work in isolation of the environment and the local communities, nor can it ignore the social and cultural consequences of tourism.

According to Ursache (2015), tourism can be considered as an important stimulator for the whole economic system. Tourism is one of the most important industries for the economy of a country and results in an increase of the gross national product and gross domestic product. It ensures an increase in added value creates jobs and plays an important role in improving the competition between local and international companies, which leads to investments of public services. In many cases tourism is a source of income for the local community which can be an important lever for the general social situation. But tourist activities can also affect a community's social and natural sources. In order to avoid that the tourist capacity is exceeded, there is a need for an adapted and sustainable development of tourism in Nigeria. The charter for sustainable tourism of Lanzarote states that "Tourism must consider its effects on the cultural heritage and traditional elements, activities and dynamics of each local community" (CFST Charter for Sustainable Tourism, 1995). The recognition of the identity and interests of the local communities must always play a central role in the design of tourism strategies. This charter also underlines that "To participate in sustainable development, tourism must be based on the diversity of opportunities offered by the local economy. It should be fully integrated into and contribute positively to local economic development". Tourism can support the specific character of this area, hence increasing the attraction of the site. Tourism and hospitality, which are inextricably linked to each other, are among the major revenue-earning enterprises in the world. They happen to be among the top employers too. There has been an upmarket trend in tourism over the last few decades as travel has become quite common. People travel for business, vacation, pleasure, adventure, or even medical treatments. Tourism constitutes an important industry today. It has opened up new vistas for the play of economic emancipation. It provides a very potent contribution by strengthening and developing the financial resources of a country. Moreover, it is a process in which mutual material and mental benefits occur. Furthermore;

- Tourism fetches foreign exchange in the form of invisible exports, which results in the manifold progress of the nation.
- Tourism generates jobs. These employments are the main contribution of tourism to generating national income. But one should remember that employment in the tourism industry is often seasonal.
- Tourism often leads to the commercialization of art forms and especially handicrafts. Art items with

cultural or religious meaning are sought by tourists as souvenirs. As more and more tourists visit a destination, souvenir production has increased, often leading to mass production. This production also generates income.

With several business-related activities associated with tourism, the industry has a tremendous potential to generate employment as well as earn foreign exchange. Many countries, such as Mauritius, Malaysia, Singapore, Fiji, and the Caribbean, whose economies are primarily driven by tourism. Tourism can contribute to the economic growth of a country in the followings ways:

i. Employment Generation: It creates a large number of jobs among direct services providers (such as hotels, restaurants, travel agencies, tour operators, guide and tour escorts, etc.) and among indirect services providers (such as suppliers to the hotels and restaurants, supplementary accommodation, etc.)
ii. Infrastructure Development: Tourism spurs infrastructure development. In order to become an important commercial or pleasure destination, any location would require all the necessary infrastructure, like good connectivity via rail, road, and air transport, adequate accommodation, restaurants, a well-developed telecommunication network, and, medical facilities, among others.
iii. Foreign Exchange: The people who travel to other countries spend a large amount of money on accommodation, transportation, sightseeing, shopping, etc. Thus, an inbound tourist is an important source of foreign exchange for any country.

Notwithstanding all these benefits, the tourism and hospitality industries are very vulnerable to the fluctuations of national economies and happenings in the world, especially terrorist attacks that have at times dealt severe blows to business. In recent years, there have been a few setbacks in tourism, such as the terrorist siege of the Taj and Oberoi in Mumbai, India (26 November 2008); the attack on the World Trade Centre in the United States of America (11 September 2001); bombing in a hotel on the Indonesian island of Bali (12 October 2002); tsunami in Southeast Asia and South Asia on 26 December 2004, in which thousands of the lives were lost and consequently tourism was hit. Nonetheless, the sector is now getting back to business.

Establishing or developing a tourism industry involves expenditure, gains, costs, and benefits. If these impacts are considered from the outset of planning, strengths and opportunities can be maximized while weaknesses and threats can be minimized. Each destination will be different in terms of tourism characteristics. The cost and benefits of tourism will vary in each destination and can change over time, depending on tourism and other activities in a destination's local and regional context.

Goodall and Ashworth (1988), further reiterated that tourism should not be taken for granted as 'a key to a golden future for the destination'. Sustainable tourism should

be 'culture and nature-friendly'. The protection of the natural-cultural heritage areas, biodiversity and eco-systems must be guaranteed. Secondly, sustainable-tourism must have a positive impact for the local community on both the socio-cultural and economic level. Sustainable tourism should respect the identity of the living environment, the socio-cultural authenticity of the host community, their heritage and traditional values and it should contribute to intercultural understanding and tolerance. Thirdly, the ecologically-sound way of opening up of the site by tourism must offer a high quality experience to the visitors.

Sustainable tourism is defined by the UN Environment Program and UN World Tourism Organization as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." Sustainable tourism is more than offering a banal market product. It is finding a delicate balance between daily life of an area and welcoming outsiders to visit and experience the uniqueness of the site. The identity of the coastal region is an important tourism product that should be safeguarded. The commitment to sustainability must be strengthened. A crucial element is the overall consciousness of the issue to ensure the coherence of the initiatives.

Therefore education is desirable. Knowledge is a key in the whole process. Education for policy makers, the local community and tourist operators will encourage the understanding, appreciation and the care for this vulnerable site and the planet. Managing these fragile natural heritage sites according to the principles of sustainable tourism is a challenging task that starts from a holistic and forward-looking approach. The quality of a tourist destination is highly dependent on the natural and cultural heritage (Ursache, 2015). Being aware of the role of the cultural and natural heritage is an important element in strengthening the regional and global cooperation and a major step in the implementation of sustainable development (Ursache, 2015).

