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Editorial Note

KWASU Journal of Research in Tourism and Hospitality Management (KJRTHM) calls for research paper in all areas of tourism and hospitality management and its related studies for publication in its biannual series in June and December. Original research papers, survey papers, case studies, reviews and academic or scholarly articles of high quality that focuses on research, development and application in the aforesaid areas are welcome. KJRTHM aims to encourage scholars to write research reports of academic understanding on themes related to regional, national and international development. It publishes conceptual, theoretical and empirical academic research studies and works in Arts, Science, Social Sciences, Education, Management Sciences, Agriculture and multidisciplinary studies related to past, current and future issues in tourism and hospitality management.

The main objective of the journal is to publish seminal articles on tourism and hospitality management and open up new areas of thinking in policy formulation, program theories and practices particularly in relation to people, culture, travel, environment, events, heritage, social and economic development in local, national and global perspectives.

Editorial Guidelines

Original articles, which have not been published elsewhere, are acceptable for publication. The article must confirm to the following format:

- It shall have an Introduction, Literature/Theoretical Survey, Methodology, Discussion of Findings, Conclusion and References. Articles should be limited to a maximum of fifteen (15) pages, A4 paper size in *Times New Roman* 12pt font, sub-headings in 12pt font (uppercase) with 1.15-line spaces.
- Titles of the paper shall not be more than 15 words, centred and in 20pt font, Author(s) name(s) in 18pt font.
- The cover page should bear the title of the articles, the names of the Author(s), and short address identifying designation and institution (affiliation) of the Author(s). An abstract of not more than 250 words shall be attached.
- Figures tables and charts are included within the body of the article; and shall not spread across two pages. Reference should be done on a separate page of the article, arranged in alphabetically, order, in line with the current American Psychological Association (APA) form. Use 12pt font for references.
- Articles submitted are to be subjected to blind peer review and plagiarism check for relevance and originality.
- An assessment fee of **N5,000.00** shall accompany submission. If publishable, it will be referred to the author(s) for final corrections (if any) and will be published in the next volume. ii

KWARA STATE UNIVERSITY JOURNAL OF RESEARCH IN TOURISM AND HOSPITALITY MANAGEMENT (KWASU-JRTHM) VOL 1(1), (2024)

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FROM THE EDITOR'S DESK!

It is with immense pride and great pleasure that I present the inaugural issue of the **KWASU Journal of Research in Tourism and Hospitality Management (KWASU-JRTHM)**. This milestone marks a significant achievement for the Department of Tourism and Hospitality Management, the Faculty of Management and Social Sciences, and the entire Kwara State University community, Malete, Kwara State; as we launch a dedicated platform to advance scholarly dialogue and research in the vibrant fields of tourism, events and hospitality management.

The first volume, published in December 2024, features a diverse array of high-quality original research papers, survey studies, case analyses, reviews, and academic articles. KWASU-JRTHM aims to inspire scholars to contribute rigorous research that enriches academic understanding of regional, national, and international development themes. The journal embraces conceptual, theoretical, and empirical works across multiple disciplines relevant to tourism, events and hospitality management.

This premier edition explores critical topics including tourism development in North East Yorubaland, leveraging agro-tourism for rural economic empowerment, waste management in Nigerian hospitality and tourism, food safety, security challenges and the digital transformation of Nigeria's hospitality sector, among others. These contributions embody our vision to publish impactful scholarship that informs policy, programme design, and practice - addressing people, products, culture, travel, environment, events, heritage, and socio-economic development at local, national, and global levels.

I extend my heartfelt gratitude to the editorial board, associate editors, editorial advisory members, The Vice Chancellor and Management of the Kwara State University (KWASU) for their unwavering dedication in bringing this journal to life. We look forward to your continued support and scholarly contributions as KWASU-JRTHM publishes biannually every March and September.

Thank you for joining us on this exciting journey.

Sincerely,

Professor Wasiu A. Babalola

Editor-in-Chief

THE DEVELOPMENT OF TOURISM IN NORTH EAST YORUBALAND, NIGERIA: A SOURCE OF PRESERVING NATURAL AND CULTURAL HERITAGE

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ABSTRACT

The paper examines the need for developing tourism in North-East Yoruba land, Nigeria. It considers the opportunity for preserving for tourists the use of the natural and cultural heritage resources in the area for visits, relaxation, leisure and education. The natural tourism centers discussed in the text include rock shelters, rock outcrops, waterfalls and mountains. Cultural heritage centers include archaeological sites, royal palaces, traditional technological centers and museums. The paper reveal that though tourists may constitute a menace to tourist sites, it discussed how appropriate efforts can be made to forestall such an undesirable destruction they could cause to development of tourists' sites. Developing tourism involves preserving for human use, our natural and cultural heritage for purposes such as visits, relaxation, leisure and education. Natural tourist centers discussed here include rock shelters, rock outcrops, waterfalls and mountains, while cultural tourist centers include archeological sites, royal palaces, traditional technological centers and museums. Though tourists constitute a menace to tourist sites, appropriate efforts could be made to forestall such and undesirable destruction they could cause to development of tourists' sites.

Keywords: Tourism, Natural heritage, Cultural heritage, Museums and Mountains.

INTRODUCTION

The tourists' resources discussed in this text are located within the physical environment of North east Yoruba land, Nigeria. Environmentally, tourism, when properly developed and managed, can serve as a mechanism for protecting natural environments; preserving historical, archaeological and religious monuments; and stimulating the practice of local cultures, folklore, traditions, arts and crafts, and cuisine (Nigeria Tourism Master Plan (NTMP), 2005). As stated in the NTMP 2005, tourism can have a profound impact on the society, economy and environment of nations. Socially one of the most immediate benefits of the tourism industry is its ability to create employment and has the potentials to create more jobs per unit of investment than any other industry and tourism can be a useful source of employment for women and ethnic minority groups. Economically, tourism brings many benefits to the central government, local authority and private sectors through the generation of foreign revenue, financial returns on investment, taxation on tourists and tourist products and linkages to other local industries such as agriculture and fisheries (NTMP 2005). The UNWTO convincingly pointed out that with its enormous economic power and high potentials for employment creation and its capacity to its socio-economic benefits to all levels of society, tourism can be a leading sector in the fight against poverty. North east Yoruba land will be blessed with the opportunity of developing the life of the people of the area if the State and Local Government imbibe developing tourism in the area.

Methodology

The study employed Participant Observation, Field Survey and Ethnography. The sites were visited and necessary information were collected through Interview Method from members of the communities. Focus Group Interview was used at the Palace of Oba Odo

Owa. The Oba assembled some of his chiefs. They responded to our questions on what tourism resources exist in the area and at where. They later led us to the sites of the available resources. They include Imoleboja rock shelter and Oro Omola waterfall. We enjoined similar cooperation in East and West Yagba where we carried out Field Survey and Ethnographic Interview.

Location of the Study Area

North east Yoruba land, where this study was carried out comprises of about six Local Government Areas. These include Irepodun, Ifelodun, Oke Ero, Ekiti, East and West Yagba Local Government Areas (Figure 1). The area is within River Niger Basin. It is blessed with varieties of natural and cultural resources.

History of Tourism in The Study Area

People in North east Yoruba land had been practicing cultural tourism since historic times. These are evident in their festivals, customs and their material culture. Cultural festivals were practiced before the coming of the white people. Relations and neighbours travel to festivals towns and or/ places when the celebration begin. Buying and selling increased among the people during such times and sellers make some good profits. Many of the traditional cultural festivals have now developed to national and international tourist events (Aremu 2024:12).

Tourism Development in Nigeria

Nigeria had historic launching of the country's Tourism Policy in July, 1990. The conspicuous position of tourism in international business arises from the emphasis that the richest nations of the world have placed on tourism. Regrettably, for nearly three and a half decades since after independence, tourism has remained a passive sector in the Nigerian economy. Having been aware of this lapse, and in an attempt to rectify it, there was the historic launching of the country's Tourism Policy in July, 1990.

Decree 81 of 1992 was promulgated to give birth to an aggressive and commercially oriented Nigerian Tourism Development Corporation which is the apex of Tourism Agency for the Federal Republic of Nigeria. It was charged with the overall promotion, marketing and coordination of Tourism activities in the country (Alabi 2024). To make their good intention of promoting tourism effective, the Federal Military Government Promulgated Decree No 81 in December 1992. The decree is referred to as "Nigerian Tourism Development Corporation Decree 1992." For each Local Government, there should be "The Local Government Tourism committee". It is part of their responsibilities to "preserve and maintain monuments and museums in their area of jurisdiction", (cf. supplement to official Gazette Extraordinary No. 71, vol. 79, 31st Dec. 1992 Part A, in Alabi 2024). Thus, preserving our natural and cultural heritage is part of the primary duties of Tourism Development and by such preservation tourism could be enjoined and beneficial. Before then, there was the absence of long-term tourism policy and the non-integration of tourism policy objectives in the National Development plans. Also, there was lack of articulated criteria for planning and developing tourism facilities. Moreover, there was the absence of functional financial instruments for tourism development and promotion (Aremu, 2024)

The tourism policy of Nigeria was therefore to serve as the basis for addressing these matters. The Nation is presently giving due attention to the development of Tourism in every part of the country.

The transformation of the Federal Ministry of Trade into Federal Ministry of Trade and Tourism in January 1990 and the subsequent change of the ministry to

Commerce and Tourism in 1992 help to facilitate the growth of Tourism industry. The overall objective of the Tourism Policy of 1990 is to increase the inflow of foreign exchange through the promotion of international tourism and encourage the even development of tourism-based enterprises. It is also to foster socio-cultural unity among the various groups in the country through the promotion of domestic tourism (Alabi 2024).

There is a new awareness in this part of the world that tourism could be profitable. Countries like Kenya, Gambia and Tanzania are making over 50 percent of their national income in wildlife tourism alone (Alabi 2024). Nigeria's tourism assets are diversified and many. It is hopefully not going to be effort in the wrong direction to develop tourism. Apart from the fact that developing tourism helps to preserve our natural and cultural heritage, it helps to generate revenue for the government, and helps to create job opportunities for our teeming rural population. It helps to promote the leisure culture. People would be able to travel out of home during which several of many places are visited. We learn new information about our environment (and our natural and cultural heritage) while on tour. Tourist centers provide us places of interest to visit or spend our public holidays. Through tourism, we portrayed our socio-cultural heritage and natural endowments in the best light to the glory of our country.

Other Benefits of Tourism

One of the most important challenges facing the modern world is the fight against poverty. This is a battle that governments, agencies and institutions have been fighting over decades. UNWTO (2005) are of the opinion that with its enormous economic power and high potential for employment creation, its capacity to spread its socio-economic benefits to all parts and remote areas of developing and least developed countries and its sustained resilience in times of crisis, tourism can be a leading sector in the fight against poverty. This might be one of the reasons that many governments have placed tourism on the top of their developmental agenda. If the effort to develop tourism succeed in Nigeria there would be increase inflow of foreign exchange through the promotion of domestic and international tourism. It would encourage even development of tourism based-enterprises. Developing tourism would accelerate rural/ urban integration. It would foster socio-cultural unity among the various groups in the country through the promotion of domestic tourism and would help to preserve our cultural and historical monuments (Aremu 2024:14-15).

Although tourism development is capital intensive, it has long-term profitability and except there is war, tourism market would continue to expand and increase abundantly once the products and infrastructural facilities are in place.

Barriers Facing Tourism Development in North east Yoruba land and Nigeria in General

Many Nigerians are not aware of what tourism is all about. They do not know they have anything to gain by promoting tourism, there is a need to embark on a massive and aggressive publicity campaign among Nigerians on the potentials and significance of tourism in our National Development. Infrastructures such as roads, water, electricity and accommodation are still not available in many of the places with tourist resources. Improvement of the infrastructure and security of life will encourage tourists to visit our local tourist sites (Aremu 2024: 23-24). Issuance of Visas are made difficult for foreigners and that limited the foreign tourists. Instead, government should simplify the issuance of

visas to intending visitors such that they could be issued immediately on application or in case of bona fide tourists arriving at our ports with return tickets, visas should be issued on the spot.

Tourism development is capital intensive, due to poor allocation of annual budget for tourism the sector did not develop as expected. Tourism has long term profitability if adequate capital is invested into its development. Tourism has proved to be a distributor of wealth, it ought to be one of the priorities of the government of this country (Alabi 2024:30). We are aware that the average Nigerian worker hardly has anything left to spend on leisure and recreational outing after housing, feeding, transportation and family related obligations must have been met. In such hard situation the inspiration is for survival and hardly ever for tourism. Nigeria government present scale and condition of service in general needs improvement, less our tourist centers may attract few people from within the Civil Service. It is also observed with regret that due to delay in developing tourism in this area and Nigeria in general, many tourist sites might have been destroyed and many aspects of our culture neglected. No wonder, a lot of concerned citizens at various fora have called for the preservation of our cultural and natural heritage in Nigeria. Developing tourism is one of the ways of meeting such needs.

Efforts should be made to protect tourist sites from vandalism and looting. Reports should be made to the nearest police station where such inhuman behavior takes place.

Tourist Attractions in Northeast Yorubaland

While I was serving as a member of Ekiti Local Government Authority, Tourism Committee, we surveyed the Local Government Area for tourist attractions in June 1992. The neighbouring Iyagba West Local Government Authority specially requested my assistance in April 1993 to help survey their Local Government Area for tourist resources. During the survey, many of our cultural monuments and sceneries were discovered in the two Local Government Areas in Northeast Yorubaland (fig 1). Having located those sites, some definite efforts had been taken to preserve and maintain them for tourism.

A good example is the cultural museum at Esie (Irepodun L.G.A.) also in Northeast Yorubaland.



FIG. 1: the map showing the study area

Natural Sites: In Ekiti Local Government Area, we discovered *Imoleboja Rock-shelter* between Odo Owa and Ilofa. The Rock shelter is within the Southern Guinea Savanna belt. As observed by Costello (1943) and Aremu (1990), the region is a transition zone at the Northern extreme of the rain forest. Here, the rain forest zone breaks its continuity to merge in a series of strips and patches into a background of savanna woodland. The site (i.e. the rock shelter Fig.2) is a suitable archeological site for intensive studies. Some stone tools suggested to be flakes and hand-axes were recovered on the ground surface, in the southwest outside the rock shelter. They were made of granite rock which is the rock shelter material.

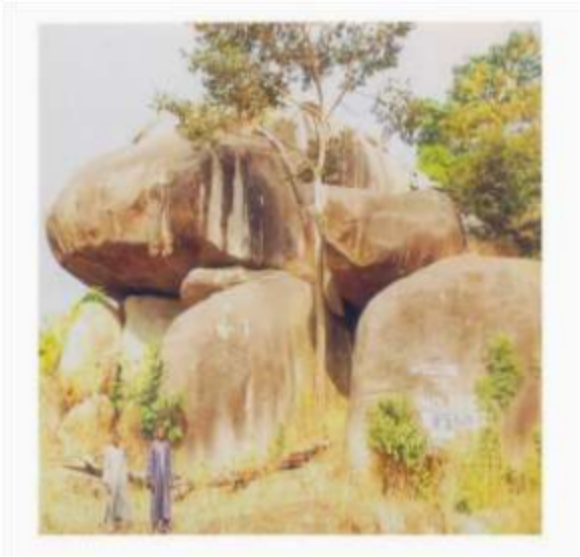


FIG. 2: Imoleboja Rock-shelter

In West Africa and Nigeria in particular rock shelters exist with ample evidence of past human occupation and these include Iwo Eleni rock shelter (Ondo State) where we have the earliest hominid remain in West Africa dated to about 11,000 B.D. (Shaw. *et. al* 1984). Iwo Eleru is less than 200kms Southwest of Imoleboja rock shelter Itaakpa rock shelter at Iffe Ijumu in Kogi state (also in Northeast Yorubaland) yielded a calibrated date of 300 B.C. (Oyelaran 1991). It is hoped that dates from Imoleboja rock shelter might be also old. Our ethnographic studies showed that the people named the site after God's marvelous architectural work of the rock shelter. Thus, "Imole boja" or Imole bo aja" means "God that made his own ceiling (Adimula, Oba of Odo Owa: 1992, Pers. Comm., Ashaolu: 1992, Pers Comm.). according to Oba Adimula, Odo Owa people met the rock shelter there. They worshipped the god of the rock shelter (*Imole*: the local name for GOD amongst the people of Odo Owa) once in a year in April. Their forefathers took refuge in the rock shelter (which can contain up to one hundred people) during the Yoruba wars of the 18th and 19th centuries A.D. The opponent army, led by one Adamu, leader of Ilorin Fulani army, discovered their hideout, drove them away and occupied the site until he (Adamu) was killed and his army defeated.

The rock shelter played a role in traditional wedding ceremonies in the past in Odo Owa. Mass wedding as practiced at Sao, Moro Local Government Authority of Kwara State, used to take place among Odo Owa people. This practice had discontinued, instead, wedding is now at the convenience of the bride and the groom. Marriageable ladies usually came from Odo Owa and Ilofa (a neighbouring Odo Owa Community) to hide in the rock shelter for a day or two before their wedding. Young men from the two communities would then organize search parties to the rock shelter where they would persuade the would-be-wives to return to town. It was the duty of the bridegroom of each of the girls to prepare food for them for as long as they were in the rock shelter.

There is Owoo rock shelter at Obo Aiyegunle with another divinely piled outcrops over one another and with space inside, half as large as that of Imoleboja rock shelter. Archeological excavations here might also yield some prehistoric information. Such will add to tourist education about the site.

In West Yagba Local Government Area, we were led to Okuta Aja rock-shelter at Omi. It is at the West of Oyi river and about 400 meters to the Southwest of Omi dam along Oyi river. During the Yagba-Nupe war, some of the Yagba people came to hide inside the rock shelter. It is not as spacious as Imoleboja but about the size of Owoo rock shelter. One Mr. Ajewole Dalero farmed at Okuta Aja. While other farmers around built huts for relaxation, keeping of some farm products and for their protection from sun and rain, Dalero used the rock shelter to enjoy those facilities.

At Idofin Aiyekale, there is Ojokolo mountain (1,550 metres above sea level) (Fig. 3). It provides opportunities for mountaineering. There is a large rock shelter on Ojokolo mountain. Other cultural resources on the Mountain top include burial sites, iron working and brass casting sites. Rock outcrops are background of the rock shelters south of the site. The large rock shelter is the *Oju'bo, i.e. the shrine.* It is where their ritual spot (*oju'bo*: Yoruba) exist. The people worship the god of the mountain and celebrate Ojokolo festival annually. The rock shelter just northeast of the village square has a small mud wall inside it some excavations can take place in the rock shelter for information of what exist beneath the ground surface.

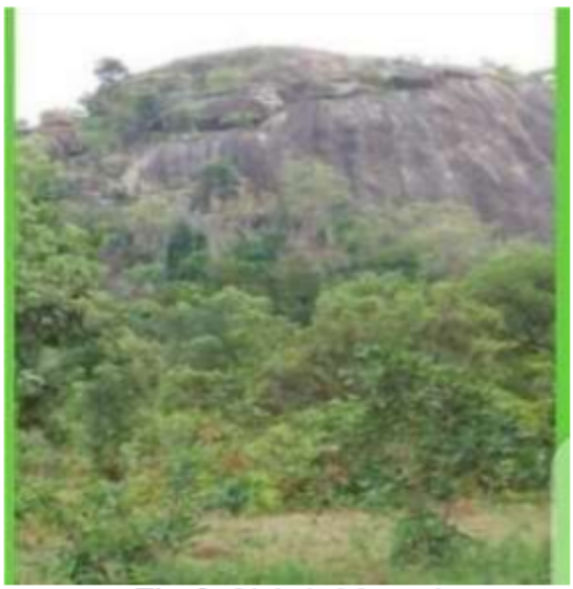


Fig. 3: Ojokolo Mountain

The site is an abandoned hilltop settlement. It was occupied during the Yoruba wars of the 18th and 19th centuries A.D. (Aremu 1990). It is the highest mountain in this area. Steel steps will be needed to facilitate climbing of the mountain for mountaineering. One can see as far as Egbe in Kogi state to the east on top of the mountain. The discovered attractions, the rock shelter, the mountains for mountaineering, have historical and cultural significance to the communities where they are located (Aremu: 2024). Developing the sites will bring about preserving some of the people's historical and cultural heritage apart from the fact that they are natural endowments in the area. Observation shows that having an archeologist on a tourism committee is a wealth of blessings. While others may not know what is a rock shelter or archeological site, by his training he knows.

Apart from rock shelter, we discovered in Ekiti Local Government Area Oro Omola Waterfall. The waterfall is along Ero river between Idofin Igbana and Ajuba. The river flow northeastward to river Niger. The outcrop of a band of hard rock caused the waterfall down the river. It has a great volume and it is about 100 meters from the fall to the plunge pool. The fall is at its highest volume during the rainy season between July and October. It is within a beautiful riparian Guinea Savanna Forest. Development of the banks of the waterfall is already taking place.

At Obo, there is Ipole Hill, an abandoned settlement site. It is a site occupied since about the 16th century A.D. dated from brass casting site on the hill top (Aremu D.A. 1990). It is a suitable refugee site where the people hide during the Yoruba wars. **Wildlife Tourism** can be developed on the hill top. Many wild animals exist there and the topography provides opportunity for that. This would prevent overkill of animals in the area.

Okutadudu rock outcrop at Odo Ere is to be developed into an amusement park by West Yagba Local Government. The rock outcrop covers an area of about 16,000 sq meters. It is near Okutadudu Community Secondary School named after the outcrop). In the past all Yagba West do meet to discuss important matters on Okutadudu outcrop. It is still memorable that it was at this place that the people of West Yagba met and rejected the rulership of the Nupes

in about 1933. This was when the British placed a section of West Yagba in the Nupe dominated Lafiagi Pategi Division in the former Ilorin Province. This rejection was followed by Mokobon Protest movement which ended Nupe rule in Yagba in 1934 (Ijagbemi 1984). Even though the site is not yet developed, it is being used for recreation, by various groups such as hunters and Youths who come for picknicks.

In developing the site for amusement park, necessary social amenities would be provided to make the use more enjoyable.

Cultural Sites and Events:

In West Yagba Local Government Area, **Omi dam** is just a few distance east of Okuta Aja rock shelter mentioned above. Visit to the site will provide worthy leisure and education. There is a rock outcrop about 100 meters west of the dam. The rock outcrop can be used as picknick site while you enjoy the scenery of the dam water at a distance. There is a traditional iron smelting furnace on Akata Hill which is about 2kms south of Odo Ere, West Yagba Local Government Area headquarters. Few of such site is preserved in Nigeria. The furnace is in a circular form, though half of it had been demolished but from the remaining structure a reconstruction of the furnace was made (Aremu 1990. Plate 4), such circular furnace was commonly demolished in order to get into the center and remove the smelted iron (the bloom). The furnace is living evidence that Nigerian also smelted iron in the historic past and had not to wait for European importation before using iron. It is a place suitable for development into a tourist site. The furnace should be preserved by building a shelter on it.

There is DAMCO Tin Mining Company site at Odo Ara in West Yagba L.G.A. It is a tourist Site that attracts many Company's customers to the place. The Company was established by a former Lecturer of the Department of Geology, University of Ibadan, who after retirement had gone into private Mining Business. The Local Government is blessed with lots of mineral resources, in the area. This includes tin, gold, tantalite, columbite beryl and iron ore (Raeburn 1924; Aremu 1990). Gold is found at Afo stream about half a kilometer north of Akata on the foot path from Akata to Odo Ere and at Okolom (East Yagba L.G.A).

In 1913 several mining companies began operations in Egbe district. The years immediately following the first world war witnessed what one might call a "gold rush" in Yagbaland (Shimoyan 1989 in Aremu 1990), Europeans and a few Nigerian businessmen were excited by it. This was an opportunity for investment and for fast returns usually associated with the mining industry. By the late 1920s a sizeable portion of West Yagba had been shared among about half a dozen European mining companies (NAK. ILOR – PROF. No. 1840). The trade did not prosper well but went on until early 1940s when many of the miners disappeared from West Yagba. In recent time an indigenous company DAMCO settled at Odo Ara carrying out tin mining in the area. With the cooperation of DAMCO, the Local Government can take tourists who want to visit the mining site there. They will learn about how tin is mined and what it is used for.

The Local Governments have been encouraged to build museums at the L.G.A headquarters some tin samples including brass objects and pottery from West Yagba Local Government could be exhibited in the museum. At Araromi Opin, Ekiti, Local Government headquarters, an area of land had been acquired for the construction of a park and a museum. The products of the famous Obo Aiyegunle brass caster, Michael Bamidele, and the beaded works of Chief Obanla at Aiyedun who had made beaded crowns for many southern Nigeria

Obas and Obis could be part of the exhibition at the museum. It could also contain some Osi carved wood and Odo Owa black soap.

At Esie in Irepodun Local Government, also in North east Yoruba land, there is a museum. It houses over 800 stone figures and their numerous fragments that have been found in and around the town. They are carved in soapstone. They range from about 17.5cm to nearly 1.3m in height. The stone carvings were made in or around the area where they have been found (Pogoson 1990, Aremu 2006). The Esie museum (the first Nigeria Museum) was built by the National Commission for Museum and Monuments between 1945 and 1962. It is preserving the cultural heritage of the people and it is also use as tourist site. *Ere* Esie (Esie image) festival comes up annually in April and people came from near and far for the celebration (Fig. 4).



Fig. 4: Esie Soap Stone Images (Pogoson, 1990)

A lot of other cultural tourism exists in North east Yorubaland, these include the Epa festival at Aiyedun and Idofin, Agan at Obo Aiyegunle and Egungun elewe is practiced in North east Yoruba land in general. Sango and reburial by hunters are common in Igbomina. Ekiti and Yagba. The Royal Palaces at Obo Aiyegunle and Odo Owa in Ekiti L.G.A. are suitable tourist attraction. At the two centers the modern palace buildings are near the old ones. The old ones should be preserved to remind us of Nigerian traditional architecture of royal palace and what a traditional Yoruba palace look like. The National Commission or Museums and Monuments, Lagos in 1990 promised to help preserve the Owalobo palace at Obo Aiyegunle. They are yet to carry out their promise.

Hotels and Tourism Development:

Tourism is not all about building glass house hotels. That is one mistake many Third world sadly made. Tourism is essentially about the flaunting of nation's peculiar natural endowments – landscape, flora and fauna, her historical relics, no matter the bitter memories they invoke, and of course her culture. It is a truism that most tourists are out to unwind or escape the social boredom and pressures of their countries of origin and so require a good hotel to sleep in and perhaps have fun, but tourism experts worldwide agree that hotels have never been the first attraction in the choice of tourists. All the site mentioned in North east Yoruba land are not distant from the state capitals of Ilorin (in Kwara State) and Lokoja (Kogi State) where some good international hotel accommodations are available.

At Egbe, in West Yagba Local Government, Skyway Hotel and Asagun Hotel are of very good standard. Air conditioner, light and pipe-borne water are present there. Both have facilities for feeding and accommodation. Their restaurants and bars

are also well organized and their services adequate.

Egbe is not far from any of the towns and villages in West Yagba Local Government Area. I recommend any of the hotels in Egbe while our tourist can easily travel to any part of the Local Government where tourist attractions exist. All the places where tourist attractions are located in Ekiti L.G.A. and Esie in Irepodun L.G.A. are less than an hour's drive to Ilorin the Kwara state capital where hotels of international reputation exist. There are some hotels at the two Local Governments that maintain good standard and will provide adequate needs for tourists as well.

It is a reality and with regret that due to delay in developing tourism in this area and Nigeria in general, many tourist sites might have been destroyed and many aspects of our culture neglected. No wonder, a lot of concerned citizens at various fora have called for the preservation of our cultural and natural heritage in Nigeria. Developing tourism is one of the ways of meeting such needs. Efforts should be made to protect tourist sites from vandalism and looting. Reports should be made to the nearest police station where such inhuman behavior takes place.

CONCLUSION

Developing the tourist attractions discussed above in North east Yoruba land will help to preserve, protect and manage adequately our natural and cultural heritage at the centers. Tourism helps to generate fund, it helps to promote leisure and without doubt, it helps to promote, protect and preserve our cultural and natural heritage. If all the sites discussed above are developed as tourist centers, they will all be preserved, thus, preserving our natural and cultural heritage in North east Yoruba land.

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HARNESSING AGRO-TOURISM FOR RURAL ECONOMIC EMPOWERMENT IN NIGERIA

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ABSTRACT

Agro-tourism presents a unique opportunity to drive rural economic empowerment by integrating sustainable agriculture with eco-friendly tourism. This study examines how agro-tourism serves as a catalyst for rural development in Nigeria, highlighting its potential to boost local economies, generate employment, and promote environmental conservation. Drawing on case studies from Oyo, Ekiti, Benue, Kaduna, Ogun, and Cross River States, the findings reveal significant contributions of agro-tourism to job creation, skills development, income diversification, infrastructure investment, and cultural preservation. For instance, Ekiti State recorded a 25% increase in employment, while farmers in Benue experienced a 40% increase in annual income. Kaduna witnessed a 150% rise in tourist visits, and Ogun recorded a 30% growth in farm product sales. Community initiatives in Cross River led to a 50% income boost through profit-sharing schemes. In addition to economic benefits, agro-tourism promoted cultural exchange and education through workshops and tourist engagement with traditional farming practices. Despite these successes, challenges such as limited funding, inadequate marketing, insufficient training, and poor infrastructure continue to hinder the full potential of agro-tourism. Therefore, the study emphasizes the need for supportive government policies, public-private partnerships, and targeted community engagement strategies. It advocates for frameworks that offer financial incentives, infrastructure support, skills development programmes, and marketing assistance tailored to rural entrepreneurs.

Keywords: Agro-tourism, Economic Empowerment, Nigeria, Sustainable Development

INTRODUCTION

Agro-tourism, a burgeoning sector within the global tourism industry, integrates agricultural practices with tourism, allowing visitors to engage with farming activities, experience rural life, and appreciate local cultures. This model has gained traction in various countries, including Italy, France, and the United States, where it has been instrumental in revitalizing rural economies and promoting sustainable agricultural practices. According to the United Nations World Tourism Organization (UNWTO), agro-tourism not only provides an additional income stream for farmers but also enhances the overall tourist experience by offering authentic interactions with local communities (UNWTO, 2020).

Globally, agro-tourism has emerged as a vital tool for rural development, particularly in regions where traditional agricultural markets are under pressure from globalization and climate change. Countries like Zimbabwe have successfully leveraged their rich agricultural heritage to attract millions of tourists, creating jobs and fostering local economies (Zvavahera, & Chigora, 2023). In the United States, agro-tourism has become a significant component of rural tourism, with farms offering tours, workshops, and farm-to-table dining experiences that connect consumers with the origins of their food (Benson, 2019).

The importance of agro-tourism extends beyond economic benefits; study by Khanal *et al.* (2024) emphasizes the role of agro-tourism in preserving cultural heritage, promoting environmental sustainability, and fostering community cohesion. By attracting tourists to rural areas, agrotourism helps diversify income sources for farmers, reducing their dependence on traditional agricultural markets that may be volatile or subject to climate change impacts. Furthermore, agrotourism encourages the conservation of natural resources and biodiversity, as farmers are incentivized to maintain their landscapes and ecosystems to attract visitors (Yaja, and Kumar, 2021).

Agro-tourism also contributes to food security by promoting local food systems and encouraging sustainable agricultural practices. By connecting consumers directly with producers, agro-tourism fosters a greater appreciation for local foods and encourages sustainable consumption patterns. This dual focus on economic empowerment and environmental stewardship positions agro-tourism as a vital component of sustainable development strategies (Akintade *et al,* 2024 and Khanal., 2024). In Nigeria, agriculture has historically been the backbone of the economy, employing a significant portion of the population and contributing to food security. However, the sector faces numerous challenges, including inadequate infrastructure, limited access to markets, and the impacts of climate change. Despite these challenges, Nigeria possesses immense potential for agro-tourism, given its rich agricultural diversity, cultural heritage, and natural landscapes. The country is home to various agro-ecological zones, each offering unique agricultural products and experiences that can attract both domestic and international tourists. The Nigerian government has recognized the potential of agro-tourism as a tool for rural development and economic diversification. Initiatives aimed at promoting agro-tourism have emerged, focusing on enhancing infrastructure, improving access to markets, and providing training for farmers in hospitality and tourism management. However, despite these efforts, the full potential of agro-tourism in Nigeria remains largely untapped.

The primary challenge facing agro-tourism in Nigeria is the lack of a cohesive strategy to harness its potential for rural economic empowerment, (Fatai, 2023). While there are isolated examples of successful agro-tourism initiatives, these efforts are often fragmented and lack the necessary support from government policies, infrastructure development, and community engagement. Additionally, there is a significant gap in research regarding the specific factors that influence the success of agro-tourism ventures in Nigeria, including the role of local content, cultural heritage, and community involvement.

Despite the growing interest in agro-tourism as a means of rural economic empowerment, there is a notable lack of comprehensive studies that explore its potential in the Nigerian context. Existing literature often focuses on broader tourism trends or agricultural practices without adequately addressing the intersection of these fields. Furthermore, there is limited empirical evidence on the socio-economic impacts of agro-tourism on rural communities in Nigeria, including its effects on income generation, employment, and community development. This research gap highlights the need for targeted studies that examine the unique challenges and opportunities associated with agro-tourism in Nigeria.

Evidence from other countries demonstrates the positive impacts of agro-tourism on rural economies. For instance, in Italy, agro-tourism has contributed to the revitalization

of rural areas by creating jobs, promoting local products, and enhancing the quality of life for residents (Osman

Ali *et al.,* 2022). Similarly, in Kenya, agro-tourism initiatives have empowered local communities by providing alternative income sources and promoting sustainable agricultural practices (Suyal, *et al.,* 2021). These examples underscore the potential for agro-tourism to drive economic growth and community development in Nigeria, provided that appropriate strategies and support systems are put in place.

Local content is a critical component of successful agro-tourism initiatives. By emphasizing the unique cultural and agricultural heritage of a region, agro-tourism can create authentic experiences that resonate with visitors, (Khampusaen, *et al.,* 2024) In Nigeria, this includes showcasing traditional farming practices, local cuisines, and cultural festivals that celebrate agricultural traditions. Engaging local communities in agro-tourism initiatives is crucial for several reasons. It fosters empowerment, ownership, and capacity building, promoting cultural preservation and authentic experiences. Local communities can showcase their unique practices, traditions, and agricultural knowledge, preserving their cultural heritage for future generations. Agro-tourism also creates direct economic benefits, including income from hosting tourists, selling local products, and providing services (Kothari, and Perwej, 2021). It also creates jobs, reducing unemployment and improving livelihoods. Additionally, it promotes sustainability and environmental stewardship, as local communities are often aware of their environment and sustainable agricultural practices. Community-led conservation efforts can lead to greater awareness and commitment to preserving their environment for future tourism opportunities. Engaging local communities in agro-tourism initiatives can enhance marketing and promotion; build trust, and foster collaboration. By leveraging local knowledge, word-of-mouth promotion, and trust, tourism operators can attract more visitors. Collaborative partnerships between local communities, government agencies, and private sector stakeholders can also be beneficial. This approach fosters empowerment, preserves cultural heritage, generates economic benefits, promotes sustainability, and enhances marketing efforts, ultimately benefiting both tourists and local residents.

