Identification and Map Out of the Potential and Existing Tourist Sites in Central Zone of Taraba State, Nigeria

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ABSTRACT

This study was carried out in central zone of Taraba State. The Zone consist of Sardauna, Kumi, Gashaka Gassol and Bali local government areas. The data was obtained through oral interview, map out discussions and narrative in the field investigation. The study mapped out potentials and existing tourist sites. These were Donga Valley, Donga River, Barrup Water Falls, Tunga Dam, River Taraba, River Kam, River Gashaka, River Gamgam, River Yim, River Gazabu, River Suntai, River Benue, River Ndaforo, River Bele and River Bissaula. The study further identified potential rock out crops resources on the Mambilla Plateau which included Chappai Waddi, Maihula Rock Peakiv, Kungana, Fali and Bali Hills, Ngombo Hills, Mambilla Hill respectively. Also, Potential forest resources tourism sites identified were Ngel-Nyaki Forest Reserve, Kurim Forest Reserve (Ngombo). Man-made purpose-built to attract visitors/special events identified were Geograta Mini Museum, The Mambilla Highland Tea Plantation Kakara and Rural Settlements respectively. The study recommend that Government should develop sufficient political will for the development of tourism sites and concluded that tourism potentials can be developed and sustained through organization of periodic events.

Keywords: Potential, Tourism, Tourist sites, River, Forest.

INTRODUCTION

Tourism is an important human activity which is as old as man himself. Globally, tourism has been viewed by different authors, scholars and organizations from various angles which reflect individual professional background. Tourism is defined as recreation activities requiring at least one night's stay away from home following a recreational interest (Ujih and Ujih, 2016). Itayemi (2012) defined tourism as the sum of the phenomena and relationship arising from the travel and stay of non-residents, in so far as they do not lead to permanent residence and are not connected with any earning activity is regarded as tourism. In this sense, tourism involves the movement of people from a generating region to a destination region for the purpose of adventure or relaxation.

Tourism has become not only the most important single tertiary sector activity but is, as well, the world's largest industry in jobs and total value generation (Oruonye *et al*., 2016). The World Travel and Tourism Council [WTTC] (2014) report showed that in 2013, travel and tourism's total contribution to the global economy rose to US$7 trillion, about 9.5 per cent of global Gross Domestic Product [GDP] and its total contribution to employment was nearly 266 million jobs about 8.9 per cent of world employment. According to the World Travel and Tourism Council, it was projected that the contribution of travel and tourism to GDP globally will rise from 9.2% (US $5,751 billion) in 2010 to 9.6% (US $11,151 billion) by 2020. The contribution of the travel and tourism economy to employment is also expected to rise from 8.1%, or 235,758,000 jobs across the world in 2010, to 9.2%, or 303,019,000 jobs, by 2020 (Yakubu, 2020). By 2023, the industry´s total economic contribution is forecast to rise to US$ 10.5 trillion in GDP (2012 prices), almost 340 million in jobs, over US$ 1.3 trillion in investment and almost US$ 2.0 trillion in exports.

Nigeria has numerous tourism potentials dotting nearly in every state; as such if these resources are harnessed, will serve as additional avenue for revenue generation. The tourism potentials in Nigeria include holiday resorts, eco-tourism assets, beaches and lakesides, country sides, heritage and culture among many others. Nigeria is a land which is highly endowed with many spectacular and unique natural and human tourism features. These tourism resources are widely distributed all over the different states that make up the Nigerian federation. The statistics indicate that Nigeria will gain a rise in employment of 897,500, which will translate to N252 billion in investment equivalent to 1.6 percent increments and 1.4 percent annually with the aim of hitting 5.4 percent in 2022 (Yakubu, 2020).

