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## **Assessment of the Direct Experience of Nature in Selected Resorts in South West Nigeria**

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### **ABSTRACT**

*Biophilic design involves integrating nature into building designs to create a sustainable approach that reconnects people with nature. However, advancements in technology have resulted in a disconnection from nature. Therefore, it is important to find ways to incorporate natural elements into the built environment to reap the benefits of nature. This study investigates the level of biophilic incorporation in resorts to bring about a direct experience with nature. Random sampling was used in the selection of resorts for this study, and a case study analysis was done with data from Whispering Palms Resort, Badagry, Lagos, Nigeria and La Campagne Tropicana Beach Resort, Lekki, Nigeria. A descriptive analysis was conducted on the data collected, and the results were presented in tables. The investigation revealed that the assessed resorts had excellently incorporated some natural elements, but there is room for improvement. Stakeholders should focus on these areas of improvement, and continue to integrate biophilic design in the built environment.*

**Keywords:** *Biophilia, Biophilic Design, Nature, Resort*

### **INTRODUCTION**

Being near nature is one of the human needs that offers joy and fulfillment because it helps people to appreciate beauty and transformation. It is critical to human health and development as a need for presence and a strong desire for life (Ouf, 2019). For thousands of years, nature has been regarded to be beneficial to healing (Nicolás & Gomez, n.d.), and it has been incorporated into the human environment in the earliest man-made structures, with societies all over the world finding methods to bring nature into homes and public areas (Ryan et al., 2014).

Biophilia is the innate human urge to associate with nature. The word biophilia, which means "love of nature," implies a profound, natural connection between humans and nature (Brown et al., n.d.). While biophilia is a theory, biophilic design focuses on human adaptations to the natural world that have improved people's health, fitness, and well-being over time, by incorporating natural building materials, natural light, vegetation, natural views, and other natural world experiences into the modern built environment (Downton et al., 2017).

Biophilic design is, therefore, the philosophy, science, and practice of making buildings 'alive,' recognizing and developing connections with nature. It is a technique that provides a sustainable design approach that incorporates connecting people with nature in response to the human need to reconnect with nature inside developed settings (Brown et al., n.d.).

Biophilic design is an effort to properly appreciate the human urge for connection and solidarity with the natural world and how that desire influences the building of life-supporting environments. Kellert (Sharifi & Sabernejad, 2016) saw the Biophilic design as a fresh example of ecologically sustainable architecture with the ability to reconnect people with nature.

Biophilic design is not a new phenomenon, but with societal trends such as urbanization, new building styles, and lifestyle, there has been a decrease in human interaction with nature in the modern world and as a result, people seek out parks, gardens, and outdoor recreational facilities because they understand the personal health and wellbeing benefits that come from 'contact with nature' (Wanjugu, 2020). It is founded on the conception of biophilia theory via the lenses of architecture, urban design, landscape design, and sustainability. It is determined by the following factors: natural ventilation, natural lighting, organic forms (which occur naturally), and natural landscape. These features strengthen the bonds that people have with their environment (Asim et al., 2021).

A number of substantial attempts have been made to identify and link key aspects and features of biophilic design (Asim et al., 2021). Kellert, (2022), describes a design paradigm that divides biophilic design features into three (3) natural experiences. These include direct nature experiences, indirect nature experiences, and space and place experiences. 24 biophilic design features have been identified within these three experience categories.

Fig 1: Attributes of Biophilic Design. Source: (Gillis & Gatersleben, 2015)

<b>Direct Experience of Nature</b>	<b>Indirect Experience of Nature</b>	<b>Experience of Space and Place</b>
Light	Images of Nature	Prospect and refuge
Air	Natural materials	Organized complexity
Water	Natural colours	Integration of parts to wholes
Plants	Simulating natural light and air	Transitional spaces
Animals	Naturalistic shapes and forms	Mobility and wayfinding
Weather	Evoking nature	Cultural and ecological attachment to place
Natural landscapes and ecosystems	Information richness	-
Fire	Age, change and the patina of time	-
-	Natural geometries	-
-	Biomimicry	-

**A. The direct experience of nature:**

This refers to actual contact with built-environmental features. Natural light, air, plants, animals, water, sceneries, and other elements are included.

**Water:** Water's allure may be amplified when combined with the five senses of sight, sound, touch, taste, and movement. Various architectural solutions, such as vistas of important water bodies, fountains, aquaria, built wetlands, and others, might satisfy the demand for interaction with water. (Kellert, 2022; Maina, 2023).

