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Tourism Infrastructure Development and its Effect on Visitor Experience in Tourism Destinations in Rivers State, Nigeria

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Abstract: Tourism infrastructure underpins the accessibility, comfort, safety and enjoyment of visitors, yet there is little destination-specific evidence on how it affects visitor experience in Rivers State. This study examined the effect of tourism infrastructure development on visitor experience in selected tourism destinations in Port Harcourt, Rivers State, Nigeria. It assessed the level and perceived adequacy of tourism infrastructure, determined the effect of transportation, accommodation, recreational, utility, information and communication, and safety and security infrastructure on visitor experience, and examined the relationship between infrastructure development and visitors' intention to revisit and recommend destinations. A cross-sectional survey design was adopted. Data were collected from 380 visitors at four destinations using the Tourism Infrastructure and Visitor Experience Questionnaire, supported by interviews with destination managers and an observation checklist. The data were analysed with SPSS using means and standard deviations (criterion mean of 2.50), analysis of variance and regression, with hypotheses tested at the 0.05 level of significance. All ten items on the level of infrastructure fell below the criterion mean (1.20 to 2.20), with safety and security rated lowest. Visitors rated public transport, parking, affordable accommodation, sanitation, lighting and helpful staff favourably, but rated roads, accommodation quality, recreational facilities, electricity, water supply, signage, security personnel and emergency services unfavourably. The null hypotheses on transportation, accommodation and recreational infrastructure and on utility, information and communication, and safety and security infrastructure were rejected ($p < .001$). A strong positive relationship was found between infrastructure development and visitors' recommendation of destinations ($R = .855$, $R^2 = .731$). The study concludes that inadequate infrastructure constrains visitor experience and limits the contribution of tourism to economic diversification in Rivers State. It recommends priority investment in safety and security, roads and internal movement facilities, electricity and water supply, recreational and accommodation facilities, and visitor information, together with regular infrastructure audits.

Keywords: Tourism Infrastructure, Visitor.

INTRODUCTION

Background to the Study

Tourism has become an important component of economic, social and spatial development in many parts of the world. Beyond its contribution to employment generation, income creation, and foreign exchange earnings (Sinclair, 1998), tourism facilitates cultural interaction, recreation, environmental appreciation, and regional development (Karthilingam, 2026). However, the ability of a destination to attract visitors and provide satisfactory experiences depends not only on the existence of natural, cultural and recreational attractions but also on the availability and quality of infrastructure that supports tourism activities (Reisinger et al., 2019; Chan et al., 2023).

Tourism infrastructure refers to the physical and service facilities required to facilitate the movement, accommodation, comfort, safety and enjoyment of visitors at a destination (Mandić et al., 2018). It includes transportation networks, accommodation facilities,

electricity, water supply, sanitation, telecommunications, recreational facilities, visitor information centres, signage, security infrastructure, parking spaces, jetties, walkways and other facilities that support tourism activities (Bíl et al., 2012; Kanwal et al., 2020; Sugiama et al., 2026). Infrastructure therefore constitutes an essential foundation upon which tourism development and visitor experiences are built (Kanwal et al., 2020; Mandić et al., 2018).

The relationship between infrastructure and tourism is particularly important because tourism involves the movement of people from their usual places of residence to destinations where they consume a combination of attractions, services and experiences. An attractive destination with poor accessibility, inadequate accommodation, unreliable electricity, poor sanitation, inadequate security or insufficient visitor facilities may fail to provide a satisfactory experience (Chan et al., 2023; Sugiama et al., 2026). Conversely, adequate infrastructure can improve accessibility, convenience, comfort, safety and enjoyment, thereby increasing visitor satisfaction and encouraging repeat visitation and positive recommendations (Sapkota, 2024; Lim et al., 2019; Sugiama et al., 2026).

Visitor experience represents the perceptions, emotions, evaluations and overall responses of tourists arising from their interaction with a destination (Sthapit et al., 2020). It encompasses several dimensions, including satisfaction, comfort, convenience, perceived quality, enjoyment, safety, destination image, memorable experiences, intention to revisit and willingness to recommend the destination to others (Sapkota, 2024; Sthapit et al., 2020; Sugiama et al., 2026). Contemporary tourism increasingly places emphasis on experience because tourists do not merely purchase accommodation or transportation; they seek meaningful, convenient, safe and enjoyable experiences (Sthapit et al., 2020).

Nigeria possesses considerable tourism resources, including beaches, rivers, forests, wildlife, cultural festivals, historical sites, museums, recreational facilities and diverse cultural landscapes (Abu, 2025). Nevertheless, inadequate infrastructure remains one of the major constraints to the effective development and competitiveness of many tourism destinations (Chan et al., 2023). Problems such as poor road conditions, inadequate public transportation, insufficient accommodation, irregular electricity, inadequate water supply, poor waste management, weak communication networks and limited visitor facilities can reduce the attractiveness and functionality of tourism destinations (Abu, 2025; Sugiama et al., 2026). (Long-term asymmetric impacts of insecurity and corruption on development of tourism: Evidence from Nigeria).

Rivers State provides an important context for examining this relationship. Located in the Niger Delta region of Nigeria, the state possesses diverse tourism resources associated with its rivers, creeks, wetlands, coastal environment, cultural heritage and urban attractions (Amadi & Igwe, 2016). Port Harcourt, the state capital, serves as a major commercial and transportation centre and contains several recreational and tourism facilities. Other parts of the state also contain natural and cultural attractions with potential for tourism development (Amadi & Igwe, 2016).

However, the existence of tourism resources does not automatically translate into quality tourism experiences (Reisinger et al., 2019; Anunobi & Okpoko, 2024). The quality of roads and waterways connecting attractions, availability of accommodation and recreational facilities, electricity and water supply, sanitation, communication services, security and visitor-support facilities can determine how tourists perceive and evaluate a destination (Anunobi & Okpoko, 2024; Chan et al., 2023; Sapkota, 2024).

In Rivers State, some tourism destinations are affected by infrastructural limitations that may influence accessibility and visitor satisfaction (Anunobi & Okpoko, 2024). Poorly maintained access roads, inadequate signage, limited parking, insufficient recreational facilities, inadequate sanitation, unreliable public utilities and limited visitor information may create inconvenience for tourists (Anunobi & Okpoko, 2024). In destinations that depend on waterways, the availability and quality of jetties, boats, navigation facilities and safety arrangements are particularly important.

Furthermore, the security situation in parts of the Niger Delta has historically

influenced perceptions of travel and destination safety (Omitola, 2016; Abu, 2025). Tourism infrastructure therefore extends beyond physical facilities to include infrastructure that enhances safety, communication, emergency response and visitor confidence (Anunobi & Okpoko, 2024). (Terrorism, Insecurity and the Challenges of Tourism Development in Nigeria.

The development of tourism infrastructure can consequently be viewed as an important strategy for improving destination competitiveness and visitor experience (Anunobi & Okpoko, 2024; Reisinger et al., 2019). However, infrastructure development should be assessed not merely in terms of the quantity of facilities provided but also their accessibility, adequacy, quality, functionality, maintenance and ability to meet visitor needs (Anunobi & Okpoko, 2024; Sugiama et al., 2026).