Moreso, tourism values the things that are most precious in our world: stunning landscapes, wildlife, history, culture and people. Tourism can be a catalyst for growth in the local economy, providing good quality jobs, opportunities for enterprise and funds for conservation. But if it is not managed well, tourism can have negative impacts on local communities and environments, creating long term problems for local residents, which can ultimately lead to the decline of tourism in the destination. The aim of sustainable tourism is to increase the benefits and to reduce the negative impacts caused by tourism for destinations. This can be achieved by: protecting natural environments, wildlife and natural resources when developing and managing tourism activities; providing authentic tourist experiences that celebrate and conserve heritage and culture and creating socio-economic benefits for communities through employment and income earning opportunities.

According to Seng (2015), the strategy of sustainable development requires human beings to protect the ecological environment while developing tourism, which is a problem that must be considered

in the design of tourist areas. As a material carrier for people to travel, the construction of the tourist areas controls the above-mentioned contradictions, which may develop in different directions. If these problems are well-handled, the harmonious development of architecture, tourism, and the environment would be achieved; otherwise, it would make the contradictions intensify and cause various problems (Jing, Sun and Wang, 2017). Therefore, the improvement of the architectural design in tourist areas to promote the development of tourism industry and alleviates the tension between supply and demand is a problem that architectural designers should consider (Min, Liu and Pan, 2017). Based on the benefits of tourism, architecture, and ecology, the architectural design suggestions are put forward for the protection of ecology and harmonious development to realize the mutual benefits and joint development of the tourism industry, architecture, and ecology.

As architectures continuously consume



energy, the corresponding resources should be rationally developed and utilized in the construction of tourist areas, including the utilization of bio-energy and water resources. Biogas (methane) is the most commonly applied bio-energy in tourist areas. The sources of biogas are abundant, dead branches and leaves and domestic wastes can be used for biogas fermentation. Tourist areas with rich biogas resources should pay attention to the design of biogas digesters. Under normal circumstances, the biogas digester should be built in an open area, keeping the sunlight fully exposed to generate a large amount of biogas. For the tourist areas with abundant precipitation, the architectural design must take the rain-proof function into account and also have certain facilities to collect and treat the

rainwater to achieve the full utilization of water resources.

Since the tourist flow is unstable, the architectures in the tourist area need to adapt to the variations and respond to them. The specific methods include the construction of temporary architectures, the combination of indoor and outdoor venues, and regulation of room size. The construction of temporary architectures refers to the construction of architectures that are easy to construct and disassemble in addition to the current permanent architectures. Temporary architectures can control the building dimension to accommodate changes in tourist flow and different areas can be planned to change into corresponding compartments.

Plate 1.Temporary architecture in tourist area
Source : Charter for sustainable tourism (1995)

Plate 2. Temporary architecture in tourist area
Source : Charter for sustainable tourism (1995)

Meanwhile, the construction of temporary architectures should also consider the natural ecological environment of the study



cause no damages to the environment of the tourist area, such as temporary toilets, outdoor tents, etc. (plate 1, 2). The combination of indoor and outdoor venues makes full use of space resources, most commonly in catering buildings. The expansion of the indoor and outdoor business area enriches the sense of hierarchy and provides visitors with a variety of options. The regulation of room size mainly relies on intelligent means to set up compartments, and electronically monitors the density of tourists in different areas in the existing room; therefore, area so as to perfectly match with other architectures in the area, as well as the natural ecology of the tourist attraction.

Architectural facilities are important for people during their travels, and architectural patterns are the most intuitive impressions of the tourist area for tourists. Therefore, the patterns of architectures in the tourist area should protect the ecological environment and show humanistic care at the same time. The design of architectural patterns in the tourist area includes the comprehension of humanity, the extraction, and transformation of natural elements, the complementarily between architectures and the environment, and the bionic architectural patterns. If the tourist area has a unique architectural style, it should be applied to the architectures in the tourist area as much as possible so that tourists can better understand the local folk customs. Mountain Tourist attractions are various, mostly the humanistic landscapes; therefore, for such natural landscapes, natural elements are extracted and used to design patterns, which are then transformed into abstract art crafts for the construction of architectures in the tourist area, which can bring obvious tourism economic benefits. Some natural landscapes cannot be restored after long-term weather erosion or man-made damage. Therefore, if they are reflected in the architectural patterns, it would be inevitably important for ecological protection education. The bionic architectural pattern applies the biological forms and laws to the shape design of the architectures, which should not only imitate the nature in the exterior design but also coordinate with the natural ecology( ).



Again, the emission of architectures in tourist areas is the most important factor affecting the ecological environment. Calabria Tourist Center, is the National Tourist Scenic Spot, which is the habitat to various plants and animals; therefore, the requirements of drainage emission are relatively higher. Pollution caused by emissions is an important issue to be solved in tourist attractions. The most common way to treat the wastes is to use it locally. For example, human feces could be used to produce methane; after the fermentation is finished, the feces could be returned to the land as fertilizers. At present, the waterless toilets used in some tourist areas are new devices of waste conversion. By degrading the organic matter in the excrement and producing fertilizer, the harmless gas and moisture are directly discharged to the

environment. Sewage treatment can be achieved by constructing artificial wetlands (fig 1). Artificial wetlands are technologies that discharge sewage into artificially constructed wetlands and use organic matter decomposition treatment. The processed sewage can be used for flushing toilets, irrigating farmland, and arranging water curtains ( ).