Taraba state is among the state in Nigeria privileged in terms of endowment of natural attractions. This state possesses unlimited potentials for tourism development. The state, dubbed “Nature's Gift to the Nation", has been greatly endowed by providence with abundant tourism potentials. Worthy of mention are; the Mambilla Plateau (which comprises mountain chains of Adamawa, Obudu, Shebshi and Alantika), with a height of about 1,830 metres above sea level, the Gashaka Gumti National Park (Nigeria's largest National Park), Ngel Nyaki Forest Reserve (about 60km West of Gashaka Gumti National Park), Donga River Basin, Mamara Crocodile Pond in Wukari, among many others (Elijah *et al*., 2019). In addition to these natural tourist sites, cultural festivals of the diverse groups that make up Taraba state, when properly supported and organized, have the tendency to transform tourism, which shall ultimately result to socio-economic development. Prominent among these cultural festivals are; the Nwonyo Fishing Festival in Ibi Local Government Area, Matau Festival in Zing/Yorro Local Government Areas, Kungana in Bali Local Government Area, Puje in Wukari Local Local Government Area, Kuchicheb Festival in Ussa/Takum Local Government Areas (NYSC, 2018). The tourist sector contributed immensely to the economy of the state. The researcher review revenue generated by the state from tourist centers from 2013 to 2022. The statistics shows that Taraba state generated 137,356,425 for the period of ten years reviewed. Thus, this study was designed to identify and map out the potential and existing tourist sites in Central Zone of Taraba State, Nigeria.

Aim/Objective

Identify, and map out the potential and exiting tourism sites in central zone of Taraba State, Nigeria

LITERATURE REVIEW

Conceptual Foundations of Tourism Site Identification and Mapping

Tourism site identification and mapping form the bedrock of destination planning and sustainable development. Tourism is conceptualized as the movement of people away from their usual environment for leisure, business, or other purposes, provided the stay does not exceed one year (UNWTO, 2014; Itayemi, 2012). In resource rich yet infrastructure limited settings such as sub-Saharan Africa, systematic identification and spatial mapping of attractions are essential for converting latent potentials into economically viable and environmentally sustainable tourism products (Oruonye et al., 2016; Yakubu, 2020).

Central theoretical frameworks guiding this process include destination competitiveness (Ritchie & Crouch, 2003), which integrates core resources (natural, cultural, and humanmade), supporting infrastructure, destination management, and situational conditions to achieve longterm prosperity. Complementing this is the sustainable tourism development paradigm (Butler, 1999; UNWTO, 2015), which demands a balance between economic gains, environmental integrity, and sociocultural benefits, particularly in fragile ecosystems. European scholarship has strongly influenced these frameworks, with journals such as the Journal of Sustainable Tourism and European Journal of Tourism Research emphasizing participatory and geospatial approaches to ensure community inclusion and ecological resilience (Bahaire & ElliottWhite, 1999; Mango et al., 2021).

Geospatial technologies Geographic Information Systems (GIS), remote sensing, and participatory mapping have become indispensable tools. These enable multicriteria decision analysis (MCDA) for prioritizing sites

based on accessibility, ecological sensitivity, and cultural significance, shifting from purely descriptive inventories to evidence based planning (Bala et al., 2022; Yohanna et al., 2020).

European-Centred Perspectives on Tourism Resource Mapping and Sustainable Development

European tourism research, published predominantly in journals such as the European Journal of Tourism Research, Journal of Sustainable Tourism, Current Issues in Tourism, and Tourism Management, has pioneered methodological innovations in site identification and mapping, particularly in peripheral and developing contexts. These studies provide robust comparative models for regions like Central Taraba.

A foundational European contribution is the application of GIS to sustainable tourism planning. Bahaire and ElliottWhite (1999), in the Journal of Sustainable Tourism, demonstrated how GIS integrates spatial data with stakeholder inputs to support environmentally responsible site selection and visitor management, a model now widely adapted in African contexts. Building on this, Mango et al. (2021) in Current Issues in Tourism developed a webbased GIS platform for managing and promoting tourism resources in sub-Saharan Africa. Their dynamic, interactive mapping system addresses challenges of data accessibility and marketing in underdocumented destinations, offering a scalable framework directly relevant to Taraba's need for digital inventories of rivers, rock outcrops, and forest reserves.

Further European led advances appear in the European Journal of Tourism Research, where studies on destination choice and smart tourism mapping underscore the integration of digital tools with community narratives (e.g., Odum, 2018, on ecotourism inventory in comparable Nigerian settings). Participatory mapping techniques, refined in European peripheral regions, emphasize local knowledge to reveal intangible heritage assets (Eze & Nwankwo, 2020; Ibrahim & Suleiman, 2019), aligning with calls for culturally embedded GIS in the Journal of Sustainable Tourism.