This study aims to:

1. Promote entrepreneurship and industrialization by creating opportunities for local businesses to thrive through agro-tourism initiatives.
2. Enhance rural income and reduce poverty by attracting tourists to agricultural sites, thereby increasing demand for local products and services.
3. Enhance rural income and reduce poverty by attracting tourists to agricultural sites, thereby increasing demand for local products and services.

LITERATURE REVIEW

Historical Context on Harnessing Agro-Tourism for Rural Economic Empowerment

Agro-tourism, the intersection of agriculture and tourism, has gained traction as a strategy for rural economic empowerment in Nigeria. This approach leverages the country's rich agricultural heritage and diverse cultural practices to attract tourists, generate income, and promote sustainable development. Understanding the historical context of agro-tourism in Nigeria provides insight into its evolution, challenges, and potential for future growth.

Pre-Colonial and Colonial Era Agricultural Foundations:

Before colonial rule, Nigeria had a well-established agricultural system, with various ethnic groups practicing subsistence farming and engaging in trade. Agriculture was not only a means of sustenance but also a cultural cornerstone, with traditional farming practices passed down through generations. Festivals and communal activities related to agriculture, such as harvest celebrations, were integral to community life, fostering social cohesion and cultural identity.

Colonial Impact:

The colonial period (late 19th to mid-20th century) saw significant changes in agricultural practices, with a focus on cash crops like cocoa, palm oil, and groundnuts for export. This shift often marginalized local food production and traditional practices. The introduction of Western education and infrastructure during this period laid the groundwork for future tourism development, as roads and railways improved access to rural areas.

Post-Independence Era (1960s-1980s) Agricultural Policies:

After gaining independence in 1960, Nigeria's government implemented various agricultural policies aimed at boosting food production and economic self-sufficiency. However, these policies often prioritized large-scale farming and neglected smallholder farmers, who form the backbone of rural economies. The Green Revolution initiatives in the 1970s aimed to increase agricultural productivity through modern techniques, but the benefits were unevenly distributed, leading to rural poverty and disenfranchisement.

Emergence of Tourism:

The 1970s and 1980s marked the beginning of organized tourism in Nigeria, with the government recognizing the potential of cultural and eco-tourism. However, agro-tourism as a distinct concept was not yet fully developed. Early tourism efforts focused on Nigeria's rich cultural heritage, wildlife, and natural attractions, but rural areas remained largely overlooked.

Economic Reforms and the Rise of Agro-Tourism (1990s-2000s) Economic Challenges:

The economic downturn in the 1980s and 1990s, characterized by structural adjustment programs and declining agricultural productivity, exacerbated rural poverty. Many rural communities faced unemployment and food insecurity. In response, some communities began to explore agro-tourism as a means of diversifying income sources and revitalizing local economies.

Grassroots Initiatives:

By the late 1990s, grassroots organizations and NGOs began promoting agro-tourism as a strategy for rural development. These initiatives focused on showcasing local agricultural practices, traditional crafts, and cultural heritage to attract tourists. The establishment of agro-tourism farms and eco-lodges in regions like Oyo, Ogun, and Ekiti States marked the beginning of a more organized approach to agro-tourism.

Recent Developments (2010s-Present) Government Support and Policy Frameworks:

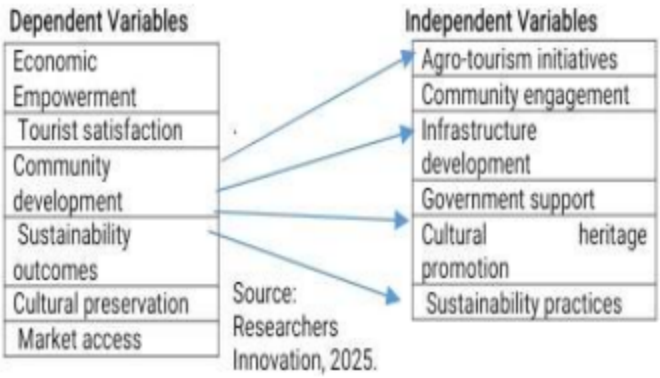
In recent years, the Nigerian government has recognized the potential of agro-tourism for rural economic empowerment. Policies aimed at promoting tourism, agriculture, and rural development has been introduced, including the National Tourism Policy and the Agricultural Promotion Policy. Initiatives such as the "Tourism for All" campaign and partnerships with international organizations have sought to enhance agro-tourism's visibility and viability.

Increased Awareness and Investment:
The growing global interest in sustainable tourism and local experiences has led to increased investment in agro-tourism. Entrepreneurs and local communities are increasingly recognizing the economic potential of agro-tourism, leading to the establishment of various agro-tourism ventures across the country.

Challenges and Opportunities:
Despite the progress, challenges remain, including inadequate infrastructure, limited access to funding, and the need for capacity building among local entrepreneurs. Addressing these challenges is essential for maximizing the potential of agro-tourism in Nigeria. The COVID-19 pandemic highlighted the vulnerability of the SMEs sector (Wahab, 2022), but it also created opportunities for reimagining and strengthening agro-tourism as a sustainable and resilient economic model. The historical context of agro-tourism in Nigeria reveals a complex interplay of agricultural practices, cultural heritage, and economic development. From its roots in traditional farming and communal celebrations to its emergence as a viable strategy for rural economic empowerment, agro-tourism has the potential to transform rural communities.

Conceptual model for Agro-Tourism for Rural Economic Empowerment in Nigeria The study "Harnessing Agro-Tourism for Rural Economic Empowerment in Nigeria" examines the impact of agro-tourism on rural economic empowerment. Independent variables include agrotourism initiatives, community engagement, infrastructure development, government policies, cultural heritage promotion, and environmental sustainability practices. Dependent variables include economic empowerment, tourist satisfaction, community development, sustainability outcomes, cultural preservation, and market access. The study aims to understand the relationships between these variables to gain insights into the effectiveness of agro-tourism as a strategy for rural economic empowerment in Nigeria. The independent variables include agro-tourism initiatives, community engagement, infrastructure development, government support, cultural heritage promotion, and sustainability practices. The dependent variables reflect the outcomes of these initiatives, providing valuable insights into the effectiveness of agro-tourism as a rural economic empowerment strategy (Nurlaela *et al.*, 2021).

Theoretical Framework
Agro-tourism can serve as a vital tool for rural economic empowerment by integrating agricultural practices with tourism, fostering community participation, and promoting sustainable development. Frameworks emphasize the importance of governance, resource management, and socio-economic benefits to enhance rural livelihoods through agro-tourism initiatives.



Source: Researchers Innovation, 2025.

METHODOLOGY
This study adopts a systematic literature review methodology to explore how agro-tourism can be harnessed for rural economic empowerment in Nigeria. By synthesizing existing research, the study aims to provide a comprehensive understanding of the sector's potential, the challenges it faces,

and actionable strategies for sustainable development. The review focuses on identifying key trends, opportunities, and policy recommendations to support the growth of agro-tourism in Nigeria. A thorough literature search was conducted across reputable academic databases, including Google Scholar, JSTOR, PubMed, and Web of Science, alongside specialized industry reports and policy documents. Keywords such as "Agro-tourism," "sustainable rural development," "Nigeria," "rural economic empowerment," "ecotourism," and "agriculture-based tourism" were used to identify relevant publications. Additionally, grey literature, including government and NGO reports, was consulted to provide a broader perspective. Key information from the selected sources, including study objectives, methodologies, findings, challenges, and policy implications, was extracted and systematically organized into a structured data extraction form. The quality of each source was evaluated using a validated assessment framework, ensuring that only high-quality; credible studies were included in the analysis. This rigorous quality assessment helped mitigate the influence of biased or unreliable sources on the findings.

This review does not involve the collection of new primary data but instead relies on analyzing existing literature. Consequently, the findings are subject to certain limitations. These include the variability in reporting standards across sources, potential publication bias favoring studies with positive findings, and the inherent limitation of focusing on documented cases, which may not fully capture the experiences of rural communities engaged in agro-tourism.

The study's findings aim to inform policymakers, entrepreneurs, and development practitioners on best practices for leveraging agro-tourism as a tool for rural development in Nigeria. By addressing gaps in the literature and proposing practical strategies, this research contributes to the broader discourse on sustainable rural economic empowerment and environmental conservation.

RESULTS AND DISCUSSION

Objective 1: Promoting Entrepreneurship and Industrialization through Agro-Tourism Initiatives

Agro-tourism has emerged as a viable strategy for promoting entrepreneurship and industrialization in rural areas of Nigeria. This case study examines the impact of agro-tourism initiatives on local businesses, highlighting the opportunities created, challenges faced, and the overall implications for rural economic empowerment. Agro-tourism initiatives in the Oyo State region have led to increased local business opportunities, job creation, skill development, and infrastructure investment. In Ekiti State, over 100 local residents were hired in various roles, resulting in a 25% increase in employment rates within the first year. Training programs for local farmers and entrepreneurs improved their skills in hospitality management, marketing, and sustainable agricultural practices. Over $500,000 was contributed to infrastructure development, supporting local businesses and enhancing the tourist experience. Farmers in Benue State also diversified their income through agro-tourism experiences, resulting in a 40% increase in annual income. Despite these successes, challenges such as limited funding, inadequate marketing strategies, and lack of awareness among local communities hinder the full potential of these initiatives. To maximize the benefits of agro-tourism, policymakers should implement supportive frameworks providing financial incentives, training programs, and marketing assistance for local entrepreneurs.

Objective 2: Enhance rural income and reduce poverty by attracting tourists to agricultural sites, thereby increasing demand for local products and services.

Agro-tourism has the potential to significantly enhance rural income and reduce poverty by attracting tourists to agricultural sites. This case study explores the impact of agro-tourism on rural economies in Nigeria, focusing on how increased tourist activity leads to greater demand for local products and services, ultimately contributing to poverty alleviation. Agro-tourism has been shown to increase tourist influx, boost local product sales, create jobs, and improve local infrastructure. In the Kaduna State region, a 150% increase in tourist visits over two years was reported. Farmers in the Ogun State region saw a 30% increase in sales due to direct sales to tourists. Communitybased initiatives in the Cross River State saw an average income increase of 50% due to shared profits from agro-tourism activities. Investment in local infrastructure, including roads, sanitation, and communication facilities, was also contributed to. Agro-tourism has also been shown to be a poverty alleviation strategy, providing local farmers and entrepreneurs with new markets for their products. However, challenges remain in scaling up agro-tourism initiatives, such as inadequate marketing, limited funding, and lack of training for local entrepreneurs. Sustainable growth and community engagement are also essential. Policymakers should consider implementing supportive frameworks that provide financial incentives, training programs, and marketing assistance for local entrepreneurs, and promoting agro-tourism as a key component of rural development strategies. Enhance rural income and reduce poverty by attracting tourists to agricultural sites, thereby increasing demand for local products and services.

Objective 3: Enhance rural income and reduce poverty by attracting tourists to agricultural sites, thereby increasing demand for local products and services.

Agro-tourism not only serves as a means to enhance rural income and reduce poverty but also plays a crucial role in fostering cultural exchange and education. This case study examines how agro-tourism initiatives in Nigeria have facilitated the sharing of traditional farming practices and local heritage, leading to greater appreciation and support for rural communities. Agro-tourism initiatives have proven effective in preserving and promoting local cultures, fostering mutual respect and understanding. By engaging tourists in traditional practices, communities can share their heritage while generating income. The educational aspect of agro-tourism raises awareness about sustainable practices and the importance of local agriculture. Workshops and tours empower local farmers with knowledge and skills, enhancing their agricultural practices and business acumen. The increased demand for local crafts and agricultural products highlights the economic potential of cultural tourism. Successful agro-tourism initiatives rely on active community engagement, fostering a sense of ownership and pride. However, challenges such as inadequate infrastructure, limited marketing resources, and the need for hospitality and customer service training remain. To maximize the benefits of agro-tourism for cultural exchange and education, policymakers should consider implementing frameworks that support community-led initiatives, provide funding for infrastructure development, and promote marketing strategies that highlight local cultures and products.

CONCLUSION

The case study establishes that agro-tourism can significantly contribute to entrepreneurship and industrialization in

rural Nigeria. By creating new business opportunities, generating employment, and fostering skill development, agro-tourism initiatives can empower local communities and stimulate economic growth. However, addressing existing challenges and ensuring sustainable practices will be critical for the long-term success of these initiatives. While the study illustrates that agro-tourism can play a significant role in enhancing rural income and reducing poverty in Nigeria. By attracting tourists to agricultural sites, local communities can increase demand for their products and services, leading to greater economic opportunities. However, addressing existing challenges and ensuring sustainable practices will be critical for the long-term success of agro-tourism initiatives in rural areas. It has demonstrated that agro-tourism can significantly enhance cultural exchange and education while contributing to rural income and poverty reduction. By attracting tourists to agricultural sites, communities can showcase their heritage, promote local products, and foster a deeper understanding of sustainable practices. However, addressing existing challenges and ensuring community engagement will be critical for the long-term success of agrotourism initiatives in Nigeria.

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ORGANOLEPTIC EFFECTS OF SUGAR ALTERNATIVES IN CAKE PRODUCTION

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ABSTRACT
This study presents an overview of cake production with a focus on sugar substitutes, particularly date palm fruit pulp. Traditionally, cake batter consists of ingredients like wheat flour, butter, baking powder, egg and water, with sugar playing a crucial role in fermentation and enhancing sweetness. However, natural alternatives to sugar, such as date palm fruit pulp, are explored for their potential in baking, offering both nutritional benefits and sweetness. Date palm fruit is rich in natural sugars, vitamins, and minerals, undergoing a ripening process that transforms sucrose into glucose and fructose. Various products, including date sugar and syrup, can be derived from date palm fruit beyond its primary use as a food source. Despite its potential, the utilization of date palm fruit pulp in cake production remains relatively unexplored. Therefore, this study adopted an experimental research design through sensory and proximate analysis to evaluate cakes made with dried date pulp as a sugar substitute; assessing their physicochemical, organoleptic, and storage properties. This investigation is crucial for understanding the impact of date palm fruit pulp on cake quality and shelf life, offering insights for culinary innovation and dietary health.

Key words: Date Fruit, Organoleptic, Proximate Evaluation, Sensory Analysis, Sugar Alternatives

INTRODUCTION
The term "cake" has a long history. The word itself is of Viking origin, from the Old Norse word "kaka". Although clear examples of the difference between cake and Cake are easy to find, the precise classification has always been elusive. For example, banana Cake may be properly considered either a quick Cake or a cake. Cake is a form of sweet dessert that is typically baked. In its oldest forms, cakes were modifications of Cakes but now cover a wide range of preparations that can be simple or elaborate and share features with other desserts such as pastries, meringues, custards and pies.

Typical cake ingredients are flour, sugar, eggs, butter or oil, a liquid, and leavening agents, such as baking soda and/or baking powder. Common additional ingredients and flavourings include dried, candied or fresh fruit, nuts, cocoa, and extracts such as vanilla, with numerous substitutions for the primary ingredients. Cakes can also be filled with fruit preserves or dessert sauces (like pastry cream), iced with buttercream or other icings, and decorated with marzipan, piped borders, or candied fruit. Cake is often served as a celebratory dish on ceremonial occasions, for example weddings, anniversaries, and birthdays. There are countless cake recipes; some are Cake-like, some rich and elaborate, and many are centuries old. Cake making is no longer a complicated procedure; while at one-time considerable labour went into cake making (particularly the whisking of egg foams), baking equipment and directions have been simplified so that even the most amateur cook may bake a cake (Lillicrap *et al.,* 2019).

Cake is one of the commonest staple food eaten World over. It is composed of batter from wheat, baking powder, water and other ingredients, which has been fermented and subsequently baked. When the batter is made, the baking powder starts to work on the fermentable sugars, transforming them into alcohol and carbon dioxide, thus increasing the batter volume. Sugar, though used as ingredient in Cake, is not considered essential or indispensable in Cake making. This is because flour contains a small amount of natural sugar and some starch is converted to sugar during fermentation process. The natural sugar content of the flour, however, is very limited in amount and for most forms of Cake, sugary agent must be added to meet the usual baking powder requirements throughout the fermentation process and also supply the necessary sweetness and other functions performed by sugar in Cake baking (Wihlfaht, 2017).

Many products useful to humans are produced from date palm. The primary product is the fruit which is eaten fresh, dried or various processed forms (Glasner *et al.,* 2022; Kader 2022). Dry or soft dates are eaten out of hand or may be seeded and stuffed, or chopped and used in great variety of ways on cereal pudding, Cake, cakes, cookies, ice cream or candy bars (Barreveld 1993; Glasner *et al.,* 2022); and can be made into juice, vine-gar, wine, beer, sugar, syrup, honey, pickle, paste, dip and food flavour (Barreveld 1993; *Glasner et al.,* 2022). Date fruit pulp has been used more as a sugar source than as a fruit (Barreveld 1993). Date sugar is manufactured by processing dried dates into powder form and is great for sprinkling on breakfast cereal and baked goods (Khan, 2020). In this study, date pulp meal was used as replacement for granulated sugar in Cake production with the aim of evaluating the physicochemical, organoleptic and storage properties of the Cake.

This study addresses the necessity of finding an alternative to sugar in cake production, driven by the adverse health effects associated with excessive sugar consumption and the scarcity of pure sugar in certain regions. It aims to introduce a new taste and quality improvement in cake production while catering to individuals with sugar-related medical issues. After reviewing various alternatives, date palm syrup was selected for its natural sweetness. The significance lies in offering a cake option suitable for those with dietary restrictions related to sugar intake. This study focuses specifically on utilizing date palm syrup as a sugar alternative in cake production, emphasizing its selection as a case study for experimentation.

EMPIRICAL REVIEW

Cake, a ubiquitous staple food worldwide, comprises fermented batter made from wheat, baking powder, water, and other ingredients. During fermentation, baking powder metabolizes fermentable sugars, generating alcohol and carbon dioxide to expand the batter. While sugar is a common cake ingredient, it's not vital as flour contains minimal natural sugar, and some starch converts to sugar during fermentation. However, most cakes require added sweeteners to fulfil baking powder requirements and provide sweetness. Sugar also contributes to the golden brown crust, improved texture, moisture retention, and nutritional value of cakes (Wihlfaht, 2017).

Various sugar substitutes are available for baking, particularly useful in situations where lowcalorie options benefit medical conditions like diabetes, which restrict sugar intake. Natural alternatives to white sugar for bakery products include raw honey, maple syrup, molasses, corn syrup,

stevia, xylitol, agave nectar, brown rice syrup, evaporated cane juice, blackstrap molasses, date sugar, and organic sugar. According to Khan (2020), one cup of date sugar equals one cup of granulated or brown sugar. Honey was used as a sugar substitute in cake production by NHB and AIB (2024) and Ebiringa and Echebiri (2004), while Akubor and Yusuf (2007) utilized date palm syrup for the same purpose.

The date palm (*Phoenix dactylifera L.*), known locally as 'debino' in the Hausa language, belongs to the Arecaceae family (Al-daihan & Bhat, 2012) and is cultivated for its sweet, edible fruit. The fruit is a drupe consisting of an outer fleshy part, or pulp, and a surrounding pericarp, encasing a hard endocarp shell with a seed inside. It is available in various forms, including whole pitted and unpitted, dehydrated pieces, diced, extruded date pieces, and macerated fruit. A date palm fruit with 20% moisture content provides approximately 3,000 kcal/kg of date flesh (Barreveld, 1993). According to Ahmed and Robinson (2021), date fruits are high-energy food sources containing 72 to 80% sugar at maturity, primarily sucrose. As ripening progresses, sucrose hydrolyzes into reduced sugars like glucose and fructose. Al-Shahib and Marshal (2023) highlighted that date palm fruit contains a high percentage of carbohydrates (total sugar, 44 to 88%), fats (0.2 to 0.5%), salts, minerals, proteins, vitamins, and dietary fibre. Additionally, date fruits are rich in iron and potassium and provide fair amounts of calcium, chlorine, copper, magnesium, and sulfur, along with 16 amino acids and vitamins A, B1, and B2 (Ahmed and Robinson 2021; Vandercook *et al.,* 1980). Date fruit pulp has been used more as a sugar source than as a fruit (Barreveld 1993). Date sugar is manufactured by processing dried dates into powder form and is great for sprinkling on breakfast cereal and baked goods (Khan 2020). In this study, date pulp meal was used as replacement for granulated sugar in Cake production with the aim of evaluating the physicochemical, organoleptic and storage properties of the Cake.

Varieties of Cakes

Cakes are commonly categorized by professional bakers based on their ingredients and mixing methods, rather than by flavour, which is commonly used by home-bakers. Butter or oil cakes, which include pound cakes and layer cakes, typically use fat and baking powder for leavening. These cakes are prepared using the creaming method for a light and airy texture. Sponge and foam cakes, such as angel food cake and Genoese, rely on whipped eggs for volume and omit fat and leaveners. These cakes have a spongy texture but may lack the richness of butter cakes. Biscuit and chiffon cakes offer variations on sponge cake, with the former being drier and the latter featuring a lighter texture akin to oil cakes. Finally, low- or no-flour cakes, like baked cheesecakes and flourless chocolate cakes, offer a creamy texture and may be baked or unbaked, often with the use of a water bath for even cooking.

Baking with Sugar and Sugar Substitutes

Lillicrap *et al.* (2019), affirms that sugar plays multiple crucial roles in baking, including providing moisture, tenderness, and sweetness, as well as aiding in caramelization and extending shelf life. While it's difficult to directly swap sugar with other sweeteners due to its unique properties, many recipes allow for a reduction in sugar without compromising quality. Natural sweeteners like honey, maple syrup, and molasses offer distinct flavours and characteristics. Honey, for example, is 25% to 50% sweeter than sugar; it is also denser and moister than sugar, while maple syrup adds a delicate

flavour. Molasses, on the other hand, contributes a dark colour and robust flavour. Corn syrup, often used in candy-making, prevents crystallization and lacks the flavour of honey or molasses. Other alternatives include refined fructose, brown rice malt syrup, fruit juice concentrates, and stevia, a natural herb. Artificial sweeteners approved by the FDA, like sucralose, saccharine, aspartame, and acesulfame potassium, offer sweetness without the browning or moisture-retention properties of sugar. While some, like sucralose, can be used cup-for-cup in baking, others, like aspartame, are best suited for no-bake recipes. Sucralose is made from sugar, but is not metabolized by the body like sugar. It is 600 times sweeter than granulated sugar. Granular sucralose is the form used when baking. Substitute 1 cup granular sucralose for each cup of sugar called for in the recipe. Recipes made with this product tend to bake faster than usual.

Date Palm Fruit

The date fruit is a "drupe", in which its outer fleshy part (exocarp and mesocarp) surrounds a shell (the pit or stone) of hardened endocarp with a seed inside. The fruit is oval to cylindrical in shape, 3–7cms long, and 2–3cms diameter, and ripe dates range from golden-yellow, amber, bright-red to deep-brown depending on the cultivar type. There are many varieties of date palm cultivated.

'Amir Hajj', 'Saidy', 'Khadrawy' and 'Medjool' are some of the important varieties popular for their rich taste, flavour, and superior quality. Dates are immensely nutritious fruits, packed with essential vitamins, minerals, and nutrients vital for overall health. With soft, easily digestible flesh and natural sugars like fructose and dextrose, they provide instant energy and revitalization, boasting 277 calories per 100 grams of mejdool dates. Traditionally served to break fasts during Ramadan, dates are rich in dietary fiber, which aids in preventing the absorption of LDL cholesterol in the gut and acts as a bulk laxative, safeguarding the colon mucous membrane from cancer-causing chemicals. Moreover, they contain flavonoid polyphenol antioxidants called tannins, renowned for their anti-infective, anti-inflammatory, and anti-haemorrhagic properties. Dates are also a moderate source of vitamin A, with 149 IU per 100 grams, contributing to antioxidant activity and supporting vision health.

Dates are a powerhouse of essential nutrients, vitamins, and minerals crucial for maintaining overall health. Rich in vitamin A, they support healthy mucous membranes, skin, and offer protection against lung and oral cavity cancers. Additionally, dates contain antioxidant flavonoids such as ß-carotene, lutein, and zeaxanthin, which safeguard cells from harmful oxygen-free radicals, potentially reducing the risk of various cancers. Zeaxanthin, particularly vital for eye health, protects against age-related macular degeneration. Furthermore, dates are an excellent source of iron, carry 0.90 mg/100 g of fruits (about 11% of RDI). dates are rich in potassium, calcium, manganese, copper, and magnesium, all vital for various bodily functions including blood circulation, muscle contraction, and bone health. Dates also boast moderate levels of B-complex vitamins and vitamin K, crucial for carbohydrate, protein, and fat metabolism, as well as blood coagulation.

The fruits (dates) of the date palm (*Phoenix dactylifera L.*) contain a high percentage of carbohydrate (total sugars, 44-88%), fat (0.2-0.5%), 15 salts and minerals, protein (2.3-5.6%), vitamins and a high percentage of dietary fibre (6.4-11.5%). The flesh of dates contains 0.2-0.5% oil, whereas the seed contains 7.7-9.7% oil. The weight of the seed is 5.6-14.2% of the date, making

them a nutritious addition to the diet. Rich in selenium, dates aid in cancer prevention and immune function. They also provide a range of amino acids and vitamins, including vitamin C, thiamine, riboflavin, and niacin. With their high dietary fiber content, dates promote digestive health and may offer additional health benefits due to their pectin content. Despite their nutritional value, dates are also remarkably versatile and easy to incorporate into various dishes. With their increasing popularity and abundant health benefits, dates stand as an excellent choice for those seeking a nutritious and delicious addition to their diet. The world production of dates has increased 2.9 times over 40 years, whereas the world population has doubled. The total world export of dates increased by 1.71% over 40 years.

Utilization of Date Palms

Dates are utilized in various industries for snacks, salads, and appetizers, as well as in the production of date flour for dietetic baby food and breakfast cereals. They are also used in date nut roll chocolates, date butter, liquid sugar for soft drinks, and vinegar. The date palm industry holds significant potential for creating employment opportunities for both skilled and unskilled labour, thereby contributing to poverty alleviation. Additionally, date palms have diverse applications in the production of local crafts such as fans, ropes, baskets, and mats, among others. In desert regions, date palms provide valuable shade for travellers and serve as windbreaks, helping to prevent wind erosion Vayalil (2012). They can also be utilized for ornamental purposes in certain regions. Date trees produce considerable agricultural waste, including dry leaves and date pits, which can be utilized in various biological processes due to their cellulose, hemicelluloses, and lignin content. While date palm cultivation and utilization have been studied by several researchers, literature reviews on therapeutic applications of date fruit remain limited, focusing primarily on the chemistry, pharmacology, and nutritional significance of date fruits (Baliga *et al.*, 2021).

Date fruits are traditionally utilized to create various products, including date juice concentrates, fermented date products like wine and vinegar, and date pastes for bakery and confectionery purposes. Date processing industries produce a wide range of date-derived products such as date paste, syrup, dip, honey, jam, and vinegar. Date substances like pectin, dietary fiber, and syrup are commonly used as thickeners or gelling agents in processed foods such as confectionery items, jams, and yogurts.

The extraction of date juice and production of date syrup have been extensively studied. Dates are typically steamed, destoned, and macerated to create a semi-solid paste with around 20–23% moisture content. This paste is often used as a filler or sugar substitute in various food formulations. Date syrup, a common by-product of date processing, is utilized in the preparation of a wide array of food products including jams, chocolates, ice cream, and bakery items. It is obtained when bagged humid dates are stacked for several months, causing syrup to ooze out due to pressure. Date syrup can be produced on both small and large scales, either through home extraction methods or industrial processes.

Studies have shown that the variety of dates used significantly impacts the composition and physical characteristics of date-derived products like jams. Comparative evaluations have indicated that date jams can offer higher overall acceptability compared to traditional jams like quince jam, suggesting potential for commercialization. Additionally, date

seeds can be chemically modified to produce by-products such as polyols and mayonnaise. Polyols, which are sugar-free sweeteners, can be obtained from date seeds through various techniques, while date pit oil has been shown to enhance the sensory characteristics of mayonnaise products, indicating its potential as a non-traditional oil source.

METHODOLOGY

This research focuses on exploring the organoleptic impact of sugar alternatives in cake production. An experimental research design was adopted; primary data were collected through standardized questionnaires administered directly to the respondents. A total of 50 questionnaires were distributed to gather opinions on this topic. The questionnaires were divided into two sections: Section A captured demographic information such as gender, age, educational background, and cake-making profession, while Section B contained questions related to the research topic. The questionnaires were carefully structured to adhere to accepted survey research standards, including open-ended questions to allow respondents to express their thoughts freely. These questionnaires served as both primary and secondary sources of data. In addition to primary data, secondary data were gathered from existing published or unpublished materials relevant to the research topic. These secondary sources complemented the primary data and enriched the study with additional insights.

Raw Material Procurement

The ripe date palm fruit used in this work was purchased from a hawker in Ilorin, Nigeria. Wheat flour (Golden Penny), granulated sugar (Dangote, Nigeria), margarine (Blue Band), baking powder (Angel), iodized salt (Dangote), ascorbic acid, Edlen Batter Conditioner (EDC-95) and powdered milk (Cowbell) were purchased from *Oja Tuntun* in Ilorin, Kwara State, Nigeria. The seeds of the date palm fruits were removed and discarded. The pulp (pericarp) was oven dried at 45°C for 8 h (VMR Scientific, Model 1370, Oregon, USA) and subsequently milled using hand milling machine.

Table 1: showing the ingredients used in cake experimental production

Ingredient	**Quantity**
Flour (Wheat or All Purpose Flour)	1000g
Baking Powder	12g
Salt	Pinch
Sugar/date pulp meal	500g
Margarine	500g
Flavour (Vanilla)	10g
Eggs	900g
Powdered milk	100g
Water	500ml

Source: authors' compilation, 2025

Production of Cake

The cake was produced using the recipe shown in Table 1. Date palm fruit pulp meal (DPFPM) was used as replacement for granulated sugar at the following ratios: 80:0, 60:20, 40:40, 20:60 and 0:80 (sugar: DPFPM), which culminated to 0, 25, 50, 75 and 100% substitution levels of sugar. The dry ingredients were weighed or measured in the required quantities and mixed. Then, 500 ml of water was added to form the batter and mixed thoroughly. The batter was then kneaded to smooth consistency. During the kneading, margarine mixed with vegetable oil was added. When kneading was completed, the resulting batter was cut in weights of 350g, molded into oblong shape and put into baking pans already greased with vegetable oil. The batter was proofed at room temperature (32 ± 2°C) for 1h:40mins. It was then transferred to

baking oven, preheated to 230°C and baked for 40mins, removed from the oven and left to cool to room temperature (32 ± 2°C) before packaging in polyethene films.

Proximate Analyses

Moisture (air oven method), crude fat (Soxhlet extraction method), protein (micro Kjeldhal method, Nx6.25), ash and crude fibre of granulated sugar, DPFPM and cake samples were determined as described by AOAC (1990) methods. Carbohydrate content was estimated by difference {100-(%moisture + % Crude fat + % crude protein + % ash + % Crude fibre)}.

Table 2: Proximate composition of granulated sugar and pitted date palm fruit pulp meal (DPFPM).

Parameter	Granulated sugar	DPFPM
Moisture (%)	3.11	6.56
Fat (%)	0	1.88
Crude fibre (%)	0	3.66
Crude protein (%)	0	5.51
Ash (%)	1.01	2.95
Carbohydrate (%)	95.88	79.44

Source: authors' compilation, 2025

Proofing ability

This was carried out by measuring the height of the batter in the pan before and after proofing. The difference in height was the proofing ability (Rakkar 2017).

Oven spring

This was determined from the difference in the height of proofed batter before and after baking (Idowu *et al.,* 1996).

Weight, volume and specific volume determinations

The weight of cake was measured using an analytical weighing balance. The volume of was determined by rape seed displacement method (AACC, 2000) with slight modification. Sesame seed was used in place of rape seed. The seeds were layered in the box of known dimension. Cake was inserted and the seed poured to fill the remaining space till the seeds were running over. A straight edge rule was used to level the seed. The volume of the seeds was measured using a measuring cylinder and the volume of cake calculated as the volume of the rectangular box less the volume of sesame seed. Specific volume was calculated as the ratio of volume to its weight.

Fermentation/ baking loss determination

This was determined as the difference in weight of the batter before proofing and the average weight of cake loaves.

Assessment of incidence of mold growth on cake surfaces

This was carried out by counting the number of mold colonies visually observed on cake surfaces during storage. The cake loaves were stored (unwrapped and wrapped in transparent polyethylene) on clean laboratory benches at room temperature (32 ± 2°C).

Sensory Evaluation of Cake Loaves

A twenty-man panel consisting of equal numbers of male and female of 15 years and above evaluated the cake samples. The samples were served simultaneously in white plastic plates in a sensory evaluation laboratory illuminated by white fluorescent tube. The panellists evaluated the preference for the samples on the following characteristics: crumb colour, crust colour, flavour, texture and overall acceptability. The evaluation was carried out on a seven-point Hedonic scale with 1= disliked very much and 7 = liked very much. Tap water was provided for rinsing of mouth to

remove after taste. Data were subjected to analysis of variance (ANOVA) and significant means discriminated by Turkey's LSD test (Gomez and Gomez 1984). Significance was accepted at $p < 0.05$.

RESULTS AND ANALYSIS

For the purpose of this study, the data gathered through the questionnaire administered on the respondents are presented in a statistical form. Also, in testing the research questions formulated, simple percentage method was adopted, which was used in order to draw out a logical conclusion on the findings of the study.

Table: 1 Analysis and Interpretation of Respondent According to Demographical Data

	Demographic Data	*Frequency*	*Percentage*
1.	Sex		
	Male	7	23%
	Female	23	77%
	Total	30	100%
2.	Age		
	18-25	18	60%
	26-35	7	23.4%
	36-45	4	13.3%
	46 and above	1	3.3%
	Total	30	100%
3.	Educational Qualification		
	ND/NCE	6	20%
	HND/B.Sc	23	77%
	Post Graduate	1	3%
	Total	30	100%
4.	Caking Making Skills		
	Skilled	14	46.7%
	Semi-skilled	9	30%
	Unskilled	7	23.3%
	Total	30	100%

Source: Authors' Field Survey, 2025

From the Table 1 above, respondents representing 23% were male while 23 respondents, representing 77% were Female. 18 respondents, representing 60% are between ages 18-25 years, 7 respondents, representing 23.4% are between 26–35 years, while 4 representing 13.3% are between ages 36-45, and 1 representing 3.3% of the respondents were between 46 and above. The table also shows that 20% of the respondents are OND/NCE holders 77% are HND/BSC holders while 3% of the respondents are other. The table equally shows that 14 respondents, representing 46.7% are skilled in cake making, 9 representing 30% are semi-skilled fully while 7 respondents, representing 23.3% are not into cake baking.

Table 2: Analysis and Interpretation of Research Questions and Questionnaires

	Item	**Yes**	**No**	**Total**		
1.	Interest in cake consumption	77%	23%	100%		
	Item	**Very often**	**Occasionally**	**Not at all**	**Total**	
2.	Frequency of cake consumption	53.4%	43.3%	33.3%	100%	
	Item	**Coconut Cake**	**Sponge Cake**	**Vanilla Cake**	**Fruit Cake**	**Chocolate Cake**
3.	Preferred Cake	16.7%	16.7%	10%	33.3%	23.3%

Source: Authors' Field Survey, 2025

From the Table 2 above, 23 respondents, representing 77% said that they eat cake and 7 respondents representing 23% said they don't eat cake. The table shows that more than 50% of the respondent consume cake often, 13 respondents representing 43.3% said that they consumed cake occasionally while only 1 respondent representing 3.3 % do not consume cake at all. The table also shows that 5 respondents representing 16.7% preferred coconut cake, same as sponge cake. 3 respondents

representing 10% preferred vanilla cake, 10 respondents representing 33.3% said they preferred fruit cake while 7 respondents representing 23.3% love chocolate cake.