**Air:** Natural ventilation improves human well-being in terms of both comfort and productivity. Airflow, temperature, humidity, and barometric pressure variations may all improve the sense of natural ventilation in a constructed environment. These variations can be generated using simple approaches such as moveable windows or more advanced technological and engineering solutions. (Kellert, 2022; Maina, 2023).

**Natural light** is essential for human well-being because it provides direction for the time of day, night, and season through knowledge of the sun's location and cycle. Understanding natural light may help with movement, navigation, comfort, and pleasure. Glass walls, reflecting surfaces and materials, and other architectural approaches may all be used to bring natural light into interior area (Kellert, 2022; Maina, 2023).

**Plants:** Plants can relieve stress, improve physical health, increase comfort, and boost performance and productivity. The use of solitary or isolated plants, on the other hand, is rarely useful. Vegetation in buildings and landscapes should be numerous, ecologically integrated, and tend to favor native species over foreign and invasive ones (Kellert, 2022).

**Animals:** Feeders, green roofs, gardens, aquaria, and aviaries, as well as the imaginative use of current technology such as web cams, video, binoculars, and spotting scopes, may provide positive interaction with animal life. Isolated and occasional encounter with animal life has minimal effect. When possible, engagement with animal life should encompass a variety of species and should prioritize local over non-native animals (Kellert, 2022).

**Weather:** Weather awareness and responsiveness have been fundamental features of people's experiences with nature throughout history, and are crucial to human fitness and survival. Weather perception and interaction in the built environment may be both pleasurable and exciting. This can happen through direct exposure to outdoor circumstances or through replicating weather-like properties by controlling airflow, temperature, barometric pressure, and humidity. Views to the outdoors, movable windows, porches, decks, balconies, colonnades, pavilions, gardens, and other design elements are included (Kellert, 2022; Maina, 2023).

**Fire:** The feeling of fire may be both soothing and frightening. The pleasurable presence of fire in the architectural environment may be achieved through the building of fireplaces and hearths, but it can also be reproduced through the creative use of light, color, movement, and heat conductance-varying materials (Kellert, 2022; Maina, 2023).

**Natural landscapes and ecosystems:** Design solutions such as engineered wetlands, forest glades, and grasslands; green roofs; simulated aquatic habitats; and other methods can be used to create self-sustaining ecosystems in the built environment. Views, observing platforms, direct engagement, and even active participation can all help to build contact with natural systems (Kellert, 2022; Maina, 2023).

The goal of biophilic design is therefore to create strong links between natural and man-made settings, which can promote health and well-being. Its principal purpose is to solve the limitations of current construction and landscape practice by creating a new framework for a pleasant experience of nature in the built world (Berkebile & McLennan, n.d.).

As a result of increased design freedoms provided by technology like insulated glass, air conditioning, and central heating systems, people lost the ability to discern between activities that were hazardous to environmental health and those that were not. In the last decade, individuals have understood that technology should not be a barrier. Rather, it should offer vital information (both locally and worldwide), as well as the tools needed to build the built environment constructively and effectively (Berkebile & McLennan, n.d.).

The potential and obligation to affect the basic ways humans engage with space rests on designers. This can be achieved by creating facilities that incorporate natural aspects into the entire experience (Wanjugu, 2020). Unfortunately, contemporary civilization frequently obstructs the great effects of being in nature, and there is an increasing alienation of humans from nature (Kellert, 2022).

Many recreational facilities are anticipated to offer an atmosphere in which people may benefit both physically and emotionally since they try to isolate individuals from the digitalized world through nature and outdoor activities (Wanjugu, 2020). Although some research has identified essential biophilic design elements (Downton et al., 2017; Gillis & Gatersleben, 2015b; Kellert, 2022; Mcgee et al., 2019), their benefits (Asim et al., 2021; Mcgee et al., 2019; Zhong et al., 2022) and how they can be incorporated in the design, many resorts provide a recreational experience through activities alone (Wanjugu, 2020), paying little attention to the actual design features that can enhance this goal; encouraging the use of natural systems and features (Bal & Czalczynska-Podolska, 2021; Kabir, 2016;). As a result, the purpose of this research is to fill a need by researching the use of Biophilic Design Elements in current resort areas.