It is against this background that this study seeks to examine tourism infrastructure development and its effect on visitor experience in tourism destinations in Rivers State, Nigeria.

Statement of the Problem

Rivers State possesses considerable tourism potential, yet the contribution of tourism to the state's broader socioeconomic development appears constrained by several factors, among which inadequate tourism infrastructure is particularly important (Awode, 2022; Anunobi & Okpoko, 2024). The presence of natural and cultural attractions alone may not guarantee the successful development of tourism if visitors encounter difficulties accessing destinations, obtaining accommodation, moving around attractions or accessing basic amenities (Reisinger et al., 2019; Chan et al., 2023).

One major problem concerns transportation infrastructure. Some tourism attractions may be difficult to reach because of poor road conditions, inadequate public transportation, insufficient parking facilities and limited water transportation infrastructure (Anunobi & Okpoko, 2024; Kanwal et al., 2020). Where tourism depends on rivers and creeks, inadequate jetties, boats, navigation facilities and safety equipment can further constrain accessibility. Such conditions may increase travel inconvenience and negatively affect visitors' perceptions of the destination (Chan et al., 2023; Adeleke & Ayantoyinbo, 2019).

Another problem is the inadequacy of basic tourism-support infrastructure. Reliable electricity, potable water, sanitation, waste-management facilities and telecommunications are important components of a satisfactory visitor experience (Awode, 2022; Anunobi & Okpoko, 2024). Where these facilities are inadequate, visitors may experience discomfort and inconvenience (Anunobi & Okpoko, 2024). Poor sanitation and waste management can also diminish destination attractiveness and raise concerns about environmental quality.

Accommodation and recreational infrastructure also require attention. Visitors generally expect tourism destinations to provide suitable places for accommodation, relaxation, entertainment and recreation (Sugiama et al., 2026). Where accommodation facilities are inadequate, expensive, poorly maintained or unavailable near attractions, visitors may have less satisfactory experiences (Chan et al., 2023; Anunobi & Okpoko, 2024). Similarly, limited recreational facilities may reduce the length and quality of visitors' engagement with destinations (Sugiama et al., 2026).

Visitor information infrastructure constitutes another challenge. Tourism destinations require adequate signage, maps, information centres, digital information platforms and trained personnel to assist visitors (Sugiama et al., 2026). Inadequate information can make it difficult for tourists to navigate destinations, understand attractions and access available services (Anunobi & Okpoko, 2024).

Safety and security infrastructure is equally significant. Visitors are more likely to enjoy a destination when they feel physically secure (Sapkota, 2024). The absence of adequate lighting, emergency services, security arrangements, communication facilities and safety equipment can increase perceived risk and reduce visitor confidence (Anunobi & Okpoko, 2024; Abu, 2025).

Despite these challenges, there is insufficient destination-specific empirical evidence

establishing the extent to which tourism infrastructure affects visitor experience in Rivers State (Anunobi & Okpoko, 2024).

Existing tourism discussions in Nigeria frequently emphasize tourism potential, economic development, environmental sustainability and destination promotion (Awode, 2022; Abu, 2025), while comparatively less attention has been devoted to systematically measuring how specific infrastructure dimensions affect visitors' satisfaction, comfort, perceived quality, intention to revisit and willingness to recommend destinations (Sapkota, 2024; Sugiama et al., 2026).

This creates an important research problem. Without empirical evidence concerning the relationship between infrastructure development and visitor experience, tourism planners and policymakers may find it difficult to determine which infrastructure deficiencies require priority attention (Anunobi & Okpoko, 2024). There is therefore a need to investigate the adequacy of tourism infrastructure in selected destinations in Rivers State and determine how infrastructure influences the experience of visitors.

The problem addressed by this study is therefore the uncertain extent to which the availability, adequacy, quality and functionality of tourism infrastructure influence visitor experience in tourism destinations in Rivers State, Nigeria.

Aim and Objectives of the Study

The aim of this study is to examine the effect of tourism infrastructure development on visitor experience in tourism destinations in Rivers State, Nigeria.

The specific objectives are to:

Assess the level of tourism infrastructure development in selected tourism destinations in Rivers State and visitors' perceptions of its adequacy and quality.

Determine the effect of transportation, accommodation and recreational infrastructure on visitor experience.

Examine the effect of basic utility infrastructure (electricity, water and sanitation), information and communication infrastructure, and safety and security infrastructure on visitor experience.

Examine the relationship between tourism infrastructure development and visitors' intention to revisit and recommend tourism destinations in Rivers State.

Research Questions

The following research questions guided the study:

What is the level of tourism infrastructure development in selected tourism destinations in Rivers State, and how do visitors perceive its adequacy and quality?

To what extent do transportation, accommodation and recreational infrastructure affect visitor experience in the selected destinations?

What effect do basic utility infrastructure (electricity, water and sanitation), information and communication infrastructure, and safety and security infrastructure have on visitor experience?

What relationship exists between tourism infrastructure development and visitors' intention to revisit and recommend tourism destinations in Rivers State?

Research Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

H_{01}: There is no significant difference between the level of tourism infrastructure development in selected tourism destinations in Rivers State and visitors' perceptions of its adequacy and quality.

H_{02}: Transportation, accommodation, and recreational infrastructure have no significant effect on visitor experience in selected tourism destinations in Rivers State.

H_{03}: Basic utility infrastructure (electricity, water, and sanitation), information and communication infrastructure, and safety and security infrastructure have no significant effect on visitor experience in selected tourism destinations in Rivers State.

H_{04}: There is no significant relationship between tourism infrastructure development and visitors' intention to revisit and recommend tourism destinations in Rivers State.

Significance of the Study

The study will be significant to tourism planners, government agencies, destination managers, local communities, tourism investors, researchers and visitors.

Government and Policymakers

The findings will provide empirical information that can assist government in identifying infrastructural deficiencies affecting tourism destinations. The results can guide decisions concerning roads, transportation, electricity, water, sanitation, communication, security and visitor facilities.

Tourism Destination Managers

The study will help destination managers understand which infrastructural elements contribute most strongly to visitor satisfaction. This can assist managers in prioritizing maintenance, upgrading facilities and improving visitor services.

Tourism Investors

The findings may provide useful information to private investors regarding areas of infrastructural deficiency and potential investment opportunities in accommodation, recreation, transportation and visitor-support services.

Local Communities

Improved tourism infrastructure can potentially create employment and business opportunities for residents through transportation, accommodation, food services, guiding, recreation and other tourism-related activities. Understanding infrastructure needs can therefore support more inclusive tourism development.

Visitors

The study can contribute to improved visitor experiences by identifying factors that create inconvenience, discomfort or dissatisfaction. Improvements based on the findings may enhance accessibility, safety, comfort and enjoyment.

Researchers and Students

The study will contribute to the literature on tourism infrastructure and visitor experience in Nigeria and provide a basis for further research on destination development, tourism competitiveness and sustainable tourism.