Fig 1: Water treatment system of artificial wetland, **(--------where-----)**
Source: Encyclopedia of Environmental Science (1999)

Invariably, the selection of building materials should take many factors into account. In order to meet the needs of travel, environmental protection, and construction, the overall concept of building material selection should be beneficial to the environment, the promotion of the tourist areas, and the construction and maintenance of the architectures. In addition, during the construction process, attention should also be paid to the impact of the construction process.

Aqua Architecture connects people with the nature by letting them see, hear, and touch water in innumerable ways. The growth in the field of aqua architecture will help to understand the effect of water elements on the users and environment and facilitate in the development of a better society. For centuries, mankind has been building their architectural cities near or around water. Water has influenced design through its dynamic and fluid nature. Water is consistently acknowledged as an unsolidified energetic component, while the design is professed as a firm and stationary aspect of our domain. The very roots are prevalent in ancient water civilizations. Urban designs now reflect a need to ensure our waterfronts and life in harmony with nature. It has its advantages such as transportation, convenience for the trade routes and water survival. As the earth gets hotter every year and the ice glaciers continues to melts, the ocean sea levels will continue to rise. Assuming that the projected sea water levels for 2050 are correct, 95% of coastal cities around the world are at risk from rising sea levels and unpredictable storm surges (Kundanika, 2019). The coastal cities are going to have to adapt and change its way of thinking with the encroachment of the sea. Rather than simply build higher seawalls to hold back the floodwaters, some architects and urban planners are turning to floating and amphibious architecture and finding ways to adapt buildings to this new reality. In the United States, almost 40 percent of the population lives in relatively high populated-density coastal areas. By the year 2050 it is predicted that the entire eastern coast of the United States will be almost underwater.

Floating structures have been around for a long time. People have been living on houseboats for centuries in cities like Amsterdam, while in Hong Kong, thousands of people lived in massive floating villages as recently as the 1970s. Even today, the flying eaves and sultry neon of that city's Jumbo Floating Restaurant evoke a particular kind of romance. Water has always promised a sort of freedom, too. A libertarian organization called the Seasteading Institute is currently working on plans for autonomous floating cities that would roam international waters, allowing them to experiment with new forms of governance. In a world beset by rising sea levels, where technology and human behaviour seems to be changing faster than ever, a growing number of architects believe floating architecture could change the way we live (fig 2).





Fig 2 section of the floating oasis
Source : Bonaparte (2022)

Plate1. Pictorial view of the floating oasis, New York
Source : Bonaparte (2022)

This precedent even though it's a commercial project, clearly demonstrates how a building can be structurally supported being constructed on water. It exists on 2.3 acres on the Hudson River west of Manhattan in New York City. It consists of 132 pot-shaped structure called

Tulips suspended above the water that stands on 280 concrete pilings extending into the river bed. They call it a Floating Oasis (plate 1).

The sea and its subterranean depths have always captivated human imagination. Attracted to the unknown, people have gone to sea looking for adventure, searching for unique and different experiences, challenging themselves to surmount exposure to an extreme environment. The beauty of the underwater world has always fascinated and drawn people to it. Explorers have gone to the sea hunting for sunken treasure; soldiers for underwater military missions; professional divers for underwater work and natural resources; scientists to study oceanography, marine biology, geology, physics and more (Miller and Koblick, 1995) and recreational divers for sports and leisure (Nevo and Breitstein, 1999). Recreational diving has developed extensively over the years, attracting millions of participants around the world (Bitterman, Ofir, and Ratner, 2009; PADI, 2012; Richardson, 2003), and serving as a driving force of tourism. Diving tourism has become a significant factor in the economy of many countries and there are coastal villages and cities whose main source of income is diving (PADI, 2012; Richardson, 2003).

Every underwater submerged structure is subject to physical and mechanical challenges including hydrostatic pressure differences, dynamic forces, buoyancy, a need for insulation and sealing, limited visibility, corrosion, support systems, safety, maintenance under nonoptimal conditions and more (Koyuncu, 2007; Miller & Koblick, 1995), which are handled by professional marine and military engineers. Yet, accommodation and leisure air-filled one-atmosphere underwater structures are confronted with additional concerns that will be presented briefly below such as contact with land, the need to allow visitors as panoramic a view as possible, materials, shapes, building process and morphology, internal design, safety, psychology and autonomy. These issues are the challenges that architects, designers, psychologists and tourism researchers and experts will have to grapple with if they are to make submerged tourism attractive to the general public (plates 2 to 6).



Plate 2. Poseidon Hotel, Private Island in Fiji.(b) the modular structure of single suits connected to the common corridor.
Source: Poseidon resorts



Plate 3. Poseidon Hotel, Private Island in Fiji.(c) internal view of the connecting corridor.
Source: Poseidon resorts