Table 3: Nutritional Values Derived from Cake

Variables	Respondent	Percentage
Carbohydrate	15	50%
Protein	15	50%
Fat	-	-
Total	30	100%

Source: Authors' Field Survey, 2025

The above table shows that 15 respondents representing 50% said that the nutritional value they derived from cake is carbohydrate while 15 respondents representing 50% said the nutritional value they derived from cake is protein.

Table 4: Previous Consumption of Cake Baked with Sugar Alternative

Variables	Respondent	Percentage
Yes	13	46%
No	17	56%
Total	30	100

Source: Authors' Field Survey, 2025

The table shows that 13 respondents representing 46% said they have eaten cake with sugar alternative while 17 respondents representing 56% have not eaten cake with sugar alternative.

Table 5: if yes what was the replacement of sugar in the cake?

Variables	Respondent	Percentage
Honey	27	90%
Date palm fruit	3	10%
Total	30	100

Source: Authors' Field Survey, 2025

The table shows that 27 respondents representing 90% said that the replacement of sugar in cake they consumed is honey while 3 respondents representing 10% said it the replacement of sugar in cake they consumed is date palm fruit.

Table 6: In reference to table 5, how does it taste?

Variables	Respondent	Percentage
Sweet as cake made with sugar	14	46%
Less sweeter as cake made without sugar	16	54%
Total	30	100

Source: Authors' Field Survey, 2025

The table shows that 14 respondents representing 46% said the sugar replacement in the cake is sweet as a cake made with sugar while 16 respondents representing 54% said it taste less sweet than cake made without sugar.

Table 7: Feeling of Discomfort After Consuming Cake with Sugar Alternative

Variables	Respondent	Percentage
Yes	7	23%
No	23	77%
Total	30	100

Source: Authors' Field Survey, 2025

This table shows that 7 respondents representing 23% cake baked with sugar alternative affect their health while 23 respondents representing 77% said cake baked with sugar doesn't affect their health.

Table 8: Perceived Effect of Sugar Alternative on Consumers' Health

Variables	Respondent	Percentage
Stomach ache	12	40%
Purging	5	17%
Others	13	43%

Total	30	100

Source: Authors' Field Survey, 2025

This table shows that 17 respondents representing 57% said the effect it has on their health is stomach ache while 3 respondents representing 43% said the effect it has on their health is purging.

Table 9: Perceived Healthier Cake between Sugar and Sugar Alternative Cake

Variables	Respondent	Percentage
A cake made with sugar	11	36%
A cake made with sugar alternative	19	64%
Total	30	100

Source: Authors' Field Survey, 2025

This table shows that 11 respondents representing 36% said cake made with sugar is healthier while 19 respondents representing 64% said that a cake made without sugar is healthier also.

DISCUSSION

Sugar performs many important roles in baking. It provides moisture and tenderness, liquefies as it bakes, increases the shelf-life of finished products, and of course adds sweetness. Refined sugar helps cookies spread during baking, allowing their crisp texture. Because of these critical functions, bakers can't simply replace sugar with a different sweetener. Dates contain elemental fluorine that is useful in protecting teeth against decay. Selenium, another element believed to help prevent cancer and important in immune function, is also found in dates. Idowu *et al.*, (2010) analysed that protein in dates contains 23 types of amino acids, some of which are not present in the most popular fruits such as oranges, apples and bananas. Dates contain at least six vitamins including a small amount of vitamin C, and vitamins B(1) thiamine, B(2) riboflavin, nicotinic acid (niacin) and vitamin A.

As submitted by Anon (2020), the use of date palm fruit pulp meal as sugary agent to replace granulated sugar in cake production improved the nutritional value of cake. This was substantiated by the findings of this study, which shows that the overall organoleptic quality was not affected even at 100% replacement. The physical property of the cake, judged majorly by the loaf specific volume that relates loaf weight to its volume, decreased with increasing replacement of granulated sugar. As the decrease was not significant at 75% replacement with date fruit pulp meal but was at 100% replacement, replacement of granulated sugar with a proportion of the date fruit pulp should be encouraged. Using high proportion may delay the incident of mold growth on the loaves but may encourage greater growth at prolonged storage. Antimitotic may be incorporated in the cake to suppress this activity.

The use of date palm pulp should be encouraged since using it in place of granulated sugar will not affect the health, if the rate of consumption of sugar is not checked, it may result to obesity the researcher hereby suggests the use of date pulp fruit as a sugar substitute in the production of cake.

CONCLUSION

Having conducted the research experiment and arrived at the desired conclusion, the researcher here by make the following recommendations;

1. The use of date palm pulp should be encouraged since using it in place of granulated sugar will not affect the organoleptic quality of the cake.
2. Since if the rate of consumption of sugar is not checked, it may result to

obesity the researcher hereby recommends the use of date pulp fruit as a sugar substitute in the production of cake.

3. More research should be conducted to know more application of the date pulp fruit as a sugar replacement not only cake production but in the production of other baked, fried and cooked cookies.
4. Finally, more research is also recommended towards discovering more substitute of sugar in the production of cake so that in places where there is scarcity of date pulp fruit, other discovered substitutes can easily be used.

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CULTURAL CELEBRATIONS IN THE DIGITAL AGE: EXPLORING NOTTING HILL CARNIVAL, EYO FESTIVAL, AND THE ROLE OF AI & IOT IN MODERN FESTIVITIES

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ABSTRACT

This paper investigates the impact of emerging technologies, specifically Artificial Intelligence (AI) and the Internet of Things (IoT), on the organization and execution of traditional cultural celebrations, with particular focus on the Notting Hill Carnival in London and the Eyo Festival in Lagos, Nigeria. The study examines how these technologies are reshaping key aspects of festival management, such as logistical coordination, audience engagement, and cultural preservation within the context of the digital age. Employing a desk research methodology, the study conducts a comprehensive review of existing literature, alongside an analysis of event data and the integration of technological innovations in festival operations. The findings reveal that while the Notting Hill Carnival has successfully incorporated AI and IoT to enhance operational efficiency, optimize crowd management, and facilitate real-time communication, the Eyo Festival has not yet adopted these technologies in its organizational framework. Both festivals utilize technology to personalize attendee experiences and enhance safety measures, while striving to maintain cultural authenticity. However, the study identifies challenges such as the digital divide, concerns surrounding data privacy, and the potential erosion of traditional practices. The paper advocates for the development of inclusive technological strategies that prioritize accessibility for all participants, ensuring that the cultural essence of the festivals is not overshadowed by technological advancements. Furthermore, it emphasizes the need for continued collaboration between cultural custodians and technology developers to create solutions that harmonize innovation with cultural preservation. This research contributes to the growing body of knowledge on the digital transformation of cultural practices, offering insights into the evolving role of technology in the preservation and modernization of cultural celebrations.

Keywords: Artificial Intelligence, Internet of Things, Cultural Preservation, Festival Management, Digital Transformation

INTRODUCTION

Festivals and carnivals serve as significant cultural phenomena that reinforce collective identity, heritage, and social cohesion. Among the most notable cultural celebrations are the Notting Hill Carnival in the United Kingdom and the Eyo Festival in Lagos, Nigeria. These events encapsulate the profound cultural diversity of their respective societies. The Notting Hill Carnival emerged in the 1960s as a means of celebrating Caribbean heritage and resilience in the face of racial tensions. Over time, it has evolved into one of Europe's most extensive and dynamic street

festivals, attracting millions of participants annually. The event is distinguished by its elaborate parades, rhythmic musical performances, and a pronounced sense of communal solidarity (Ackah & Ahluwalia, 2020).

Likewise, the Eyo Festival, also known as the Adamu Orisha, represents an indigenous cultural tradition deeply rooted in the historical and spiritual fabric of Lagos. Historically conducted to honor deceased obas (kings) or prominent figures, the festival is characterized by a grand procession of white-clad masqueraders, symbolizing the spiritual and historical depth of Yoruba heritage (Ogunnaike, 2018). Beyond its performative aspects, the Eyo Festival functions as a sacred cultural ritual imbued with profound reverence and social significance within the Lagosian community.

In the contemporary digital landscape, technological innovations are reshaping the organization, experience, and conservation of cultural festivals. Advanced systems such as Artificial Intelligence (AI) and the Internet of Things (IoT) are redefining event management through the enhancement of security protocols, the optimization of crowd regulation strategies, and the customization of visitor experiences (Chen & Xu, 2021). While these technological advancements offer significant improvements in operational efficiency and accessibility, they also raise critical concerns regarding the preservation of authenticity and the safeguarding of traditional cultural expressions (Kerr & Thomas, 2019). Consequently, a balanced approach is imperative to ensure that modern technological interventions complement rather than diminish the intrinsic cultural and historical essence of these time-honored festivals.

Despite their cultural importance, traditional festivals face numerous challenges in adapting to modern technological advancements. Notting Hill Carnival, for instance, contends with issues related to crowd management, security threats, and the increasing need for digital marketing strategies to maintain global appeal. Likewise, the Eyo Festival struggles with documentation, a decline in youth participation, and limited international visibility. As these festivals continue to grow in scale, logistical challenges such as attendee experience, safety, and environmental sustainability become increasingly complex.

While AI and IoT offer promising solutions, there is a gap in understanding how these technologies can be effectively implemented in a way that preserves the cultural integrity of these festivals. Without a well-thought-out approach, there is a risk that modern interventions could overshadow traditional values rather than support them. This study seeks to explore the potential of AI and IoT in addressing these challenges, ensuring that technology enhances rather than diminishes the essence of these cherished cultural events. This study aims to explore the historical and cultural significance of Notting Hill Carnival and the Eyo Festival, identify the key challenges these festivals face, including security concerns, crowd control, and declining participation, examine how AI and IoT can improve the organization, management, and experience of these cultural celebrations, assess the potential risks and limitations of integrating technology into traditional festivals, develop strategies for effectively incorporating AI and IoT in a way that sustains the cultural heritage of these festivals.

The intersection of technology and cultural heritage is a critical area of scholarly inquiry, with significant implications for the preservation of traditions and the management of cultural festivals.

This study contributes to the discourse by examining the role of artificial intelligence (AI) and the Internet of Things (IoT) in documentation, archiving, and global accessibility of cultural festivals. Digital technologies facilitate the systematic recording and dissemination of festival-related data, ensuring the continuity of cultural heritage across generations (Giannoulakis & Tsapatsoulis, 2021). AI-driven archival systems enable efficient classification and retrieval of vast cultural data, thereby enhancing scholarly research and public engagement (Kalay, Kvan, & Affleck, 2007).

Security remains a paramount concern in large-scale festival management. AI-enhanced surveillance, real-time analytics, and IoT-integrated crowd monitoring present advanced solutions for risk mitigation and emergency response (Zeng *et al.*, 2022). These technologies enable the detection of anomalies, improve situational awareness, and optimize crowd control mechanisms, thereby ensuring both security and the preservation of the festive atmosphere.

From an economic and tourism perspective, AI and IoT innovations offer substantial benefits by optimizing visitor experiences and fostering revenue generation. AI-powered digital marketing strategies, smart ticketing systems, and interactive event features enhance audience engagement and increase festival participation (Kim & Stepchenkova, 2018). The integration of these technologies into festival management strengthens cultural tourism, thereby contributing to local and regional economic development.

Environmental sustainability is an increasingly pertinent issue in the organization of large festivals, particularly regarding waste management and energy consumption. AI and IoT applications facilitate the implementation of eco-conscious practices by optimizing resource utilization, promoting waste reduction, and ensuring energy efficiency (Gretzel, 2022). Smart waste management systems, for example, leverage real-time data analytics to enhance waste collection and recycling processes, thereby minimizing ecological impact (Bibri, Krogstie, & Kärrholm, 2020).

A comparative study of the Notting Hill Carnival in the United Kingdom and the Eyo Festival in Nigeria provides a comprehensive global perspective on the technological integration in cultural events. This analysis explores disparities in digital adaptation and offers recommendations that account for socio-economic and infrastructural variations. Addressing these technological gaps is essential for ensuring that AI and IoT serve as enablers of cultural preservation rather than agents of cultural homogenization.

This study holds significant implications for cultural policymakers, festival organizers, and technological innovators seeking to harmonize tradition with modernity. By critically evaluating the intersection of AI, IoT, and cultural festivities, this research advances scholarly understanding of how technology can function as a catalyst for cultural sustainability and heritage conservation.

Eyo Festival of Lagos

The Eyo Festival, also known as the "Precursor to the Lagos Carnival," is one of the most significant cultural celebrations in Lagos, Nigeria. It holds a special place in the city's history, serving as an intricate

blend of traditional religious and royal practices. The festival is a precursor to the larger Lagos Carnival, a colorful and festive celebration that has grown to be one of Africa's most prominent cultural expressions. The Eyo Festival, however, predates the carnival and has deep-rooted historical and cultural significance.

The origins of the Eyo Festival are deeply tied to the royal traditions of Lagos. It is believed to have been first performed in the 19th century to mark the installation of a new Oba (king) of Lagos. This is captured in oral traditions that trace the festival back to the reign of Oba Akintoye in 1854, though some scholars suggest it could have been earlier. Historically, the Eyo Festival is not only a religious and cultural gathering but also a spectacle that marks the coronation or enthronement of the Oba, providing a powerful means for the royal family and the city to display their power, wealth, and cultural significance. According to Adeyemi (2004), the festival is one of the few surviving traditional practices that offers an insight into the Yoruba people's perception of kingship and the interconnection between politics, religion, and culture. The festival is a symbolic journey for the city, creating a profound sense of identity and continuity for Lagosians.

The Eyo Festival serves as an important religious and spiritual event. The festival is centered around the worship of the gods and the reverence of the Oba, who is viewed as a spiritual and political figurehead. The presence of various cultural organizations, known as 'Eyo' or 'Arugba', who wear costumes and engage in processions throughout the city, reinforces the spiritual atmosphere. The 'Eyo' actors are central to the festival, with each representing different deities and ancestral spirits. Additionally, the festival is linked to the Yoruba cosmology, where gods, ancestors, and deities are called upon to bless the city, its rulers, and the citizens. The festival also marks the period for the purification of the town, bringing together people of various Yoruba ethnicities to renew their ties with their deities and with each other (Abdullahi, 2006).

The Eyo Festival has significant implications for the social and political dynamics in Lagos. The event brings together people from various strata of society, both local and international, highlighting the unity within Lagos' diverse population. The festival is also an occasion for the government, politicians, and royal families to display solidarity and reinforce their influence. It serves as a platform for political mobilization, especially as many political figures attend to show support for the reigning Oba and to associate with the cultural heritage of Lagos (Adebayo, 2010).

Economically, the Eyo Festival boosts tourism and local businesses. As one of the most wellattended cultural festivals in Nigeria, it draws thousands of tourists, both Nigerian and international. The influx of visitors benefits the hospitality, transportation, and retail industries in Lagos, particularly around the festival period. According to a study by Olowu (2017), the festival contributes significantly to the local economy, with many small-scale businesses seeing a surge in demand for food, clothing, and other cultural artifacts during the event.

While the festival retains its traditional elements, recent adaptations reflect a fusion of tradition with modernity. The use of technology, especially social media, has played a vital role in promoting the festival to a global audience. From live broadcasts to digital campaigns, the Eyo Festival has seen its global reach expanded. Social

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media platforms like Instagram, Twitter, and Facebook have been instrumental in capturing the vibrancy of the festival and sharing it with millions worldwide, thereby creating a unique form of cultural diplomacy. The festival has also adapted to modern concerns by focusing on promoting cultural heritage while also advocating for sustainability and environmental consciousness. Green initiatives and waste management strategies have been incorporated into the organization of the festival, ensuring that the celebrations are both ecologically responsible and culturally relevant (Olowu, 2020). The Eyo Festival plays a crucial role in the formation of cultural and civic identity in Lagos. It provides an avenue for the people of Lagos to connect with their roots, fostering a sense of belonging and pride. The event also contributes to the larger discourse on Yoruba identity and the cultural expression of Nigerians in the diaspora. The festival's emphasis on unity, the sharing of historical traditions, and the reinvigoration of traditional practices reinforces Lagosians' sense of pride in their city's unique cultural history. According to Oyebode (2019), the festival helps to crystallize the idea of Lagos as both a modern metropolis and a city deeply connected to its historical and cultural heritage. It challenges the perception that African cities, particularly Lagos, are solely products of modernity, showing that they also have rich traditions that are still alive and evolving. The Eyo Festival is more than just a celebration; it is a vital component of Lagos' cultural, religious, social, and political landscape. With roots deeply embedded in the history of the city, it offers a platform for the reinforcement of local identity, while simultaneously acting as a vehicle for modern-day political and social engagement. As the festival evolves with new technological trends and contemporary concerns, it continues to remain a powerful symbol of Lagos' commitment to preserving its cultural heritage while embracing the future. Further research into the festival's role in tourism, cultural diplomacy, and global recognition could provide deeper insights into how traditional festivals can evolve in a globalized world.

Notting Hill Carnival

The Notting Hill Carnival is one of Europe's most significant cultural and economic events, celebrated annually in the Notting Hill district of London. Since its inception in the mid-20th century, it has grown into a symbol of multiculturalism, economic vitality, and cultural resilience. This literature review critically examines existing scholarship on the historical evolution, cultural significance, and economic impact of the Notting Hill Carnival while assessing its strengths and weaknesses from a business perspective. The analysis is informed by theoretical perspectives and empirical findings to establish a strong business case for the festival's sustainability and future growth.

The Notting Hill Carnival originated in response to racial tensions and social injustices faced by Caribbean immigrants in the UK during the post-World War II era. Alleyne (2002) describes the festival as an act of cultural resistance and an assertion of identity. The first official event, organized in 1959 by Claudia Jones, was conceived as both a cultural celebration and a response to racial discord (Cohen, 1993). Over the years, the carnival expanded from a small indoor event to a full-scale street festival, integrating traditional Caribbean masquerade (mas), steel pan music, and soca (Hill, 2007). Gilroy (1993) situates this transformation within the broader discourse of the "Black Atlantic," emphasizing the festival's role in diasporic cultural adaptation and sociopolitical activism.

The Notting Hill Carnival serves as a powerful platform for the expression of Caribbean heritage and identity within the UK. Gilroy (1993) and Fernandes (2017) highlight the festival's function as a dynamic space where African, Caribbean, and British cultures intersect, fostering cultural hybridity and community cohesion. Henry (2018) argues that the carnival also plays a critical role in intergenerational cultural transmission, ensuring the preservation and evolution of Caribbean traditions. From a business perspective, the festival's cultural authenticity enhances its marketability as a global attraction, drawing international tourists and cultural enthusiasts. However, concerns about cultural commodification and dilution due to corporate sponsorship (Green, 2022) raise questions about the balance between commercial interests and cultural integrity.

The Notting Hill Carnival contributes significantly to the UK economy, generating substantial revenue through tourism, hospitality, and entertainment sectors. The Greater London Authority (2016) estimates that the festival injects over £100 million annually into the economy. Smith (2019) highlights its role in fostering entrepreneurship, particularly among ethnic minority business owners, through the provision of vending opportunities and small business exposure. Additionally, seasonal employment for security personnel, event organizers, performers, and vendors bolsters local economic activity. From a business standpoint, the carnival presents lucrative branding and sponsorship opportunities. Major corporations invest in the event as a means of targeting diverse consumer demographics. However, as Green (2022) notes, there is a growing debate over whether increased corporate involvement is compromising the festival's grassroots essence. A more strategic approach to balancing sponsorship with community ownership could optimize financial sustainability without undermining cultural authenticity.

The festival attracts over two million visitors annually, stimulating spending in hospitality, retail, and transport industries (Greater London Authority, 2016). It fosters intercultural dialogue, social inclusion, and representation for the Caribbean diaspora (Gilroy, 1993). It also provides opportunities for small businesses, independent artists, and street vendors to engage with large audiences (Smith, 2019). As one of the world's largest street festivals, it enhances London's global cultural profile and draws international tourists (Henry, 2018). However, crime and overcrowding remain key challenges, necessitating extensive (and often controversial) policing. Reliance on fluctuating public and private funding creates financial uncertainty for event organizers (Smith,
2019). Rising property values and demographic shifts in Notting Hill threaten the festival's traditional base (Green, 2022). Increased corporate sponsorship risks undermining the festival's authenticity and community-led nature (Jones & Keith, 2021).

The Notting Hill Carnival is not only a cultural and social landmark but also a critical economic asset for London and the UK at large. Its ability to generate revenue, promote entrepreneurship, and attract global tourism makes a compelling business case for its continued investment and strategic expansion. However, to ensure long-term sustainability, stakeholders must address key challenges, including public safety concerns, funding stability, and the balance between commercialization and cultural integrity. Future research should explore innovative

funding models, public-private partnerships, and community-led governance structures to safeguard the carnival's future while maximizing its economic and cultural potential.

The Roles of AI and Internet of Things in Festivities

The integration of Artificial Intelligence (AI) and the Internet of Things (IoT) has profoundly impacted various sectors, including the organization and experience of modern festivities. This literature review explores the role of AI and IoT in enhancing contemporary celebrations, focusing on key advancements, applications, and future directions. While festivities traditionally involve communal participation and shared cultural experiences, digital technologies, particularly AI and IoT, have redefined these events by offering personalized engagements, efficient management, and immersive experiences.

AI simulates human intelligence in machines, and IoT comprises interconnected devices capable of exchanging data. Together, they form AIoT, which enhances the functionality of both technologies. AIoT technologies are widely studied in fields such as smart cities and public infrastructure management (Alahi *et al.*, 2023). In modern festivities, AI and IoT are applied in multiple areas to optimize event experiences. AI systems can analyze attendee data to provide personalized event features, such as tailored music playlists, customized lighting, and content delivery (Bauer *et al.*, 2022). Additionally, IoT-enabled sensors monitor crowd movement and density, ensuring safety and optimizing spatial management during large events (Smith & Jones, 2021). AI-driven art installations and performances respond to audience input, creating dynamic, interactive environments (Miller & White, 2023). IoT also enables virtual participation, allowing remote attendees to engage through live streaming or virtual reality (Liu *et al.*, 2024).

While there is limited research focusing explicitly on AI and IoT in festive events, studies in smart city development and public event management provide valuable insights. Marengo (2024) reviews how AI and IoT technologies optimize data processing, decision-making, and sustainability in urban infrastructure, with implications for event management, including operational efficiency and energy conservation.

The deployment of AI and IoT in festivities presents several challenges. Privacy concerns arise due to the collection and analysis of personal data from attendees, raising ethical issues related to consent and data protection (Gonzalez *et al.*, 2022). Additionally, IoT devices are vulnerable to cybersecurity threats, necessitating robust protection strategies (Zhang & Lee, 2023). The integration of diverse IoT devices can present technical challenges in ensuring interoperability and seamless communication among systems. Ethical considerations regarding surveillance and data usage in public events are also critical to ensure compliance with privacy laws (Sharma & Gupta, 2022).

Looking to the future, AI and IoT hold the potential to further transform festivities. Advances in AI models may lead to more responsive event environments that adapt to participant preferences and external factors in real-time (Zhou & Wang, 2025). The fusion of augmented reality (AR) with IoT technologies offers possibilities for creating more immersive and interactive experiences for attendees (Cheng & Zhang, 2024). Additionally, AI and IoT can

promote sustainability by optimizing energy usage, reducing waste, and enhancing the environmental impact of events (Harris & Miller, 2023). Virtual platforms powered by these technologies can also broaden access to events, ensuring inclusivity for individuals unable to attend in person.

In conclusion, the integration of AI and IoT in modern festivities is transformative, enhancing personalization, operational efficiency, and engagement. While research in this area is still developing, insights from related domains demonstrate the potential benefits and challenges posed by these technologies. As AI and IoT continue to evolve, their applications in event management are expected to expand, offering enriched and immersive celebratory experiences for participants worldwide.

METHODOLOGY

This study employs a qualitative research approach, utilizing desk research and an empirical review of extant literature to critically analyze the evolution of cultural celebrations in the digital era. The research specifically examines the Notting Hill Carnival in the United Kingdom and the Eyo Festival in Nigeria, with a particular emphasis on the integration of Artificial Intelligence (AI) and the Internet of Things (IoT) in contemporary festivities. Through a rigorous interrogation of scholarly literature, official reports, and digital archives, this study seeks to construct a comprehensive and nuanced understanding of how digital technologies are reshaping cultural celebrations while concurrently preserving their traditional essence.

The research is underpinned by a descriptive and exploratory design, facilitating an in-depth evaluation of AI and IoT's influence on the organization, participation, and overall experience of cultural festivals. A qualitative methodological approach is deemed appropriate, as it enables a robust synthesis of existing knowledge without necessitating direct engagement with primary data sources. By systematically integrating insights from secondary literature, this study critically interrogates the intersection between cultural heritage and technological innovation in contemporary festival practices.

Data for this study is exclusively derived from secondary sources, including peer-reviewed journal articles, academic monographs, official festival reports, governmental publications, industry whitepapers, and reputable digital repositories. Furthermore, digital archives, festival organizers' websites, and technological reports on AI and IoT applications are incorporated to ensure a comprehensive and multifaceted representation of prevailing trends. Additionally, media sources—including journalistic articles, academic blogs, and documentary analyses of the Notting Hill Carnival and Eyo Festival—are examined to encapsulate contemporary discourse and public perceptions regarding the digital transformation of these cultural events.

A thematic content analysis is employed as the principal analytical framework, facilitating the systematic categorization and interpretation of findings. Key thematic areas of investigation include the historical significance of each festival, technological adaptations in event planning and execution, audience engagement through digital platforms, security enhancements facilitated by IoT, and AI-driven innovations such as virtual participation, predictive analytics, and crowd management. The adoption of a comparative analytical framework enables a critical evaluation of similarities and

divergences in the application of AI and IoT across the two festivals, thus fostering a broader understanding of technological integration within diverse socio-cultural contexts.

The reliance on desk research and literature review provides a robust epistemological foundation for understanding the digital transformation of cultural celebrations. This methodological approach allows for the systematic consolidation of empirical findings from extant studies, technological reports, and historical documentation, thereby circumventing the practical limitations associated with primary data collection, such as logistical constraints and potential response biases. Furthermore, an empirical review of literature facilitates a critical synthesis of varying scholarly perspectives, ensuring a comprehensive and well-rounded examination of AI and IoT's role in augmenting traditional festival practices.

Nevertheless, this study acknowledges the inherent limitations associated with desk research. Firstly, the dependence on secondary data constrains the research to the scope, accuracy, and comprehensiveness of pre-existing literature. Secondly, the rapid evolution of digital technologies poses a challenge in capturing real-time advancements, as festival practices may continue to develop beyond the scope of documented sources. To mitigate these limitations, the study incorporates the most recent and credible sources available and cross-references multiple scholarly viewpoints to enhance the validity, reliability, and contemporaneity of its findings.

The study seeks to contribute to the growing body of knowledge on the digital transformation of cultural festivals, offering a comparative perspective on the integration of AI and IoT in both Western and African celebratory contexts. This research is anticipated to yield valuable insights for festival organizers, policymakers, and technology developers striving to optimize the synergy between cultural heritage and technological innovation in contemporary cultural events.

FINDINGS AND DISCUSSION

The study "Cultural Celebrations in the Digital Age: Exploring Notting Hill Carnival, Eyo Festival, and the Role of AI & IoT in Modern Festivities" explores how AI and IoT technologies are transforming cultural celebrations, with a specific focus on the Notting Hill Carnival and the Eyo Festival. The research reveals that the Notting Hill Carnival has effectively integrated AI and IoT technologies to enhance crowd management, security, and global engagement. IoT-enabled sensors and AI-driven predictive models have significantly improved the carnival's ability to manage large crowds, predict risks, and enhance the safety and overall experience of attendees. Additionally, AI algorithms have optimized the carnival's digital presence, enhancing global audience engagement (Gubbi *et al.*, 2013; Liu *et al.*, 2020).

In contrast, while the Eyo Festival is a significant cultural event in Nigeria, it has not fully embraced these technologies. Although efforts have been made to digitally document the festival's cultural aspects, the integration of IoT and AI systems to optimize crowd control, ensure security, and engage a wider global audience is still lacking. This technological gap leaves room for improvement, particularly in enhancing logistical operations and expanding the festival's reach beyond its local base (Okafor, 2020). Despite the festival's rich cultural significance, the absence of advanced technologies limits its operational effectiveness and international visibility.

The findings also show that the integration of AI and IoT in festivals like the Notting Hill Carnival has proven beneficial in solving practical challenges such as crowd management, security, and accessibility. For the Eyo Festival, adopting similar technologies could significantly improve the overall experience for both attendees and organizers, ensuring the festival's growth and sustainability in the modern digital era.

CONCLUSIONS

The study concludes that AI and IoT technologies are essential tools for modernizing and enhancing large-scale cultural festivals. The Notting Hill Carnival exemplifies how the integration of these technologies can improve operational efficiency, safety, audience engagement, and the preservation of cultural heritage. AI-driven predictive models, IoT sensors for crowd monitoring, and digital engagement strategies have allowed the carnival to address logistical challenges effectively and expand its international reach. Furthermore, the carnival's use of digital archives and live streaming has contributed to the global dissemination and preservation of Caribbean culture (Gubbi *et al.*, 2013; Dufresne *et al.*, 2017).

In contrast, while the Eyo Festival holds substantial cultural and historical significance, it has not fully utilized modern technological advancements to enhance the festival experience. The festival's infrastructure lacks the widespread use of IoT for real-time monitoring, and AI is not being leveraged for crowd management or digital engagement. The absence of these technologies creates challenges for the Eyo Festival in managing large crowds, ensuring security, and reaching a global audience. However, this gap presents a clear opportunity for the Eyo Festival to enhance its operational capacity and global presence by incorporating modern technologies.

RECOMMENDATIONS

To reposition the Eyo Festival and bring it into the digital age, several recommendations can be made based on the successes observed at the Notting Hill Carnival. First, the integration of IoT sensors across the festival grounds is essential. These sensors can monitor crowd density in realtime, predict congestion, and enhance crowd management strategies (Gubbi *et al.*, 2013). IoTenabled systems can also be used to track the environmental conditions affecting cultural artifacts, ensuring their protection and preservation during the festival (Chien *et al.*, 2011).
Second, adopting AI-driven tools such as facial recognition for enhanced security and predictive analytics for crowd control would significantly improve safety measures at the festival (Zeng *et al.*, 2016). AI algorithms could also be employed to optimize social media engagement, promoting the festival to a global audience and providing personalized experiences for attendees (Liu *et al.*, 2020).

Moreover, the development of a mobile application equipped with IoT and AI functionalities would greatly enhance the festival experience. This app could provide real-time updates on festival schedules, locations of events, and accessibility features. Additionally, the app could guide visitors to accessible routes or offer personalized recommendations based on user preferences, improving the overall experience for attendees (Dufresne *et al.*, 2017).

The use of virtual reality (VR) and augmented reality (AR) technologies could further enhance the

Eyo Festival's cultural offerings. AR could overlay historical and cultural information onto physical objects, enriching attendees' understanding of the festival's significance. Additionally, VR could allow for virtual participation in the festival, providing global access for those unable to attend in person (Dufresne *et al.*, 2017).

Finally, adopting environmental monitoring technologies using IoT can ensure that the Eyo Festival operates sustainably. Real-time monitoring of waste management, air quality, and energy consumption would help minimize the festival's ecological footprint and ensure environmentally friendly practices (Chien *et al.*, 2011). By incorporating these technologies, the Eyo Festival can not only enhance its operational efficiency and security but also preserve and promote its cultural heritage on a global scale, ensuring the festival's continued success and relevance in the digital age.

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WASTE MANAGEMENT IN NIGERIAN HOSPITALITY AND TOURISM: A KEY TO SUSTAINABILITY

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ABSTRACT

Solid waste management is a significant challenge for hospitality businesses in Nigeria. The sector is a consumer of resources that contribute heavily toward excessive waste generation. The main objective of the study is management of waste to create sustainable business and safeguard against health hazards. The issue of waste management cannot be overemphasized, with increasing outdoor activities, efficient waste management is an issue of priority. This study was carried out in Bida, Niger State. The exploratory study adopted a simple random sampling method to determine ten highly patronized hospitality businesses in Bida Town comprising of hotels and eateries. The study used semi structured checklists during observation and interview of key respondents to elicit information. The sample comprised of thirty supervisors and managers of these businesses. The result showed that the total disposal methods (comprising Incinerations, composting, sale of leftover foods.) had a positive significant relationship to total waste management (R square= 0.81). The coefficient of determination (81%) showed that waste disposal methods accounted for 81 % of the total waste management. The result also showed a negative relationship in which guests are not involved in sustainable waste management practices. ($T=2.21$; $P< 0.05$). There is positive improvement in the perception of wastes as a resource with gradual recycling and reselling of food wastes, plastics and papers. More should be done by converting of waste to clean energy, animal feeds and other useful products as well as stakeholder engagement

Keywords: Hospitality, sustainable, waste, disposal, sorting, recycling.

INTRODUCTION

Human activities majorly create waste, and the way this waste is handled, stored, collected and disposed of can pose risks to the environment and to public health. Waste cost the hospitality and catering industry very much every year that is why it should be managed and controlled properly. The tourism and hospitality industry, renowned for its substantial global economic contributions, faces increasing scrutiny due to its environmental footprint. (Mbohwa and Bhila, 2019; Pham, Hoang and Fujiwara, 2018).

The wastes generated are of different categories ranging from solid biodegradable and nonbiodegradable wastes through liquid organic and inorganic wastes down to gaseous poisonous pollutants that are capable of unleashing serious health hazard to man and his environment. Cooper (1998) defined waste management as the processes introduced by an organization for reducing, eliminating and ideally, preventing negative environmental impacts arising from its undertaking to environment. It encompasses management of all processes and resources for proper handling of waste materials, from maintenance of waste transport trucks and dumping facilities to compliance with health codes and environmental regulations. Waste management practices include solid waste collection and decomposing, waste reduction, reuse and recycling and waste composting. Solid

waste management according to Taiwo (2011), is a systematic control of generation, storage, collection, transportation, separation, processing, recovery and disposal of all kinds of wastes.

Effective waste management in the hospitality and catering sector contributes significantly to sustainability through several key ways which are as follows: Environmental conservation, organizational operations efficiency, regulatory compliance, learning and job opportunities and other positive outcomes. (Agesa, Kamau & Kivuva, 2022; Mensah, 2020; Kimeu, 2015; Nath, 2014)

Integrated waste management approach is described as a holistic, inter connective, goal oriented and strategic in nature in managing wastes (Agesa, Kamau & Kivuva, 2022; Mensah, 2020; Kimeu, 2015). An integrated approach to waste management involves the diverse set of interconnected activities and issues related to wastes instead of just the simple transfer of waste to disposal sites (Nath, 2014; Jindal, Harada and Shikura 1998; Bartone, 2000). The anticipated benefits of an integrated approach to waste management include: lower costs, better cost management and cost recovery, fewer health hazards, less environmental pollution, conservation of natural resources, better coordination and performance, greater impact at the local level, improved public participation, better image, and more income from tourism. (Kimeu, 2015; Van de Klundert and Anschutz 2001).