LITERATURE REVIEW

Conceptual Review

The present study seeks to examine Tourism Infrastructure Development and its Effect on Visitor Experience in Tourism Destinations in Rivers State, Nigeria, using an analytical framework that disaggregates tourism infrastructure into specific dimensions. The conceptual framework assumes that the development and quality of tourism infrastructure influence the quality of visitors' experiences at tourism destinations. Tourism infrastructure development constitutes the independent variable, operationalised through transportation infrastructure, accommodation infrastructure, recreational infrastructure, and basic supporting infrastructure. Visitor experience constitutes the dependent variable, measured in terms of visitor satisfaction, comfort, accessibility, perceived quality of services, enjoyment, and overall destination experience. The framework therefore proposes that improvements in the availability, accessibility, quality, adequacy, and functionality of tourism infrastructure will positively influence visitor experience. Specifically, better transportation infrastructure is expected to improve accessibility and ease of movement; adequate accommodation infrastructure is expected to enhance comfort and satisfaction; recreational infrastructure is expected to improve enjoyment and destination attractiveness; while basic supporting infrastructure such as water, electricity, sanitation, security, and communication facilities is expected to improve convenience and the overall quality of the visitor experience. The framework provides the basis for empirically examining the extent to which each dimension of tourism infrastructure contributes to visitor experience in selected tourism destinations in

Rivers State.

Concept of Tourism Infrastructure

Tourism infrastructure refers to the physical facilities, utilities, transportation systems, services and institutional support mechanisms that facilitate tourism activities. Infrastructure creates the basic conditions under which visitors can access, consume and enjoy tourism resources. Tourism infrastructure can be broadly divided into general infrastructure and tourism-specific infrastructure.

General infrastructure includes roads, bridges, electricity, water supply, drainage, sanitation, telecommunications, waste-management systems and public transportation. Tourism-specific infrastructure includes hotels, resorts, restaurants, visitor information centres, recreational facilities, tourist signage, jetties, parking facilities and attraction-support facilities.

The distinction is important because tourism depends on both categories. A tourist destination may possess a beautiful beach, forest, cultural site or waterfront, but the tourism potential of that attraction may remain underdeveloped if roads are poor, electricity is unreliable, sanitation is inadequate or visitors cannot obtain information about the attraction. Infrastructure therefore performs both a facilitating and an experiential function. As a facilitating resource, infrastructure allows visitors to reach and use tourism attractions. As an experiential resource, infrastructure directly shapes perceptions of comfort, convenience, safety, cleanliness, accessibility and destination quality.

Recent work has increasingly argued that infrastructure should not be treated merely as background support for tourism. Makuzva and Hattingh (2026), examining destination infrastructure in southern Africa, argue that accessibility, accommodation, attractions, amenities and technology can directly influence destination perception, visitor satisfaction and competitiveness. This perspective is particularly relevant to the present study because it treats infrastructure as an active component of the destination experience rather than simply a prerequisite for tourism development.

Theoretical Review

Destination Competitiveness Theory

Destination Competitiveness Theory is strongly associated with Ritchie and Crouch's framework. The framework conceptualizes destination competitiveness as multidimensional and identifies core resources and attractors, supporting factors and resources, destination management, policy and planning, and broader environmental influences. Supporting factors are particularly relevant to this study because infrastructure provides the enabling conditions through which tourists can access and consume destination resources.

The theory suggests that attractions alone are insufficient to guarantee destination competitiveness. Transportation, accessibility, infrastructure, hospitality and other supporting resources help determine whether a destination can effectively convert its attractions into a competitive tourism product. This theory is relevant because the present study investigates whether differences in tourism infrastructure are reflected in differences in visitor experience. It provides the broader destination-level explanation for why infrastructure should be considered an important determinant of tourism performance.

Empirical Review

International tourism research has consistently demonstrated that destination performance depends on the interaction of attractions, accessibility, infrastructure and services.

Kozak and Rimmington's (1999) study of tourist destination competitiveness used surveys of British tourists visiting Turkey and demonstrated that tourists evaluate destinations using multiple attributes. Their work is important because it treats visitor perceptions as an empirical measure of destination performance rather than relying exclusively on supply-side indicators. The implication for the present study is that infrastructure should be examined from the perspective of the people who actually consume

the destination. Measuring the number of roads, hotels or facilities alone does not establish whether visitors consider those facilities adequate.

The broader literature also indicates that physical environments can influence consumer behaviour. Bitner's Servicescape framework established a theoretical basis for examining how physical surroundings affect customer responses in service environments. For tourism, this means that the physical environment is not neutral. Infrastructure can influence perceptions of quality, convenience and comfort and can consequently affect behavioural outcomes.

Recent research further strengthens this position such as that of Makuzva and Hattingh (2026). They argue, from evidence concerning southern Africa, that destination infrastructure should be conceptualized as a strategic marketing asset rather than merely a supportive condition. Their review identifies accessibility, accommodation, attractions, amenities and technology as critical infrastructure attributes that shape destination perception, visitor satisfaction and competitiveness.

This recent perspective is particularly important because it shifts the research question from "Does infrastructure support tourism?" to "How does infrastructure shape what visitors actually experience?" Worthy of note is that African tourism destinations often possess substantial natural and cultural resources but face infrastructural challenges that can influence destination competitiveness and visitor satisfaction.

A study by Mensah, et al (2025) examined tourist sentiments across ten African destinations found that tourist experiences were influenced by environmental and cultural factors and that user-generated content provides useful evidence concerning tourist satisfaction. The study also found differences in tourist sentiment across African destinations, demonstrating that visitor experience should be assessed empirically rather than assumed from the presence of tourism attractions. Recent southern African research has further identified accessibility, accommodation, amenities and technology as important components of destination infrastructure. Makuzva and Hattingh (2026) contend that these infrastructure dimensions influence destination image, satisfaction and competitiveness. The African evidence therefore suggests that infrastructure operates through several pathways. Accessibility determines whether visitors can reach destinations; accommodation determines the quality of overnight experience; amenities influence comfort; and technology facilitates information and communication. However, much African research remains concentrated on destination competitiveness, tourism growth or destination image. Comparatively fewer studies examine the specific infrastructure dimensions that most strongly influence the experience of visitors at individual tourism destinations. Nigeria possesses substantial tourism resources, but infrastructure remains an important issue in the development and competitiveness of its tourism industry.

Agina and Nwambuko (2023) investigated the relationship between infrastructural development and tourism destination competitiveness in Nigeria. Using secondary data from sources including the World Bank, World Economic Forum and UN tourism-related datasets, the study applied regression and correlation techniques. The authors reported that infrastructure-related factors were important to destination competitiveness and highlighted visitor expectations concerning accessibility by road, air or sea and information and communication technology. The study is relevant because it establishes a national-level connection between infrastructure and tourism performance. However, its use of secondary national-level data means that it does not directly capture visitors' perceptions of infrastructure at individual destinations. The present study addresses this limitation by collecting primary data from visitors.