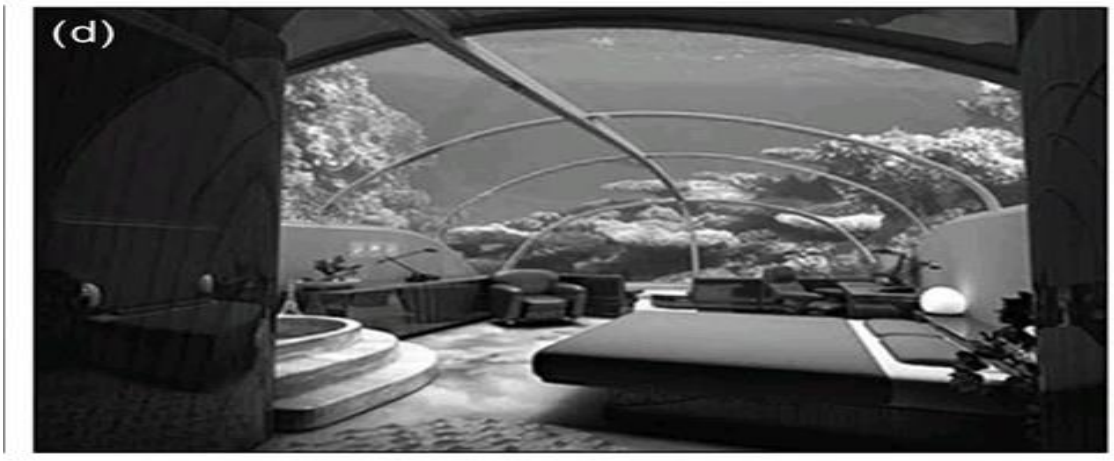


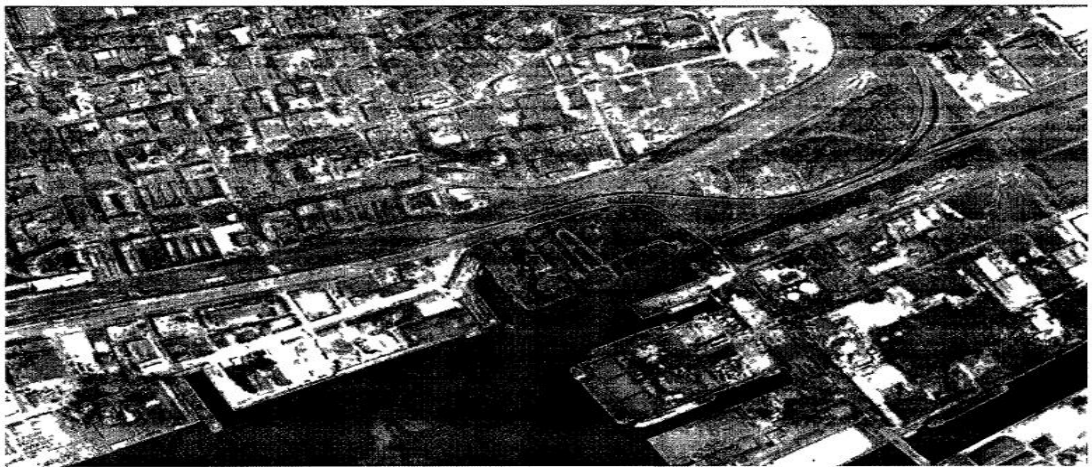
Plate 4. Poseidon Hotel, Private Island in Fiji.(d) the sleeping unit and the external view (illustration).
Source: Poseidon resorts

In contrast to military missions and professional underwater work in which the connection between land and the submerged structures is fast, functional and sometimes even secret (by self-contained underwater breathing apparatus (SCUBA) diving or using subaquatic vehicles), for civilians guests and visitors the stage of entering and exiting the underwater building should be part of the overall unique experience (Bitterman, 2013).

Architecture that can respond to water through material, structure, craft and detailing can increase the awareness of the problems surrounding water usage in urban culture. In architectural design, water has become no more than the "stuff that circulates through indoor plumbing," and has essentially lost its role as a poetic element of architecture and landscape (Seng, 2015). New architecture must support and bring awareness to people, reflecting the importance of fresh water, respecting and dealing with the surrounding aquatic elements. People are attracted to water and are drawn to the benefits that it offers to them, "Toronto has looked to its waterfront as a source of prosperity, inspiration and creativity… Its cultural landscape holds the stories of Canada's diverse communities and their contributions to our cultural life."6 The Toronto waterfront Port Lands (fig 3) offer

a space where the urban population can reconnect with the poetic potential of water through a supporting architectural project. The awareness of water can become more prevalent if it possesses an importance. An architectural project should be able to give back something that is greater than its financial value.

Fig. 3.Toronto Port Lands aerial view, highlighting the proposed site for tin. Canadian Centre for Aquatics.



Source: Ryan (2014)

Water must be thought of actively during the architectural design of a building to ensure that
it will be able to respond appropriately, whether letting the water in, or keeping it out. The exterior and detailing of a building must respond to the elements and protect the interior from unwanted water. The site must be controlled to properly manage water with regards to building envelope penetration, drainage and material exposure. Often in the architectural design, water is only given importance when coming out of the kitchen faucet or filling the toilet bowl. However, it is how the building responds to water and mitigates the line between full control and moments where the water plays a role in life of a building that water finds its true place in architecture. Water is vital to the existence of humans and is often neglected in architecture by not utilizing it in ways that gives respect to its full range of qualities as a substance. If it is allowed to work with a building it can offer a story of change and weathering that allows a building to develop character. Consequently, if water is not substantially controlled it can be detrimental to the building.

The element of water in architecture is exemplified in the work of Louis Kahn at the Salk Institute for biological studies, located in La Jolla, California. This building complex, which was completed in 1966, houses one of the United States top research groups that work extensively on biological life. The interior laboratory spaces off the main corridor are designed with an open concept creating an environment where the individuals become a team. These spaces can be easily manipulated and promote the sharing of information and techniques among the staff

working here. The building is situated with the western edge of the property opening towards the Pacific Ocean, creating an intensification of the view to the water (plate 5). Kahn, places the same level of importance on designing the exterior spaces of the complex as he does with the interior. In this courtyard, a channel of water runs through the centre dividing the space in half. The stream cuts through a limestone channel in the surface of the courtyard, and is set at a perpendicular angle to the shoreline giving the illusionary experience that the water is moving across the site and draining back into the distant ocean. This however, is not the case, as the channel actually empties into a reflection pond that is below the surface level of the upper courtyard. This detail in the design by Louis Kahn, gives meaning to the water and uses it to engage in the site and the architecture.