The viability of recycling and other waste management operations depends on local circumstances and technical, organizational and economic considerations (Omidian & Hashemi, 2016; Nath, 2014; Jindal, Harada and Shikura, 1998). Making recycling a viable endeavour is challenging because of collection, transportation, sorting, cleaning and processing costs involved with upgrading the quality of recycled materials. (Nath,2014; Jindal, Harada and Shikura, 1998). Waste management planners interested in the possibility of increasing waste recovery must address the challenges associated with "mixed wastes which make up most of the solid waste currently disposed of without recovery" (Nath,2014; Jindal, Harada & Shikura. 1998:94).

Waste is viewed as a resource when economic incentives exist. A clear economic incentive to recover materials exists when materials "are available in pre-separated, concentrated and relatively uncontaminated form. This aspect of seeing waste as a resource has been largely ignored in Nigeria hospitality and tourism and hence the need for this study. The need for collaborative and sustainability of all three aspects been interconnected; cleaner environment, more revenue for the business and benefits to the community from these businesses operations. (Omidian & Hashemi, 2016; Nath, 2014).

The objectives of the study are to: know the existing waste management techniques; identify the waste composition of the hospitality businesses; and to determine the cost benefit ratio of wastes.

The promotion of all aspects of sustainability through the business operation cannot be overemphasized, but working with all relevant stakeholders scale up the success stories for all stakeholders, to promote cost efficiency, employee and customer education and positive image of the hospitality businesses.

CONCEPTUAL FRAMEWORK AND RELATED STUDIES

This section examined the concepts/ models and theories that helped in explaining the study objectives and related studies

Tourism and Hospitality Concept

According to World Tourism Organization (2014), the tourism and hospitality industry plays a vital economic role in local communities throughout the world as it helps to transform those communities from a state of inactivity to a commercial and accommodating environment providing about 70% and 75% of international tourists' expenditure. People are directly or indirectly employed in the industry to offer services to the customers of hotels, restaurants, guesthouses, resort centers, tourist destinations, etc. Many accommodation and destination managers have subsidiaries, providing other services for them in the form of supplies of materials needed to serve their customers better. The industry's economic importance can be seen in foreign exchange generation and employment creation. Although it is not yet the main stay of Nigeria economy due to excessive neglect of the sector as result of over dependence on crude oil but it has been linked with other sectors of the Nigeria economy in providing direct and indirect jobs for the people, (Fagbolu, 2021a; Ajani & Kalu, 2017; Adeola & Ezenwafor, 2016).

Mbohwa and Bhila (2019), studied the impact of waste management in the hospitality industry Johannesburg north, South Africa, they highlighted the positive and negative influence of the tourism and hospitality industry and the escalating concerns regarding environmental degradation and resource mismanagement. They found that poor waste management has a substantial negative influence on the environment in a number of ways in the hotel and catering sectors. Landfill volumes are exacerbated by inefficient waste disposal techniques, such as treating food waste improperly, not recycling enough, and using too much single-use packaging. All of these causes pollution of the land and water in addition to the release of dangerous greenhouse gases like methane. They also found that environmental stress is further increased by the excessive use of resources, such as water and energy.

Pham, Hoang and Fujiwara, (2018): Their research provided insightful information about the state of waste management techniques among Hoi hoteliers in Vietnam. The study's method for identifying the waste composition in the hotel business is one of its main contributions. The results show that, on average, biodegradable materials make up 58.5% of hotel garbage, recyclable materials make up 25.8%, and other waste makes up 15.7%. The study explores further the relative variations in waste composition, taking climate, hotel features, and visitor kinds into account. Interestingly, a higher percentage of biodegradable garbage and a smaller percentage of recyclables are linked to larger hotels. The findings show encouraging progress: 76% of hotels sort their garbage, 39% recycle, 29% reduce their waste, and 0.8% compost.

Stakeholders Concept

Stakeholders in waste management are individuals or groups that have specific concerns and roles to play in managing wastes (Freeman, 2010; Fernandez, 1997a). There are a number of groups who have responded to the inadequacy of the existing waste management systems and become involved, such as the government, non-governmental organization (NGOs), community and industry stakeholder

groups. Vitolla, Raimo, Rubino and Garzoni, (2019) elucidate that for any organization/businesses to be successful in a secure manner, its stakeholders must be willing to pursue the responsibility of implementing sustainable measures.

Chikezie, Adedeji, Onihunwa, Meduna &Joshua, (2023) study reported that waste management practices influenced the operational performance of hotels in Lagos State; the study found that waste reduction, reuse, recycling, waste collection, depositing, composting and treatment practices are important contributors in determining the operational performance of hotels. It was recommended that waste management guiding principles, framework and policies be developed and communicated to all stakeholders for proper and effective implementation.
Eleshi & Olaitan (2020), examined pattern of solid waste generation and management in selected hospitality industries in Ilaro Township, with a view to looking at the type, size, rate, volume and composition of solid wastes being generated as well as the management method adopted among other vital issues. it was discovered that majority (75%) of the surveyed respondents (industries) did not take proper management of wastes generated so serious; also there are differences in the sizes or volume of wastes generated among these industries which ranges between 40%(hotels and guest houses) and 60% (bars and canteens or restaurants).

Likewise, the composition of wastes generated differs significantly where food remnants takes about 45% and nylon (30%), plastic bottles (15%), others (10%). They recommended that there should be strict monitoring for waste management.

Lagasi, Lagasi and Ndong, (2019) investigated practices of solid waste management in some selected hotels in Bauchi state. The study made an audit of the types of solid waste generated in large, medium, small and unclassified hotels; the result revealed that 55% of the volume of waste generated is from food. The study also revealed that 75% of the hotels do not have policy on waste disposal and recommended that the hotels develop waste management policies that can guard against indiscriminate disposal, bio-degradable waste generated should be processed and used as nutrient rich food for plants.

RESEARCH METHODOLOGY

This section described the research design, method of data collection and analysis procedures used in this study. The study area, Bida is the Capital of Nupe People or Kingdom. It is located between the Niger and the Kaduna rivers; it has land area of 1,698Km2. It shares a border with Agaie by the South, Lemu by the North, Kutigi by the West and Doko by the East (Salahu, 2017) Bida is situated within the geographical coordinates of 9°03'N to 9°07'N latitude and 5°59'E to 6°03'E longitude. The city lies within the Guinea Savannah region of Nigeria, which is characterized by a tropical continental climate.

This study is an exploratory survey that sought to explore and understand the waste management techniques, identifying the waste compositions of hospitality business and how are they are managing their wastes with the view of profitability to the businesses and preservation of the environment from pollutions and other negative outcomes. The population of the study are hospitality businesses operating in Bida and operating certain standard of waste managements in their businesses. The businesses were randomly stratified into three blocks three or more hospitality businesses were purposely sampled from each axis based on their high patronage. Thirty managers and supervisors from

these ten hotels and eateries were chosen. The data were collected through interviews, observations and checklists of desired parameters of waste management techniques from relevant. The results were analyzed with SPSS 20.0 using the descriptive and inferential statistics in analyzing the demographics and parameters of the study

DATA ANALYSIS AND INTERPRETATION OF RESULTS

This section examined the result of the data analysis and the interpretation of results in line with the study objectives.

4.1 Demographics of the Respondents of Hospitality Businesses

Variables	Frequency	Percentage
Age		
21-30	3	10
31-40	22	73
40 &Above	5	17
Gender		
Male	19	63
Female	11	37
Marital Status		
Single	10	40
Married	20	60
Education		
SSCE	-	-
ND/NCE	2	7
Duration in org		
Lesser than 5Yrs	21	70
Greater than 5yrs	9	30
N =30		
HND/BSC	20	67
Others	8	26

Descriptive Analysis of Study Demographics.

- The age of the respondents revealed that 31-40 years accounted for 73% followed by 40 and above =17% and 21-30=10%.
- The gender showed that male was the highest with 63% and the females=37%
- The marital status showed that the married had the highest percentage of 60% and the single=40%
- The respondents' education showed that the HND/BSC had the highest percentage of 67% followed by others qualifications=26% and the ND/NCE=26%
- Duration in Organization revealed that the respondents who have been working with organization for lesser than five years had the highest percentage followed by those with more than five years=30%

Parameters of the Study

- The result showed that food waste accounted for the highest waste generated=45% followed by plastics=20%; paper and nylons =15%e respectively and other types of wastes=5%
- In waste disposal methods, 32%of the respondents reported that they dispose their wastes through incineration and only three percent compost their wastes. However, a growing trend in the town is the sale of leftover food and vegetables to pet owners and 65% dispose their leftover foods that way. All of them agree that they resell plastic and paper wastes to recyclers
- In response to sorting 19% responded that they do not sort waste, 2% are

indifferent while 79% agreed that they sort wastes into food, paper and plastics.

- In guest engagement in waste management practices 97% do not engage guests other than provision of waste baskets,3% engage them by putting up signs to keep the environment clean and use less plastics.

Table 4.2 Regression Analysis showing the Disposal methods adopted by Hospitality Businesses in Bida Town

** Significant at 0.01 and 0.05

R	R Square	Adjusted R Square	T	Beta	P
.902	.813	.806	11.04	0.92	<0.05

The result showed that the total disposal methods which is the independent variable (comprising Incinerations, composting, sale of leftover foods.) had a positive significant relationship to total waste management (R square= 0.81). The coefficient of determination (81%) showed that waste disposal method accounted for 81 % of the total waste management. The table also revealed that (β =0.90, p = 0.000 < 0.05) Waste disposal methods (comprising Incinerations, composting, sale of leftover foods) had a positive and statistically significant effect on total waste management.

Table 4.3 Analysis of Variance Showing the Relationship Between Waste Disposal Methods and Total Waste Management

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.371	3	35.371	121.829	.000
	Residual	8.129	27	.290		
	Total	43.500	30			

a. Dependent Variable: Total Waste Mgt

b. Predictors: (Constant): Incinerations, composting, sale of leftover foods.

The result revealed that (F= 121.83; P<0.05) indicated that waste disposal methods (comprising
Incinerations, composting, sale of leftover foods.) are good predictors of total waste management

Table 4.4 showing T test of Engaging guests in Sustainable Waste Management Practices.

Variable	Engaging Guests	N	Mean	Std. Deviation	T	Df	P
	Non engaging	29	6.5862	1.15007	-2.211	2	<0.05
	Engaging						
	Total	1 30	4.0000	.			

The result showed that (T=-2.21;P< 0.05) indicated a negative relationship in which guests are not involved in sustainable waste Management Practices

CONCLUSION

From the study it can be deduced that waste management among the hospitality and tourism businesses in Bida is noticeably evident even though there is need for greater improvement. This result supported the work of Chikezie, Adedeji, Onihunwa, Meduna & Joshua, (2023), that waste management practices influenced positively the operational performance of hotels in Lagos State. There is positive improvement in the perception of wastes as a resource and not just a disposable waste with gradual recycling and reselling of food wastes, plastics and papers (Nath,2014). There should be improvement on what is currently being practised for a more sustainable environment and industry by going more in to the converting of the wastes to clean energy, animal feeds and other useful products that will increase business revenue and also make the environment cleaner and healthier and

provide job opportunities for the community and beyond (Nath, 2014).

Conclusively, the results also agree with other works that advocated for the inclusion of all the stakeholders to work together in waste reduction, conversion and other positive waste managements (Eleshi & Olaitan, 2020; Lagasi, Lagasi & Ndong, 2019; Nath, 2014).

RECOMMENDATIONS

It is recommended that the hospitality and tourism management practitioners be trained and retrained:

1. Incineration should be reduced and other forms of reduction, reuse, recovery and waste to energy be encourage in managing wastes.
2. Customers should be involved in waste management to achieve sustainability by providing waste bins all around the facilities with bold letters or pictures to indicate items to be trashed in each bins, this not only solves the problem of cleanliness, it also helps to sort waste into categories that will make for easy and efficient management of waste.

SUGGESTIONS FUTURE RESEARCH

1. There is need to look in to proper auditing of wastes in the hospitality businesses
2. Ascertaining the waste conversion level to useful products of the hospitality businesses and others.

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ASSESSING THE CHALLENGES AND SECURITY MEASURES OF TOURISM RESORTS ON THE JOS – PLATEAU

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ABSTRACT

Plateau state has undergone a series of remarkable security challenges since early 21st century. The tourism industry has not been spared, but has had her share of the insecurity threats and challenges in the series of terrorism, ethno-religious conflicts, communal clashes, armed robbery, petty theft, and a host of other challenges. These challenges have negatively affected the inflow of tourists from within and international arena. The aim of the study is to investigate the security measures employed by resorts on the Jos plateau region of Plateau State. The researcher adopted the purposive and convenient sampling method for the selection of tourist resort and also to get the opinion of the target population using Question Guide and Interview. Findings of the study revealed among other things that, all the resorts on the Jos Plateau have employed some security measures for protection of lives and properties, and the measures vary from one resort to the other. All resorts either owned by government or private individuals must consider the safety of tourists and their properties. Hence it is recommended that the government in Plateau State should provide a peaceful atmosphere for investors to come in so that the tourism industry would boom. All resorts on the Jos Plateau, must improvise effective security measures to curb with the alarming insecurity threats to secure the confidence of tourists and investors trooping to Plateau State.

Keywords: Security, Challenges, Tourist Resort, Jos Plateau.

INTRODUCTION

Tourism has emerged as one of the most significant drivers of economic growth and development globally. The tourism industry contributes immensely to The process of generation. Foreign exchange, job creation, and infrastructure development are vital for national and global economic stability (World Travel and Tourism Council [WTTC], 2023). Over the past few decades, tourism has become a strategic pillar for many nations, especially those endowed with natural and cultural resources, as they seek to diversify their economies and reduce dependency on oil, agriculture, and other primary sectors. The tourism sector is particularly important in developing countries where it serves as a means of reducing unemployment and poverty, thereby fostering social and economic development (UNWTO, 2022).

Resorts are an essential component of the tourism and hospitality industry. They are often viewed as the backbone of tourism, serving as the primary destination for tourists seeking relaxation, recreation, and luxury experiences (Chen & Petrick, 2013). The first factor that tourists consider when deciding on a destination is the security and safety of their lives and property (George, 2013). Unfortunately, the tourism and hospitality industry is highly vulnerable to security threats, which have become a major global concern in recent decades (Hall *et al.*, 2020). These threats include terrorism, insurgency, armed robbery, kidnapping, theft, and other forms of organized crime, which not only threaten the safety of tourists but also disrupt the

smooth operation of tourism businesses (Pizam & Mansfeld, 2016).

Security concerns within the hospitality sector, particularly in resorts, have become more pronounced due to the rising incidents of crime and violence targeting tourists and tourism facilities. The issue of security extends beyond the protection of physical assets; it encompasses the emotional and psychological well-being of tourists, which is critical for building a positive destination image and encouraging repeat visits (Tarlow, 2014). Effective security measures in the tourism industry require a coordinated effort between governments, private sector operators, security agencies, and local communities to create a safe and secure environment for tourists and business operators alike (Pizam, 2017).

The concept of security refers to the systems, measures, and protocols put in place to prevent and respond to potential threats to human life, health, and property (Fuchs & Pizam, 2011). Security in the context of tourism involves safeguarding tourists from physical harm, theft, and psychological stress. The rise in global terrorism, ethnic conflicts, and social unrest over the last two decades has made security an indispensable factor in tourism development (Tarlow, 2014). According to George (2013), destinations that are perceived as unsafe experience a significant decline in tourist arrivals, leading to economic losses and reputational damage. Therefore, improving security infrastructure and emergency response mechanisms is essential for sustaining tourism growth and attracting international visitors.

In Nigeria, security challenges have significantly hindered the growth and development of the tourism industry. Nigeria has been plagued by various security issues, including terrorism (mainly from Boko Haram), communal clashes, ethno-religious conflicts, kidnapping, armed robbery, and petty crime (Okoli & Orinya, 2021). The Jos Plateau in Plateau State has been a hotspot for conflicts, leading to major disruptions in tourism activities and the overall economy of the state (Aliyu *et al.*, 2019). The rise in violent crimes and social unrest has created an atmosphere of fear and insecurity, discouraging both domestic and international tourists from visiting the state (Abutu *et al.*, 2022).

Despite the Nigerian government's efforts to address security challenges and promote tourism, the tourism sector remains fragile due to the persistent threat of violence and crime. Dambazau (2017) highlighted that Nigeria's security environment has been marred by organized crime, insurgency, and political instability since the 1980s. The Economist Intelligence Unit (2023) ranked Nigeria among the riskiest countries for business and tourism due to the high incidence of violent crime and inadequate security infrastructure. The report indicated that security risks in Nigeria occur at three levels:

Violent crime – including armed robbery, carjacking, and assault.

Targeted attacks on businesses – including blackmail, vandalism, and kidnapping.

Civil unrest and communal conflicts – leading to property destruction and business disruptions.

In Plateau State, the situation is particularly concerning due to the history of ethnic and religious conflicts that have destabilized the social fabric of the region (Aliyu *et al.*, 2019). The Jos Plateau, known for its picturesque landscapes and cool climate, was once a major tourism hub in Nigeria, attracting both local and foreign tourists.

However, the outbreak of violent clashes between ethnic and religious groups has significantly tarnished the region's image as a safe tourist destination (Abutu *et al.*, 2022). The resulting decline in tourist arrivals has affected the local economy, leading to the closure of businesses, job losses, and reduced government revenue from tourism-related activities.

Security is a critical factor in the success of the hospitality and tourism industry. Resort operators have a responsibility to provide a safe and secure environment for their guests and employees. This involves developing comprehensive security plans, investing in modern security infrastructure, and training staff on emergency response protocols (Tarlow, 2014). Effective security measures include the installation of surveillance cameras, metal detectors, perimeter fencing, and the presence of trained security personnel. Additionally, building strong relationships with local law enforcement agencies and community stakeholders is essential for maintaining a secure tourism environment (Pizam, 2017).

The impact of insecurity on the tourism sector in Plateau State extends beyond the immediate loss of tourist revenue. Insecurity has led to the postponement and cancellation of major events such as international conferences, sporting tournaments, and cultural festivals, further weakening the state's economic position (Okoli & Orinya, 2021). The ripple effects of these disruptions include reduced occupancy rates in hotels, lower demand for tourism-related services, and increased financial strain on resort operators. Consequently, some resort owners have been forced to downsize their workforce or shut down operations altogether, exacerbating the state's unemployment and poverty levels (Abutu *et al.*, 2022).

Research on security measures in Nigeria's tourism and hospitality sector remains limited. While studies on global tourism security have increased in recent years, research focused on the resort sector in developing countries, including Nigeria, is still sparse (George, 2013). More empirical studies are needed to evaluate the effectiveness of security measures in resorts and to identify best practices for enhancing security infrastructure and management. Understanding tourists' perceptions of security and their expectations for safety services is essential for enhancing the overall visitor experience and restoring confidence in Nigeria's tourism sector (Fuchs & Pizam, 2011).

This study seeks to fill the gap in research by investigating the security measures employed by resorts on the Jos Plateau and assessing their effectiveness in addressing security challenges. The findings of this research will provide valuable insights for resort operators, government agencies, and policymakers in developing strategic interventions to improve security and boost tourist confidence in Plateau State. By addressing the underlying security issues and implementing robust security measures, the tourism sector on the Jos Plateau can regain its competitive edge and contribute more significantly to the state's economic development.

The increasing sophistication and intensity of security threats in recent years necessitate a proactive approach to security management in the tourism industry (Hall *et al.*, 2020). Resort operators must adopt a multi-faceted security strategy that combines physical security measures, staff training, and community engagement to mitigate the risks posed by insecurity. Enhancing security in the tourism sector will improve tourist safety and satisfaction, positioning Plateau State as a preferred

destination for both domestic and international travelers.

- What are the security measures of tourism resorts on the Jos Plateau?
- How can security measures be improved and sustained in resorts on the Jos plateau?

This is the challenge of this research

THE STUDY AREA

The Jos-Plateau zone has a total area landmass of about 9,400 sq. km with an average rise of about 1250 meters above mean sea level. The highest peak on the Jos Plateau attains an elevation of 1829 meters above sea level around the Shere-Hills. The Jos-Plateau zone comprises nine local government areas including Jos-North, Jos-South, Jos-East, Riyom, BarkinLadi, Pankshin, Mangu, Bokkos, and Bassa. Plateau State Government (2019). The Jos-Plateau is noted for its unique drainage networks, which are made up of streams that constitute the sources of major rivers draining the northern part of Nigeria. For this reason, the Jos-Plateau has been regarded as the hydrological Centre of Northern Nigeria. This is because the watersheds of some river systems come together at a point near Rayfield in Jos town: with the Delimi River draining to Lake Chad; the Gongola, Wase, Shemankar, Ankwe, and Mada Rivers draining into River Benue while Kaduna River empties into the River Niger (Gontul, 2006). Some of the rivers and streams have formed spectacular waterfalls, which are part of the breathtaking tourist attractions on the Jos plateau. For instance, the Sha Falls, Assop Falls, Kwoll Falls, and Kura Falls are all among the breathtaking and fascinating tourist sites on the Jos plateau escarpments which can give her a good image if properly harnessed and developed. The climate of the Jos plateau is dominantly influenced by its relief and position along the passage of the inter-tropical convergence zone (ITCZ). The high altitude of the Jos Plateau area has significantly moderated its temperature, which has been described as "temperate-like." The approximate maximum temperature is about 26oC while the mean minimum temperature is about 18oC and the average temperature is 22oC. Plateau State Government (2019). The weather on the Jos-Plateau is therefore generally cold especially between December and February because of the harmattan (North East trade winds) winds and in July and August at the peak of the rainy/wet season. Generally, Jos-Plateau has been claimed to be the coldest area in Nigeria and Jos town is the coldest State capital in Nigeria. This cold condition is a special tourism asset/attraction on the Jos plateau, especially to domestic tourists and international tourists especially those from the temperate regions who found the region a 'second home' (Gontul, 2006). 88 Journal of Tourism and Heritage Studies.

Figure 1: Map of the Study Area Showing the Location of the Selected Tourist sites. Source: Plateau State Tourism Corporation (2018) the selected tourist sites are: The Jos Wildlife Park, Solomon Lar Amusement Park, Jos National Museum, and Museum of Traditional Nigerian Architecture.

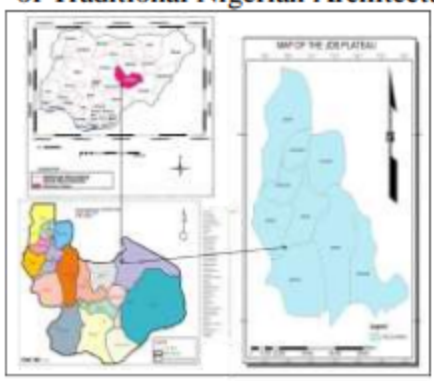


Figure 1: Map of Nigeria Showing Plateau State and the Study Area

Source: Bureau for Land, Survey and Town Planning Jos. Plateau State (2021)

LITERATURE REVIEW

Tourism has emerged as a key driver of economic development, providing employment opportunities and boosting foreign exchange earnings (World Travel and Tourism Council [WTTC], 2023). However, the tourism and hospitality industry is highly susceptible to security challenges, which have become a major concern for global tourism destinations. Studies have explored the impact of security issues on tourism growth, visitor confidence, and the overall sustainability of the industry.

George (2013) examined the influence of security on tourists' decision-making, finding that safety and security are among the top factors influencing destination choice. The study revealed that destinations perceived as unsafe experienced a significant decline in tourist arrivals and revenue generation. Similarly, Tarlow (2014) emphasized that security threats such as terrorism, armed robbery, and organized crime not only endanger tourists but also disrupt tourism businesses and tarnish destination reputations. This highlights the importance of robust security infrastructure in sustaining tourism growth. Aliyu *et al.* (2019) investigated the impact of insecurity on tourism development in Plateau State, Nigeria. The study revealed that ethnic and religious conflicts, communal clashes, and terrorist attacks have created an atmosphere of fear and instability, discouraging both domestic and international tourists from visiting the state. The authors noted that the decline in tourist arrivals has resulted in financial losses for resort operators and a decrease in government revenue from tourism-related activities. Similarly, Abutu *et al.* (2022) reported that insecurity in Plateau State has led to the cancellation of major events such as cultural festivals and sporting tournaments, further weakening the state's tourism sector.

Onuh *et al.* (2021) assessed the specific challenges facing resorts in Plateau State due to insecurity. The study highlighted that resort operators have faced increased incidents of armed robbery, vandalism, and kidnapping, leading to heightened operational costs and reduced profitability. The authors stressed that inadequate support from local authorities and limited financial resources have hampered efforts to implement effective security measures. This underscores the need for a coordinated approach to security management in the tourism sector.

Ikezam *et al.* (2021) explored the security measures adopted by resorts in Nigeria and found that while some resorts have installed surveillance systems and hired private security personnel, the lack of financial capacity has limited the effectiveness of these measures. The authors called for increased government support and public-private partnerships to strengthen security infrastructure in the tourism sector. Pizam (2017) similarly noted that effective security measures, including staff training, perimeter fencing, and emergency response systems, are essential for enhancing tourist confidence and encouraging repeat visits.

Onwuna *et al.* (2023) assessed tourists' perceptions of security in Nigerian resorts, revealing that most tourists consider safety a critical factor in their choice of destination. The study found that tourists are more likely to avoid destinations with a history of security threats, even when competitive pricing and high-quality services are offered. This highlights the importance of improving the security image of destinations through targeted communication and infrastructure upgrades.

Okoli and Orinya (2021) examined the broader impact of insecurity on tourism in Nigeria, noting that the tourism sector's fragility stems from a lack of investment in security infrastructure and ineffective policy frameworks. The study recommended that resort operators adopt a multi-faceted security strategy, including collaboration with local law enforcement agencies, investment in modern security technology, and active engagement with local communities to enhance security outcomes.

Despite existing studies highlighting the importance of security in tourism, there remains a significant gap in understanding the specific security challenges faced by resorts on the Jos Plateau. Most research has focused on general security issues affecting tourism in Nigeria rather than examining the operational challenges and security measures specific to resorts in Plateau State. Understanding tourists' perceptions of security and evaluating the effectiveness of current security measures are essential for developing targeted interventions to improve safety and restore confidence in the region's tourism sector.

METHODOLOGY

The researchers adopted the purposive sampling method. In purposive sampling, we sample with a purpose in mind, we usually have specific predefined groups we are seeking. One of the first things to do was to verify that the respondent met the criteria for being selected as a sample. Purposive sampling for proportionality is not a primary concern, with a purposive sample you are likely to get the opinions of your target population, which is why we chose this method. The researchers also undertake familiarization visits to be acquainted with the management, people, and attractions of the resorts on the Jos plateau. This facilitates communication and accessibility for participants during the survey. The study population comprised all resorts on the Jos plateau which include; the National Museum Jos, Hill Station Hotel, Crest Hotel, Semshak Hotel, Moonshine Hotel, New Jos Hotel, Jossy Royal Hotel, Gondola Hotel, Jerotel Sayak Hotel, Peoples Hotel, City Hotel, Fina Hotel, HBC Resort, Sharna place, Green Park Hotel, Stephan Hotel,
Green Valley Suit Hotel, Hotel Mononia, Net Café, les Rosier Bed and Breakfast, King Bite, Southern Fried Chiken, Chinese Garden, Vintage Art Gallery, Ray field Golf Club, Solomon lar Amusement Park, MOTNA (Museum of Traditional Nigeria Architecture), J.I.B Portakabin, Universal Hotel, Eliel Centre, KorretsHarmlets Amusement Park, Federal Hotel, Febuna Hotel,
Comex International Hotel, Plateau Hotel, Jos Wildlife Park, Jubilee Hotel, Rochland Hotel, Afik Hotel, GabdoffAotel, Amingo Hotel, Kufang Hotel. De Bridge Ville

The researchers, with the advice of the staff of the Plateau State Tourism Corporation, purposely identified and selected the most physically developed and patronized resorts, and the ten (10) purposely sampled include: Hill Station Hotel, Solomon Lar Amusement Park, Crest Hotel and Gardens Jos Wildlife Park, National Museum Jos, Ray Field Holiday Resort, Eliel Centre, Ray Field Golf Club, Korrets Harmlets Amusement Park, J.I.B Portakabin.

Convenience sampling involves choosing respondents at the convenience of the researchers. In this particular study, the convenience sample adopted was the selection of tourist resorts. Convenience sampling is helpful especially when it is difficult to draw a probabilistic sample due to a lack of reliable base data as is the case here.

To evaluate the security situation of resorts on the Jos Plateau, the necessary data were primarily sourced from primary sources. The primary source of data collected from this study included mainly the information directly obtained from the sample resorts through field observation/inspection, and oral interviews with staff and guests of the designated resort.

PRESENTATION OF FINDINGS

Number of Security Measures Employed by The Resorts

The researcher sought to know the range of security measures mobilized at each of the sampled resorts to combat insecurity within their premises. Responses are on table 6. The range of security measures mobilised include mainly building of fences, employment of internal security personnel, engagement of external security forces (Army, Police, Peace Corp, State Security Services, etc), mounting security check point at gates, use of metal detector machines, mounting of city or surrounding-watch cameras, walkie- talkie and GSM machines and lighting provisions among many others.

Table 1: Number of Security Measures Employed at Resorts

RESORT	No of security measures	Percentage
Hill station Hotel	6	10.7
Jos Wild Life Park	4	7.1
Crest Hotel	6	10.7
Ray Field Holiday Resort	3	5.7
National Museum Jos	4	7.1
Solomon Lar Park	6	10.7
Eliel Centre	7	11.3
Ray Field Golf Club	5	9.4
J.I.B Portakabin	9	16.1
Korrets Hamlets Amusement Park	6	10.7
Total	**56**	**100**

Source: Field work 2023

Security facilities and services could greatly guarantee safety of lifes and properties of staff, tourists and the properties at a given resort. The researchers attempted to know the range of security facilities and services provided by each resort. The responses are summarised on table 1.

Name of resort	Hand metal detector	Access vehicle/pedestrian control	Adequate lightening	CCTV Camera	Walki-talkie	Fencing	Police/soldiers/civil defence	Internal security	Training and Retraining of staff	Electrical security alarm	Total
Hill station Hotel	√	√	√	X	X	√	√	√	X	X	6
JOS Wild Park	√	√	X	X	X	X	√	√	X	X	4
Crest Hotel	√	√	√	X	X	√	√	√	X	X	6
Ray field Holiday Resort	√	X	√	X	X	X	X	√	X	X	3
National Museum	√	X	X	X	X	√	√	√	X	X	4
Solomon Lar Amusement Park	√	√	√	X	X	√	√	√	√	X	6
Eliel Centre	√	√	√	X	X	√	√	√	√	X	7
Rayfied Golf Club	√	√	√	X	X	X	√	√	X	X	5
J.I.B. PortaKabin	√	√	√	√	√	√	√	√	√	X	9
Korrets Hamlet Amusement Park	√	√	√	X	X	√	X	√	√	X	6
Total	10	8	8	1	1	7	8	10	3	0	56

Table 2: Security Facilities/Service Provided by the Resort.
Source: Field work 2022

Findings on table1 shows that J.I.B. Portakabin has the highest security measures with 16.1% followed by Eliel Centre with 11.3%. Crest Hotel, Hill Station, Solomon Lar Amusement Park has 10.7% each. Ray field Golf Club and Korrets Hamlet Amusement Park have 9.4% of security measure. While Ray field Holiday Resort has the least security measure of 5.7%.

General Security Profiles of the Selected Resorts

A resort reputation and standard conduct of business is based on provision of protection that is afforded to guests, employees, visitors, contractors, the physical structure of the premises and that is contained there-in and pertinent to the property. The researcher therefore sought to know the security

Table 3: Security Profiles of the Sampled Resorts.

Name of resort	Ownership	Security facilities/services available	Security facilities/service lacking	Recreational facilities available	Security problems & challenges	Future security prospect
Hill Station Hotel	Govt.	Hand metal detector, Access vehicle/pedestrian control, on-site private security personnel, adequate lightening, GSM phone and intercom Device, Fencing, Police/Soldiers	CCTV Camera, Walkie-Talkie, Electric Alarm, Armed surveillance, Security personnel, watch towers	Bars, Restaurant, Events halls, Accommodation, swimmingpool	Crises, terrorism.	Provision of modern security garget lacking at the Hotel
Jos Wild Life Park	Govt.	Access Vehicle/Pedestrian Control, Hand Metal Detector, On-site Private Security, GSM Phone, Touch-light, Police/Civil Defence/Soldiers	Walkie-Talkie, CCTV Camera's, Electric Alarm, Armed Surveillance Security, Proper Fencing, Watch Towers.	Wild museum, park café for food and drinks, reception ground, picnic/play grounds	Terrorism, encroachment, trespasses, crises, public disturbances, theft, DrugAbused	More and trained security staff to be equip with modern security garget. Govt. funding.
Crest Hotel	Private	On-site security proper fencing, hand metal detector, lightening, inter-com devices, Access Vehicle/Pedestrian Control, GSM Phones, Touch-Light, Patrol Conducted Around the Premises.	Armed Surveillance Security, CCTV Camera's, Walkie-Talkie, Watch-Towers.	Gym facilities, conference hall, swimming pool, bars, internet facilities, laundering/ dry cleaning	Crises, terrorism, and theft.	Seminar sponsoring for internal security staff and provision of adequate armed security

Ray field holiday resort	Private	HandMetal Detector, On-site Private Security,Life-Jacket, Lightening, GSM Phones, Touching Light	Watch-tower, security alarms, walkie-talkie, surveillance security, armed guard security, fencing, CCTV camera's	Swimming board, reception ground, mini bar/restaura nt	Terrorism, crises, trespass, life guard & theft, drug abused, & public disturbance s.	Well trained security, staff with better boosting moral and adequate provision of modern security garget.
National Museum Jos	Govt.	Hand Metal Detector, Patrol Conducted Around the Resort, Onsite Security Staff, Fencing Lightening, GSM Phones.	CCTV Camera's, Walkie-Talkie, Armed Surveillance Security, Armed Guard Security, Watch-Towers, Electric Alarms Access Vehicles/Pedestri an Control	Ceremonial hall, garden library, souvenir shop, museum of natural history, transport museum.	Theft, terrorism, cultism, public disturbance s, civil unrest, DrugAbused	Modern security garget require d, more and trained security staff.
Solomon Lar Amuseme nt Park	Govt.	Access Vehicle/ Pedestrian Control, Hand Metal Detector, Armed Police, Fencing Lightening, GSM phone.	CCTV Camera's, Armed Surveillance Personnel, Walkie-Talkie, Electric Security Alarms, Patrol Conducted Around the Park	Swimming pool, Small Charlets, Long-tennis, Ceremony-Grounds, Bars and Restaurants	Theft, public disturbance s, terrorism, crises, drugabuse.	Enough monitorin g security garget are require with intelligent armed security personnel
Eliel Centre	Private	Fencing, Access Vehicles/Pedestrian Control, On-site Security Personnel, Lightening Surrounding the Resort, Hand Metal Detector, Inter-com Devices	Walkie-Talkie, CCTV Cameras, Armed Surveillance Security, Armed Guard Personnel, Electric Security Alarm.	Ceremonial halls, provision shops, car hire, restaurants	Crises and terrorism.	There is need for efficient monitorin g gargets and surveillan ce armed personnel

Ray field Golf Club	Private	Lightening, On-site Security Personnel, Barriers, Hand Metal Detector, Army	Armed Surveillance Security, CCTV Camera's, Watch-Towers, Intercom-Devices, WalkieTalkie, Fencing, Electric Security Alarm		Crises & Terrorism	Provision of more scanners, CCTV camera's, fencing , and posting of more police and soldiers permanently
J. I. B. Portakabin	Private	Access Vehicle/Pedestrian Control, Hand Metal Detector, Adequate Lightening, Fencing, Intercom-Devices, OnSite Security Personnel	Armed Surveillance Security, Electric Alarm		Crises & terrorism	More of security consciousness & alertness
Korrets Hamlet and Amusement Park	Private	Adequate lightening Surrounding the Resort, Access Vehicles/Pedestrian Control, Hand Metal Detector, On-site Security Personnel, Touch-Light	Walkie-Talkie, CCTV Camera's, Intercom Devices, Armed Security Guard, armed plain cloth security.	Swimming Pool, Ceremonial Halls, Children playing facilities	Terrorism & Crises.	To install some CCTV camera's in some strategic places

The challenges of resort in any part of the world is so extensive and comprehensive this can be observed into separate categories each with its own risk mitigation strategies. The researcher sought to know the extent of the problems and challenges confronting resort in the Jos Plateau. The responses are summarized on table 3. Findings based on interview also shows that,90% of the respondent indicate that poor facilities/services and few workers are problems face by resorts. 80% of the respondents indicate poor funding, substandard facilities, and lack of renovation. 70% indicate lack of trained personnel, 60% indicate poor salaries, and 40% indicate encroachment as the problems and challenges confront by the resorts in Jos plateau. Treatment of insecurity is all about having comprehensive plan in place, and skilled people with authority able to respond immediately should crises arises. The research work sought to know the coping strategies of resorts during conflicts. The responses are summarised on table 4.