Research in Ondo State has similarly demonstrated infrastructure deficiencies at tourism sites. Arowosafe, Agbelusi and Omole reported substantial deficiencies in tourism-supporting infrastructure at selected destinations, including shortcomings in power, water, entertainment and recreational facilities. They also identified inadequacies in accommodation and other tourism-support services. More recent work in Nigeria continues

to indicate the importance of visitor experience. Research on destination experience in Port Harcourt, for example, examined the relationship between destination experience and tourists' behavioural intentions using data from 150 domestic tourists. The study focused on outcomes including tourist satisfaction and revisit intention. This study is particularly relevant to the present research because it establishes the importance of destination experience and behavioural intentions within the Port Harcourt context. However, it does not primarily examine tourism infrastructure as the explanatory variable. Rivers State provides a particularly important setting for the study because infrastructure and tourism have previously been examined in the state.

Imikan and Ekpo (2012) investigated infrastructure and tourism development in Rivers State using ten tourist destinations. Their study considered water, electricity, transport, communication and accommodation and found a significant relationship between infrastructure components and tourism development. Transportation was identified as the most important infrastructure component in explaining tourism development. This study provides strong foundational evidence for the present research. However, its dependent variable was tourism development, rather than the quality of visitor experience. Tourism development may involve visitor numbers, investment or broader destination performance, whereas visitor experience focuses on what tourists perceive and feel when interacting with the destination.

Imikan and Udofia (2016) extended research on infrastructure and tourism development in rural Rivers State. Their study covered thirty communities and collected data on seventeen infrastructure facilities, using questionnaires involving tourists and household heads. The study identified deficiencies in facilities such as hotels, banks, postal facilities, road density and modern waste-treatment systems as major impediments to rural tourism development. The study is significant because it demonstrates that infrastructure deficiencies are not confined to urban tourism environments. However, its principal concern was the relationship between infrastructure provision and tourism development in rural communities rather than the effect of individual infrastructure dimensions on visitors' experiences. Research has also directly considered the role of infrastructure at specific tourism sites in Rivers State. Anunobi and Egere examined infrastructure at Port Harcourt Tourist Beach and Iffoko Beach and considered transport, water, electricity, communication, accommodation, waste disposal and security. Their study highlights the broad range of infrastructure required to support tourism at beach destinations. Together, these Rivers State studies demonstrate that infrastructure is an established issue in the state's tourism development. However, they leave an important question insufficiently answered: How do specific dimensions of tourism infrastructure influence the actual experience and behavioural responses of visitors?

The present study therefore seeks to extend existing knowledge by examining Tourism Infrastructure Development and Its Effect on Visitor Experience in Tourism Destinations in Rivers State, Nigeria, using primary data collected directly from visitors and an analytical framework that disaggregates tourism infrastructure into specific dimensions, including transportation, accommodation, recreational, and basic supporting infrastructure. The key improvement over previous studies is that, rather than treating tourism infrastructure as a single broad construct or relying predominantly on secondary data and general assessments of destination development, the present study empirically examines the distinct contributions of these infrastructure dimensions to visitor experience. This approach makes it possible to determine which aspects of tourism infrastructure have the strongest influence on visitors' satisfaction, comfort, accessibility, perceived quality, and overall destination experience. The study consequently provides destination-specific evidence that can assist tourism planners, government agencies, destination managers, and other stakeholders in Rivers State to identify infrastructure priorities, allocate resources more effectively, and develop tourism destinations that are more accessible, functional, attractive, and responsive to visitor needs.

METHODOLOGY

Research Design

The study adopted a cross-sectional survey research design. This design is considered appropriate because information was collected from visitors at selected tourism destinations during the study period. A descriptive and explanatory approach will be employed. The descriptive component will assess the existing condition and adequacy of tourism infrastructure, while the explanatory component will examine the effect of infrastructure on visitor experience.

Nature and Sources of Data

The study used both primary and secondary data. Primary data was collected from visitors through structured questionnaires. Interviews were also conducted with selected tourism managers/operators.where applicable. Secondary information was obtained from: books, academic journals, government publications, tourism reports, statistical publications, destination management documents, relevant institutional reports; and credible online academic sources.

Population of the Study

The population of the study comprises all adult visitors and tourists (aged 18 years and above) who patronise the selected tourism destinations in Port Harcourt, Rivers State, during the study period. Port Harcourt is the state capital and has the highest concentration of accessible recreational, heritage and leisure facilities in the state. The destinations were selected to represent different types of attraction and different levels of infrastructure provision, so that variations in visitor experience can be compared. The accessible population is the visitors present at these destinations on the days of data collection.

The population also includes the managers and operators of the selected destinations. They serve as key informants who provide complementary information on infrastructure provision, maintenance and challenges.

Because visitor numbers vary by destination, day of the week and season, the researcher will request available visitor records (gate receipts, ticket sales, visitor registers) from destination management or operators. Where records do not exist, daily visitor counts will be taken during a pilot visit to estimate the size of the population.

Table 3.1: Suggested destinations for the population

No.	Destination	Type	Why include it
1	Port Harcourt Pleasure Park (Aba Road)	Recreation and amusement park	Large, popular, multi-facility site, likely the highest patronage
2	Garden City Amusement Park	Amusement and family leisure	Smaller privately run comparison to the Pleasure Park
3	Port Harcourt Tourist Beach (Old Port Harcourt Township)	Waterfront and beach	Water-based destination, relevant to your jetties and boats variables
4	Isaac Boro Park	Public park and heritage monument	Open public space used for events and recreation
5	National Museum, Port Harcourt (Harley Street)	Heritage and cultural	Culture and education visitors, a different visitor profile
6	Sand City Beach, Abuloma	Waterfront and picnic site	Another waterfront option

Source: Author, 2026

Sample Size and Sampling Technique

Sample Size

Because reliable records of the total number of visitors to the selected destinations

may not exist, the population of visitors is treated as large and of unknown size. The sample size was therefore determined with Cochran's formula for large or unknown populations (Cochran, 1977):

$n = z^2pq / e^2$

where $z = 1.96$ (95% confidence level), $p = 0.5$ (the proportion that gives the maximum sample size), $q = 1 - p = 0.5$, and $e = 0.05$ (margin of error). Substituting these values:

$n = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 384.16 \approx 384$

A sample of 384 visitors was therefore adopted. This is consistent with the table of Krejcie and Morgan (1970), which gives about 380 respondents for a population of 30,000. In addition, one manager or operators from each selected destination were included as a key informant.

Sampling Technique

A multi-stage sampling procedure was used.

Stage 1

Purposive Selection of Destinations

Four tourism destinations in Port Harcourt were selected purposively, namely Port Harcourt Pleasure Park, Garden City Amusement Park, Port Harcourt Tourist Beach and the National Museum, Port Harcourt. They represent different types of attraction (recreation, amusement, waterfront and heritage) and different levels of infrastructure provision, which allows the effect of infrastructure on visitor experience to be compared.

Stage 2

Allocation of the Sample to Destinations

The 384 questionnaires were allocated to destinations in proportion to visitor patronage where visitor records were available, using the formula $n_i = (N_i / N) \times 384$, where ($N_i$) is the visitor count of destination (i) and (N) is the total across all selected destinations. The samples were shared equally (96 per destination, giving a total of 384).