Plate 5.



Louis Kdhn's Salk Institute depicting the central water channel.
Source : Bonaparte (2022)

An aquatic ecosystem is an ecosystem formed by surrounding a body of water, in contrast to land-based terrestrial ecosystems. Aquatic ecosystems contain communities of organisms that are dependent on each other and on their environment. The two main types of aquatic ecosystems are marine ecosystems and freshwater ecosystems (Alexander and Fairbridge, 1999). Freshwater ecosystems may be lentic (slow moving water, including pools, ponds, and lakes); lotic (faster moving water, for example streams and rivers); and wetlands (areas where the soil is saturated or inundated for at least part of the time) (Vaccari, Strom, Alleman and James, 2005). The biotic characteristics are mainly determined by the organisms that occur. For example, wetland plants may produce dense canopies that cover large areas of sediment, or snails or geese may graze the vegetation leaving large mud flats. Aquatic environments have relatively low oxygen levels, forcing adaptation by the organisms found there. For example, many wetland plants must produce aerenchyma to carry oxygen to roots.

First made popular by scholar Edward O. Wilson in the 1980's, biophilia is the urge for humans to affiliate with other life. More recently, the biophilia hypothesis has been directly incorporated in architecture and interior design, improving the performance and well-being of people occupying indoor spaces. Biophilic design improves both physiological and psychological health, which is especially important as people spend an average of 90% of the day indoors.

Biophilic design accordingto Katie (2016), is an approach to architecture that seeks to connect building occupants more closely to nature. Biophilic designed buildings incorporate things like natural lighting and ventilation, natural landscape features and other elements for creating a more productive and healthy built environment for people. Dynamic glazing like SageGlass is a great example of using new building technologies to achieve biophilic objectives. Maximizing natural light benefits people as well as energy bills, but biophilic interventions incorporate natural lighting from diffusion to temporal changes. A lighting system that either naturally or artificially changes throughout the day to mimic our circadian rhythm helps link people to the outdoor environment and, essentially, keep us on track with our natural 24 hour cycle. Maximizing natural light and changes throughout the day also enhances visual comfort.

Stephen (2015), indicated that Biophilic design seeks to connect our inherent need to affiliate with nature in the modern built environment. An extension of the theory of biophilia, biophilic design recognizes that our species has evolved for more than 99% of its history in adaptive response to the natural world and not to human created or artificial forces. We became biologically encoded to associate with natural features and processes. Rather than being vestigial – or relevant to a world that no longer exists, this need is thought to remain instrumental to people's physical and mental health, fitness, and wellbeing. Simply put, biophilic design focuses on those aspects of the natural world that have contributed to human health and productivity in the age-old struggle to be fit and survive. Thus, desert or deep-sea habitats or microorganisms or alien or extinct species or other obscure aspects of nature are largely irrelevant as aspects of biophilic design because they offer little if anything in the way of sustained benefits to people.

Since today's "natural habitat" is largely the built environment, where we now spend 90% of our time, biophilic design seeks to satisfy our innate need to affiliate with nature in modern buildings and cities. Thus, the fundamental goal of biophilic design is to create good habitat for people as biological organisms inhabiting modern structures, landscapes, and communities. Accomplishing this objective depends on meeting certain conditions. First, because biophilia is essentially about evolved human tendencies, biophilic design focuses on those aspects of nature that, over evolutionary time, have contributed to our health and wellbeing. Let us be clear on this point: Any occurrence of nature in the built environment cannot be called biophilic design if it has no bearing on our species' inborn tendencies that have advanced our fitness and survival.

Another distinguishing feature of biophilic design is its emphasis on the overall setting

or habitat and NOT a single or isolated occurrence of nature. All organisms exist within connected and related environments bound together as integrated wholes or ecosystems. When the habitat functions in the best interests of the organism, the ecosystem performs at a level greater than the sum of its individual parts. By contrast, habitats comprised of disconnected and unrelated elements provide few benefits to its constituents and may even harm individual members. Thus, simply inserting an object of nature into a human built environment, if unrelated or at variance with other more dominant characteristics of the setting, exert little positive impact on the health and performance of the people who occupy these spaces.

The effectiveness of biophilic design depends on interventions that are connected, complementary, and integrated within the overall environment rather than being isolated or transient. A third distinctive feature of biophilic design is its emphasis on engaging with and repeated contact with nature. Biophilia can be described as a "weak" rather than "hard-wired" biological tendency that, like much of what makes us human, must be learned and experienced to become fully functional. Although we may be biologically inclined to affiliate with nature, for this contact to be useful, it must be nurtured through repeated and reinforcing experience. The benefits of biophilic design depend on engaging contact with nature rather than occasional, exceptional, or ephemeral experiences. These distinctive characteristics yield a set of five conditions for the effective practice of biophilic design. Each underscores what is and is not biophilic design:

i. Biophilic design emphasizes human adaptations to the natural world that over evolutionary time have proven instrumental in advancing people's health, fitness, and wellbeing. Exposures to nature irrelevant to human productivity and survival exert little impact on human wellbeing and are not effective instances of biophilic design.
ii. Biophilic design depends on repeated and sustained engagement with nature. An occasional, transient, or isolated experience of nature exerts only superficial and fleeting effects on people, and can even, at times, be at variance with fostering beneficial outcomes.
iii. Biophilic design requires reinforcing and integrating design interventions that connect with the overall setting or space. The optimal functioning of all organisms depends on immersion within habitats where the various elements comprise a complementary, reinforcing, and interconnected whole. Exposures to nature within a disconnected space – such as an isolated plant or an out of context picture or a natural material at variance with other dominant spatial features is not effective biophilic design.
iv. Biophilic design fosters emotional attachments to settings and places. By satisfying our inherent inclination to affiliate with nature, biophilic design engenders an emotional attachment to particular spaces and places. These emotional attachments motivate people's performance and productivity, and

prompt us to identify with and sustain the places we inhabit.