Findings on table 4 shows that all the sampled resorts adopt coping strategies in overcoming the negative impacts of conflicts on the resorts. 100% of the respondent indicates operation time changes. 90% indicates more security personnel engage temporary. 50% indicates

salaries/wages slashed. 30% indicates workers retrench. 10% indicates resort temporary close

Table 4 Coping Strategies during Crises

Measures	Number of resorts affected	Percentage (%)
More security personnel engage temporary	9	90%
Operation time changes	10	100%
Salaries/wages slashed	5	50%
Workers retrench	3	30%
More security garget supply	2	20%

Source: Field work 2022

DISCUSSION OF FINDINGS

Security is always a priority concern of every country because it touches on the fundamental survival of the nation as a viable entity. The insecurity in the state is affecting the tourism industry, human lives and properties are not protected, the tourist who are expected to patronise the industry are discouraged because of insecurity. Resort generally according to Richard (2016), present greater vulnerability with respect to security threat. These threat are frequently in the form of crime, terrorism, crises and manmade hazards. However, the safety of tourist is a measure of how safe an area or city is. From the general findings, the researcher discovers that there is a significant difference in security measure used and tourism in the sample resorts. On this note, resort be it government or private individual, their primary concern is to consider guest comfort and safety as their highest priority and come up with proactive programmes that are an integral part of their daily operation in all the resort.

Findings have shown that, all the sampled resorts have employed almost the same security measures (including mainly building of fences, employment of internal security personnel, engagement of external security forces (Army, Police, Civil Defence, SSS, etc), mounting security check point at gates, use of metal detector machines, mounting of city or surrounding-watch cameras, walkie- talkie and GSM machines and lighting provisions among many others) to protect employees and customers within their resorts premises from potential threats and dangers. The findings reveal that, government resorts as shown on table 2 have more security challenges with less security measures employed for protection of lives and properties. The Jos Wildlife Park, Solomon Lar Amusement Park and National Museum Jos have weak security measures considering the influx of tourists during festivities such as Christmas, Salah and Easter celebrations. According to Enz (2009) forecasting the future is risky, but hotels that fail to look forward will almost certainly be left behind in an increasingly competitive globalized world, to help hotels to meet up with the current and future risks, the sky touch has developed a hotel security that monitors global hotel security issues and tracks changes of critical point the industry is facing worldwide. Findings further reveals that, the private resorts have better security measure with less security challenges. Considering the frequency, intense and geographical diverse of the security threats in J.I.B Portakabin, Eliel centre, Crest Hotel, Korrets Harmlets and Amusement Park, the measures employed by these resorts are good but not enough to adequately protect lives and properties at the resorts. Ray field golf club is an outdoor recreational resort that could attract tourists within and international, but, the security measure employed cannot guarantee the

safety of tourists. Ray field holiday resort has a fantastic scenic environment that offers tourist endless fun of boating, swimming, sun bathing and fishing, but they have the least security measures employed for protection of lives and properties.

Further findings reveal that, the security measures employed by the sampled resorts are more of preventive security measures related to access control, the establishment of procedure and identification system to prevent unauthorized access by person or vehicle to the resorts (Homeland security, 2010). Hand metal detector and internal security personnel as shown on table 2 are the security facilities used by all the sample resorts presenting 100% usage each. This is followed by access vehicle\pedestrian control, Police\Solider, and adequate lightening representing 80% usage each, and fencing with total usage of 70%. The modern security facilities that every resorts need most but not used by the sampled resort are Close Circuit Television (CCTV) Walkie Talkie. The CCTV and Walkie Talkie are used for monitoring movement \activities and transmission of information handle by some trained security personnel, but the facilities are lacking in all the sampled resorts expect J.I.B Portakabin. The resort security measures need more of monitoring than physical access control and armed security guard. Comparing the government and private owned resorts as indicated on tables 1 and 2, finding shows that, the private owned resorts have better security facilities in place than the government resort that gave them advantage on guest patronage over the government resorts.

Findings are confirmation of the fact that, virtually every resorts in Jos Plateau are affected by the insecurity that ravaged the state. In spite of the laudable tourism attraction natural and manmade which made the state a natural attraction for tourist to visit, the level of patronage in most of the resorts is still low, this has almost robbed the glory of state as the "Home of Peace and Tourism". According to Abubakar (2005), Some of the major security challenges currently confronting Jos and the nation at large have been identified to include; political and electioneering conflict, ethnoreligious crises, kidnapping, cultism, banditry, organised crime, socio economic agitators and boundary disputes. Presently, the insecurity has taken another dimension ranging from farmers/ herders conflicts to terrorism locally known as Boko Haram. These problems individually or collectively constitute threat to peace, security and development to plateau state leaving the negative consequence on the tourism industry. Where there are security threats to tourists, the resorts are in trouble because patronage will be affected.

The study also found that, terrorism, civil unrests, violent assaults, communal clashes to name few, are opponents of tourism development in Jos Plateau. The development and existence of tourism in the region relies completely on the condition of enduring peace and security. All stake holders involved in managing the resorts must implement all accessible means to ensure its sustainability. No place can become a tourist spot without concentrating on factors of security more than any economic practices. The failure and success of resorts industry rely on been able to offer secure and safe environment for tourists. In view of the persistent acts of terrorism and armed assault, countries like Pakistan, Sudan and Afghanistan fail to emerge on list of countries that have huge economic advantage Pizam (2010). According to former Director of Tourism, Nigeria Federal Ministry of Tourism Mrs Sola Olumeko, she highlighted that

Nigerians must consistently discuss the positive potentials of the country, rather than negative areas. It's a known fact that, security threats are everywhere in the world, and the world is facing severe issues. Therefore, for the development and progress of Jos Plateau, the state has to concentrate more on positive than negative areas that will scare the tourist within and around the world from visiting tourism sites to improve patronage to resorts available.

CONCLUSION

Security measure is all about having comprehensive plans in place, and employment of skilled people with authority who are able to respond immediately should any crisis arises. With increasing globalisation and technology development, governments at all levels are expected to manage the rising many insecurity challenges the tourism industries cannot manage on their own. The fight against terrorism, ethno-religious conflicts, communal crises, political unrests and other forms of crime is a prerequisite of tourism development on the Jos Plateau. Hence, any amount spends on infrastructure, beautification and marketing will be worthless as long as lives and properties under our custody are not guaranteed. Finally, this research work, has touched on some pertinent issues in our attempt to fortify the security of our resorts. It also throws some challenges to stakeholders in our search to find a lasting solution to security of resorts.

The fact that, security has undergone a significant change, from more or less passive factor, it is now an active element of tourism. Stake holders that are involved in managing the industry must implement all accessible means to ensure sustainability. Hence, it is recommended that the government in Plateau State should provide a peaceful atmosphere for investors to come in so that the tourism industry could boom. All resorts on the Jos Plateau, must improvise effective security measures to cope with the alarming insecurity threats and secure the confidence of tourists and investors trooping to Plateau State.

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TOURISM CHALLENGES AND ITS IMPLICATION TO THE SOCIOECONOMIC DEVELOPMENT IN THE NIGER-BENUE CONFLUENCE REGION

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ABSTRACT

The Niger-Benue confluence region, a culturally and historically rich area in Nigeria, holds significant potential for tourism-driven socioeconomic development because of its strategic location, presence of geographical features and remains such as mountains, rivers, colonial-relics, material culture and historical landscapes. This study examines the interplay between tourism, history, and socioeconomic development in the region, highlighting the challenges faced in realising its full potential. With a focus on the area's historical significance, including its role as a hub of pre-colonial trade and cultural exchange, the study explores how this heritage can serve as a foundation for substantial maintainable tourism initiatives. Despite its unique attributes, the region grapples with numerous challenges, including inadequate infrastructure, insecurity, poor policy implementation, and limited investment in the tourism sector. These issues hinder the development of tourism and its ability to contribute to socioeconomic growth. Moreover, environmental degradation, lack of awareness, and weak stakeholder collaboration further complicate efforts to position the region as a leading tourist destination. A qualitative research approach uses primary and secondary historical records, works from different authors, and records from field trips to the region. This paper argues that leveraging the historical and cultural assets of the Niger-Benue confluence region can stimulate economic growth, create employment opportunities, and foster community development. It emphasizes the need for a multi-stakeholder approach involving government, local communities, and private investors to address these challenges. By adopting sustainable tourism practices and promoting the region's rich history and cultural heritage, the Niger-Benue confluence can emerge as a vibrant centre for tourism and socioeconomic transformation. The study recommends policy reforms, capacity building, and infrastructure development to unlock the region's potential and ensure inclusive growth.

Keywords: Tourism, Challenge, Niger-Benue Confluence, History, and socioeconomic development.

INTRODUCTION

Tourism has long been recognised as a key driver of economic growth and a significant source of employment and cultural exchange. Tourism is believed to be the fastest-growing industry in the world. Facts and figures have shown that it has an annual growth rate of 4% in countries like the USA, Italy, France, Spain, the UK, and the Caribbean and recently, African countries like Kenya. South Africa, Morocco, Tunisia, Gambia, Egypt, and so on, earned substantially from tourism as analyzed by (Abdulrahman, Muhammad, and Muhammad, 2014). They explained that both receipts and tourist arrivals have been on the increase, which implies the growth trend of the industry.

Nigeria is a vast and fascinating country with varying geographical regions and ecological zones. It has diverse and amiable climatic variables rich in biological diversity. Cascading water systems, rolling links, pleasant and distinctive sceneries. Accordingly, the Nigerian government had to diversify the economy to incorporate the tourism sector with the launching of the Nigeria Tourist Association (NTA) in September 1962. The dwindling mono-

cultural oil economy in the ’70s though rising in recent times still requires Nigeria to develop its tourism sector because oil is vulnerable to fluctuations in demand and price in the international market (Abdulrahman, Muhammad, and Muhammad, 2014). In the Niger-Benue Confluence region, located in central Nigeria, tourism holds immense potential due to its rich natural beauty, historical landmarks, and diverse cultural heritage.
The convergence of the Niger and Benue rivers, alongside the surrounding landscapes, offers a unique opportunity for the development of the region. However, despite its promising prospects, tourism in this area faces a range of challenges that hinder its full potential (Okey, 2003). These challenges include inadequate infrastructure, security concerns, environmental degradation, and the lack of proper management and promotion of tourism resources. The implications of these challenges on the socioeconomic development of the Niger-Benue Confluence region are farreaching. While tourism could contribute significantly to local economic growth, poverty alleviation, and job creation, its untapped potential remains significant. Without effective strategies to address these obstacles, the region risks missing out on a sustainable pathway for socioeconomic advancement.

This study explores the challenges faced by the tourism sector in the Niger-Benue Confluence region using qualitative research methods which comprise the use of primary and secondary data obtained from the library, internet, and interviews of respondents’ resident in Lokoja, and other communities in Kogi state. The study therefore analyses their implications for the overall socioeconomic development of the area. By identifying key barriers and offering possible solutions, it seeks to provide insights into how tourism can be harnessed as a catalyst for positive change and development in the region.

REVIEW OF LITERATURES

This section reviewed an array of literature on the challenges of tourism in the region and their implications for socio-economic development. Eco-Tourism Potential of the Niger-Benue Confluence Region: Opportunities and Challenges. This study highlights the eco-tourism potential of the Niger-Benue confluence region, emphasizing its unique natural and cultural attractions. The Niger-Benue confluence region is endowed with diverse natural attractions, including rivers, wetlands, wildlife, and cultural heritage sites. The region's unique ecological and cultural features make it a potential hub for eco-tourism and cultural tourism. The confluence of the two major rivers provides opportunities for water-based tourism activities, such as boating, fishing, and river cruises, which could attract both domestic and international tourists (Adeyinka, *et al.,* 2021).

Despite its potential, the region faces several challenges that impede the growth of tourism. Recent studies highlight the following key issues: Okoli, F. C., & Eze, P. C. (2022), work on Infrastructure Deficits and Tourism Development in the Niger-Benue Confluence Region. This paper discusses the impact of poor infrastructure, such as roads and accommodation, on tourism development in the region. One of the most significant barriers to tourism development in the region is the lack of adequate infrastructure. According to them, poor road networks, inadequate accommodation facilities, and limited access to basic amenities such as electricity and clean water deter tourists from visiting the area. The absence of well-maintained

transportation networks makes it difficult for tourists to access remote attractions, thereby limiting the region's tourism potential.

Security is another major challenge affecting tourism in the Niger-Benue confluence region. The region has experienced periodic conflicts, including farmer-herder clashes and communal violence, which have created an unstable environment for tourism. As noted by Ibrahim and Musa (2023), the perception of insecurity discourages both domestic and international tourists from visiting the area, thereby stifling the growth of the tourism sector.

Environmental degradation, particularly deforestation, pollution, and unsustainable fishing practices, poses a significant threat to the region's natural attractions. A study by Onuoha *et al.* (2021) highlights the adverse effects of environmental degradation on the region's biodiversity and ecosystems, which are critical for eco-tourism. The loss of natural habitats and the decline in wildlife populations reduce the attractiveness of the region to tourists. The Niger-Benue confluence region suffers from a lack of effective marketing and promotion of its tourism potential. According to Adeleke and Ojo (2022), the absence of a coordinated marketing strategy and limited use of digital platforms to showcase the region's attractions contribute to low tourist arrivals. The study emphasizes the need for targeted marketing campaigns to raise awareness about the region's unique offerings.

The challenges facing tourism in the Niger-Benue confluence region have significant implications for socio-economic development. Tourism has the potential to contribute to job creation, poverty alleviation, and the overall economic growth of the region. However, the existing barriers hinder these potential benefits. The underdevelopment of tourism in the region limits its contribution to the local economy. According to Eze and Okonkwo (2023), the tourism sector could generate substantial revenue through the creation of jobs in the hospitality, transportation, and retail sectors. However, the lack of investment in tourism infrastructure and services prevents the region from fully capitalizing on these opportunities.

Tourism can also play a vital role in promoting cultural exchange and preserving local heritage. However, the challenges facing the sector, such as insecurity and environmental degradation, undermine these social benefits. As noted by Nwankwo and Uche (2021), the decline in tourism activities reduces opportunities for cultural interaction and the preservation of traditional practices, which are essential for the region's cultural identity.

The environmental challenges facing the region not only affect tourism but also have broader implications for sustainable development. The degradation of natural resources threatens the livelihoods of local communities that depend on these resources for their survival. According to Okafor and Eze (2022), sustainable tourism practices are essential for conserving the region's natural heritage and ensuring long-term socio-economic benefits.

The Niger-Benue Confluence region; Historical and geographical description

The Niger-Benue confluence region is in the North-central zone of Nigeria. The region is within the present-day Kogi State, created from old Kwara and Benue States, with Lokoja as its capital. It is the most centrally located state in Nigeria, situated on longitude 7^0 30' N and latitude 6^0 42'E and with a total area of 29,833km^2 (11,519

square meters). The region comprises the Igala, Ebira,
Kabba, Nupe, Bassa, Yoruba and Kogi divisions of the former Kabba Province (Daryll, 1970). It shares common boundaries with Niger, Kwara, Nassarawa and the Federal Capital Territory to the North, Benue and Enugu State to the East, Enugu and Anambra State to the South and Ondo, Ekiti and Edo States to the West (Udo, 1980).
The confluence region is an open savannah or "orchard bush", agriculture dominates the economy. It includes the cultivation of crops such as guinea corn and yam, which are commonly grown in the Northern and Southern parts of Nigeria, respectively, hence the term "middle belt", which is frequently applied to the Niger-Benue region (Daryll, 1970). The Middle Belt, however, has a transitional climate between North and South; thus, it stood as a zone with mixed culture in which the food crops of the South are cultivated side by side with those of the far North (Udo, 1980).

The Niger-Benue Confluence Region is mountainous with sedimentary rocks, which served as a defensive post for the people in the region against the advent of Fulani Jihadists in the 19th Century (Obafemi, 1980). Furthermore, the presence of the waterways made the area a place where there is a free flow of movement and communication with the rivers as the principal channel. Geographical location thus contributed a great deal to the prominence of some ethnic groups in the region, such as the Igala and Nupe. The Igala, before the 19th Century, inhabited the entire triangular tract of territory on the left bank of the Benue and Niger Rivers 100 kilometres above and below their confluence. Settlements of the Igala-speaking people were located on the right bank of the Niger below the confluence, opposite Etobe. Similarly, the Nupe-speaking people are found mainly around the confluence of the Kaduna and Gbako Rivers with the Niger above and below the Niger Kaduna confluence (Edah, 1986). The availability of the rivers Niger and Benue brought the region into the limelight during the 18th and 19th Centuries. The rivers serve as means of communications, trading, agriculture and inter-group relations between the diverse ethnic groups scattered around the confluence region.

The geographical description of the Niger - Benue confluence area has remained fluid, but it generally covers the region around the meeting point of the Rivers Niger and Benue. Within this region, some states flourished in terms of socio-economic and political development before colonial rule. These included Nupe to the extreme North, panda to the Northeast on the Benue and Igala kingdom to the east. Lokoja settlement developed on the merging point of the two rivers, while Ebira Tao lives in the southwest of the confluence. Other ethnic compositions within the Niger-Benue confluence region include the Bassa - Komo, the Idoma, the Afo or Eloyi, the Alago, the Tiv, the Gede and North Easternmost Yoruba (Mohammad, 2011).

The Niger-Benue Confluence is one of Nigeria's most geographically significant regions, notable for its historical and cultural importance. Located at the point where the Niger River, flowing from the northwest, meets the Benue River from the east, this convergence occurs at Lokoja, the capital of Kogi State in central Nigeria. The confluence is not only a geographical feature but also a landmark that has played a critical role in shaping Nigeria's socioeconomic, cultural, and political development over centuries ((Adojoh, and Dada, 2015).

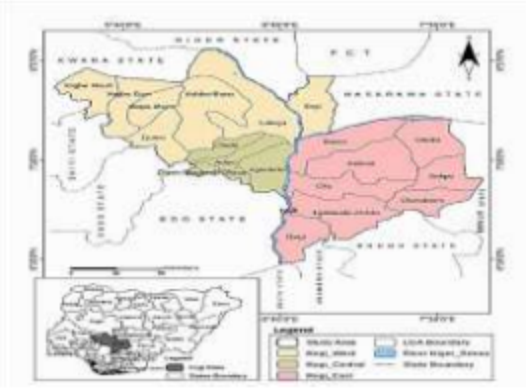
The Niger River, West Africa's longest river, stretches over 4,180 kilometres, originating

from the Guinea Highlands and flowing through several countries, including Mali, Niger, and Nigeria. The
Benue River, Nigeria's second-largest river, flows southwest from the Adamawa Plateau, meeting the Niger at Lokoja. The region surrounding the confluence is marked by a mix of flat lands, rolling hills, forests, wetlands, and fertile riverbanks, creating a rich ecological environment (Hadizat,
2024). The merging of the two rivers forms a vital waterway, with the confluence acting as a natural transportation corridor. Historically, the rivers have supported regional trade and agriculture by enabling the movement of goods, people, and agricultural products such as yam, maize, and millet (Hadizat, 2024). Geographically, the confluence region is strategically located, and Lokoja the town is located at the meeting point of the two great rivers. Lokoja is a significant town that bridges the northern and southern parts of Nigeria, and it has long been a hub for cultural and commercial exchange. The region is also abundant in natural resources, including minerals, fish, and fertile soil, which contribute to the livelihoods of the local communities.

Historically, the Niger-Benue Confluence has been an area of early human settlement and cultural exchange. The various ethnic groups, including the Nupe, Ebira, Gwari, and Hausa, have inhabited this region for centuries, utilizing the rivers for farming, fishing, and trade (Boston, 1967). The rivers facilitated commerce, enabling the transportation of goods across West Africa, which connected these local communities to wider regional networks. The meeting point of the Niger and Benue Rivers was a central location for trade routes, and it became an important strategic site in the pre-colonial period.

During the colonial era, the confluence region gained greater historical significance. The British established the town of Lokoja as the first capital of the Colony of Nigeria in 1865, marking a pivotal moment in the colonial administration of the country (Hadizat, 2014). The British use of Lokoja as an administrative base underscore its political significance, especially as it became a central point for controlling trade and consolidating authority over Nigeria's diverse ethnic populations. Moreover, the famous British Explorer Mungo Park, who first attempted to trace the course of the Niger River, died in 1806 near Lokoja, adding to the region's historical narrative (Boston, 1967). In the 20th century, Lokoja and the surrounding region continued to play a role in
Nigeria's development. The construction of transportation infrastructure, such as roads, connected Lokoja with other parts of Nigeria, enhancing trade and mobility (Adojoh, and Dada, 2015). Today, the Niger-Benue Confluence remains a region of historical importance, rich in both natural and cultural resources, and continues to contribute to Nigeria's economic and social development.
The map below shows the Confluence area and the communities around the confluence.

Map of the Niger-Benue Confluence Region showing all the Local Government Areas. Source; Sadiq *et al.,* (2016)
The Niger-Benue Confluence region is a unique geographical and historical landmark in Nigeria. Its strategic location at the convergence of the Niger and Benue Rivers has made it a focal point for settlement, trade, and cultural interaction for centuries. The rivers have supported the livelihoods of the people in the region and continue to play a key role in transportation, agriculture, and the economy. Historically, the confluence area



has been central to Nigeria's political and administrative development, particularly during the colonial period, and continues to serve as a vital centre for Nigeria's modern growth. As such, the region holds both ecological and historical significance, positioning it as a key area for future development and tourism in Nigeria.

Tourism potentials in the Niger-Benue Confluence region

The Niger-Benue Confluence region in central Nigeria holds great tourism potential, this is because of its rich ecological, cultural, and historical resources. Situated at the point where the Niger and Benue Rivers meet, the region is characterized by diverse landscapes, ranging from fertile river valleys and forests to hills and wetlands, as well as a wide array of cultural and historical landmarks.

The Niger-Benue Confluence region offers a variety of attractions that could appeal to tourists. The most notable of these is the confluence itself, where the Niger and Benue Rivers meet at Lokoja, Kogi State. This geographical feature is a visually striking and historically significant site, attracting both local and international tourists. The confluence is not only a place of natural beauty but also a symbol of the interconnectedness of the various ethnic groups and cultures that have thrived in this region for centuries. At the tip of the confluence is a narrow mass of land that can be developed for tourists to embark on from a boat, there they can see the bigger Niger, brownish. To the right and a clearer river, Benue to the left and the mixture of the river southward takes the appearance of the larger river Niger. From the confluence, two villages can also be seen from the riverbank (Meseko, Obieje, & Karpenko, 2018).

In Lokoja, apart from the confluence of river Niger and Benue, Mount Patti, Lord Lugard staff quarters (built with pre-fabricated buildings imported from Britain and assembled to provide accommodation for his senior staff), European cemeteries, Club 1901, the spot where the flag of the Royal Niger Company was lowered in 1890, the holy trinity school (the first primary school in Northern Nigeria), Iron of liberty (the spot where slaves were freed), the cenotaph, first prison yard in Nigeria and others are historical remains that attract people of diverse origin and profession to Lokoja (Okpoko, 1987). Furthermore, the surrounding area boasts several scenic spots, such as Okura Hill, offering panoramic views of the rivers and the town of Lokoja. The region also includes historical sites such as the Mungo Park Memorial, dedicated to the British explorer who died near the confluence in 1806. This memorial is an important cultural landmark, symbolizing the historical exploration of the Niger River (Ebiloma, 2019). Additionally, the region is home to several traditional festivals, such as the Ebira and Nupe cultural celebrations, which provide an immersive experience for visitors and showcase the rich cultural heritage of the people living around the confluence (Ebiloma, 2019).

The Niger-Benue Confluence area also presents opportunities for eco-tourism, with the rivers and surrounding

environments supporting a diverse array of flora and fauna. Bird watching, fishing, and boating are some of the recreational activities that could attract nature lovers (Adojoh, and Dada, 2015). The region also has many cultural landmarks which show and represent the heritage of the people and culture, such as the statue of Inikipi, and Inachalo River in Idah; Ajaokuta Iron and Steel industry, Itakpe steel factory, Ohinoyi of Ebira Land palace in Ajaokuta and Okene; Ovie Osese festival in Ogori magongo, and the graveyards of deposed Emirs from Northern Nigeria in Lokoja; Obangogo Hill, located in Kabba, Kogi State (Okpoko, 1987). All these historical sites have the potential to transform the socio-economic development of the Niger-Benue confluence region if properly harnessed to its maximum.

The Kogi State Ministry for Culture and Tourism created in 1990 is saddled with the major responsibility of repositioning the cultural heritage and tourism of Kogi State by identifying and developing the tourism potentials of the State as a means of job creation, wealth generation as well as inculcating pride and dignity in our local acts and cultural values, however, some success has been recorded over the years, but this success cannot fully project the tourism potential of the region for economic development (ldachaba, 2021). From 2016-2021, the Kogi state government successfully carried out the beautification and restoration of Historical Relics to woo tourists, investors and travellers to Kogi State, Mount Patti Lord Lugard residence on top of Mount Patti Beautification of European Cemetery, Cenotaph, The first Primary School in Northern Nigeria,
The Royal Niger Company flag spot in Lokoja, Kogi Hotel Lokoja, National Council for Arts and Culture (NCAC) Arts gallery and theatre for the State Arts Council, Development of the Confluence spot of Rivers Niger and Benue, Development of Paparanda Square as Amusement Park and Recreation Centre (ldachaba, 2021).

Challenges facing tourism in the Niger-Benue Confluence region

Tourism in the Niger-Benue Confluence region has faced many challenges even though there abound many tourist attraction centres in the region, many of them are not yet fully harnessed, especially the confluence of rivers Niger and Benue. The government of Kogi State in 1999 established the Confluence Beach Hotel right at the bank of the confluence of river Niger and Benue, to develop the confluence as a tourist attraction. This hotel is a five-star hotel, beautiful and one of the best in the city, yet to be fully leveraged on its tourism potential, as of December 2024, the hotel is in deplorable condition and no attempt has been made for renovation and utilization of the potentials of the hotel. There is no link or access between the hotel and the confluence, and in fact, the confluence is hardly visible from any part of the chalets and the conference centre in the hotel premises (Meseko, Obieje, & Karpenko, 2018).

The development of the river Niger and River Benue which is a good example of ecotourism is an alternative to traditional tourism because it receives tourists who show a desire for cultural heritage and knowledge of the host community. Green tourists are less affected by the town standard in terms of facilities and services (Meseko, Obieje, & Karpenko, 2018) observe that there was a decrease of 0.6% in international tourist arrivals in 2020 compared to the previous year due to economic difficulties, necessitating the tourist's interest in less expensive

destinations rather than outright cancellation of travels. Therefore, developing the confluence of the River Niger and River Benue into a tourist centre would be a good attraction for Eco tourists. Eco-tourists show interest in the cultural or natural heritage of host communities and are less affected by the destinations' locations or standards in terms of facilities.

Another significant obstacle to the tourism potential of the Niger-Benue Confluence Region is inadequate infrastructure, which affects transportation, accommodation, and other services needed to support tourism. Poor road conditions and limited access to reliable transportation make it difficult for tourists to visit and explore the region (Ebiloma, 2019). While Lokoja has some basic amenities, the absence of well-developed infrastructure hampers the overall tourism experience and limits the potential for large-scale tourism development for example, mountpatti hill cannot be easily visited by tourists because if the poor road network and poor maintenance of the hill and the colonial structure therein.

Security is another concern for tourists and operators alike. The region, like many parts of Nigeria, has faced issues related to unrest and crime. These security challenges, along with the perception of instability, can deter both international and domestic tourists from visiting the region. As tourism often relies on safety, addressing security concerns through improved policing and community engagement is vital for the growth of the sector (Meseko, Obieje, & Karpenko, 2018). Environmental degradation poses another threat to the tourism industry. The region's rivers, forests, and wetlands are at risk from pollution, deforestation, flood and unsustainable agricultural practices. These environmental issues not only impact the natural beauty of the area but also threaten the biodiversity that supports eco-tourism activities like birdwatching and fishing (Bolade, 2020). There is a need for better environmental management practices to preserve the region's natural resources.

Lastly, the lack of effective promotion and marketing of the Niger-Benue Confluence as a tourism destination limits its visibility on the national and international stage. Many potential tourists remain unaware of the region's attractions, and without a strong promotional strategy, the area cannot compete with other more established tourist destinations in Nigeria (Bolade, 2020).

Implications of tourism challenges on the socioeconomic development of the Niger-Benue Confluence region

Tourism has been widely recognised as a driver of socioeconomic growth, offering employment, investment, and infrastructure development opportunities. However, in the Niger-Benue Confluence region, tourism-related challenges have significant implications for the area's socioeconomic development. Tourism has the potential to create numerous economic benefits, including job creation, poverty reduction, and economic diversification (Meseko, Obieje, & Karpenko, 2018). However, the region's inability to fully harness its tourism potential due to the challenges means that these benefits are not being realized to their full extent.

One of the most important contributions that tourism can make to the local economy is the creation of employment opportunities. The development of the tourism sector can create jobs in various areas such as hospitality, transportation, retail, and entertainment. Local communities can benefit from tourism through increased demand for services such as food production, handicrafts, and

transportation, leading to income generation and poverty alleviation. However, the lack of infrastructure and investment in tourism facilities limits the job creation potential of the sector (Bolade, 2020). By addressing these issues, the region can unlock the employment opportunities that tourism offers.

Furthermore, tourism can be a catalyst for infrastructure development. The construction of roads, airports, hotels, and recreational facilities often accompanies the growth of the tourism sector. This infrastructure development benefits not only tourists but also local communities, improving access to essential services like healthcare, education, and transportation. Additionally, tourism can enhance trade and commerce by fostering a greater flow of goods and services between the region and other parts of Nigeria, stimulating economic activity and regional integration (Idachaba, 2021).

Culturally, tourism can play a key role in preserving the heritage of the Niger-Benue Confluence region. The area is home to a rich and diverse array of ethnic groups, each with its unique traditions, languages, and customs. Tourism offers a platform to celebrate and promote this cultural diversity. Festivals, art forms, and traditional crafts can be showcased to a wider audience, fostering cultural exchange and pride (Idachaba, 2021). Moreover, the financial benefits generated from tourism can help fund cultural preservation initiatives, ensuring that the region's heritage is safeguarded for future generations.

Despite the vast potential, the inability to address key tourism challenges leads to missed opportunities for socioeconomic development. The lack of security, infrastructure, and promotion means that the region remains underdeveloped, with many local communities continuing to struggle with poverty and unemployment. Additionally, the environmental degradation caused by unsustainable practices threatens the very resources that tourism could capitalize on, undermining the future sustainability of the sector.

CONCLUSION AND RECOMMENDATIONS

Tourism in the Niger-Benue Confluence region holds significant potential to foster economic growth, create employment opportunities, and preserve the area's cultural heritage. However, the region faces substantial challenges that hinder its ability to fully capitalize on these opportunities. Addressing these challenges such as inadequate infrastructure, security concerns, environmental degradation, and lack of promotion is critical to unlocking the region's tourism potential. With a strategic approach to infrastructure development, security enhancement, environmental preservation, and marketing, the Niger-Benue Confluence can transform into a major tourist destination, contributing to the region's overall socioeconomic development (Meseko, Obieje, & Karpenko, 2018).

The Niger-Benue Confluence region has significant potential to become a major tourism hub in Nigeria. To unlock this potential, several steps need to be taken. First, improving infrastructure is crucial to making the region more accessible. Investment in roads, transportation, and accommodation would enhance the tourism experience and attract more visitors. Additionally, developing a robust tourism policy and improving security will help ensure that the region remains a safe and appealing destination for tourists.

Secondly, sustainable tourism practices need to be prioritized. This includes promoting ecotourism and preserving the region's natural resources, ensuring that development does not lead to environmental degradation. Local communities should be engaged in tourism development to ensure that they benefit from the growth of the industry, both economically and socially.

Thirdly, effective marketing strategies should be implemented to raise awareness of the region's attractions. This could include digital marketing campaigns, collaboration with travel agencies, and the organization of cultural and sporting events that highlight the unique features of the confluence region. Additionally, leveraging local cultural festivals and traditions can help create authentic tourism experiences that attract visitors looking for cultural immersion.

Fourthly, the government should ensure continuity in development made by previous administrations. This helps remedy the challenges of abandoned infrastructure such as what the Confluence Beach Hotel is currently facing.

Finally, branding strategies should be enforced to raise the profile of the Niger-Benue Confluence region as a tourist destination. The state government should address the issue of insecurity because of the high rate of kidnappings, armed robbery, and banditry in the region. Addressing these challenges will increase awareness and attract tourists to the region.

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DIGITAL TRANSFORMATION IN HOSPITALITY INDUSTRY: LEVERAGING TECHNOLOGY TO OVERCOME ECONOMIC HURDLES IN SOUTHWEST NIGERIA

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ABSTRACT

This article investigates the digital transformation of the Nigerian hospitality industry with an emphasis on the economic challenges of business entrepreneurship in Southwest Nigeria while identifying the potential role technology could play in this regard. The hospitality industry is an important contributor to the Nigerian economy, but various challenges such as inflation, poor infrastructure, and access to technology all pose significant challenges to this sector. This study seeks to assess the ability of digital solutions to improve efficiency as well as customer experiences to facilitate the growth of the sector. With this conceptual framework in mind, some of the pertinent questions this study is asserting to address are: how could digital technologies be leveraged to drive operational efficiencies in the hospitality services industry in Southwest Nigeria? The paper highlights the fact that digital transformation is more than streamlining operations; it is about enabling innovation and increasing global competitiveness. The paper concludes with strategic recommendations for several important stakeholders to develop supportive policy frameworks, to strengthen institutional capacity, and to enable collaborative partnerships to ensure a successful digital transition for the sector.

Keywords: Digital transformation, Nigerian hospitality, technology adoption, economic hurdles, Southwest Nigeria.