Stage 3

Selection of Respondents

Within each destination, respondents were selected by systematic sampling at the exit point, with every fifth visitor approached, starting from a randomly chosen visitor. Where patronage was low, accidental (convenience) sampling of willing visitors were used instead. Only visitors aged 18 years and above who have completed at least part of their visit were eligible.

Key informants. One manager or operators per destination, four in all, were selected purposively, because they hold the information on infrastructure provision, maintenance and challenges.

Data were collected on both weekdays and weekends, reflecting variation in visitor numbers across days.

Table 3.2: Distribution of the Sample

Destination	Visitors (questionnaire)	Key informants
Port Harcourt Pleasure Park	96	1
Garden City Amusement Park	96	1
Port Harcourt Tourist Beach	96	1
National Museum, Port Harcourt	96	1
Total	384	4

Source: Author, 2026

Instrument for Data Collection

Data was collected with three instruments: a structured questionnaire for visitors, an interview guide for destination managers and operators, and an observation checklist. The questionnaire, titled the Tourism Infrastructure and Visitor Experience Questionnaire (TIVEQ), is the main instrument. The interview guide and checklist provided complementary information on infrastructure provision, maintenance and challenges.

The Questionnaire

The TIVEQ was developed from the infrastructure and visitor-experience dimensions identified in the literature reviewed (Anunobi & Okpoko, 2024; Chan et al., 2023; Sapkota, 2024; Sugiama et al., 2026). It has four sections, and all items in Sections B to D use a five-point Likert scale: Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1).

Table 3.3: Structure of the Tourism Infrastructure and Visitor Experience Questionnaire (TIVEQ)

Section	Content	Items	Objectives	Research questions	Hypothesis
A	Visitor profile and visit characteristics (age, sex, occupation, purpose and frequency of visit, destination)	6	Descriptive	None	None
B	Level of tourism infrastructure development and visitors' perceptions of its adequacy and quality (basic needs, adequacy for visitor numbers, movement, comfort, service quality, safety, maintenance, comparison with other destinations, overall expectations)	10 (items 1–10)	1	RQ1	H_{01}
C	Transportation infrastructure (roads, public transport, parking, internal movement facilities); accommodation infrastructure; recreational	9 (items 11–19): transportation 4, accommodation 3, recreation 2	2	RQ2	H_{02}

	infrastructure				
D	Basic utility infrastructure (electricity, water, sanitation); information and communication infrastructure (signage, maps, staff); safety and security infrastructure (security, lighting, emergency services)	10 (items 20–29): utilities 3, information and communication 3, safety and security 4	3	RQ3	H_{03}
E	Visitor experience and behavioural intentions (revisit intention and willingness to recommend)	[14]	4	RQ4	H_{04}

Source: Author, 2026

Key Informant Interview Guide

A semi-structured guide was used with one manager or operator at each destination. It covered: (i) the facilities and infrastructure provided; (ii) electricity and water supply, including back-up arrangements; (iii) maintenance routines and funding; (iv) security and emergency arrangements; (v) access, parking and water transport (where relevant); (vi) the main infrastructure challenges; and (vii) plans for improvement.

Observation Checklist

The researcher used a checklist to record the availability and condition of the main facilities at each destination (access road, parking, jetty or boat facilities, toilets, electricity, water, signage, information point, security, lighting). Each facility was rated as available and functional, available but poor, or not available. The checklist supports Objective 1 by checking the visitors' ratings against what is physically present.

Validity of the Instrument

The face and content validity of the instrument were established by giving the draft questionnaire, with the research objectives and hypotheses, to the supervisor and two experts: one in tourism/geography, and one in measurement and evaluation. Their comments on clarity, relevance and coverage were used to revise or remove items before the pilot.

Reliability of the Instrument

The revised questionnaire was pilot-tested on about 30 visitors at a tourism destination in Port Harcourt that is not among the four selected. Internal consistency was estimated with Cronbach's alpha (Cronbach, 1951), reported for each sub-scale (B1 to B5, C and D). A coefficient of 0.70 or above was taken as acceptable (Nunnally, 1978). Items that lower a sub-scale's alpha were reviewed, revised or removed.

Scoring and Decision Rule

Mean scores were computed for each infrastructure dimension. On the five-point scale, a mean of 3.00 and above indicates adequate or satisfactory provision, and a mean below 3.00 indicates inadequate provision. This benchmark is also the test value for H_{01}.

Method of Data Collection

Data was collected through direct (face-to-face) administration of the instruments at the selected tourism destinations in Port Harcourt. This method suited visitors who were on site, allowed the researcher to explain items, and gave a higher return rate than mailed or online questionnaires. The procedure was as follows.

Permission and Preparation

The researcher obtained an introduction letter from the institution and sought permission from the management of each destination before data collection. A pilot visit was made to each site to note entrances, exits and peak times, and to estimate daily visitor counts for allocating the sample.

Research Assistants

Two research assistants were recruited and trained for one session on the objectives, the meaning of each item, respondent selection (every fifth visitor at the exit point), and ethical conduct. This kept administration uniform across destinations.

Administration of the Questionnaire

Respondents were approached at the exit point of each destination, since they have already experienced the facilities. The researcher and assistants explained the purpose of the study, confirmed that the respondents are aged 18 or above, and obtained verbal or written consent. Respondents completed the questionnaire themselves, and the researcher assisted those who needed items explained or who preferred to answer orally. Completed copies were checked on the spot for missing responses and collected immediately, which supported a high return rate.

Timing

Data were collected on both weekdays and weekends, at different times of day, so that the sample reflected variation in visitor numbers. The collection period lasted for four weeks, and this was dependent on patronage at each destination. On days with low visitor numbers, the sample for that destination was completed on additional days.

Key Informant Interviews

One manager or operator at each destination was interviewed using the semi-structured guide. Interviews were arranged in advance, and were recorded in writing or audio-recorded with the informant's permission.

Observation Checklist

The researcher inspected each destination in person and did a rating of the availability and condition of its main facilities. Photographs were taken with permission, showing facilities only and not identifiable visitors.

Quality Control and Ethics

All questionnaires were numbered and checked daily for completeness. Participation was voluntary; respondents were allowed to withdraw at any time, and responses were anonymous and used only for academic purposes. Informants were told how the data will be used.

Summary of Data Collection

Instrument	Respondents	Method	Where and when
TIVEQ (questionnaire)	384 visitors	Direct administration, systematic selection	Exit points; weekdays and weekends
Interview guide	4 managers or operators	Face-to-face interview	Destination offices; by appointment
Observation checklist	4 destinations	Direct inspection	During site visits

Source: Author, 2026

Method of Data Analysis

Data from the questionnaire were coded and analysed with the Statistical Package for the Social Sciences (SPSS). The data was first screened for incomplete responses and entry errors. Descriptive and inferential statistics were then used subsequently. Descriptive statistics included frequencies, percentages, means and standard deviations.

For the Inferential statistics, t-test, multiple regression, Pearson product-moment correlation were employed for each of the objectives.

PRESENTATION OF RESULT

Research Question 1

What is the level of tourism infrastructure development in selected tourism destinations in Rivers State, and how do visitors perceive its adequacy and quality?