v. Biophilic design fosters positive and sustained interactions and relationships among people and the natural environment. Humans are a deeply social species whose security and productivity depends on positive interactions within a spatial context. Effective biophilic design fosters connections between people and their environment, enhancing feelings of relationship, and a sense of membership in a meaningful community ( ).

Unfortunately, modern society has insufficiently supported the human need to affiliate with nature, erecting various obstacles to the satisfying experience of the natural world, often treating nature as simply raw material to be transformed through technology or a nice but NOT necessary recreational and aesthetic amenity. This increasing separation from nature is reflected in much of our modern agriculture, manufacturing, education, healthcare, urban development, and architectural design.

The modern assumption that humans no longer need to affiliate with nature is revealed in the widespread practice of placing people in sensory deprived and artificial settings such as office buildings, hospitals, schools, shopping centers, with little if any contact with natural forces and stimuli. Much of today's built environment is designed lacking adequate natural light, natural ventilation, natural materials, vegetation, views, environmental shapes and forms, and other evolved affinities for the natural world. In many ways, these structures remind us of the barren sensory-deprived cages of the old-style zoo, now ironically banned as "inhumane." We are just beginning to find that these environmentally impoverished habitats foster fatigue, symptoms of disease, and impaired performance, and the simple introduction of natural lighting, outside views, and vegetation can result in enhanced health and productivity.

Biophilic design can be coordinated into 3 categories; Nature in the space, natural analogs, and nature of the space; which provides an understanding of the unique diversities of the design of any space. For any space to infuse with nature, the physical, direct, and ephemeral presence of nature should exist to experience continuous significant connections through movement, diversity, and multi-sensory interactions (Plate 6, 7).



Plate 6. Bringing the outdoors inside © Patrick Bingham-Hall
Source: design wanted



Plate 7: The Jewel in Singapore
Source: design wanted

The fundamental challenge of biophilic design is to address these deficiencies in the modern built environment by initiating a new framework for the beneficial occurrence of nature. The effective application of biophilia begins with adhering to the previously described basic principles. From there, particular practices of biophilic design can be employed to help implement positive and beneficial outcomes.

Despite the above challenges, biophilic design is argued to have a wealth of benefits for building occupants and urban environments through improving connections to nature. For cities, many believe the biggest proponent of the concept is its ability to make the city more resilient to any environmental stressor it may face.

Ryan (2014), found that elements such as nature sounds, improved mental health 37% faster than traditional urban noise after stressor exposure; the same study found that when surgery patients were exposed to aromatherapy, 45% used less morphine and 56% used fewer painkillers overall. Another study by Gillis and Gatersleben (2015), found that the inclusion of plants in interior environments reduce stress and increase pain tolerance; the use of water elements and incorporating views of nature are also mentally restorative for occupants. When researching the effects of biophilia on hospital patients, Newman and Soderlund(2015), found that by increasing vista quality in hospital rooms depression and pain in patients is reduced, which in turn shortened hospital stays from 3.67 days to 2.6 days. In biophilic cities, Dannenberg (2011), indicated that there are higher levels of social connectivity and better capability to handle life crises; this has resulted in lower crime rate levels of violence and aggression.The same study found that implementing outdoor facilities such as impromptu gymnasiums like the "Green Gym" in the United Kingdom, allow people to help clear overgrown vegetation, build walking paths, plant foliage, and more readily exercise (walking, running, climbing, etc.); this has been proven to build social capital, increase physical activity, better mental health and quality of life.Further, Dannenberg (2011), also found that children growing up in green neighborhoods are seen to have lower levels of asthma; decreased mortality rates and health disparities between the wealthy and poor were also observed in greener neighborhoods.

Some argue that by adding physical natural elements, such as plants, trees, rain gardens, and green roofs, to the built environment, buildings and cities can manage storm water runoff better as there are fewer impervious surfaces and better infiltration. To maintain these natural systems in a cost-effective way, excess grey water can be reused to water the plants and greenery; vegetative walls and roofs also decrease polluted water as the plants act as biofilters (Newman *et al*, 2015). Adding greenery also reduces carbon emissions, the heat island effect, and increases biodiversity. Carbon is reduced through carbon sequestration in the plant's roots during photosynthesis. Green and high albedo rooftops and facades, and shading of streets and structures using vegetation can reduce the amount of heat absorption normally found in asphalt or dark surfaces, this can reduce heating and cooling needs by 25% and reduce temperature fluctuations by 50 %(Newman et al, 2015). Furthermore, adding green facades can increase the biodiversity of an area if native species are planted – the Khoo Teck Puat Hospital in Singapore has seen a resurgence of 103 species of butterflies' onsite, thanks to their use of vegetation throughout the exterior of the building.