INTRODUCTION

The hospitality industry in the Southwest is an important sector, which enhances-employment opportunities and also contributes to economic growth of the region due to tourism and other related services Large cities including Lagos, Ibadan, Abeokuta as well as many other smaller… However, despite all these great potentials the industry suffers from serious economic challenges that wane its development and global competence. Adebisi & Lawal (2021) further submits that spiraling operational costs, inflation among other problems such as inadequate infrastructure, poor energy management and limited access to finance are stunting growth and impede upgrading of the Nigerian hospitality sector. These are felt even more in Southwest Nigeria where power instability and frustrating internet turbo-charges these issues. The rate of inflation in Nigeria has been on the increase and this is having some noticeable impacts on the prices of goods and services. As pointed out by Ibrahim (2020), the increasing cost of utilities, food and labor has led to hospitality businesses working on limited margins which affects customer service and satisfaction. Further to this is the lack of investment in infrastructure, primarily power and internet access that prevents the industry from effectively deploying modern technological solutions aimed at functioning more efficiently and reducing costs.

As is the case in other industries, the economic challenges of hospitality in Southwest Nigeria are symptomatic of larger macroeconomic issues affecting Nigeria. Challenges such as inflation rate, dilapidated infrastructure, currency devaluation and unpredictable government policies have combined to impact the operations cost of doing business. According to Ogunleye et al. (2020), high inflation pressures have driven input costs way up in the hospitality sector, specifically with reference to basic items like food, drinks and utilities rendering it challenging for businesses to stay profitable without passing on these escalating costs onto customers who then naturally have less money to spend. Companies in the industry also face energy constraints, with frequent power outages forcing many to depend on diesel generators. This raises the cost of operation by a huge margin as stated in Fashina and Olabisi (2021) which reported that more than 30% of the total operational budget is spend on energy consumption, per average hotel daily in Lagos.

Infrastructure continues to be a key Achilles heel in Southwest Nigeria. Inadequate Road Network, Insufficient Power Supply and Little or no internet penetration of the region renders operational inefficiencies to the hospitality industries— which we consider time-wasting and barriers! Inability to provide high-end international tourists with world-class facilities such as reliable internet, online booking systems reduces the activity of businesses (Ajayi and Amusan, 2019). These conditions are exacerbated by the difficulties of small and medium-size hospitality SMEs in finding financing. In another of his articles, Ibrahim (2020), opines that high interest rates and stringent banking requirements had limited access for Nigerian SMEs in the hospitality sector to loans which have made it impossible for them to invest on trendy technologies— technologies that could enhance service delivery.

South west Nigeria hospitality industry has yet to keep up with digital global trends. Hospitality companies across developed countries have adopted digital transformation with the aim to streamline operations, enrich customer experiences and widen market reach Despite this, the uptake of these technologies in Southwest Nigeria is still largely nonexistent. Another prolle has been identified as the low rate of technology adoption in Nigeria hospitality sector, which Adebisi & Lawal (2021) assert have limited awareness on technology, needs high implementation cost and shortage of skilled labour. This has severely handicapped the hospitality industry for facing newage issues, of a competitive and cutting-edge technology-driven global scenario.

The imperative of Digital Transformation is becoming more realized as a key strategy and effective approach to meeting the variety of challenges within the hospitality sector in Southwest Nigeria. Digital transformation is the integration of digital technology into all aspects of a business, fundamentally changing how you operate and deliver value to customers. Digital transformation, for the hospitality industry, is less about introducing new technology to the landscape and more about reimagining how businesses function and communicate with their clients. Key reasons hotel in Southwest Nigeria is embarking on digital transformation effort include the need to increase operational productivity. The experience provides a great opportunity to remind local government staff that intriguing digital technologies such as cloud computing, AI and IoT have the powerful potential to help enhance operational efficiencies, reduce costs and

create value through delivery of services. Cloud-based property management systems (PMS), for instance, means that hotels are able to use this resulting in better efficiency for managing bookings, inventory and customer data with a lower dependency on space hungry and expensive onsite servers. Chand & Kapoor (2020) have stated that cloud computing has changed the way hospitality businesses function on a global scale by offering flexible and affordable solutions which improve business agility, operational efficiency etc. In Southwest Nigeria, where so many infrastructural challenges compound any regional operational inefficiency, these sorts of technologies represent a rare opportunity for immediate relief from some local environmental constraints.

Digital transformation also holds the potential to dramatically enhance customer experience, arguably the most significant factor of differentiation in hospitality. With a global economy where people travel and work almost anywhere, systems need to be digital, customers expect everything from online booking to AI-powered in-room service. In the words of Pizam (2017), these days, the hospitality sector is making extended use of AI and machine learning technologies to predict customer behaviors and wishes, automate customer service, as well as provide new customer experience through personal offers and recommendations. In Southwest Nigeria, most hospitalitybased businesses run in an analog system configuration that causes a bit of compromise when it comes to customer service, and this will further have a severe impact on the satisfaction level of customers as well their retention if AI-driven CRM systems are not embraced. The digital transformation is also a pathway to improving the global competitiveness of Nigeria hospitality industry. Moreover, Porter & Heppelmann (2014) pointed out that firms which embrace digitization are more capable of scaling, adapting to changing market conditions and competing in an increasingly globalized economy (Porter&Heppelmann 2014). This translation to Southwest Nigeria suggests that by resorting to digital technologies (online booking systems, digital marketing, social media engagement) hospitality businesses are able to reach a larger market of potential guests, including global tourists with a high expectation for convenience in the digital age. For instance, by connecting with worldwide systems such as Booking. By listing their property on House Stay like they would list on Booking.com or Airbnb, local hotels and guesthouses can open up to a large pool of potential customers. In addition to this, digital transformation can help reduce overheads and improve margins at a time when the hospitality sector in Nigeria is dealing with some of the worst economic conditions in recent memory. With a little investment in automation technology, companies can reduce the manual labor they use for all running of inventory data replenishment & consumption analysis to Automation & Bill Reconciliation. Based on occupancy rates, smart lighting, heating and cooling systems regulate the energy consumption used to operate it within hotels can reduce maintenance costs regarding capital facilities support needed in order to sustain operational service levels of use this way of digital solutions as Buhalis (2020). These technologies might then provide a major marginal cost saving in an environment like Southwest Nigeria with expensive energy costs thanks to generators.

Research Objectives

The primary goal of this research is to explore how digital transformation can help the hospitality industry in Southwest

Nigeria overcome its economic and operational challenges. Specifically, the research seeks to address the following objectives:

1. to analyze how digital technology can be used to automate administrative work in hospitality operations in Southwest Nigeria, boost Customer service and drive resource optimization.
2. to evaluate the economic impact of implementing digital services in the Nigeria hospitality industry including cost-savings, revenue generation, and customer satisfaction.
3. to identify key issues, which are obstructing smooth digital adoption in hospitality sector -- infrastructure deficit, financial challenges and lack of skill workforce and the possible solution to fighting off these set-backs.

These objectives are in line with the larger global digitalization movement within hospitality, as properties improve operational efficiency and elevate the customer experience by using digital solutions to remain more competitive in a transforming market. As Gretzel & Sigala (2018) put it, digital transformation is not a fad; rather, and on the very subject of "having what your guest wants" quotes that tourism businesses can no longer function in day-to-day practice as if they were still existing before the arrival of today´s tech-savvy customer. With the hospitality sector in Southwest Nigeria still trying to play catch up with global trends, digital transformation is now not just an option for growth but an important key to survival amidst tight competition.

REVIEW OF RELATED LITERATURE

In the hospitality industry, digital transformation is about applying technologies to leverage more operations, marketing and customer services in a way that can help make your organization efficient without sacrificing competitiveness. Digital transformation is a more holistic shift towards the digitalization of processes, services and customer interactions that allows businesses such as the one mentioned to adapts to meet new business models needs and changes in the way modern consumers interact with businesses (Schwab, 2017). Digital transformation offers the hospitality industry a unique opportunity, as its nature of customer and service-oriented engagement is matched by few other industries. In hospitality, particularly in Southwest Nigeria where operational costs have escalated and technology access are limited, the room for digital transformation is poised to be a life support-system. Indeed, as identified by Buhalis (2020), the hospitality industry's degree of digitalization is largely contingent on measurable characteristics such as the level of infrastructure Readiness for digital and technology leadership adoption in hospitality to all other sectors and taught readers how much business environment impacts on this nature. Thus, the adoption or uptake of digital tools in Southwest Nigeria hospitality sector is influenced by some local factors amongst which are Infrastructural deficits, Capital Constraints and Worker capacity to effectively use technology.

The economic conditions in Southwest Nigeria pose multiple challenges for the hospitality industry & that too in direct correlation with digital technology adoption. Operational inefficiencies, increasing costs, competition and infrastructural gaps are the key economic challenges that hold back the noticeable resurgence of hospitality sector development. Dashboard Operational inefficiencies are a persistent challenge for many hospitality businesses in Southwest

Nigeria, where antiquated manual processes manage the bulk of reservations, inventory and customer service. These inefficiencies lead to higher labor costs, longer wait times for customers and overall lower quality of service. According to Adeola and Ezenwafor (2020), "Some of the hotels and restaurants in Nigeria are still running their business with paper-based system in accounting and reservation, this is making it hard for them to grow or provide services that conform to international standard" Cloud-based systems and mobile applications supported by digital technologies might represent a solution to this streamlining of these processes and reducing the manual intervention as well.

Another major economic challenge that the hospitality industry faces in the region are higher costs. The high inflation in Nigeria and the extension of imported goods prices is causing significant margin pressure on hotels and restaurants. According to Okafor and Okoli (2019), the price of food, utilities and labour had gone high in recent years as well, with businesses who are importing largely their goods: services particularly at risk in the hospitality sector. Even still, the additional capital required to install Wi-Fi and create other digital systems, let alone deploy AI customerservice platforms or any number of new-age store features found every day on Instagram, can be tough for many businesses to swallow; especially if they are smaller operations. The demand for quality and hi-tech services has grown since the emergence of international hotel chains added to the competition within Southwest Nigeria hospitality industry in recent years. Failure to adopt digital technologies puts local businesses at risk of ceding market share to competitors delivering more modern, efficient and customer-centric services. Digital transformation is the cornerstone of achieving a sustainable competitive advantage, to enable organizations to differentiate based on service quality, operational efficiency and customer engagement in the internationalised global hospitality market (Buhalis 2020). Consequently, Nigerian businesses must break down economic constraints to digital transformation in order to remain competitive in a rapidly changing marketplace.

Globally, the hospitality industry is in the midst of a significant digitization journey inspired by technological innovation and changing consumer needs. In addition, digital initiatives such as cloud-based property management systems (PMS), mobile apps, artificial intelligence (AI), Internet of Things (IoT) are increasingly being implemented on a global scale to optimize operations and lower costs while improving guest satisfaction. Ivanov & Webster (2017) stated that digital transformation in hospitality is no longer an option but a prerequisite for those businesses wishing to maintain or improve their competitiveness and their significance in the digitally transformed global economy. For instance, the integration of AI in hotels — like chatbots and virtual assistants for better personalization and around-the-clock service — greatly improves the quality of guest experience.

The pandemic-driven global move towards contactless services has also been an agent of profound change in the hospitality sector. In the process of adopting digital solutions to be in line with health protocols and support guest safety Gretzel & Sigala (2020) argue that numerous businesses in the hospitality sector while adding features like mobile check-ins, contactless payments and bookings using e-revue. Areas like North America and Europe are leading the charge in digitization and, with a high share of internet penetration at an

almost saturated level as well as very reliable infrastructure, it is not surprising to see technology being used across all verticals within hospitality functioning.

By comparison, the speed of digital transformation in developing regions including Africa has been somewhat sluggish within the hospitality industry. In Nigeria, poor infrastructure, high cost of implementations and lack digital literacy amongst hospitality workforce bottom-line the adoption of digital technologies. The Nigerian hospitality industry, for example, has been largely reluctant with the use of technology comparing to its international counterparts as explained by Oladimeji & Olowookere (2022) and hence they have hardly invested in online booking platforms, customer relationship management (CRM) systems or automated check-in processes due to both internet access and implementation costs. Taken together, this digital divide between developed and developing regions highlights the role of targeted investments in digital infrastructure and skills development, for fostering growth in the industry in Nigeria.

The Nigerian hospitality industry still sees pockets of digital innovations, although it has not been without challenges. Outside such exceptions, digital initiatives have not taken off in the vast majority of hotels across major cities like Lagos, Abuja and Port Harcourt. In other cases, wellestablished hotel franchises like Radisson Blu and Sheraton have partnered with cloud-based property management systems (PMS) to simplify booking, customer data handling, and resource management. In addition to this, the hotels have introduced mobile applications for guest service, allowing guests check-in/out, book request and post feedbacks ore from their smart phones (Adetola & Ifeoma 2021). Digital technology remains rarely used Shamefully, the latter is the reality for the vast number of small hotels, restaurants or guesthouses across Southwest Nigeria. Most of these businesses still use manual booking systems, writing paper records and all transactions are conducted face to face. Oladimeji and Olowookere (2022) suggest that financial constraints, underdeveloped digital literacy, coupled with expensive implementation are contributors to the much slower adoption of technology in their hospitality sector. Consequently, these companies are left without the full advantages of digital transformation — including better productivity and lower costs and more robust customer interaction.

THEORETICAL FRAMEWORK

The essence of digital transformation in hospitality can be interpreted from different theoretical angles that explain why technology adoption fuels innovation, as well as advantages operational efficiency, and also elevates the competitive). Robust theories, like Rogers' Diffusion of Innovation (DOI), Technology Acceptance Model (TAM) and Resource-Based View (RBV) of the firm explain how digital permits are appropriated and the payoffs they yield. DOI (Diffusion of Innovation) theory by Rogers explains the spread of new ideas/technology within a social system over time. The theory names different adopter categories—innovators, early adopters, early majority, late majority and laggards—and the factors affect adoption rate (perceived advantage, compatibility with existing practices and ease of use) In terms of the hospitality industry, Rogers (2003) opined that businesses in developing countries because of infrastructural challenges, financial constraints and digital illiteracy tend to fall into late majority or laggards' stage like Nigeria. It is happening slowly, the same can be seen in South west Nigeria hospital

where many of them still relying on manual booking system and Managing inventory management and Customer service as the HR move to digitalize industry worldwide. The Technology Acceptance Model Developed by Davis (1989), provides a theoretical foundation for explaining how organizations and individuals come to accept and use new technologies. According to TAM, two key factors — perceived usefulness and perceived ease of use together affect user acceptance of a technology. TAM has been further elaborated in other theories: Venkatesh & Bala (2008) extended TAM and included constructs such as social influence and facilitating conditions in predicting the intention to use a technology. As can be seen on the ground in Southwest Nigeria, digital transformation is expected to drive down costs, boost customer experience and also raise organizational operational efficiency. However, as noted by Obi et al. (2017), perceived ease of use remains a very important barrier to technology adoption but (Dash et al., 2020) further argue, it is difficult in hospitality sector facilities because lack of digital skills among employees as well as difficulty work with existing operations due to complexity new technologies. Most notable the Resource-Based View (RBV) by Barney (1991), argues that firms can gain a competitive advantage by leveraging resources and capabilities unique to their own firm. In the hospitality sector, it can be defined as a set of tools increases an organization competitiveness by improving how you can provide guest service with better operational efficiency and agility to respond faster to market changes. This is consistent with Buhalis (2020) who points out that AI, big data analytics and cloud computing, among other digital tools can be used to enhance customer service, price images and personalized guest experiences adding values for hospitality businesses. Nevertheless, the advantages of RBV through digital transformation are difficult for firms in South by virtue of limitations primarily (lack of infrastructure and financial caps) Moreover, Olajide & Afolabi (2021) found that in Nigeria, the lack of capital to invest new technology solutions often hinders businesses to take full advantage of digital transformation leverages in the hospitality sector.

Linking Technology to Economic Hurdles in Hospitality Industry in Southwest Nigeria

The hospitality industry in Southwest Nigeria is hampered by various economic difficulties, digital transformation holds promise of coming to the rescue as it expands workforce efficiencies and productivity, and lowers operational cost, with greater customer service delivery. Cloud computing and AI, for example, can alleviate operational inefficiencies by automating manual and timeconsuming processes such as bookings, inventory management or customer service. These are reasons why Ogunleye and Adebisi (2021) supported the advocacy of automation to reduce service delivery time (i.e. speed) in this regard thereby enhancing total customer experience at a low labor cost level and profit making aspect is concerned. IoT-enabled energy management systems, used to optimize resource allocation, can decrease operational costs for hospitality businesses. Fashina et al. (2021) it is brought out that energy cost, being a significant expenditure for business with spurious power supply in Nigeria, can also be ameliorated by smart energy management systems away from other utilities. Optimising energy consumption through technology allows companies to reduce costs, and enable the depletion of resources into other key areas of operation such as training of staff or enhancing customer service. It will enable

companies located in Southwest Nigeria to be able to provide services anywhere at international level or even above. According to Adetola and Ifeoma (2022), necessary technology integration for mobile apps, as well as online booking platforms enables hospitality companies to seamlessly provide tech-driven customer experiences that are becoming more common among today's leisure traveler. It will result in better customer satisfaction, brand loyalty and market positioning especially in an area where the competition is growing at high pace.

Potential Benefits of Digital Transformation in Hospitality Industry

One of the areas where increasing operational efficiency through digital transformation yields particular benefits within hospitality. Scalability digitizes, and this implies that many activities such as booking, inventory management, customer service etc., can be automated (Gretzel and Sigala 2020). Not only is staff workload reduced by automating these processes but it also frees up their time to perform more customer facing-activities like making the guest experience more personal. Whether it's through the adoption of property management systems (PMS) that include booking, check-in/check-out, and payment processing, there are ways to reduce friction in these operations that lessens the likelihood of introducing a human error. Operational efficiency as a means of increasing productivity has also been reinforced by Kwortnik and Thompson (2009), incrementation on service reliability, timeliness which ultimately leads to heightened customer satisfaction.

Beyond operational improvements, digital technology can offer a substantial lift to the customer experience. The explosion in mobile applications and online booking platforms has changed the way customers interact with hospitality businesses. According to Baker and McCarthy (2020), personalized services in hospitality, enhanced through customer data collected through the digital platforms, allow the guest to enjoy a tailored experience fit for their requirements. Personalized recommendations, the ability to check in online, and keys on their mobile phones are all part of enabling a frictionless customer journey that is key in retaining customers in a tight market. The addition of social media and review channels also means brands can receive feedback from the moment a service is consumed, which could work in favor for an ever-moving hospitality industry.

It fosters cost-cutting reducing costs is another notable upside of digital transformation. In the hospitality sector, traditional operating models alone generate significant overhead costs such as those of labor, energy and administrative respectively. For example, Ivanov and Webster (2017) showed that cloud computing along with AI-based digital tools can optimize better allocation of resources which would save significant cost. AI-powered analytics can enable hospitality companies to predict demand with striking accuracy, which in turn ensures optimized staffing and inventory management leading to reduced waste. IoT-enabled energy management systems also offer the potential to dramatically reduce utility expenses by using real-time occupancy data to automate heating, cooling and lighting. This improves sustainability, but also reduces funding pressures – particularly critical in tough financial times.

CONCLUSION

Investigating digital transformation in the Nigerian hospitality industry especially in Southwest Nigeria, reinforces how necessary it is to take-on technology — if

scale prevailing economic challenges and enhance operational efficiencies? The overall economy in Nigeria, especially by its hospitality sector which still faces the challenge of inflation, infrastructural deficiencies, and limited technology infrastructure. Nevertheless, digitally led approaches offer a digestible way to suck them up and pave the way for consistent evolution. Whether it is in the back of house by becoming more operationally efficient, enhancing customer experience or driving cost through automation digital transformation has a transformational effect on businesses in the hospitality sectors. This study reviewed academic articles to understand the potential benefits of digital transformation for hotels, and identified that technologies including cloud computing, artificial intelligence (AI) and Internet of Things (IoT) can play a critical role in reducing costs and improving operational efficiency for hospitality companies. Automating processes and embracing data analytics is making businesses to take informed decisions for service delivery and in turn helps providing better customer satisfaction. Technology equally allows businesses to deliver tailored services via digital platforms, helping them stand out in a crowded space and drive customer loyalty and return trade. However, the adoption of digital technologies that are helping to revolutionized the Nigerian hospitality industry is not without its setbacks. The study identified substantial obstacles represented by infrastructural inadequacies, skill shortages, and high costs for technology adoption as referenced and suggested that to tackle this, there needs to be a combined effort on the part of governments, industries and in developing skills.

RECOMMENDATIONS

The suggestions below are to help in attaining digital transformation suitable for the Nigerian hospitality industry, particularly located in Southwest Nigeria which entails strategic interventions, policy recommendations, skills development and alignment as well as necessary partnerships. Rectifying the already existing pain points and taking advantage of new opportunities, possible by effective utilization technology will help the stakeholders to make the most out of this pandemic scenario for improving operational efficiencies, customer experiences & driving economic activity within this sector. They are:

- Government authorities could launch an initiative of more focused financial assistance (grants/low-interest loans) to enable small and medium enterprises (SMEs) in the hospitality sector to invest in digital solutions.
- Policy makers should prioritize creating and implementing regulatory framework that to stimulate technology development and investment. It can mean creating regulatory clarity which advance the use of digital solutions, with appropriate safeguards for customers.
- Public-private partnership (PPP) is also an important factor to support the implementation of the digital transformation in hospitality industry. As collaboration only seem to grow between government agencies and technology firms with initiatives like this, it allows for a gateway into the future of the technology in hospitality opening up by other agencies as well.
- The building of innovation hubs and incubators focused on hospitality will drive further technology advancements. Many of these hubs can work as sites

for startups and entrepreneurs to develop ground-breaking digital solutions that are customized for the hospitality arena.

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ASSESSMENT OF FOOD SAFETY KNOWLEDGE, ATTITUDE AND PRACTICE OF FOOD HANDLERS IN SELECTED LOUNGES IN IKORODU LOCAL GOVERNMENT AREA, LAGOS, NIGERIA

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ABSTRACT

The hospitality industry, especially in lounge settings, depends on the food safety knowledge, attitudes, and practices of its employees to uphold standards and protect public health. This study assessed these factors among lounge food handlers in Ikorodu, Lagos State, and their impact on food safety. Using a cross-sectional survey design, data were collected through self-administered questionnaires, and 201 responses were analyzed. Descriptive statistics and chi-square tests revealed strong awareness of and adherence to food safety practices among employees. Most consistently practiced proper handwashing, used separate cutting boards, sanitized surfaces, checked expiration dates, and cooled hot food before refrigeration. The study found a significant relationship between food safety knowledge and practices as well as between hygiene attitudes and compliance with safety protocols ($P \leq 0.05$). Continuous training and fostering positive attitudes have been identified as critical for maintaining and enhancing food safety standards. However, concerns about the cost-effectiveness of food safety technologies suggest a need for strategic investments. This study recommends ongoing training, improved infrastructure, and technological innovations to reduce barriers and enhance efficiency in food handling. These measures aimed to ensure sustainable food safety practices in the hospitality industry.

Keywords: Food safety, Food handler, Lounge, Food handler Knowledge, Food safety knowledge, Attitude and Practice.

INTRODUCTION

Urbanization, along with shifts in consumer behavior, human mobility, including travel, sports, and leisure activities, as well as business practices and socio-political engagements, has led to an increase in the number of individuals purchasing and consuming food/beverage prepared and sold in public settings such as lounges, hotels and restaurants. Globalization has further amplified consumer demand for a diverse range of foods, resulting in a more intricate and extended global food supply chain. This has driven the intensification and industrialization of agriculture and animal production to meet the rising demand for food. These dynamics present challenges in terms of food safety. Food contamination can occur at any stage of production and distribution, with the primary responsibility for preventing it resting on food handlers, hence the need for this study.

A significant proportion of foodborne illness outbreaks are linked to foods that are improperly prepared or mishandled in food service establishments or markets. Unsafe food presents a serious global health risk, threatening the well-being of all individuals;

vulnerable populations, including infants, young children, pregnant women, the elderly, and those with pre-existing health conditions, are particularly at risk. Globally, foodborne illnesses continue to pose a significant health challenge, with an estimated 600 million cases and 420,000 fatalities occurring each year (World Health Organization, 2020). The proliferation of casual dining venues and informal eateries in urban areas has further complicated efforts to ensure food safety, as these establishments may not consistently follow standardized safety measures (Adeolu, Enesi & Adeolu, 2019). The potential consequences of inadequate food safety practices include outbreaks of foodborne diseases, negative economic impacts on the food service sector, and long-term health implications for consumers

A lounge, a segment of the hospitality sector, is a laid-back and inviting venue where individuals congregate to interact, unwind, and savor food, beverages, and various amenities. The increasing popularity of lounges has resulted in a growing number of patrons frequenting these establishments. Employees working in lounges, including chefs, servers, and managers, play a vital role in upholding food safety protocols. Their expertise, mindset, and behaviors (KAP) are fundamental in averting food contamination and safeguarding patrons' health (Yiannas, 2020). Nonetheless, guaranteeing food safety is a crucial public health concern that significantly influences the wellness and health results of people and societies globally. The complex interplay between food safety, consumer well-being, and economic prosperity has become increasingly apparent, drawing academic interest and regulatory actions (Havelaar et al., 2017). Especially in the dynamic urban setting of Ikorodu Local Government Area Lagos State, where eateries are essential to the local economy and community life, the importance of adhering to stringent food safety measures cannot be emphasized enough.

Given the exponential growth of the food service sector in Nigeria, particularly in urban centers, this study is timely and crucial. Studies have shown a gap in food safety knowledge and compliance among food handlers in various regions of Nigeria (Eze *et al.* 2018). This study investigated whether similar patterns are evident in the Ikorodu area. Furthermore, with the impact of the COVID-19 pandemic on global food systems and the heightened awareness of hygiene practices (Béné, 2020), there is a pressing need to reassess and reinforce food safety standards in the post-pandemic era.

In Nigeria, urban sprawl of the Ikorodu Local Government Area, Lagos State, has seen a significant increase in the number of lounges and eateries catering to the dietary needs of its diverse population. However, reports of foodborne illnesses suggest a gap in the proper implementation of food safety measures in these establishments (Omemu & Aderoju, 2018).

While previous studies have investigated food safety knowledge, attitudes, and practices (KAP) among various food handlers in restaurant, food vendor and bukateria in Nigeria (Ehiri, Morris, & McEwen, 2019, Odipe, 2019; Nordhagen, 2022; Muhammad, 2024) there is a dearth of research specifically focusing on lounge food handlers in Nigeria. Despite the essential role that lounge food handlers play in ensuring food safety, there is a lack of comprehensive understanding of their knowledge, attitudes, and practices in the specific context of the Ikorodu Local Government Area in Lagos State. The absence of targeted research on this topic poses a significant public health risk because suboptimal food safety practices can lead to foodborne illnesses and erode consumer

confidence in the safety of food served in lounges.

In order to broaden the scope of research and deepen understanding of food safety management, this study seek to investigate the food safety knowledge, attitude, and practices of lounge food handlers in Ikorodu Local Government Area Lagos State. The specific objectives are: to examine the current level of food safety knowledge among lounge food handlers in Ikorodu Local Government Area, Lagos State and to investigate the attitudes of the lounge food handlers towards food safety in Ikorodu Local Government Area, Lagos State. The remaining sections of the paper cover methodology, findings of the study are also discussed prior to conclusion and recommendations.

METHODOLOGY

Study Area

The study was carried out in Ikorodu, it is a city located in the north-east of Lagos State, Nigeria. It is an area that has witnessed considerable urbanization and development over the past few years with a land area of about 394 square kilometers. It is bounded in the east and west by Epe and Kosofe Local Government Areas respectively, in the south by the Lagos Lagoon, and towards the north by Ogun State. The study will focus on lounges within Ikorodu, which include a diverse array of establishments. The geographic boundary of the study will be limited to the administrative jurisdiction of Ikorodu, and the research will be conducted in various neighborhoods to ensure a diverse representation of lounge types and customer demographics.

Population of Study

The target population for this study are the total number of all possible food handlers working in selected lounges in Ikorodu Local Government Area, Lagos State.

Sampling Techniques and Sample Size

In this research work, the simple random technique was used to select the lounge outlets. The simple random technique allows each member have an equal chance of being selected. Then the purposive sampling method used for the respondent which are the food handlers. The purposive sampling technique is a non-probability sampling technique used when researchers want to intentionally select individuals based on specific characteristics or criteria. The study used a total of two hundred and one (201) lounge food handlers and it was determined by using Cochran Model because the sample size was unknown.

Method of Data Collection

The data for the study was generated from primary data. Through the use of structured questionnaire was developed to assess participants' knowledge of food safety, attitude to food safety practices and food handling procedures. The questionnaire was divided into five sections. Section one contains the socio-demographic information, section two contains level of knowledge of food safety practices in lounges, section three contains the attitude towards food safety regulations and practices in lounges.

Measurement of Variable

Variable such as age and monthly income level were measured at interval level while gender, marital status, educational level, religious and employment status were measured at nominal level. Food handlers level of knowledge of food safety practices in lounges and food handlers' attitude towards food safety regulations and practices in lounges were measured using Likert scale "Strongly Disagree, Disagree, Agree and Strongly Agree".

Reliability and Validity Assessment

The reliability of the research instrument was assessed using Cronbach's Alpha, a measure of internal consistency. The Cronbach's Alpha coefficient obtained was .864. This value indicates a high level of reliability, suggesting that the instrument is consistently measuring the construct it was designed to assess. In the context of social research, a Cronbach's Alpha value of above .70 and .80 are considered good. Therefore .846 signifies that the instrument is reliable and likely yield consistent result across different samples. The high reliability is crucial for the validity of the study's findings, as it ensures that data collected are stable and replicable. The research instrument can be used to measure relevant variables in the study, supporting the conclusion drawn from the data.

Data Analysis

Data collected were analysed using descriptive statistics such as frequency counts, percentages, means, standard deviations while inferential statistic (chi-square) was used to test the hypothesis.

RESULTS AND DISCUSSION

Socio-Demographic Characteristics of the Respondents

The distribution on table 1 provides an overview of the socio-demographic characteristics of the respondents, focusing on several key demographic variables. In the age category, the majority of respondents were aged 18-30 years, comprising 123 individuals (61.0%). This was followed by 67 respondents (33.3%) in the 31-40 years category, and 11 respondents (5.5%) in the 41-50 years category. No respondents fell into other age categories. The gender distribution showed that 109 respondents (54.2%) were male and 92 respondents (45.8%) were female. Regarding marital status, 126 respondents (62.7%) were married, while 75 (37.3%) were single, with no respondents indicating they were divorced, widowed, or separated. In terms of educational qualifications, the highest number of respondents, 107 (53.2%), held NCE/ND qualifications, followed by 62 (30.8%) with HND/BSc, 28 (13.9%) with SSCE, and 4 (2.0%) with postgraduate degrees. The majority of respondents, 149 (74.1%), identified as Christians, while the remaining 52 (25.9%) adhered to other religions. Employment status data showed that 179 respondents (89.1%) were employed fulltime, and 22 respondents (10.9%) were part-time employees. For income levels, the highest number of respondents, 79 (39.3%), earned between N41,000 and N60,000, followed by 66 (32.8%) earning N21,000 to N40,000, 29 (14.4%) earning N81,000 to N100,000, 18 (9.0%) earning less than N20,000, and 9 (4.5%) earning between N61,000 andN80,000. No respondents indicated earning above N100,000.

Table 1: Socio-Demographic Characteristics of Respondents

Variables	Frequency	Percentage	Ranking
Age			
18-30years	123	61.0	1st
31-40 years	67	33.3	2nd
41-50 years	11	5.5	3rd
51-60 years	0	0.0	4th
61-70 years	0	0.0	4th
Others	0	0.0	5th
Total	201	100.0	
Gender			
Male	109	54.2	1st
Female	92	45.8	2nd
Total	201	100	
Marital Status			
Single	126	62.7	1st
Married	75	37.3	2nd
Divorced	0	0.0	3rd

Widow	0	0.0	3rd
Separated	0	0.0	3rd
Total	201	100.0	
Educational Qualification			
SSCE	28	13.9	3rd
ND/NCE	107	53.2	1st
HND/B.SC	62	30.8	2nd
Postgraduate	4	2.0	4th
Total	201	100.0	
Religion			
Christianity	149	74.1	1st
Islam	52	25.9	2th
Total	201	100.0	
Employment Status			
Full-time	179	89.1	1st
Part-time	22	10.9	2nd
Total	201	100.0	
Income level			
Less than N20,000	18	9.0	4th
N21,000-N40,000	66	32.8	2th
N41,000-N60,000	79	39.3	1st
N61,000-N80,000	9	4.5	5th
N81,000-N100,000	29	14.4	3rd
N100,000 and Above	0	0.0	6th
Total	213	100.0	

Source: field survey, 2024.

Level of Knowledge of Food Safety Practices in Lounges

The results in Table 2 on level of Knowledge of food safety practices in Lounges indicated an average mean score of 3.24 and standard deviation of 0.58 All the variables recorded agree (A) with access to clean and safe water for food preparation with the highest mean score of 3.50. This deduced that the food handlers possess a high level knowledge of food safety and also adherence to key food safety measures in lounges in Ikorodu.

Table 2: Level of Knowledge of Food Safety Practices in Lounges

Statement	SD (%)	D (%)	A (%)	SA (%)	Mean	SD	R
I wash both hands frequently while handling food.	6 (3.0)	6 (3.0)	148 (73.6)	41 (20.4)	3.11	0.585	A
Uses separate cutting boards for raw meat and vegetables.	0 (0)	23 (11.4)	117 (58.2)	61 (30.3)	3.19	0.620	A
I sanitize food contact surfaces regularly.	0 (0)	0 (0)	128 (63.7)	73 (36.3)	3.36	0.482	A
I check the expiration dates on food products regularly.	0 (0)	7 (3.5)	111 (55.2)	83 (41.3)	3.38	0.553	A
I cool hot foods before refrigerating them.	0 (0)	0 (0)	95(47.3)	106 (52.7)	3.35	0.500	A
Strongly aware of the potential hazards of using pesticides in food preparation areas.	16 (8.0)	7 (3.5)	150 (74.6)	28 (13.9)	2.95	0.701	A

There is access to clean and safe water for food preparation.	0 (0)	0 (0)	100 (49.8)	101 (50.2)	3.50	0.501	A
I have participated in certified food safety training programs.	0 (0)	34 (16.9)	111 (55.2)	56 (27.9)	3.11	0.662	A
Average					3.24	0.58	

SD: Strongly Disagree, D: Disagree, A: Agree, SA: Strongly Agree, SD: Standard Deviation, R: Remarks

Source: field survey, 2024

Attitudes towards Food Safety Regulations and Practices in Lounges

The results in Table 3 on attitudes towards Food Safety Regulations and Practices in Lounges indicated an average mean score of 3.25 and standard deviation of 0.52. All the variables recorded agree (A) with adherence to food safety regulations reflects professionalism in food industry access with the highest mean score of 3.41 and 3.37 with my actions can impact public health.

This implies that the food handlers are proactive and adhered strictly to food safety regulations. Also have a responsible attitude towards food safety, emphasizing the critical role of stringent regulations and continuous training in ensuring safe food handling in lounges in Ikorodu.