## **RESEARCH METHODOLOGY**

This study is a qualitative investigation that used an architectural case study research technique to critically assess the inclusion of a direct experience of nature based on Kellert's (2022), Kellert, S. and Calabrese, E. (2015), Kellert S. (2012), Kellert, S.R, Wilson, E.O. (1993), Kellert, S. and J. Heerwagen. 2009 and Kellert S.R. (2005) framework on biophilic design attributes. Random sampling process was used in the selection of resorts and, Whispering Palms Resort in Badagry, Nigeria, and La Campagne Tropicana in Ibeju-Lekki, Nigeria, were chosen as case studies. The interior, exterior, and landscape elements of the selected case studies were assessed based on the availability of the biophilic design attributes using a scale of 1 to 5, where 1 = poor use/availability, 2 = fair use/availability, 3 = good use/availability, 4 = very good use/availability, and 5 = excellent use/availability. The study was descriptively analyzed, and the results were presented descriptively with tables and figures.

## RESULT AND DISCUSSION

Table 1: Assessment of Direct Experience of Nature

No	Features/Attributes	Case Study 1: Whispering Palms					Case Study 2: La Campagne Tropicana				
		Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
1	Water					•					•
2	Air			•							•
3	Natural Light		•								•
4	Plants					•					•
5	Animals				•			•			
6	Weather				•						•
7	Fire		•						•		
8	Natural Landscapes and Ecosystems	•							•		

### Application of Water in selected case studies

Table 1 demonstrated that water was well-integrated into Case Studies 1 and 2. The use of water in the evaluated case studies is illustrated with a few images in Figs 2 and 3.



Fig 2: Water in Whispering Palms Resort  
Source: Researcher's Fieldwork



Fig 3: Water in La Campagne Tropicana  
Source: Researcher's Fieldwork

Based on the results presented in Table 1 and Fig 2&3, it is evident that case study 1 (Whispering Palms Resort), and case study 2 (La Campagne Tropicana) prominently utilized water. This suggests that users in these environments may feel naturally energized (Ryan 2015), and experience a reduction in their stress levels; as water has a calming effect on man (Van den berg et al. 2003).

This result shows that the designers of these selected case studies have applied water appropriately in the resort by choosing a location with a prominent water body. This impact of water will extend beyond its physical manifestation, as its presence contributes to creating a vibrant and engaging atmosphere thus, fostering positive experiences for users of the resort.

#### **Application of Air in selected case studies**

Table 1 demonstrated that natural ventilation is good in Case Study 1 and exceptional in Case Study 2 due to the utilization of many window openings. The use of air in the evaluated case studies is illustrated with a few images in Figs 4 and 5.



Fig 4: Air in Whispering Palms  
Source: Researcher's Fieldwork



Fig 5: Air in La Campagne Tropicana

Source: Researcher's Fieldwork

Based on the results presented in Table 1 and Fig 4&5, it is evident that case study 1 (Whispering Palms Resort) has good use of air, while case study 2 (La Campagne Tropicana) excellently utilized air via the use of multiple windows and the positioning of the rooms in a way that allows ample air movement from all areas. This suggests that users in case study 2 are likely to experience enhanced creativity levels according to Mehta et al (2012). Despite a relatively lower presence of air in case study 1, its users are still likely to experience positive outcomes.

### **Application of Natural Light in selected case studies**

Table 1 revealed that the use of natural light is fair in case study 1, but excellent in case study 2. This application in the evaluated case studies is illustrated in Figs 7 and 8.



Fig 6: Natural Light in Whispering Palms

Source: Researcher's Fieldwork



Fig 7: Natural Light in La Campagne Tropicana

Source: Researcher's Fieldwork

Based on the results presented in Table 1 and Fig 6&7, it is evident that case study 1 (Whispering Palms Resort) has fairly made use of natural light, as its spaces appeared dark without the presence of artificial lighting elements. Case study 2 (La Campagne Tropicana) on the other hand, excellently utilized natural light via the use of multiple windows and large openings. This suggests that users in case study 2 are likely to experience a better sense of security than users in Case study 1, as a result of the prospect that the design of open and unrestricted spaces represents (Leslie (2008); Friedman 2017).

#### **Application of Plants in selected case studies**

Table 1 demonstrated that plants were well-integrated into Case Studies 1 and 2. The use of plants in the evaluated case studies is illustrated with a few images in Figs 8 and 9.



Fig 8: Plants in Whispering Palms



Source: Researcher's Fieldwork



Fig 9: Plants in La Campagne Tropicana  
Source: Researcher's Fieldwork

Based on the results presented in Table 1 and Fig 2&3, it is evident that case study 1 (Whispering Palms Resort), and case study 2 (La Campagne Tropicana) have excellently incorporated plants in their facilities. The incorporation of plants acts as natural modulators of fear and surprise for the pedestrian according to Van Wieren and Kellert (2013). Browning et al(2014)'s research also supports that a good connection with ongoing natural processes and systems will bring about relaxation, nostalgia, enlightenment, and repeated anticipation while also minimizing stress and creating visually preferred environments.