Biophilia may have slightly higher costs due to the addition of natural elements that require maintenance, higher-priced organic items, etc., however, the perceived health and environmental benefits are believed to negate this. Newman *et* al, (2015), found that by adding biophilic design and landscapes, cities like New York City can see savings nearing $470 million due to increased worker productivity and $1.7 billion from reduced crime expenses. They

also found that storefronts on heavily vegetated streets increased foot traffic and attracted consumers that were likely to spend 25% more; the same study showed that increasing daylighting through skylights in a store increase sales by 40% +/- 7%. Properties with biophilic design also benefit from higher selling prices, with many selling at 16% more than conventional buildings.

On the urban scale, Beatley and Newman (2013) believes that biophilic design will allow cities to better adapt to stresses that occur from changes in climate and thus, local environments. To better show this, he created a biophilic cities framework, where pathways can be taken to increase the resilience and sustainability of cities. This includes three sections: Biophilic Urbanism, the physical biophilic and green measures that can be taken to increase the resilience of the city, Adaptive Capacity, how the community's behaviors will adapt as a result of these physical changes, and Resilient Outcomes, what can happen if both of these steps are achieved. Under the Biophilic Urbanism section, one of the ways a city can increase resilience is by pursuing the biophysical pathway, by safeguarding and promoting the inclusion of natural systems, the natural protective barrier of the city is increased. For example, New Orleans, is a city that has built over its natural wet plains and has exposed themselves to flooding. It is estimated that if they kept the bayous intact, the city could save $23 billion yearly in storm protection (Beatley and Newman, 2013).

Facts from Okonkwo (2021), show that Nigeria is more naturally endowed with (natural) tourist attractions than any single East African country (a region that is noted for tourism). Kenya with a population of about 24 million, 224,960 square miles in size with its Northern 3/5 consisting of arid and semi-arid land while the Southern areas are mostly low coastal land and a plateau ranging from 3,000 to 10,000 feet high in her Southern region. The country has an arable land of only 4% of its total landmass. Nigeria, on the other hand, is a vast 356,667 square miles with a population of about 220 million people from over 250 ethnic groups. Nigeria has almost all the natural conditions Kenya has and is further blessed with an arable land of 34% of its landmass.

The nation has five National Parks (although some are not fully functional) and over 30 Game Reserves, each containing diverse tourist attractions. They include: (i) The Kainji Lake National Parks established in 1976. It has tourist attractions such as game viewing in the Parks, sport fishing and boat trips, tour of the Hydro-Electric Dam Complex at Kainji, and museums; with accommodation and catering services. (ii) | Yankari Game Reserve, officially opened in 1962 also has game viewing facilities, the Wikki Warm Spring, a natural spring of about 1.8 meters deep and 9 meters wide, and a swimming pool, as well as accommodation facilities. (ui) Okomu Wildlife Sanctuary in Edo/Delta States (Bendel State). (iv)Hadejia, Nguru, Wetlands with its large flock of water birds; and (v). Cross-River State National Park with over 1,500 species of animals, including 300 species of the lowland gorilla. The National War Museum in Umuahia is another major attraction to foreigners because of its significance in the nation's contemporary history. There are also natural tourist resources such as Warm

Spring Ikogosi in Ondo State, Owu Falls in Kwara State and Matsvgi Falls 1 in Kafanchan, Kaduna State, etc.

Aim

It is the aim of this work to create awareness and point to different types of tourism especially, biophilic tourism, bringing people to nature. This encourages people to be outside and walking around natural environments and water. It is healthier and more physically benefiting, taking walks in natural environments as it decreases depression, anger, and increases vigour, versus those who walk in interior environments.

Research Method

The authors were careful with analytical instrument and tools used. The disciplinary area of focus is tourism. This paper investigated and documented the problems associated with inappropriate development of tourism in Nigeria and inadequacy in knowledge regarding tourism development especially, in southeast Nigeria, as a result, adopted content base analysis that emphasized the opinions of others. Qualitative research method was used and it investigates the *why* and *how* of decision making, not just *what*, *where*, *when*, or "who" (Qualitative research, 2015). The source of data involved both primary and secondary sources.

Findings

Tourism industry in Nigeria has not received the attention it deserves even with former President Babangida's intervention. The market in fast growing around the world and the attitude in Nigeria is regrettable. Even with the medical benefits and the outcry, millions of Nigerians travel out for medical tourism. The introduction of aqua tourism that, not too many Nigerians know about will go a long way solving and or, helping many sick people. The need for tourism in Nigeria will ever be questioned and the question now remains, why was it not there before? The attitude of our people and poor governance in Nigeria, have not allowed for the full development of tourism industry in Nigeria. Generally, tourism has been given little or no attention not to talk of aqua tourism.

Nigeria offers a wide variety of tourist attractions such as extended and roomy river and ocean beaches ideal for swimming and other water sports, unique wildlife, vast tracts of unspoiled nature ranging from tropical forest, magnificent waterfalls, some new rapidly growing cities and climatic conditions in some parts, particularly conducive to holidaying. Other attractions include traditional ways of life preserved in local customs; rich and varied handicrafts and other colouful products depicting or illustrative of native arts and lifestyle, and the authentic unsophisticated, but friendly attitude of many in the Nigerian population. However, many of these attractions are still largely untapped and even at their raw states, they are still being enjoyed by few outsiders, either very rich visitors in quest of exoticism or adventurous people in search of new challenges and experiences (Munzali, 2011).