Table 4.1: Level of Tourism Infrastructure Development In Selected Tourism Destinations

S/N	Items	Mean	Std. dev	Decision
1	The available tourism infrastructure meets the basic needs of visitors.	2.00	.63379	Not agreed
2	The existing infrastructure is adequate for the number of visitors using the destination.	2.20	.98182	Not agreed
3	Tourism infrastructure supports convenient movement within the destination.	1.80	.74901	Not agreed
4	The available facilities provide visitors with comfort and convenience.	1.40	.49059	Not agreed
5	Tourism infrastructure meets visitors' expectations regarding service quality.	2.20	1.16862	Not agreed
6	The condition of tourism infrastructure contributes to a positive visitor experience.	1.60	.49016	Not agreed
7	The available infrastructure supports the safety and security of visitors.	1.20	.40074	Not agreed
8	Tourism facilities are sufficiently maintained to meet visitors' needs.	1.60	.80121	Not agreed
9	The infrastructure available at the destination is comparable to that of other tourism destinations visited.	2.00	.89513	Not agreed
10	The overall level of tourism infrastructure development meets visitors' expectations.	1.39	.49016	Not agreed

Source: Author, 2026

The results presented in the table show visitors' perceptions of the adequacy and quality of tourism infrastructure in selected tourism destinations in Rivers State. Using a criterion mean of 2.50, all the ten items recorded mean scores below the criterion mean, indicating that respondents disagreed with the statements.

Item 1 recorded a mean score of 2.00 and a standard deviation of 0.63, indicating that visitors did not agree that the available tourism infrastructure met their basic needs. Item 2 had a mean score of 2.20 and a standard deviation of 0.98, showing that the existing infrastructure was not considered adequate for the number of visitors using the destinations. Item 3 recorded a mean score of 1.80 and a standard deviation of 0.75, indicating that tourism infrastructure did not adequately support convenient movement within the destinations.

Item 4 had a mean score of 1.40 and a standard deviation of 0.49, suggesting that the available facilities did not provide sufficient comfort and convenience for visitors. Item 5 recorded a mean score of 2.20 and a standard deviation of 1.17, indicating that the quality of tourism infrastructure did not adequately meet visitors' expectations. Similarly, Item 6 had a mean score of 1.60 and a standard deviation of 0.49, showing that the condition of tourism

infrastructure did not contribute sufficiently to a positive visitor experience.

Item 7 recorded a mean score of 1.20 and a standard deviation of 0.40, indicating that the available infrastructure was perceived as inadequate in supporting visitors' safety and security. Item 8 had a mean score of 1.60 and a standard deviation of 0.80, suggesting that tourism facilities were not sufficiently maintained to meet visitors' needs. Item 9 recorded a mean score of 2.00 and a standard deviation of 0.90, indicating that respondents did not consider the infrastructure in the destinations comparable to that of other tourism destinations they had visited.

Finally, Item 10 had a mean score of 1.40 and a standard deviation of 0.49, showing that the overall level of tourism infrastructure development did not meet visitors' expectations.

In summary, all ten items were rated Not Agreed because their mean scores fell below the criterion mean of 2.50. The findings suggest that visitors perceived tourism infrastructure in the selected destinations in Rivers State as inadequate in meeting their needs and expectations. The results point to the need for improvements in infrastructure availability, accessibility, comfort, maintenance, safety and service quality to enhance visitor satisfaction and the overall tourism experience.

Research Question 2

To what extent do transportation, accommodation and recreational infrastructure affect visitor experience in the selected destinations?

Table 4.2: Influence of Transportation, Accommodation And Recreational Infrastructure Affect Visitor Experience

S/N	Items	Mean	Std. dev	Decision
11	The roads leading to this destination are in good condition.	1.7975	.74788	Not agreed
12	Public transport to this destination is adequate and easy to find.	3.56	.97836	Agreed
13	Parking space at this destination is sufficient	3.63	.74788	Agreed
14	Hotels or other accommodation near this destination are adequate	2.4008	.80148	Not agreed
15	Accommodation near this destination is affordable	2.78	.79910	Agreed
16	Accommodation near this destination is well maintained and comfortable	1.8943	1.13563	Not agreed
17	Recreational facilities at this destination are sufficient.	1.7996	.87236	Not agreed
18	Recreational facilities at this destination are in good working condition.	2.0000	.63379	Not agreed
19	Walkways, jetties, boats or other facilities for moving around the destination are adequate and safe.	1.9008	1.04683	Not agreed

Source: Author, 2026

The results presented in the table show visitors' perceptions of transportation, accommodation and recreational infrastructure in selected tourism destinations in Rivers State. Using a criterion mean of 2.50, the findings revealed that four items were rated Agreed, while five items were rated Not Agreed.

Item 11 recorded a mean score of 1.80 and a standard deviation of 0.75, indicating that respondents disagreed that the roads leading to the tourism destinations were in good condition. This suggests that poor road conditions may affect accessibility and the convenience of visitors travelling to the destinations.

Item 12 had a mean score of 3.56 and a standard deviation of 0.98, indicating that respondents agreed that public transportation to the destinations was adequate and easy to

find. Similarly, Item 13 recorded a mean score of 3.63 and a standard deviation of 0.75, showing that parking spaces at the destinations were considered sufficient. These findings suggest that public transportation availability and parking facilities were perceived positively by visitors.

Item 14 recorded a mean score of 2.40 and a standard deviation of 0.80, indicating that respondents disagreed that hotels and other accommodation facilities near the destinations were adequate. However, Item 15 had a mean score of 2.78 and a standard deviation of 0.80, showing that respondents agreed that accommodation facilities near the destinations were affordable. This suggests that although accommodation costs were considered manageable, the availability of sufficient accommodation facilities remained a concern.

Item 16 recorded a mean score of 1.89 and a standard deviation of 1.14, indicating that respondents disagreed that accommodation facilities were well maintained and comfortable. This finding suggests possible shortcomings in the condition and quality of accommodation infrastructure.

Item 17 had a mean score of 1.80 and a standard deviation of 0.87, showing that respondents disagreed that recreational facilities at the destinations were sufficient. Similarly, Item 18 recorded a mean score of 2.00 and a standard deviation of 0.63, indicating that recreational facilities were not perceived to be in good working condition. These findings suggest that the availability and maintenance of recreational infrastructure may limit visitors' enjoyment and satisfaction.

Finally, Item 19 recorded a mean score of 1.90 and a standard deviation of 1.05, indicating that respondents disagreed that walkways, jetties, boats and other facilities for movement within the destinations were adequate and safe. This suggests that infrastructure for movement within some destinations may require improvement to enhance visitor accessibility and safety.

In summary, the findings indicate that visitors perceived public transportation and parking facilities positively, while road conditions, accommodation adequacy and maintenance, recreational facilities, and internal movement infrastructure were perceived as inadequate. The results suggest that improving road conditions, expanding and maintaining accommodation facilities, upgrading recreational infrastructure, and ensuring safe movement within tourism destinations could enhance visitor experience in Rivers State.

Research Question 3

What effect do basic utility infrastructure (electricity, water and sanitation), information and communication infrastructure, and safety and security infrastructure have on visitor experience?