#### **Application of Animals in the selected 2 case studies**

According to Table 1, the incorporation of animals in Case Study 1 is very good, while its application in Case Study 2 is fair. Figures 10 and 11 show how animals were used in the case studies that were evaluated.



Fig 10: Animals in Whispering Palms  
Source: Researcher's Fieldwork



Fig 11: Animals in La Campagne Tropicana  
Source: Researcher's Fieldwork

From Table 1 and Fig 10&11, it is evident that case study 1 (Whispering Palms Resort) has a very good incorporation of animals in the resort via the presence of a mini zoo, while case study 2 (La Campagne Tropicana) has fairly incorporated animals in the facility. This is seen in the presence of horses for users to ride, and the naturally occurring animals in the site's adjoining body of water. This suggests that users in case study 1 are likely to experience enhanced creativity levels and a reduction in the degree of pain experienced by patients of flexible bronchoscopy. This is supported by Mehta et al (2012) and Diette (2003)(Asim et al., 2021). Despite a relatively lower presence of animals in case study 2, its users are still likely to experience positive outcomes.

#### **Application of Weather in selected case studies**

Table 1 demonstrated that the inclusion of weather was very good in Case Study 1 and outstanding in Case Study 2. This application is illustrated in Figures 12 to 15.



Fig 12&13: Weather in Whispering Palms  
Source: Researcher's Fieldwork



Fig 14&15: Weather in La Campagne Tropicana  
Source: Researcher's Fieldwork

Based on the results presented in Table 1 and Fig 12 to 15, it is evident that the inclusion of weather in case study 1 (Whispering Palms Resort) is very good, while it is excellent in case study 2 (La Campagne Tropicana). Case studies 1 and 2 incorporated outdoor seating areas and case study 2 also included wraparound porches in addition to the outdoor seating, allowing users experience the outdoors from the comfort of a refuge. This incorporation of weather provides individuals with a sense of defense and surveillance against the outdoor environment (Ruddell and Hammitt 1987).

### **Application of Fire in selected case studies**

According to Table 1, the use of fire was deemed fair in Case Study 1 and very good in Case Study 2. This was achieved through the implementation of different colors, materials, and lighting strategies. Examples of how fire was utilized in these case studies are shown in Figures 16 and 17.



Fig 16: Fire in Whispering Palms  
Source: Researcher's Fieldwork



Fig 17: Fire in La Campagne Tropicana  
Source: Researcher's Fieldwork

Table 1 shows that case study 1(Whispering Palms Resort) had a fair use of fire, while case study 2 (La Campagne Tropicana) was very good. Introducing fire or elements of fire is a way of introducing levels of risk and control in design, which enhances problem-solving and decision-making skills(Asim et al., 2021).

### **Application of Natural Landscapes and Ecosystems in selected case studies**

The incorporation of natural landscapes and ecosystems is poor in case study 1, and fair in case study 2.



Fig 17: Natural Landscapes and Ecosystems in La Campagne Tropicana  
Source: Researcher's Fieldwork

Table 1 shows that case study 1(Whispering Palms Resort) poorly incorporated natural landscapes and ecosystems as there is little to no presence of naturally existing habitats, while in case study 2 (La Campagne Tropicana), there is a good incorporation of natural landscapes and ecosystems via the presence of fishing areas, and a naturally existing forest on the site. White et al. (2010)'s research as discussed in Asim et al., (2021) confirms that increasing the proportion of visible aquatic space can increase user preference for the space.

## CONCLUSION

Conclusively, the result from this study has shown that case study 2 excellently incorporated water, air, natural light, plants and weather except for animals, natural landscapes and ecosystems and fire. Case study 1 on the other hand, has excellently incorporated water and plants, while animals and weather were incorporated in a very good way. The incorporation of air, natural light, fire and natural landscapes and ecosystems is good, fair and poor respectively in case study 1. In light of this research, it is observed that case study 1 and case study 2 have largely been able to incorporate nature in their environment, allowing users of their facilities access to a direct experience of nature through the inclusion of water, air, natural light, plants, weather, animals, natural landscapes and ecosystems and fire. Although there is room for improvement, this research has shown that stakeholders are now actively incorporating biophilia in the design of the built environment, an approach that offers users a connection to the natural world.

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