Table 3: Attitudes towards Food Safety Regulations and Practices in Lounges

Statement	S D (%)	D (%)	A (%)	(%)	S A	Mean	Std. Dev	R
I believe that food safety regulations are important for public health.	0 (0)	7 (3.5)	153 (76.1)	41 (20.4)		3.17	0.460	A
Believed food safety practices can prevent food-borne illnesses.	0 (0)	0 (0)	156 (77.6)		45 (22.4)	3.22	0.418	A
I am concerned about the consequences of not following food safety regulations.	0 (0)	9 (4.5)	115 (57.2)		77 (38.3)	3.34	0.561	A
I am aware of the potential risks of not following food safety practices.	0 (0)	9 (4.5)	157 (78.1)		35 (17 4)	3.13	0.451	A
My actions as a food handler can impact public health.	0 (0)	7(3.5)	113 (56.2)		80 (40.3)	3.37	0.551	A
Food safety regulations should be enforced more strictly.	0 (0)	16 (8.0)	129 (64.2)		56 (27.9)	3.12	0.765	A

Adherence to food safety regulations reflects professionalism in the food industry.	0 (0)	0 (0)	118 (58.7)	83 (41.3)	3.41	0.494	A
In my view, training in food safety significantly enhances job performance.	0 (0)	4 (2.0)	140 (69.7)	57 (28.4)	3.26	0.485	A
Average					3.25	0.52	

SD: Strongly Disagree, D: Disagree, A: Agree, SA: Strongly Agree, SD: Standard Deviation, R: Remarks

Source: field survey, 2024

Hypotheses ANALYSIS

The conventional method of reporting results involves stating their statistical significance. A pvalue, derived from a test statistic, is used to determine this. A result is considered significant if "$p < 0.05$". A chi-square test was conducted to examine whether there was a statistically significant association between the variables. The null hypothesis suggests no significant relationship between the two, while the alternative hypothesis indicates a relationship exists.

Hypothesis 1

H01: There is no significant relationship between the lounge food handlers practice and the level of food safety knowledge.

Table 4 shows the chi-square relationship between the lounge food handlers practice and the level of food safety knowledge. The result recorded 66.159^a value of chi-square for the significant relationship and a degree of freedom of 6.0 and a significant level of 0.000. Given the standard significance level of $P \leq 0.05$, this indicates a significant relationship between the lounge food handlers' practices and their level of food safety knowledge. Therefore, the null hypothesis (H01), which states that there is no significant relationship between the lounge food handlers' practices and their level of food safety knowledge, is rejected. Conversely, the alternate hypothesis, which states that there is a significant relationship between the lounge food handlers' practices and their level of food safety knowledge, is accepted.

Table 4:Chi-Square showing relationship between the lounge food handlers practice and the level of food safety knowledge.

Value		Df	Asymptotic Significance(2-sided)
Pearson Chi-Square	66.159^a	6	0.000
Likelihood Ratio	6.102	6	0.000
No of Valid Cases	201		

Source: field survey, 2024

Hypothesis 2

Ho2: There is no significant relationship with the attitude of food handlers towards food hygiene compliance and lounge food safety protocol.

The table 5 below reveals the chi-square result of the hypothesis relationship with the attitude of food handlers towards food hygiene compliance and lounge food safety protocol. The result value of the Pearson chi-square hypothesis value to be 286.571^a

and the degree of freedom value to be 18.0 at a significant level 0.000. Given the standard significance level of $P \leq 0.05$, the null hypothesis stating that "there is no significant relationship between the attitude of food handlers towards food hygiene compliance and lounge food safety protocol" is rejected. Instead, the alternate hypothesis, which states that "there is a significant ($p \leq 0.05$) relationship between the attitude of food handlers towards food hygiene compliance and lounge food safety protocol," is accepted.

Table 5: Chi-Square showing relationship with the attitude of food handlers towards food hygiene compliance and lounge food safety protocol.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	286.571[a]	18	0.00
Likelihood Ratio	168.715	18	0.00
No of Valid Cases	201		

Source: field survey, 2024

DISCUSSION OF FINDINGS

The socio-demographic characteristics of the respondents reveal a workforce that is predominantly young, with 61% falling within the 18-30 age range, highlighting a significant presence of young adults likely at the early stages of their careers. This is followed by 33.3% in the 31-40 age category, indicating a considerable number of more experienced workers, and only 5.5% in the 41-50 age group, showing a minimal representation of older employees. Gender distribution is fairly balanced, with a slight male majority of 54.2% compared to 45.8% females, suggesting both genders are well-represented in lounge employment. This gender balance is crucial for fostering diverse perspectives and inclusive work environments, which can positively influence team dynamics and customer interactions.

In terms of marital status, 62.7% of respondents are married, while 37.3% are single, with no respondents indicating they are divorced, widowed, or separated. This high percentage of married individuals implies that many employees have family responsibilities, which can impact work-life balance and job satisfaction. Employers might need to consider implementing family-friendly policies and benefits to support their workforce effectively. Educational qualifications among respondents are varied, with 53.2% holding NCE/ND qualifications, typically technical or vocational in nature, followed by 30.8% with HND/BSc degrees, indicating a substantial portion of the workforce has higher education. Additionally, 13.9% have SSCE qualifications, and 2.0% hold postgraduate degrees. This diversity in educational backgrounds points to a range of skill levels and expertise within the workforce, impacting the quality of service and operational efficiency in lounges. It also underscores the necessity for ongoing training and professional development opportunities tailored to different educational backgrounds.

Regarding religious affiliation, the majority of respondents (74.1%) identify as Christians, while 25.9% adhere to other religions. This religious distribution can influence workplace culture and scheduling, particularly during religious holidays and observances, making it important for employers to create an inclusive environment that respects and accommodates diverse religious practices.

The employment status data shows a significant majority (89.1%) of respondents are employed full-time, with only 10.9% working part-time. This high percentage of full-time employees suggests a stable workforce with strong commitment to their

roles, facilitating consistent and reliable service delivery. However, part-time employees may require flexible scheduling and additional support to ensure they are effectively integrated into the team.

The study reveal Income levels of the respondents that 39.3% of them earn between N41,000 and N60,000, followed by 32.8% earning N21,000 to N40,000. Smaller percentages earn between N81,000 and N100,000 (14.4%), less than N20,000 (9.0%), and between N61,000 and N80,000 (4.5%). No respondents earn above N100,000. These income levels indicate that most employees are in the lower to middle-income brackets, which can affect their purchasing power, lifestyle, and financial stability. Understanding the income distribution helps employers design competitive compensation packages and benefits that meet the financial needs of their employees, ensuring job satisfaction and retention. This comprehensive socio-demographic analysis highlights the youthful, gender-balanced, and educationally diverse workforce with predominantly full-time employment and modest income levels, suggesting a need for tailored training programs, familyfriendly policies, and competitive compensation packages to support and enhance employee wellbeing and productivity.

The analysis of the respondents' level of knowledge of food safety practices in lounges, shows a high level of awareness and adherence to key food safety measures. A significant majority, 73.6%, agreed that they frequently wash both hands while handling food, with an additional 20.4% strongly agreeing, indicating a strong commitment to basic hygiene (Angelo et al., 2017). This is consistent with previous findings by Mensah et al. (2014), who emphasized the critical role of handwashing in preventing foodborne diseases in commercial food settings. Similarly, 58.2% agreed and 30.3% strongly agreed on the importance of using separate cutting boards for raw meat and vegetables, demonstrating awareness of cross-contamination risks. These results align with Luning, Bango, and Kireziev (2019), who reported that proper segregation of food preparation tools is a fundamental practice in mitigating foodborne illness risks. Regular sanitization of food contact surfaces is widely practiced, with 63.7% agreeing and 36.3% strongly agreeing, further supported by evidence in the literature, such as Al-Kandari, Al-Abdeen, and Sidhu (2019), who noted that surface sanitization significantly reduces microbial contamination in food service establishments. The practice of checking expiration dates on food products is also prevalent, as 55.2% agreed and 41.3% strongly agreed. Additionally, 52.7% strongly agreed and 47.3% agreed that they cool hot foods before refrigerating them, which is crucial for preventing bacterial growth. This finding is in line with a study by Jevšnik, Hlebec, and Raspor (2013), which found that temperature control is a key factor in food safety management. Awareness of pesticide hazards in food preparation areas is high, with 74.6% agreeing and 13.9% strongly agreeing. Access to clean and safe water for food preparation is nearly universal, with 50.2% strongly agreeing and 49.8% agreeing. Participation in certified food safety training programs is also noteworthy, with 55.2% strongly agreeing and 27.9% agreeing. These findings reflect a robust understanding and implementation of food safety practices among respondents, underscoring the effectiveness of training programs and the importance of continuous education in maintaining high food safety standards in lounges (WHO, 2012; T.N.C. Thanh, 2015 and FAO, 2017).

The attitudes towards food safety regulations and practices among respondents, demonstrate a strong recognition of their importance for public health. A significant majority, 76.1%, agreed that food safety regulations are crucial for public health, with 20.4% strongly agreeing, highlighting widespread awareness of the broader impacts of these regulation

(Motarjemi, 2014 &AlSakkaf,2015). Similarly, 77.6% agreed and 22.4% strongly agreed that food safety practices can prevent food-borne illnesses, reflecting a solid understanding of their practical benefits (FAO, 2017; Jevšnik et al., 2023). Previous studies have shown that knowledge of food safety and the implementation of such practices are directly linked to reduced risks of food contamination and illness, further reinforcing the positive attitudes seen in this study (Soon et al., 2012). Concerns about the consequences of not following food safety regulations were expressed by 57.2% who agreed and 38.3% who strongly agreed, indicating a high level of conscientiousness among food handlers. This level of awareness is consistent with other research, which highlights that a robust understanding of food safety rules can significantly reduce food-borne outbreaks (Griffith, 2006). Awareness of the potential risks associated with non-compliance is also significant, with 78.1% agreeing and 17.4% strongly agreeing. The belief that a food handler's actions can impact public health is shared by 56.2% who agreed and 40.3% who strongly agreed, underscoring a sense of personal responsibility (Campos et al., 2009). Furthermore, 64.2% agreed and 27.8% strongly agreed that food safety regulations should be enforced more strictly, reflecting support for stronger regulatory measures. The perception that adherence to food safety regulations reflects professionalism in the food industry is held by 58.7% who agreed and 41.3% who strongly agreed. Finally, the view that training in food safety significantly enhances job performance is supported by 69.7% who agreed and 28.4% who strongly agreed. These findings illustrate a proactive and responsible attitude towards food safety among respondents, emphasizing the critical role of stringent regulations and continuous training in ensuring safe food handling practices (T.N.C. Thanh, 2015; European Parliament, 2022).

The attitudes towards food safety regulations and practices among respondents, demonstrate a strong recognition of their importance for public health. A significant majority, 76.1%, agreed that food safety regulations are crucial for public health, with 20.4% strongly agreeing, highlighting widespread awareness of the broader impacts of these regulations. These results align with previous research by Manning and Soon (2016), who found that food safety compliance is closely linked to an understanding of its role in preventing health risks. Similarly, 77.6% agreed and 22.4% strongly agreed that food safety practices can prevent food-borne illnesses, reflecting a solid understanding of their practical benefits (FAO, 2017; Jevšnik et al, 2023). The findings are consistent with studies such as Powell, Jacob, and Chapman (2011), who emphasized that food safety practices are key in mitigating contamination risks. Concerns about the consequences of not following food safety regulations were expressed by 57.2% who agreed and 38.3% who strongly agreed, indicating a high level of conscientiousness among food handlers. The significance of these findings is further supported by Giritlioglu, Batman, and Tetik (2011), who noted that noncompliance often results in severe food safety incidents, reflecting similar levels of concern among food handlers. Awareness of the potential risks associated with non-compliance is also significant, with 78.1% agreeing and 17.4% strongly agreeing. The belief that a food handler's actions can impact public health is shared by 56.2% who agreed and 40.3% who strongly agreed, underscoring a sense of personal responsibility. Furthermore, 64.2% agreed and 27.8% strongly agreed that food safety regulations should be enforced more strictly, reflecting support for stronger regulatory measures. The perception that adherence to food safety regulations reflects professionalism in the food industry is held by 58.7% who agreed and 41.3% who strongly agreed. This aligns with research by Yardley et

al. (2014), who identified that professional conduct in food handling is often evaluated based on the strict observance of safety protocols. Finally, the view that training in food safety significantly enhances job performance is supported by 69.7% who agreed and 28.4% who strongly agreed. These findings illustrate a proactive and responsible attitude towards food safety among respondents, emphasizing the critical role of stringent regulations and continuous training in ensuring safe food handling practices (T.N.C. Thanh, 2015; European Parliament, 2022).

Relationship Between Food Handlers' Practices and Level of Food Safety Knowledge. The chisquare analysis for Table 6 shows a significant relationship between food handlers' practices and their level of food safety knowledge. The chi-square value is 66.159 with a degree of freedom of 6 and a significance level of 0.000, which is well below the standard significance threshold of $P \leq 0.05$. This indicates that there is a statistically significant relationship between the level of food safety knowledge and the practices implemented by food handlers. In practical terms, this suggests that food handlers who possess a higher level of knowledge about food safety are more likely to adhere to proper food safety practices. This finding underscores the importance of comprehensive food safety education and training programs in improving food handling practices.

Relationship between attitude towards food hygiene compliance and lounge food safety protocol, examines the relationship between food handlers' attitudes towards food hygiene compliance and the adherence to lounge food safety protocols. The chi-square value of 286.571 with a degree of freedom of 18 and a significance level of 0.000 indicates a significant relationship. This suggests that positive attitudes towards food hygiene are strongly associated with better compliance with food safety protocols. This relationship highlights the need for fostering a positive attitude towards food hygiene among food handlers. Ensuring that food handlers understand the importance of food safety and the impact of their compliance on public health can lead to improved adherence to food safety protocols.

CONCLUSION

In conclusion, the socio-demographic analysis of the respondents reveals a predominantly young and balanced workforce with a mix of educational backgrounds, mostly full-time employment, and modest income levels, suggesting the need for tailored training programs, family-friendly policies, and competitive compensation packages. The high level of knowledge and adherence to food safety practices among foodhandlers in lounges underscores the effectiveness of existing training programs and highlights the importance of continuous education to maintain high standards. The attitudes towards food safety regulations are overwhelmingly positive, with respondents recognizing the critical role of stringent regulations and training in ensuring safe food handling practices. However, significant barriers to the implementation of food safety practices remain, including high staff turnover, inadequate training, language barriers, financial constraints, and external disruptions like power outages and busy work environments. These challenges necessitate improved training, better resource allocation, and supportive workplace policies. Additionally, while there is strong confidence in the benefits of food safety technology, mixed opinions on its cost-effectiveness suggest the need for careful consideration of investments in such technologies. Overall, this comprehensive analysis highlights the importance of continuous improvement in training, resource management, and policy support to enhance food safety practices in lounges.

RECOMMENDATION

The recommendations provided are derived primarily from the objectives of the research

1. There should be continuous and expansion of certified food safety

training to ensure all employees are well-versed in safety practices.

2. Investment in necessary food safety equipment and infrastructure to address barriers related to cost and busy environments.
3. Increased and strengthened enforcement of food safety regulations and ensure staff understand the importance and consequences of non-compliance.
4. Leverage food safety technologies like temperature monitoring, smart labels, and hygiene systems to improve safety and efficiency.
5. Develop strategies to manage external factors such as power outages and supplier issues that disrupt food safety practices.

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EXPLORING THE POTENTIALS OF IJOKO WATERFALL IN ISANLU–ISIN FOR TOURISM DEVELOPMENT IN KWARA STATE, NIGERIA

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ABSTRACT

The study explores the potentials of Ijoko Waterfall with a view to bring it into limelight for development as well as academic exercise. Ijoko Waterfall located in Isanlu-Isin in Isin Local Government Area of Kwara State has remained largely unexplored. Scholars in the related field have concentrated their researches on the neighbouring attractions like Oowu and Ero-Omola Waterfalls. The study examined the enormous potentials endowed the site and how it development could bring a turnaround in the economy of Kwara State. It highlights some strategies that could be adopted into its development such as aggressive publicity, opening up of the road, public private partnership arrangement, involvement of the Local Community among others. The study also identified some of the benefits that are accruable like job opportunities, income enhancement, infrastructural development, youth empowerment as well as environmental and cultural preservation. Finally, the paper recommended the establishment of private, public partnership arrangement of government in the development of Ijoko Waterfall to be able the reap the huge benefits that are accruable from the development of Kwara State. **Keywords**: Explore, Potentials, Waterfalls and Tourism Development

INTRODUCTION

The rapid growth of the modern tourism industry worldwide has made the tourism industry one of the most important industries of the world because of its high socio-economic potentials. As stated in the Nigeria Tourism Policy (2005:1), Nigeria has for a long time relied on mono-cultural economy, such that the Local, State and Federal Government rely heavily on the proceeds of petroleum in the socio-economic wellbeing of the citizen, therefore; other vital sectors are neglected among which tourism is one. The policy advocates the need for diversification of the economy. One of the preferred sector it suggested is tourism. The thrust of Nigeria National

Tourism Policy (2005:1) is to "develop sustainable tourism by capitalizing on heritage diversity as the basis for promoting domestic and international tourism". One of the most valuable characteristics of the tourism industry is that while it has grown in numbers it has also grown in variety of destinations as there has been a continued geographical spread of tourism to all part of the world which has made it possible for many countries, especially developing countries, to develop tourism as a viable engine for socio-economic development Adetokunbo (2005).

The realization by the Nigerian Government of the potentials of heritage resources for National development led to the establishment of the Federal Department of Antiquities in 1943 which is saddled with the responsibility of protecting, preserving and safeguarding the nation's cultural properties (Usman, 2007). The effort according to him was further boosted by General Yakubu Gowen's Government which after the war in 1970 established museums of unity in the twelve states of Nigeria. The aim was to promote cultural tourism, unity and oneness in Nigeria. The contribution of UNESCO in the development of Tourism in Nigeria

could not be over emphasized. This was manifested in its declaration of some of the country's national and cultural heritage sites as World Heritage Sites.

As Usman (2007) rightly declared that there is the need for appreciation of the significance of tourism for our Cultural and National heritage development. He stressed that development of tourism enhances revenue generation in form of fees paid on sales, museums, guide tours, and sales of crafts etc. He stated that heritage resources are huge revenue earners in the area of hospitality, transportation and restaurant services as well as employment opportunities in the area of rehabilitation and maintenance of heritage sites for local craftsmen, managers and guidance.

METHODOLOGY

This study dwells heavily on participant observation method of research. This enabled the researcher to visit the site for physical assessment of the potentials of Ijoko Waterfall. Useful and relevant information were collected from the inhabitants since little or no serious academic research has been conducted on the site. Desk research approach was also adopted to be able to make a survey of the tourism potential of waterfall across the globe. This involved review of existing literatures on waterfalls like journals, books, articles, publications etc. online source were also adopted.

Waterfalls are considered integral in tourism development, this is because of the significant impact, recorded in vital areas like economy, cultural and environmental value, aesthetic and recreational importance, infrastructural facilitator and marketing development of waterfall can enhance job creation, revenue generation and local economic guarantee in the same vein, the development of waterfalls is very significant in promotion of cultural heritage as well as conservation of the environment, the relevance of waterfalls in bringing about infrastructural development could not be undermined. Waterfalls are also very unique in aesthetic and recreational value (Alabede, 2020). Kwara State is endowed with beautiful waterfall; which development could bring about a turnaround in the state economy. Unfortunately, little or no effort has been paid to the development of Ijoko waterfall. Researchers on Tourism, have been focusing on Oowu and Ero-Omola waterfalls thereby neglecting Ijoko waterfall, perhaps because of its location.

Batinas (2009) describes waterfalls as an attraction usually regarded as very spectacular to tourists. According to him, they are already very fascinating and enchanting especially considering the size, height, number of steps and the thundering noise as well as the unique landscape in which they are located. Batinas maintained that the touristic value of waterfall dwell heavily on the sum total of the features such as 'height', 'water discharge, 'fall type", 'depth of the plunge pool', 'number of steps and angle of slope', 'water turbidity' and 'surrounding landscape', Febriena and Kasiwanti (2015) described waterfall as a tourist attraction capable of providing landscape beautification service.

Sachin (2015) opined that waterfalls are more of an attraction than a destination. His assertion was perhaps based on his research works on waterfalls in Kodagu District, Kamata, India. According to him, Kodagu is "famous" to the vivid natural beauty and bush greenery and that the district received 1,00mm rainfall annually. He also described Kodagu district as an area that has the landscape with the altitude coupled with high monsoon rain, had perhaps led to the proliferation of waterfalls in the area.

He stated that 20 waterfalls were noticeable in Kodagu district which made it possible for monsoon tourism to develop in Kodagu. He opined that marketing monsoon tourism could be a better solution to standardize the economy of the region. Hudson (1998) also described waterfalls as an attraction which helps to diversify the tourism product and spread the benefits as well as some of the problems of tourism product and spread the benefit as well as some of the problems of tourism to less developed area, stressing that waterfalls are enjoyed by a large number of people, old or young all over the world. This according to him, is evident in the large number of topographical books, travel literature and tourists' books which feature these landforms. He stated that the number of visitors to waterfalls increased because of human enjoyment of the attraction as well as the technological innovation, especially in transport and the growth of leisure activity. Sightseers according to Hudson (1998), have long been attracted to the spectacle of tumbling rivers and streams, adding that it was that taste of waterfalls that contributed to the development of many destinations, including Niagara, Victoria and Iguassu where waterfalls are the major attractions. He observed that there are considerable literatures on waterfalls, but that most of them are either descriptive or impressionistic, and that much have been written on waterfalls as energy resources but, they have been neglected in scholarly literature in terms of resources for recreation and tourism. Hudson (1998) therefore opined that the waterfalls that qualify as destinations are: Niagara, Victoria and Iguassu. Ijoko waterfall is comparable to Niagara, Victoria and Iguassu in terms of height but only that they have not been developed. The provision of the required social amenities would transform it to a destination standard. Febriena and Kaswanto (2015) described waterfall as a tourist attraction capable of providing landscape beautification service. They cited an example of Cabeureum waterfall tourism track as a provider of landscape beautification service at Gunug Gede Pangrango National Park. He however emphasized that to keep the quality of the landscape beautification service, there is the need to make a management plan. Ijoko waterfalls in Isanlu-Isin could provide landscape beautification service if developed and properly managed. Kurdogu (2016) carried out a semantic evaluation of 17 waterfalls located in different regions of Turkey, mostly along the Eastern Black sea region. According to them, a total of 69 experts comprised of 32 forest engineers and 37 landscape architects were involved. The purpose of the test was to find out the relationship between the objective pairs and the "worth seen" condition. Ijoko waterfalls have some sterling qualities that could make them rank among those that were tagged "worth seeing" if the same test had been extended to them, especially their height, volume of water and the thunderous noise, coupled with the refreshing luxuriant environment that make the attractive to tourists.

HISTORICAL BACKGROUND OF IJOKO WATERFALL

Investigations conducted through oral traditions and personal observations revealed that the name Ijoko Waterfall (plate 1) emanated from the name of the family that originally owned the land area where Ijoko waterfall is located. The name of the family is "Ijoko" Ijoko family used to be the first settler at a place called Ijoko. As revealed during investigation, there was a tribal war in the nineteenth century in which the members were displaced from the top of Ijoko Mountain where they initially settled. This terrible incidence

made the members of the family to migrate to neighbouring villages of Owa-Onire, Owa-Kajola, Olla, Isanlu-Isin, Okeya-Ipo and Omu-Aran (Bolarin, 2019 pers.com), Ijoko town no longer exist, but Ijoko family exists but, were scattered in the communities mentioned above. Members of the family exist but were scattered in the communities mentioned above. Members of the family still recognize themselves and meet periodically to ensure that the kinship relationship is sustained. The naming of Ijoko waterfall after Ijoko was to immortalize Ijoko village and ensure their ownership of the land area. As also revealed during investigation, there had never been a dispute between the Ijoko family and Isanlu-Isin on the ownership of the waterfall, Isanlu-Isin shares boundary with Ijoko village. The waterfall was discovered by a hunter (Bolarin, 2019 pers.com). He also revealed that the waterfall had to historical/spiritual significance to the inhabitable except that it harbours wild animals which the hunter killed for their economic sustenance.

THE STUDY AREA

Ijoko water fall is located in Isanlu-Isin in Isin Local Government Area of Kwara State. The fall is about five kilometers east of Isanlu-Isin town and had its source from Ijoko Mountain. It flows south wards to join river Oya, the two flow into river Ero which in turn flows across Oke-Ero Local Government Area of Kwara State to join River Niger (Bolarin, 2019, pers.com). The fall is located in a green vegetation environment which makes the water fall attractive to the tourists. The climate of the area is tropical with alternate dry and wet seasons. The wet season is from March to October annually while the dry season is between November and March. Both the two seasons are long enough to support Agriculture. Agriculture is therefore the main economic activity of the inhabitants. The crops that are grown include both cash and subsistence crops. Cash crops include cocoa, kolanut, cassava, maize and corn. Economic trees in the environment include Chlorophra excel (Iroko), Athelis Africana (Mahogany), Casheir, Pakai Clapper Toniana, African Locust Beans. Isanlu-Isin is 11 Kilometers from Oke-Onigbin to the left of the major highway leading from the State capital to Kabba-Lokoja. Another advantage of its location is that tourists coming from Oowu Fall who took Owa-Kajola would want to take the opportunity of visiting Ijoko Waterfall as a complement attraction.

TOURISM POTENTIALS OF IJOKO WATERFALL

Ijoko waterfall is located in a thick rain forest area on some mountain ranges, making the environment refreshingly cool and attractive to visitors. Bello (2012) described Ijoko waterfalls as a hidden treasure of Isin Land, stressing that the natural mosaic shows an uninteresting and a live testimony of our geographical history. Bello estimated the height of the fall to be about 100 metres high above sea levels (this was confirmed during investigation). Ijoku water fall is comparable to Niagara waterfall in U.S.A and Victoria waterfall in East Africa in terms of height. Visitors to the fall would have the opportunity of viewing different animal species such as antelopes, monkey, wild pig, varieties of birds and crocodiles etc. this can favour the establishment of a zoological garden as well as bird watching activity in the area. The environment also offers unique opportunities for carnival and picnic activities if developed to achieve that purpose. It is an avenue for holiday makers who may desire a change of environment. Meanwhile Ijoko Waterfalls need aggressive publicity to bring it into limelight, after which major development

can follow like provision of necessary amenities such as roads, sweet honey, children play ground, hotels, shuttle buses among others.

TOURISM DEVELOPMENT OF IJOKO WATERFALL

The linkage of development to tourism is as a result of the recognition of the potentials of tourism in 1950 through the super international agencies, when it was prescribed as a top economic policy for the third world government by the World Bank, (Sori-Sand 1991 in Holden 2013). Consequently, other United Nation specialist agencies like United Nations Development Programme (UNDP), the International Labour Organisation (ILO) and the Western Government, therefore began to support the World Bank idea (Holden, 2013). He also disclosed that the recognition of the United National of the potentials of tourism of the World Tourism Organisation (WTO) in 1970 which later metamorphosed to United Nation World Tourism Organisation in 2003 as an international agency for development. Thus the World Bank began to fund tourism project from 1966 with the operation of a special department called Tourism Projects Department, established to assist directly in financing of Tourism projects (Holden, 2013).

Elizuelen (1996:8) in Agbonlahor and Ukhumebor (2006), describe development as material advancement modernization, industrialization, scientific and technological advancement, the emergence of nuclear energy, the electronic and biological revolution, and new knowledge about man and the universe among other. Todoro (1982:4) in Agbonlahor and Ukhurabor (2006), attributed three objectives to development. They include: availability of human basic needs such as shelter, water, health, protection, improved quality of life and Socio-economic expansion and independence seers (1992:123-129) in Agbonlahor and Ukhurebor (2006) views development as a reduction or total elimination of poverty, unemployment and inequality.

From the above definitions advanced by scholars, Agbonlaho and Ukhurebor (2006) concluded that development is a process by which the economic, social, political and cultural lives of the people are transformed in order to improve the quality of life of the populace. However, they identified some major preconditions for tourism development. They include general preconditions such as; good locations, abundant resources, sustainable macro economy and growth and good intentional relational logistic precondition such as good transport system, good accommodation and efficient information and communication system, while the legal precondition includes favourable and effective tourism laws and policies.

Fadipe (2014) listed some development guidelines that could assist in the development of a destination. They include planning and regulation of tourism enterprises and allied activities, creation and maintenance of infrastructural facilities, training and re-training of personnel, involvement of the local community in tourism development and provision of security for lives and properties. In the same vein, he highlighted some tourism development processes such as seeking the support of the host community, ensuring environmental preservation and protection, avoidance of cultural pollution, ensuring uniqueness to avoid competition and ability to generate income to the local community, service providers and the Government. He also emphasized on the need to ensure sufficient market strategies while Government's

responsibility is to disseminate information about the product through media to potential tourists and provide the enabling environment for the private investors through provision of infrastructural facilities and incentive. Samuel (2016) describes development from a holistic point of view as the emergence of super structures and increase in the welfare of the population.

Ijoko waterfall has not experienced any development since its discovery. It is purely in its raw stage. For effective development of the site, the following are some of the requirements and the strategies to be adopted to facilitate the development. In the first place, there is the need to market the potentials of the sites through aggressive publicity. Ijoko waterfall is close to Oowu waterfalls in terms of height and other tourism potentials but because of lack of publicity of its existence not much information is head about it. In fact, one of the objectives of this paper is to bring the fall into limelight for marketing and promotion as well as eventual development. Ijoko waterfalls needs aggressive marketing strategy to enhance its development Kotler (1998:25) in (Kolawole 2011) defines marketing as "a social and managerial process by which individuals and groups obtain what they need and want through creative and exchanging products and value with others". The British Chartered Institute of Marketing also defines Marketing as "the Management process responsible for identifying, anticipating and satisfying customer's requirement profitably (Kolawole 2011)".

The above two definitions emphasized on the ability of the marketing management to assess customer's demand through the identification and anticipation of customer's requirements. There is therefore the need to put the effective Marketing Strategies in the development of Ijoko Waterfalls as a potential tourist center (Lawuyi, 2011). The strategies may include printing of pamphlets, fliers, handbooks as well as the efforts of the media houses and the internet would go a long way in boosting the marketing strategies for the development of Ijoko Waterfalls.

Ijoko Waterfall (see plate 1) is five kilometers from Isanlu-Isin along Owa-Kajola road. There is the need to make the five-kilometer road motorable. One major benefit of the gesture is that tourist visiting Oowu waterfall through Isanlu-Isin – Owo-Kajola road will have the opportunity to enjoy the potentials of Ijoko Waterfall. The National Tourism Policy stipulated that tourism development is a tripartite responsibility between the Local, State and Federal Government. As a result, every tier of Government is expected to earmark substantial budgeting allocation for tourism development in their annual budgetary provisions. In the same vein, Government is expected to provide the enabling environment which includes acquisition of the land from the land owners, while the expected entitlements are settled amicably as the case may be. Other enabling environment expected from government includes provision of electricity, pipe borne water, communication facilities and security. Adoption of the Public Private Partnership (PPP) initiatives of the Government is another strategy that could bring about the development of Ijoko Waterfall. The local communities and Government as well as the private sectors (investors) are encouraged to collaborate in the development of tourist sites as investment opportunities for revenue generation. Government may also provide incentives that would enhance the development of the

attraction like the establishment of loan scheme, tourism development banks, reduction in the custom duties on importation of materials and equipment for tourism development.



Plate 1: Ijoko Waterfall (Author's Field Survey, 2024)

SOCIO-ECONOMIC PROSPECTS OF THE DEVELOPMENT OF IJOKO WATERFALL

The success of tourism industry in any area depend on the level of development of the elements. The availability of the elements determined the volume of the opportunities and benefits deliverable from tourism development of the site will help in the conservation of the biotic and abiotic component of the environment. In other words, the development will help to preserve the ecosystem which tourist admire and will continue to attract more tourist both from within and outside the country. To effectively develop Ijoko Waterfall as a tourist centre, efforts should be made to put in place the basic facilities like accommodation facilities, security, shuttle buses, children arena among others. The effect of this is the improvement in the quality of life of the rural dwellers in Isin Local Government Area.

Tourism development of Ijoko Waterfall would offer many opportunities to visitors. Scholars have confirmed that participation in tourism activities can improve human physical and mental health (Ibimilua, 2015). It is also an opportunity to interact with the rural populace, experience their sociocultural level and refreshingly cool environment. It will offer opportunities for holiday makers to enjoy a stress free atmosphere which is lacking in the cities. It therefore constitutes a remedy to stress related affliction like stroke, sleeplessness and hypertension (Ibimilua, 2015).

The tourism development of Ijoko could bring about wealth creation in the study area if fully developed. Tourism is believed to be money spinning and a foreign exchange earner. It is regarded as a contributor to national balance of payment. This has been made realizable in countries like Kenya, Spain, Switzerland, Tanzania, U.S.A etc. Ijoko waterfall has the propensity to get to the level or more, if developed to the required standard.

Apart from the multiplier effect on the rural people, the development of Ijoko waterfall would open opportunities for youth development. Youths could be engaged in activities like security, attendants, revenue officers, labourer and messengers. Petty traders would emerge in the sale of local products such as snacks, touring products and souvenir materials. Local artisans like cobblers, barbers, tailors as well as transporters like okada riders, taxi drivers and commuters would experience a boom. Thus, the use of these readily available socio-cultural resources would improve the economic wellbeing of the rural populace.

Isanlu-Isin where Ijoko Waterfall is located is blessed with a lot of socio-economic resources like forest and agricultural resources. The opening up of the fall will enhance an opportunity for the full exploitation of these resources. The local communities would begin to experience

economic growth, enhancement of small scale industries and promotion of cultural values among the inhabitants, thus enhancing the quality of life of Isin people. Cultural and environmental conservation will be promoted. Waterfalls are heritage properties that may hold spiritual or cultural importance; thereby providing a unique opportunity for tourists to experience and learn about local traditions.

OTHER SIDE ATTRACTIONS IN ISANLU-ISIN

- **Aise Waterfall**

Aise Waterfall is another fascinating tourist attraction located in the southern part of Ijoko Waterfall. It is about three kilometers from Isanlu-Isin, information collected about Aise Waterfall revealed that the fall is as high as Ijoko Waterfall. In other words, it is also about 100 meters above sea level, it is also located in a rain forest vegetation. Because of its

height, it can be compared with Niagara and Victoria Waterfalls in North America and East Africa respectively. However, this study could not be extended to the site because of its inaccessibility.

- **Agbaasin Shrine**

Another wonderful cultural attraction discovered in Isanlu-sin is Agbaasin Shrine. The shrine houses artifacts such as crowns of past kings brought from Ile-Ife. Investigations conducted revealed that Agbaasin festival was also celebrated in the past by all sons and daughters of Isin but now, it is restricted to Isanlu-Isin; and that the celebration comes up in the month of October. Agbaasin, as also revealed is referred to as goddess of unity, fertility and truth and that the adherents of this deity believe that it is capable of granting them whatever they desire i.e. capable of giving children to the barren women and healing of terminal diseases and ailments, among other issues. The worshipers in return make yearly sacrifices to the god of Agbaasin. In line with the policy guidelines of the National Commission for Museums and Monuments (NCMM), the Agbaasin shrine could be transformed into a mini-museum because already, the shrine houses the crowns of past kings brought from Ile-Ife. All what is required is just that each household or compound that has one or two antiques could begin to donate them with the label of where they come from. This will prevent these antiques from perishing because Isanlu-Isin and even Isin land in general is known for its cultural antecedents. Isanlu-Isin was popular for some cultural festivals in the past but, the advent of Christianity has failed their practices. IsanluIsin indigenes are Christians, it is a Christian dominated community. Consequently, the only surviving festival in the community is New Yam festival and the celebration does not attract any sacrifices whatsoever. The celebration features singing praises, prayers, sermons and feasting. The chief organizer and custodian is the king of the community, His Royal Majesty, the Olusin of Isanlu-Isin and assisted by his Chiefs. Important State functionaries and dignitaries from within and outside the State also feature as invited guests to grace the occasion.