To sustain tourism development in Nigeria, Munzali (2011), indicated that the interest in tourism by the Nigeria's government started way back in the 1960s with the Obasanjo's regime in 1976 establishing the

Nigeria Tourism Board (NTB) now Nigeria Tourism Development Corporation (NTDC) via Decrees No Decree No. 54 of 1976 reviewed to Decree No. 86 of 1991 and giving it a 'preferred sector' status respectively. Master Plan on tourism development in Nigeria started way 1982 with a tourism development policy first rolled out in1990. To further consolidate the quest for quality service delivery in the tourism industry, the government created the Federal Ministry of Tourism and Culture to actualize the dream of catching up with the global train in tourism development. However, with all the government efforts in tourism development in Nigeria, the industry still suffers economically, socially and psychologically.

The Government of Nigerian, in her quest to diversify the economy and the tourism industry in particular, decided to take some measures towards promoting the travel and tourism sectors. These measures include the establishment of the Presidential Council on Tourism, Federal Ministry of Tourism and its departments and agencies with same at the states level and Local Tourism Committees which falls in line with the provisions of the National Tourism Policy (NTP) of 2005, the Nigerian Tourism Development Corporation (NTDC) of 1992 and the Nigeria Tourism Development Master Plan of 2006.With the adoption of a Nigeria Tourism Development Master Plan and the National Tourism Council, harnessing tourism resources and diversifying such to compete favourably with other major economic sector given its socio-economic and cultural wellbeing cannot be over emphasized (Munzali, 2011).

A tourism policy was produced in 1990 with the basic objectives to make Nigeria the ultimate tourism destination in Africa. The main thrust of government policy on tourism, is to generate foreign exchange, encourage even development, promote tourism based rural enterprises, generate employment and accelerate rural urban integration and cultural exchange (Munzali, 2011). Yet, the industry in Nigeria still struggles. Nigerians travel abroad in droves for medical tourism and as indicated by Olusola (2013), the Secretary of the Organizing Committee of the Nigerian Centenary Charity Ball, Dr. Kingsley Esegbue, has said that Nigerians spend an estimated sum of N250bn on medical tourism in a year.

Conclusion

The poor tourism development in Nigeria cannot be blamed on the government interest along, but a lot of factors and not limited to awareness, security, funding, attitude of the people and interest in foreign based operations instead of promoting the industry here in Nigeria. These, accompanied by lack of interest and poor maintenance of the existing ones resulted in depreciation and extinction in some areas. The informal existence of some of the centers is partly because of the interventions of some local interest and partly because of special interest groups, who were cut up by cultural implications of losing the centres. The situation is heightened by incessant killings and kidnappings in the country especially, within the past ten years and steady trips of Nigerians abroad for medical services which cumulatively have resulted in greater population having no trust in the Nigerian medical systems.

The inadequacy and poor development of medical centers in Nigeria, coupled with constant killings and kidnappings gave rise to:-

(a) Extensive medical trips abroad. A situation which predominates up till date.

(b) Extensive vacation trips both in the United Kingdom and the United States of America.

(c) Poorly planned and undeveloped museums and tourist centers in the country.

(d) Neglect and lack of respect for the staff of the industry resulted in the attitude of the people, that one cannot find greener pastures in the tourism and museum industry.

Recommendations

Tourism in Nigeria has the potentials to flourish, but hindered by mostly underfunding, ignorance and security concerns. To solve the problem of underfunding tourism in Nigeria, the private sector and philanthropists should help in funding of museums and the research centers as well as in the establishment of museums, monuments, and historical sites. Government should allocate more funds to the tourism sector so as to give the sector a competitive advantage. To address corruption cases and financial indiscipline, funds allocated for any specific project should be used judiciously. Funds should not be diverted. The law should be allowed to run its course on people suspected with corruption cases (Ukpere and Wabah, 2018).

Cultural festivals in Nigeria should be well packaged and properly coordinated in order to yield expected result. Access roads and basic amenities should be provided to host communities. More personnel's should be recruited to man the various museums and heritage sites and they should be adequately motivated with good remunerations (Ijkpolo, Emeka & Dimlayi, 2008). Local artists and museologists should be exposed to new techniques and information about their trade and professions publicized (Ukpere and Wabah, 2018).

Packaging, organizating and coordination of the cultural festivals across the nation should be encouraged to turn them into big eco-cultural tourism business that will help to foster peace, unity and development of the country (Olaniyani, 2009; Yomi, 2009; Samuel, 2005; Okey, 2005).

According to Ukpere and Wabah (2018), we need to immediately realize that there are lots to gain from an environmentally friendly eco-cultural tourism business than the current over dependency on mineral exploitation and exploration for export earnings. The various challenges and constraints facing tourism sector must need to be eradicated or ameliorated with sincerity and urgently too. It is imperative to reiterate here that, a nation without the knowledge of its history is a lifeless nation. The present is a product of the past, and the past is the foundcation of today, while today is the foundation of tomorrow. A society that is not historically conscious is bound to make the same mistakes of the past (Abdullahi, 2008). The government should show more commitment with effective synergy in promoting historic tourism. There should be joined-collaboration efforts by all the three tiers of government, including community and private –sector participation on the

establishment of museums at least, one in each local government area.

Ukpere and Wabah (2018), further indicated that, there should be a sub-regional and regional collaboration to establish economically viable monuments and heritage sites. In order to checkmate the security concerns of tourist and the tourist centers, a formidable and well-coordinated tourism security committee compromising of all security agencies and host communities should be set up (Adora, 2010). Again, tourism in Nigeria needs to be fully integrated into the mainstream of the national economy. To this end, a robust national policy on tourism development should be put in place. The policy should clearly define what should be done from time to time. In addition, government should help to establish a national as well as regional tourism research centres. And this, like the national policy on tourism development, should involve the services of historians, archaeologists, planners, cultural and tourism geographers, and other related professionals (Adewale, 2012).

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