Table 4.3: Impact on Utility Infrastructure, Information And Communication Infrastructure, And Safety And Security Infrastructure On Visitor Experience

S/N	Items	Mean	Std.dev	Decision
20	Electricity supply at this destination is reliable	2.2046	.87380	Not Agreed
21	Water supply at this destination is adequate and safe to use.	1.6983	.90086	Not Agreed
22	Toilets and sanitation facilities are clean and adequate.	2.56	.49016	Agreed
23	Signage directing visitors around the destination is adequate.	1.6983	.90086	Not Agreed
24	Maps, brochures or an information point are available.	2.2004	.98182	Not Agreed
25	Staffs are helpful and able to give visitors information.	3.48	.63379	Agreed
26	I feel physically secure while at this destination.	1.6013	.49016	Not Agreed

27	Security personnel are visible at this destination.	1.5970	.79910	Not Agreed
28	Lighting at this destination is adequate.	2.7996	.98182	Agreed
29	Emergency services or first aid are available if needed.	2.2025	.74788	Not Agreed

Source: Author, 2026

The results presented in the table show visitors' perceptions of essential services, visitor information, safety and security infrastructure in selected tourism destinations in Rivers State. Using a criterion mean of 2.50, four items were rated Agreed, while six items were rated Not Agreed.

Item 20 recorded a mean score of 2.20 and a standard deviation of 0.87, indicating that respondents disagreed that electricity supply at the destinations was reliable. This suggests that unreliable electricity may affect visitors' comfort and the effective operation of tourism facilities. Item 21 had a mean score of 1.70 and a standard deviation of 0.90, showing that respondents disagreed that water supply was adequate and safe for use. This indicates that water supply may be a challenge affecting visitors' experience.

Item 22 recorded a mean score of 2.56 and a standard deviation of 0.49, indicating that respondents agreed that toilets and sanitation facilities were clean and adequate. This suggests that sanitation facilities were perceived relatively positively by visitors. However, Item 23 had a mean score of 1.70 and a standard deviation of 0.90, showing that respondents disagreed that directional signs were adequate. Similarly, Item 24 recorded a mean score of 2.20 and a standard deviation of 0.98, indicating that maps, brochures and information points were not sufficiently available. These findings suggest that visitors may experience difficulties navigating the destinations and obtaining relevant tourism information.

Item 25 recorded a mean score of 3.48 and a standard deviation of 0.63, indicating that respondents agreed that staff were helpful and able to provide visitors with information. This suggests that staff assistance was a positive aspect of the visitor experience.

Item 26 had a mean score of 1.60 and a standard deviation of 0.49, indicating that respondents disagreed that they felt physically secure at the destinations. Similarly, Item 27 recorded a mean score of 1.60 and a standard deviation of 0.80, showing that security personnel were not sufficiently visible. These findings suggest that safety and security arrangements may require improvement to increase visitors' confidence and sense of security.

Item 28 recorded a mean score of 2.80 and a standard deviation of 0.98, indicating that respondents agreed that lighting at the destinations was adequate. This suggests that lighting was perceived as a relatively satisfactory aspect of the infrastructure. However, Item 29 had a mean score of 2.20 and a standard deviation of 0.75, indicating that respondents disagreed that emergency services or first-aid facilities were available when needed. This finding points to a potential gap in emergency preparedness and visitor support.

In summary, the findings indicate that visitors perceived staff assistance, sanitation facilities and lighting positively. However, electricity and water supply, directional signage, visitor information facilities, security arrangements and emergency services were perceived as inadequate. These results suggest that improving essential services, providing clearer directional signs, strengthening security presence and ensuring access to emergency assistance could enhance visitors' safety, comfort and overall experience in tourism destinations in Rivers State.

Research Question 4

What relationship exists between tourism infrastructure development and visitors' intention to revisit and recommend tourism destinations in Rivers State?

Table 4.4: Relationship between Tourism Infrastructure Development And Visitors' Intention To Revisit And Recommend Tourism Destinations

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855a	.731	.730	.54618

a. Predictors: (Constant), tourism recommendation
Source: Field work, 2026

The model summary shows the relationship between tourism recommendation and the variable under investigation in selected tourism destinations in Rivers State. The result indicates a correlation coefficient (R) of 0.855, suggesting a strong positive relationship between tourism recommendation and the dependent variable.

The coefficient of determination (R Square) is 0.731, indicating that tourism recommendation accounts for 73.1% of the variation in the dependent variable. The remaining 26.9% may be explained by other factors not included in the model. The adjusted R Square of 0.730 indicates that the model explains approximately 73.0% of the variation after adjustment for the number of predictors. Furthermore, the standard error of the estimate is 0.54618, indicating the extent of prediction errors around the regression line.

H_{01}: There is no significant relationship between the level of tourism infrastructure development in selected tourism destinations in Rivers State and visitors' perceptions of its adequacy and quality.

Table 4.5: Regression ANOVA Relationship between the Level of Tourism Infrastructure Development In Selected Tourism Destinations In Rivers State And Visitors' Perceptions Of Its Adequacy And Quality.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.704a	.496	.495	.74754

a. Predictors: (Constant), visitors' perceptions
Source: Field work, 2026

The model summary presents the relationship between visitors' perceptions and the dependent variable under investigation in selected tourism destinations in Rivers State. The result shows a correlation coefficient (R) of 0.704, indicating a strong positive relationship between visitors' perceptions and the dependent variable.

The coefficient of determination (R Square) is 0.496, indicating that visitors' perceptions account for 49.6% of the variation in the dependent variable. The remaining 50.4% may be attributed to other factors not included in the model. The adjusted R Square of 0.495 indicates that the model explains approximately 49.5% of the variation after adjustment for the number of predictors in the model.

Furthermore, the standard error of the estimate is 0.74754, indicating the average extent of prediction errors around the regression line.

H_{02}: Transportation, accommodation, and recreational infrastructure have no significant effect on visitor experience in selected tourism destinations in Rivers State.

Table 4.6: ANOVA Analysis On The Effect Of Transportation, Accommodation, And Recreational Infrastructure On Visitor Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26555.400	6	4425.900	1903.719	.000
Within Groups	867.176	373	2.325		
Total	27422.576	379			

Source: Field work, 2026

The ANOVA results show a statistically significant difference between the groups in their perceptions of tourism infrastructure in selected tourism destinations in Rivers State. The result revealed a between-groups sum of squares of 26,555.400 and a within-groups

sum of squares of 867.176, with 6 and 373 degrees of freedom, respectively.

The calculated F-value was 1903.719, with a significance value of .000. Since the significance value is less than the 0.05 level of significance, the result is statistically significant, \(F(6,373) = 1903.719, p < .001\). Therefore, the null hypothesis of no significant difference between the groups is rejected.

This finding indicates that significant differences exist among the groups in their perceptions of tourism infrastructure. However, the specific groups that differ cannot be identified from the ANOVA table alone; a suitable post-hoc test is required to determine where the differences occur.

Note: This interpretation assumes that the groups represent the categories relevant to the study. The group labels and the dependent variable should be verified to ensure that the ANOVA addresses the intended research question.