- **Ijara-Isin Soap Stone Images**

Soap Stone Images were also discovered in Ijara-Isin, a neighbouring town of Isanlu-Isin. The Soap Stone Images in Ijara-Isin are not in large quantity like that of Esie for now. This is perhaps because the site has not been explored by Scholars. Scholars like Archeologist, Arts Historians, Heritage Studies are therefore needed to work on the site with a view to discovering more of the images. The source of these images is yet to be established. Scholars have suggested that the images might be as a result of cultural diffusion from Esie because Esie is just

around 15 kilometers to Ijara Isin. They are a replica of the ones in Esie-town.

CONCLUSION AND RECOMMENDATIONS

The study discussed the tourism potentials of Ijoko waterfall and the strategies that could be pursued to enhance the development as well as the attainable socio-economic prospects. The study area is located in the rural area which would interest the tourists and require the development of infrastructural facilities. Some of these would be capital intensive but if executed could bring a turnaround in the economy of the area. Consequently, there would be influx of tourist with the multiplier effects on the host community. There would be employment opportunities, wealth creation, poverty alleviation, reduction in rural-urban migration among other benefits. The study advocates the adoptions of Public Private Partnership (PPP) initiative of government because of its capital intensive nature. It also advocates for the inclusion of the host community (Isanlu-Isin) in both the planning and executing stages. Tourism development is government led, private sector driven and community based.

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ELECTRONIC GOGGLE SEARCH

United Nations World Tourism Organisation. www.unwto.org

United Nations, Educational, Scientific and Cultural Organisation. www.unesco.org

SUSTAINABLE EVENT PLANNING: GREEN STRATEGIES AND BEST PRACTICES IN THE HOSPITALITY SECTOR

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ABSTRACT

This research examines sustainable event planning as a strategic response to increasing environmental issues in the hospitality industry. The main objective is to analyse sustainable practices, evaluate their incorporation throughout the event lifespan, and provide tailored suggestions for stakeholders to improve sustainability. A qualitative technique was used via a comprehensive literature assessment of established frameworks, practices, and case studies, concentrating on essential topics like waste reduction, energy efficiency, local sourcing, digital technologies, and stakeholder involvement. Research demonstrates that sustainable event planning is most efficacious when undertaken holistically, including environmental, social, and economic aspects. Fundamental tactics include the utilisation of biodegradable materials, renewable energy sources, and digital technologies to supplant paper-based systems, in conjunction with compliance to international sustainability standards such as ISO 20121. The research highlights the need of stakeholder engagement for success, while obstacles such as budgetary constraints, opposition to change, and lack of standardised measurements impede wider implementation. The report asserts that sustainable event planning is essential for hospitality professionals pursuing environmental responsibility and enduring resilience. Integrating sustainability into event design enables organisations to diminish carbon emissions, bolster brand reputation, and promote equitable development. The study advocates for event planners to implement green procurement and certification frameworks; venue managers to invest in energy-efficient infrastructure; vendors to provide recyclable and ethically sourced materials; sponsors to finance environmentally sustainable initiatives; attendees to engage in responsible behaviours; and policymakers to establish supportive regulations and incentives. By fostering cooperation and innovation, the hospitality sector can spearhead the organisation of significant, inclusive, and ecologically sustainable events that match with global sustainability objectives.

Keywords: Sustainable Event Planning, Eco-Friendly Solutions, Hospitality Sector, Environmental Impact, Energy Efficiency, Waste Minimisation

INTRODUCTION

In recent years, sustainability has become a critical focus for the hospitality sector, especially within the realm of event planning. As global awareness of climate change and environmental degradation grows, industries worldwide are being called to minimize their environmental footprint. The hospitality sector, which plays a central role in facilitating large-scale events like conferences, weddings, corporate functions, and festivals, is no exception. Sustainable event planning involves integrating environmentally responsible practices throughout the event lifecycle—from conception to execution and post-event analysis. The adoption of "green"

strategies in event planning aims to enhance environmental stewardship while also appealing to a growing demographic of consumers who prioritize sustainability in their choices (Jones, 2017). Sustainable event planning extends beyond simply reducing waste or minimizing energy use. It is a comprehensive approach that balances social, environmental, and economic considerations to create events that are impactful and responsible. This approach is supported by a growing body of best practices that focus on eco-friendly choices such as reducing single-use plastics, implementing energy-efficient technologies, sourcing locally-produced food, and using sustainable materials for event décor. Successful sustainable events require close collaboration among stakeholders— including event planners, venue managers, vendors, and attendees— to ensure that all efforts align toward reducing the event's ecological impact.

One of the core principles of sustainable event planning is minimizing environmental harm through the implementation of green strategies at every stage of the event. These strategies often begin with the design and planning phase, where decisions are made to minimize waste, conserve resources, and promote eco-friendly behaviors. Among the most common green strategies is sustainable sourcing, which involves the use of locally sourced materials and services to reduce the carbon footprint associated with transportation. Locally grown food and beverages not only support local businesses but also minimize the environmental impact of long-distance transportation (Majewski et al., 2020). Additionally, selecting eco-friendly suppliers for event materials, such as biodegradable tableware or reusable decorations, contributes to waste reduction. Waste reduction and recycling are also crucial components of sustainable event planning. Encouraging the use of reusable products and ensuring waste is segregated for recycling during events helps reduce landfill waste. Many venues now offer composting for organic waste, further supporting sustainability efforts (Hettiarachchi et al., 2018).

Energy efficiency plays a pivotal role in reducing the environmental impact of events. Event organizers can implement energy-efficient lighting, heating, and cooling systems to conserve energy. The use of renewable energy sources, such as solar or wind power, has become a key trend in green event planning (Obaideen et al., 2023). By prioritizing energy-efficient technologies, event organizers can significantly reduce their carbon footprint while also cutting operating costs. Transportation and mobility are another area where sustainable strategies can make a significant impact. Encouraging the use of carpooling, shuttle services, or bicycles can reduce the carbon footprint of attendees' travel to and from the event (Triantafyllidis & Davakos, 2020). In addition, providing options for electric vehicles or offering bike racks helps lower the environmental impact of transportation.

Adopting best practices in sustainable event planning involves more than just individual green strategies—it requires a systemic, long-term approach. One effective best practice is to align with sustainability certifications and standards such as ISO 20121, which focuses on event sustainability management systems, or the Global Sustainable Tourism Council (GSTC) standards (Cavagnaro et al., 2021). These frameworks offer event planners structured guidelines for

assessing and improving sustainability practices. Another key best practice is stakeholder engagement, ensuring that all parties involved in the event—from vendors to sponsors and attendees—are aware of and committed to sustainability goals. This transparency fosters collaboration and encourages participants to contribute to the event's eco-conscious efforts (Thakur & Kumar, 2024).

Integrating technology is another vital practice for sustainable event planning. Digital tools for registration, communication, and feedback can significantly reduce paper waste, and virtual or hybrid events—where applicable—offer opportunities to further reduce the environmental impact of travel and venue usage (Celuch, 2021). Post-event analysis and reporting are also important best practices, as they allow organizers to evaluate the event's sustainability performance and use insights to improve future events. Metrics such as waste diversion rates, energy consumption, and attendee satisfaction are essential for tracking the event's success in achieving sustainability objectives (Jones, 2017).

Sustainable event planning within the hospitality sector has transitioned from a niche practice to a mainstream necessity. As environmental challenges continue to demand urgent action, the hospitality industry has an important role to play in fostering sustainable practices that not only reduce environmental impact but also inspire positive change across industries. By implementing green strategies, adhering to best practices, and fostering collaboration among stakeholders, event planners can create eco-conscious events that contribute to a healthier, more sustainable future for all.

LITERATURE REVIEW

Sustainable event planning has emerged as a crucial aspect of the hospitality sector, driven by growing concerns about climate change, resource depletion, and environmental degradation. With large-scale events such as conferences, corporate meetings, trade shows, and festivals contributing significantly to environmental impacts, the need for eco-friendly practices in event planning has never been more pressing. Sustainable event planning, often referred to as "green" event planning, involves the adoption of strategies that minimize environmental harm while enhancing social and economic benefits. This literature review explores the principles, green strategies, and best practices involved in sustainable event planning within the hospitality industry, highlighting its importance and the challenges it faces in becoming the norm.

Defining Sustainable Event Planning

Sustainable event planning aims to reduce the environmental footprint of events by integrating eco-friendly practices across the entire event lifecycle. This approach not only focuses on waste reduction and energy conservation but also emphasizes the social and economic dimensions of sustainability. According to Mair and Jago (2010), sustainable event planning incorporates three primary components: environmental sustainability, economic sustainability, and social sustainability. Environmental sustainability involves minimizing the ecological footprint of events through practices such as energy conservation, waste reduction, and sustainable sourcing of materials. Economic sustainability emphasizes the efficient use of financial resources, aiming to achieve long-term profitability while supporting the local economy. Social sustainability, on the other hand, focuses on fostering inclusivity, fair labor

practices, and community engagement throughout the event planning process.

Green Strategies in Sustainable Event Planning

A variety of green strategies are employed in sustainable event planning to reduce the environmental impact of events. These strategies span the entire event lifecycle and require close collaboration between event planners, vendors, venues, and attendees. One of the most significant strategies is sustainable sourcing and procurement. Sustainable sourcing involves selecting products and services that have minimal environmental impact. By prioritizing local suppliers and eco-friendly products, event planners can significantly reduce the carbon footprint associated with transportation. As Lee et al. (2019), notes, "local food and beverages have a significantly lower environmental impact than those that are imported, especially in terms of transportation emissions." Additionally, using materials made from sustainable or recyclable resources, such as biodegradable tableware, reusable decorations, and eco-friendly signage, further helps in minimizing waste and supporting environmental stewardship. Moreover, sustainable procurement extends to ensuring that workers involved in the production of goods or services are paid fairly, aligning the event's goals with broader principles of corporate social responsibility (CSR).

Waste reduction and recycling is another key component of green strategies in sustainable event planning. Events often generate significant amounts of waste, and minimizing this waste is critical to reducing their environmental footprint. As Cristóbal et al. (2018), suggest, prioritizing waste reduction through the use of reusable items and ensuring proper waste segregation for recycling can have a significant impact. This might include providing recycling bins, promoting reusable cups and plates, and offering composting services for organic waste. Whitfield et al. (2022), argues that "reducing single-use plastics is one of the most straightforward and impactful strategies for minimizing waste in the event industry." Moreover, venues that offer green-certified services, such as comprehensive waste management programs that include composting and recycling, play a vital role in helping reduce the waste generated during events.

Energy efficiency and renewable energy are also central to green event planning. The hospitality industry, particularly in events, is a major consumer of energy, with large-scale gatherings requiring substantial amounts of electricity for lighting, heating, cooling, and audiovisual equipment. Event planners are increasingly incorporating energy-efficient technologies, such as
LED lighting and energy-efficient HVAC systems, to reduce energy consumption. Qian et al. (2024), emphasize that "using LED lighting and energy-efficient cooling and heating systems is a critical step toward reducing an event's carbon footprint." Additionally, some events have embraced renewable energy sources, such as solar or wind power, to further reduce reliance on traditional energy grids and reduce carbon emissions.

Sustainable transportation is another important strategy in green event planning. Encouraging the use of eco-friendly transportation methods, such as carpooling, shuttle services, or bicycles, can significantly reduce the carbon emissions associated with attendee travel. Alimohammadi (2024), highlights that providing attendees with information about public transportation options, arranging eco-friendly shuttle services, and offering

bike racks are essential steps toward reducing the transportation footprint of events. Furthermore, offering electric vehicle charging stations for attendees with electric cars is a practical measure to promote sustainable transportation.

Best Practices in Sustainable Event Planning

In addition to individual green strategies, best practices play a crucial role in ensuring the success of sustainable event planning. These best practices go beyond tactical actions and focus on longterm, systemic approaches to sustainability. One of the most effective best practices is aligning with established certifications and standards. Certification programs like ISO 20121, which focuses on event sustainability management, offer a structured framework for event planners to assess and improve their sustainability efforts. According to Lee (2019), "ISO 20121 outlines specific sustainability criteria, helping event planners address energy use, waste management, and stakeholder engagement." Certification ensures that events meet recognized standards, and it provides an opportunity for event planners to demonstrate their commitment to sustainability.

Stakeholder engagement and education are also critical in fostering a culture of sustainability. Wickham et al. (2021), argue that "engaging event stakeholders, including vendors, sponsors, and attendees, is essential to achieving sustainability goals." This can involve educating attendees about the event's sustainability initiatives and encouraging their participation by providing reusable drinkware or asking them to carpool. Engaging vendors in sustainability efforts—such as requiring suppliers to provide eco-friendly products—ensures that sustainability practices are deeply embedded throughout the event. Education and engagement also help attendees adopt ecofriendly behaviors, thereby contributing to the event's overall success in reducing its environmental impact.

The integration of technology is another vital best practice in sustainable event planning. The use of digital tools for registration, communication, and feedback can significantly reduce paper usage and minimize waste. For instance, using digital tickets, mobile event apps, and online surveys instead of printed materials helps lower the environmental impact of events. Yates et al. (2022), point out that "hybrid and virtual events, which combine in-person and online participation, offer opportunities to reduce travel-related emissions and make events more accessible to a global audience." The use of technology not only supports environmental sustainability but also makes events more efficient and accessible.

Finally, post-event evaluation and continuous improvement are essential components of sustainable event planning. Post-event analysis allows event planners to assess the effectiveness of their sustainability practices, identify areas for improvement, and implement better strategies in future events. Pothalkar (2024), stresses the importance of "tracking key performance indicators (KPIs), such as waste diversion rates, energy consumption, and attendee satisfaction," to evaluate the success of sustainability efforts. This evaluation ensures that sustainable practices evolve over time and become more ingrained within the industry.

Challenges and Barriers to Sustainable Event Planning

Despite the increasing adoption of sustainable event planning practices, the hospitality industry faces several challenges. One of the primary barriers is resistance from stakeholders who may not fully understand the importance of sustainability or who prioritize cost-saving measures over environmental responsibility (Khalid et al., 2022). For smaller event organizers or venues, the initial investment in sustainable practices—such as purchasing energy-efficient equipment or sourcing sustainable materials—can appear costly. Furthermore, the absence of universal standards for what constitutes a "green" event can lead to inconsistencies in the implementation of sustainable practices. Ravenscroft et al. (2017) highlights that "the lack of standardized metrics makes it difficult for event planners to benchmark their efforts and accurately assess their impact." Despite these challenges, the growing demand for sustainable events, coupled with increased regulatory pressure, is pushing the industry toward greater adoption of green strategies.

CONCLUSION

The design of sustainable events has transitioned from being a secondary consideration in the hospitality industry to a primary focus, driven by a rise in consumer environmental consciousness and changing preferences. Event organisers can mitigate their environmental impact by employing renewable energy sources, promoting eco-friendly transportation, minimising waste, and opting for sustainable products. Engaging stakeholders, adhering to established sustainability certifications, and integrating digital technologies represent effective methodologies that can expand the scope and impact of sustainable events. In addition to bolstering industrial competitiveness and nurturing economic resilience, these initiatives also play a vital role in achieving ecological balance and advancing social responsibility within the sector.

Financial outlays, resistance from stakeholders, and the absence of uniform sustainability standards continue to pose significant challenges for the hospitality industry. Nonetheless, compelling motivations exist for transformation, driven by increasing regulatory challenges and a growing consumer preference for environmentally sustainable products and services. The design of sustainable events serves as a comprehensive framework for orchestrating large-scale, inclusive, and environmentally conscious gatherings that align with overarching global sustainability objectives. The sector has the potential to exemplify and promote broader acceptance of sustainable methodologies through ongoing innovation, collaboration, and steadfast commitment.

RECOMMENDATIONS

Targeted recommendations for each key stakeholder involved in sustainable event planning, based on the research.

1. Event Planners:

- Implement international standards, such as ISO 20121, to organise and oversee sustainability initiatives.
- Source sustainable items, prioritise local vendors, and choose recyclable or biodegradable materials.
- Eliminate single-use plastics, establish recycling and composting sites, and promote digital recordkeeping.
- Utilise digital platforms for registration, communication, and feedback to reduce paper use and improve productivity.
- Monitor essential performance indicators (KPIs) such as energy consumption, waste minimisation, and

participant feedback for ongoing improvement.

2. Venue Managers:

- Install LED lighting, energy-efficient HVAC systems, renewable energy solutions, and water-conserving fixtures in venues.
- Provide amenities for recycling and composting; collaborate with local recycling agencies.
- Install bicycle racks, electric vehicle charging stations, and shuttle pick-up/drop-off areas.
- Obtain certifications such as LEED or ISO to appeal to customers focused on sustainability.

3. Vendors and Suppliers

- Provide products composed of recyclable, reusable, or biodegradable materials.
- Minimize Packaging: Distribute products with minimum and environmentally sustainable packaging.
- Promote equitable labour practices and promote local production to mitigate environmental and social repercussions.
- Collaborate closely with planners to ensure offerings are consistent with the event's sustainability goals.

4. Sponsors

- Advocate for environmentally responsible activities and ensure that advertising materials embody sustainable principles.
- Allocate resources towards event components such as solar-powered stages, tree planting initiatives, or carbon offset schemes.
- Exhibit corporate social responsibility (CSR) commitments via event branding and communication.

5. Attendees:

- Utilise public transportation, engage in carpooling, or pedal to events. Utilise reusable bottles, bags, and utensils.
- Choose e-tickets, smartphone applications, and online feedback mechanisms over paperbased alternatives.
- Select workshops, booths, or suppliers who prioritise sustainability.

6. Policy Makers and Regulators:

- Implement national or regional sustainability criteria for event planning.
- Offer tax incentives, financial subsidies, or certification assistance to venues and organisers using sustainable practices.
- Advocate for the significance of sustainable events via public campaigns and collaborations within the industry.

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ACCEPTABILITY OF COTTON FABRICS TREATED WITH SELECTED TUBER STARCHES: A SUSTAINABLE MEANS OF FABRIC STIFFENING

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Abstract
The study investigated the acceptability of cotton fabric treated with selected tuber pastes as a sustainable means of fabric stiffening. Starch was extracted from cassava, potatoes and yam, while composites of cassava-potato starch and cassava-yam starch was developed. The study adopted research and development design. Five starch samples were developed and applied on cotton fabric giving five coded samples. Sensory evaluation score card rated on seven-point hedonic scale was used with 4 being the decision rule. Frequency, mean, standard deviation, and ANOVA were used to analyse the data collected. The study revealed that fabric treated with starch from sweet potato was most acceptable with a mean of 6.03 in terms of appearance while that treated with starch from Cassava starch was the most preferred with mean of 5.77 in terms of stiffness. Also fabric treated with starch from Cassava and Sweet Potato have similar texture and were most preferred with mean of 5.63 and =5.63 respectively, however, fabric treated with starch from Cassava and Sweet Potato were most acceptable with mean score 5.90 and 5.90 respectively in terms of the overall acceptability. The hypothesis formulated was rejected which means that there are differences in the level of acceptability of the treated cotton fabric this is due to the differences in the stiffening properties of the starch samples developed. In conclusion the utilization of cassava, potato, and yam starch as sustainable stiffening agents in cotton fabric shows promise in promoting eco-friendly practices within the textile industry. It is recommended that further research and development should be conducted to optimize the application processes and enhance the durability of cotton fabric treated with cassava, potato, and yam starch. Additionally, exploring the economic feasibility and scalability of adopting these natural starches on an industrial scale would be for widespread implementation in sustainable textile production.

Keywords: Cotton Fabrics, Tuber Starches, Fabric Stiffening, Textile Industry, Sustainability

Introduction

Starch can be any numerous substance that is applied to or incorporated in other material especially papers and textile, to act as protecting filers or glaze. Stiffen agents are derived from both natural and synthetic polymers, starch and derivatives are the most common natural stiffen agent and PVA (polyvinyl alcohol) the most common synthetic polymers used for stiffening fabrics (Alobi, Sunday, Magu, Oloko and Nyong 2021). Starch and its derivatives are mainly used for cotton and cotton blends and is mainly used for synthetic fibers and their blends (Sultana 2019). Stiffen agents are selected on the basis of type of yarn, viscosity, environmental. The demand for cotton fabrics has increased due to its property of stiffness. Alobi, *et al.* (2021) opined starch is the reserved carbohydrate stored as glucose in plant to meet energy needed. Israel, Sunday, Mansong, and Ubong (2020) asserted that the most prominent method of stiffening cotton fabric is with the application of starch. It is a natural

polymer made up of many glucose units join together by glycosidic bond. However, textile auxiliaries that stiffen and weight fabrics have included temporary and permanent sizes and metal salts applied alone or with a binding agent (Kuar 2010). The starch stiffens the fabric through formation of bonds between fibers, particularly at fiber crossover points. Stiffen agents are selected on the basis of type of yarn, viscosity, environmental friendliness, ease of removal, desizing and cost consideration etc. an ideal sizing process should form a film on the surface, protect the fibers on the surface and must not penetrate into the center of the yarn to enable easy removal after weaving (Goswami, Anandjiwala and Hall 2021).

In the textile industry, starch from different crops like tubers or cereal crops have been extracted and apply on fabric as a method of stiffening. Stiffen makes cotton lustrous, stiffer, crisper, and shiner. However, Lata (2020), stated that the importance of stiffening fabrics is justified with the look, handling, and appearance of the fabric. Starch strengthen and reduce dust on stiffen fabrics. Starch has long history of being used as a stiffen agent in the textile industry. Natural starch and its derivatives still constitute nearly 75percent of the stiffen agents used in the textile industry throughout the world and could remain the predominant ingredient in most types of stiffen agent. As sustainability becomes a crucial aspect of various industries, including textiles, researchers are exploring alternative, eco-friendly stiffening agents. Cassava, potato, and yam starch have emerged as potential candidates due to their renewable and biodegradable nature.

Cotton is a fabric for everyday home and it is most widely produced textile fabrics. Cotton is easily cared for since it thrives on soap and water washes. It lacks resiliency which result in easily mused cotton clothing and limp garments. Thus, applyingsuitable finishes such as starching and ironing can correct these faults. Cotton fabrics have good absorption power and relatively inexpensive to purchase. Fabrics made of cotton are ideal for tropical dresses such as blouse, skirts and pyjamas (Igbo, 2013). However, stiffening of fabric has been one of the best methods of fabrics finishing. Starch has mostly been used widely across the globe. However, the present study addressed this gap by investigating the viability of cassava, potato, and yam starch as sustainable stiffening agents in cotton fabric. Hence, this study therefore focuses on the extraction, application and acceptability of selected tuber paste as sustainable stiffening agents on cotton fabrics.

Objectives of the Study

The main objective is to investigate on the extraction and application of selected tuber pastes on cotton fabric as stiffen agent. Specifically, the objectives are to;

i. Extract starch from cassava, sweet potato and yam and develop composites ii. Apply starch on cotton fabric as stiffen agents
iii. Determine the acceptability of the treated cotton fabric in terms of stiffness, appearance, texture and overall acceptability.

Materials and Methods

The study adopted Research and Development Design (R& D). This is an attempt by the researcher to maintain control over all factors that may affect the result of an experiment. In doing this, the researcher attempts to determine or predict what may occur. It is a blueprint of the procedure that enables the researcher to test

his hypotheses by reaching valid conclusion about relationships between variables.

Extraction of Cassava Starch

The Cassava tubers was sorted, the whole tubers were peeled and washed to remove impurities and soften, grinded with milling machine into a thick liquid. Water was added to the mixture to allow starch attached to the shaft drop into the mixture, put in the muslin cloth and sieve the starch and water out. Shaft was deposited for other purposes. Mixture of water and starch was left to settle for 24hours, water is seen at the top and starch below. Water was gently decanted and starch was sun dried for 48hours. 180g powder cassava starch was produced.

Preparation of Sweet Potato Starch

Sweet potato tubers were sorted, the whole tubers were peeled and washed to remove impurities and soften, grinded with milling machine into a thick liquid. Water was added to the mixture to allow starch attached to the shaft drop into the mixture, put in the muslin cloth and sieve the starch and water out. Shaft is deposited for other purposes. Mixture of water and starch was left to settle for 24hours, water is seen at the top and starch below. Water was gently decanted and starch was sun dried.

Preparation of Yam Starch: Yam tuber was sorted, the whole tubers were peeled and washed to remove impurities and soften, grinded with milling machine into a thick liquid. Water was added to the mixture to allow starch attached to the shaft drop into the mixture, put in the muslin cloth and sieve the starch and water out. Shaft was deposited for other purposes. Mixture of water and starch was left to settle for 24hours, water is seen at the top and starch below. Water was gently decanted and starch is sun dried for 48hours. 150g powder yam starch was produced. **Development of products:** The fabric (guinea brocade) was washed so as to remove starch and other finishing touches as to facilitate operation for succeeding processes. Cassava, sweet potato and yam starch was used to produce different stiffened fabrics. The dried starch powder (20g) presoaked in cold water(3ml) carefully removing all the lumps, this paste was added in boiling water and continued boiling till the starch particles burst out and make colourless, gelatinous and translucent solution (Latika (2016). Then cooling of starch solution and filtered it through double muslin cloth. Cotton Fabric of 10 x 20 inches soaked in prepare solution for 10 minutes. Remove the fabric sample and slightly wringing of starched sample. Dried in direct sun light and ironed. Instrument of Data Collection: Sensory Evaluation Score Card tagged `acceptability of stiffened cotton fabrics score card (ASCFSC) ` was used for data collection. The instrument was tested reliable at 0.84 Cronbach alpha level using 20 respondents in a pilot study. A 7-point Hedonic scale of very much Liked (7), Liked a lot (6), Liked (5), Liked and disliked (4), Disliked (3), Much disliked (2) and very much disliked (1) was used to assess qualities appearance, Stiffness, Texture and Overall acceptability of the samples. Coded samples of the same size of fabric were presented to 60 respondents in the panel.

Data Analysis: The data collected was analyzed using frequency, mean and standard deviation. A decision rule of 4.0 was chosen which depicts that the sample is acceptable. The hypothesis was tested using Analysis of variance (ANOVA) at a 0.05 level of significance.

Theoretical Framework

This study is grounded in relevant and contemporary theories that support the use of natural, ecofriendly tuber crops in cotton fabric stiffening and consumer research.

Circular Economy Theory

Das, Sadiku, Ray & Faruk (2025), describe the circular economy as a regenerative model that aims to minimize waste and maximize the use of resources through sustainable production practices. In the textile sector, this involves reducing synthetic inputs and utilizing biodegradable materials such as selected tuber crops to replace as stiffening agent.

Relevance to study: The use of yam, cassava, and sweetpotato starches for fabric stiffening aligns with the circular economy framework, as these are renewable resources that promote waste reduction and sustainability in textile finishing processes

Green Chemistry Theory

Green chemistry promotes the design of chemical products and processes that reduce or eliminate the use of hazardous substances (Anastas & Zimmerman, 2020). It supports using renewable and safe inputs in manufacturing, including textile production.

Relevance to study: The use of natural starches from tubers as alternatives to synthetic stiffeners aligns with green chemistry principles, ensuring environmental safety and conscious textile

Eco-Effectiveness Theory

Eco-effectiveness, as described by the Sustainability Editorial Team (2024), encourages designs that benefit the environment, rather than simply reducing harm. It promotes cradle-to-cradle systems where materials can return safely to nature or be endlessly reused.

Relevance to study: Tuber-based stiffeners embody eco-effectiveness by offering both environmental compatibility and functional benefits, contributing to responsible textile production practices.

Results and Discussion

How acceptable are the treated Cotton fabrics in term of appearance, stiffness, texture and overall acceptability?

Table 1: Mean and Standard Deviation of level of acceptability of treated Cotton Fabric with Cassava, Sweet Potato and Yam starches

Sample Codes	Appearance	Stiffness	Texture	Overall acceptability
Q1	5.77 ± 0.51^{ab}	5.77 ± 0.65^{a}	5.63 ± 0.70^{a}	5.90 ± 0.52^{a}
Q2	6.03 ± 0.38^{a}	5.60 ± 0.47^{a}	5.63 ± 0.50^{a}	5.90 ± 0.46^{a}
Q3	3.73 ± 0.45^{d}	4.12 ± 0.74^{b}	4.37 ± 0.74^{c}	4.20 ± 0.70^{c}
Q1Y	5.08 ± 0.65^{c}	5.08 ± 0.63^{a}	4.87 ± 0.52^{bc}	5.0 ± 0.64^{b}
Q1P	5.40 ± 0.52^{bc}	5.37 ± 0.50^{a}	5.43 ± 0.62^{ab}	5.68 ± 0.51^{a}

Source: Field work (2018)

Mean (±S.D) with different letter superscript in the same vertical line are significantly different ($p<0.05$) while means with the same letter superscript in the vertical line are not significantly different ($p>0.05$).

Key: Q1- Cassava starch **Q2-** Sweet Potato Starch **Q3-** Yam Starch

Q1Y- Cassava and Yam Starch **Q1P-** Cassava and Sweet Potato Starch

HO: There is no significance difference in the level of acceptability of the treated fabrics in terms of appearance, stiffness, texture and overall acceptability.

Table Two: ANOVA of acceptability of treated Cotton Fabric with Cassava, Sweet Potato and Yam Starch.

Variables	Sum of Squares	Df	Mean Square	F	Sig	Remark	Decision
Between groups	100.064	16	25.017	80.511	0.00	Rejected	Significant
Within Groups	74.200	220	1.349				
Total	174.264	236	26.366				

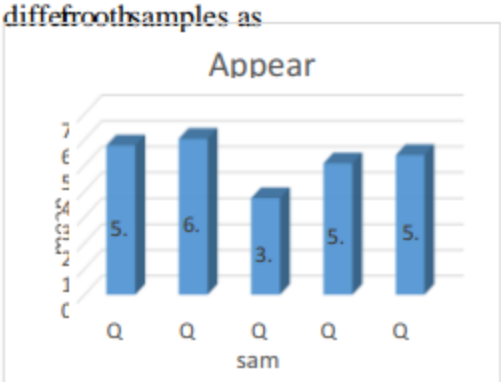
Source: Experimental survey (2018) α = 0.05

Table two shows an F-value of 80.511 and a P-value of 0.00. Since the P-value is less than the alpha level ($p<0.05$) the null hypothesis which state that there is no significant difference in the acceptability of treated cotton fabric in term of appearance, Stiffness and Texture is rejected. Consequently, there is significant difference in the acceptability of treated Cotton Fabric in term of appearance, Stiffness, texture and overall acceptability.

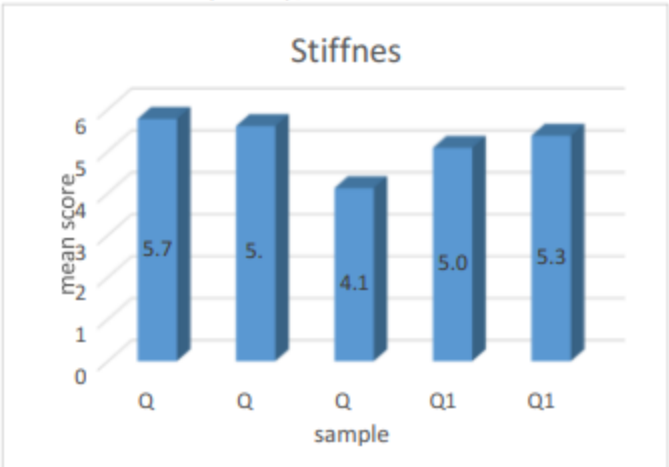
Discussion of results

From the results from table one above:

The **appearance;** (Sample Q2) Sweet Potato Starch was the most preferred with mean score =6.03(±0.38) compared with the control (Sample Q1) with mean score 5.77±0.51. While (Sample Q3) Yam Starch was the least preferred with mean score=3.78(±0.45) which was significantly different from the samples as

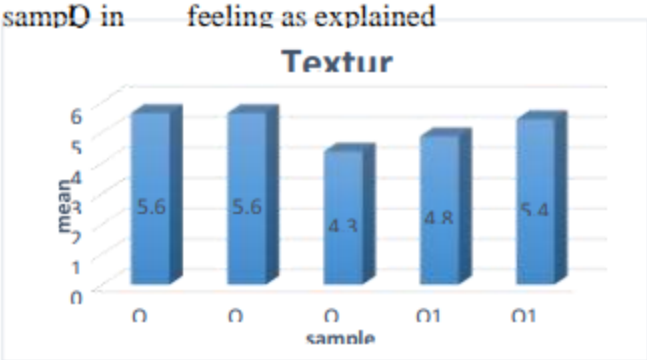


Stiffness; (Sample Q1) Cassava starch was the most preferred with mean score 5.77(±0.65), followed by sample Q2 with mean score 5.60±0.47. While (Sample Q3) Yam Starch was the least preferred with mean score 4.12(±0.74), as shown below

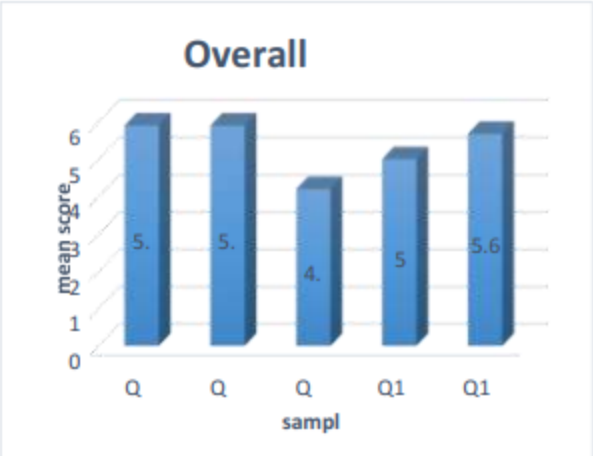


Texture; (Sample Q1and Q2) Cassava and Sweet Potato Starch were most preferred with mean score 5.63(±0.70) and 5.63(±0.50) which are similar in texture. While (Sample Q3) Yam Starch was the least preferred with mean score 4.37(±0.74). The control sample Q1 is the same with

sampD in feeling as explained



Overall Acceptability; the (Sample Q1 and Q2) Cassava and Sweet Potato Starch were most preferred with mean score 5.90(±0.52) and 5.90(±0.40) respectively. While sample Q3was the least preferred with mean score 4.20(±0.70), this is demonstrated below:



Generally, the results showed that starch from sweet potato compete well with that from cassava, however starch from yam is not well preferred by the respondents.

Conclusion

The utilization of cassava, potato, and yam starch as sustainable stiffening agents in cotton fabric shows promise in promoting eco-friendly practices within the home, laundry and textile industry.

Recommendations

Based on the findings of this study, it is recommended that:

5. Sweet Potato starch should be introduced for stiffening fabrics in the home laundry and textile industry.
6. Exploring the economic feasibility and scalability of adopting these natural starches on in the home and industrial scale would be valuable for widespread implementation in sustainable textile production
7. Further research and development should be conducted to optimize the application processes and enhance the durability of cotton fabric treated with cassava, potato, and yam starch.

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