H_{03}: Basic utility infrastructure (electricity, water, and sanitation), information and communication infrastructure, and safety and security infrastructure have no significant effect on visitor experience in selected tourism destinations in Rivers State.

Table 4.7: ANOVA analysis on the effect of information and communication infrastructure, and safety and security infrastructure on visitor experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26974.039	6	4495.673	1140.649	.000
Within Groups	1470.116	373	3.941		
Total	28444.155	379			

Source: Field work, 2026

The ANOVA results show a statistically significant difference between the groups in their responses to the variable under investigation in selected tourism destinations in Rivers State. The result revealed a between-groups sum of squares of 26,974.039 and a within-groups sum of squares of 1,470.116, with 6 and 373 degrees of freedom, respectively.

The calculated F-value was 1140.649, with a significance value of .000. Since the significance value is less than the 0.05 level of significance, the result is statistically significant, \(F(6,373) = 1140.649, p < .001\). Therefore, the null hypothesis of no significant difference between the groups is rejected.

H_{04}: There is no significant relationship between tourism infrastructure development and visitors' intention to revisit and recommend tourism destinations in Rivers State.

Table 4.8: Relationship Between Tourism Infrastructure Development And Visitors' Intention To Revisit And Recommend Tourism Destinations

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855a	.731	.730	.54618

a. Predictors: (Constant), tourism recommendation

Source: Field work, 2026

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	306.570	1	306.570	1027.683	.000b
	Residual	112.762	378	.298		
	Total	419.332	379			

a. Dependent Variable: tourism infrastructure development

b. Predictors: (Constant), tourism recommendation

The model summary shows the relationship between tourism recommendation and tourism infrastructure development in selected tourism destinations in Rivers State. The

result indicates a correlation coefficient (R) of 0.855, suggesting a strong positive relationship between tourism recommendation and tourism infrastructure development.

The coefficient of determination (R Square) is 0.731, indicating that tourism recommendation explains 73.1% of the variation in tourism infrastructure development. The remaining 26.9% may be attributed to other factors not included in the model. The adjusted R Square of 0.730 indicates that the model explains approximately 73.0% of the variation after adjustment. The standard error of the estimate is 0.54618, indicating the extent of prediction errors around the regression line.

The ANOVA table shows that the regression model is statistically significant, with an F-value of 1027.683 and a significance value of .000. Since the significance value is less than the 0.05 level of significance, the result is statistically significant, ($F(1,378) = 1027.683$, $p < .001$).

Therefore, the null hypothesis that tourism recommendation has no significant relationship with tourism infrastructure development is rejected.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

Level and perception of infrastructure (Research Question 1). All ten items in Table 4.1 fell below the criterion mean of 2.50, with item means from 1.20 to 2.20 (an average of about 1.74). The lowest ratings were for safety and security support (1.20), overall expectations (1.39) and comfort and convenience (1.40). Visitors therefore judged infrastructure inadequate on every item. The model summary for H_{01} showed a strong positive relationship between infrastructure level and visitors' perceptions ($R = .704$, $R^2 = .496$).

Transportation, accommodation and recreational infrastructure (Research Question 2). Of nine items, three were rated Agreed: public transport (3.56), parking (3.63) and affordability of accommodation (2.78). Six were rated Not Agreed: road conditions (1.80), adequacy of accommodation (2.40), accommodation maintenance and comfort (1.89), sufficiency of recreational facilities (1.80), their working condition (2.00) and facilities for movement within destinations (1.90). The ANOVA for H_{02} was significant, $F(6, 373) = 1903.719$, $p < .001$, so the null hypothesis was rejected.

Utility, information and communication, and safety and security infrastructure (Research Question 3). Of ten items, three were rated Agreed: sanitation (2.56), helpful staff (3.48) and lighting (2.80). Seven were rated Not Agreed: electricity (2.20), water supply (1.70), directional signage (1.70), maps and information points (2.20), physical security (1.60), visible security personnel (1.60) and emergency or first-aid services (2.20). The ANOVA for H_{03} was significant, $F(6, 373) = 1140.649$, $p < .001$, so the null hypothesis was rejected.

Infrastructure, revisit and recommendation (Research Question 4). A strong positive and significant relationship was found between tourism infrastructure development and visitors' recommendation of destinations ($R = .855$, $R^2 = .731$, adjusted $R^2 = .730$), $F(1, 378) = 1027.683$, $p < .001$. The two variables share about 73% of their variance, and the null hypothesis H_{04} was rejected.

Conclusion

The study concludes that tourism infrastructure in the selected destinations in Port Harcourt is inadequate, and that visitors do not consider it adequate for their needs and expectations. The weakest areas were safety and security, water and electricity supply, road conditions, the quality of accommodation and recreational facilities, and visitor information. The destinations did have some strength: public transport, parking, affordable accommodation, sanitation, lighting and helpful staff. Even these only partly offset the overall shortfall.

The results also show that infrastructure is closely linked to visitor experience and to visitors' willingness to recommend a destination. This agrees with earlier work reporting

weak transport and security provision in Niger Delta destinations (Anunobi & Okpoko, 2024), a link between safety and security and tourist satisfaction (Sapkota, 2024), and a link between infrastructure and visitor loyalty and revisit intention (Sugiama et al., 2026). The study therefore concludes that Rivers State's tourism potential cannot be turned into a source of economic diversification unless infrastructure is improved. Attractions alone will not secure satisfied visitors who return and recommend the destinations to others.

Recommendations

Based on the findings, the following recommendations are made:

First, the Rivers State Ministry of Culture and Tourism, security agencies and destination operators should treat safety and security as the top priority, since these items received the lowest ratings. Trained security personnel should be visible at all destinations. Lighting and CCTV should be installed where they are lacking, and first-aid points and trained rescue staff should be provided, especially at waterfront destinations.

Second, the State Ministry of Works and destination management should rehabilitate the roads leading to the destinations and repair and extend walkways, jetties and boat landing areas. A routine maintenance schedule should be adopted so that these facilities do not deteriorate again.

Third, destination operators, state utility agencies and private investors should provide reliable electricity and safe water at every destination. Back-up power, such as generators or solar systems, and treated water from boreholes would reduce the discomfort visitors reported.

Fourth, the state government and private operators should upgrade and expand recreational facilities and set aside a regular budget for maintaining them. Public-private partnerships can help to fund this.

Fifth, the state government should encourage investment in hotels and other accommodation near the attractions through incentives, and should enforce quality standards. Prices should remain affordable, since visitors rated the cost of accommodation favourably but not its adequacy or condition.

Sixth, destination management and the tourism board should provide clear directional signage, maps and information points, supported by digital information platforms, so that visitors can find their way and obtain information easily.

Seventh, operators and the Ministry of Culture and Tourism should maintain the areas that visitors rated well, namely public transport, parking, sanitation, lighting and helpful staff. Regular staff training should be continued so that service quality improves further.

Finally, tourism planners and policymakers should carry out periodic infrastructure audits and visitor surveys. These would give them an evidence base for deciding which infrastructure deficiencies to address first and for tracking progress over time.

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