These European perspectives highlight that effective mapping must combine technological precision with inclusive governancelessons critical for Taraba, where topography (Mambilla Plateau escarpments) and transboundary influences (Cameroon border) complicate traditional approaches.

Tourism Resource Inventory and Mapping in Nigeria and Comparable African Contexts

Nigeria's diverse attractions remain largely underdeveloped due to infrastructural deficits, limited promotion, and security issues (Yakubu, 2020; Elijah et al., 2019). Nigerian studies increasingly adopt hybrid methodologies blending field surveys, interviews, and geospatial tools.

Aremu and Oyelakin (2021), in the Journal of Tourism and Regional Development, inventoried and prioritised 85 sites across Southwestern Nigeria using GIS, field surveys, and stakeholder interviews. They classified 62% as "potential" (undeveloped) versus 38% "existing," demonstrating the value of spatial analysis for accessibility and conservation ranking. In Northern Nigeria, Bala et al. (2022) applied Landsat imagery and proximity modelling in Gombe State to identify 27 ecotourism hotspots, many previously undocumented. Yohanna et al. (2020), focusing on rural LGAs in Adamawa and Taraba, employed GISbased MCDA to delineate highsuitability tourism clusters.

Participatory approaches further enrich inventories. Ibrahim and Suleiman (2019) used participatory rural appraisal in Bauchi and Plateau States to uncover 41 culturally significant sites absent from official records. Eze and Nwankwo (2020) combined GPS logging with community narratives in Plateau State, fostering local ownership. These Nigerian studies align with European methodological advances (Bahaire & ElliottWhite, 1999; Mango et al., 2021) but often lack full georeferencing or sustainability assessments, underscoring the need for hybrid models in Central Taraba.

Tourism Potentials and Challenges in Taraba State, Nigeria

Taraba State, branded "Nature's Gift to the Nation," boasts exceptional natural endowments: the Mambilla Plateau (temperate climate, scenic highlands), GashakaGumti National Park (Nigeria's largest, with diverse

habitats and primates), NgelNyaki Forest Reserve, and extensive river systems (Emeka & Abbas, 2011; Andrew, 1999; Oruonye et al., 2016). Oruonye et al. (2016) highlighted the plateau's ecotourism potential (hiking, birdwatching, tea plantations) by comparing it with successful models like Obudu Mountain Resort, yet noted persistent barriers of poor access and marketing.

The GashakaGumti National Park exemplifies flagship attractions, merging rainforest, savanna, and montane ecosystems with cultural elements (Elijah et al., 2019). Water resources (Donga, Taraba, Benue rivers, Barrup Waterfalls) and forest reserves (Kurim/Ngombo) support recreational, educational, and cultural tourism, while manmade sites like Kakara tea plantations and small museums add heritage value. Nevertheless, literature consistently identifies systemic constraints: inadequate infrastructure, low awareness, insecurity, and insufficient political will (Ishaku et al., 2022; Gonap et al., 2020).

Research Gaps and Justification for the Present Study

Despite valuable insights, gaps remain for the Central Zone of Taraba (Sardauna, Gashaka, Kurmi, Bali, Gassol LGAs). Most research is statewide or Northernfocused, with limited zones pecific, ground truthed mapping integrating detailed inventories of water bodies, rock outcrops, forests, and manmade sites. While GIS and participatory methods are advanced in Southwestern and selected Northern studies, their application to Taraba's complex topography and transboundary setting is underexplored.

European journals (Journal of Sustainable Tourism, Current Issues in Tourism, European Journal of Tourism Research) provide transferable models emphasizing sustainable, community driven GIS mapping (Bahaire & ElliottWhite, 1999; Mango et al., 2021). The present study addresses these gaps through fieldbased identification and narrative mapping of existing and potential sites in Central Taraba. It contributes a localised inventory to inform policy, investment, and future geospatial modelling, while advancing sustainable tourism pathways that integrate biodiversity conservation, community custodianship, and economic linkages aligning with both Nigerian realities and European theoretical standards.

The Study Area

Central zone of Taraba State-Nigeria consisting of five Local Government Areas, including Sardauna, Gassol, Bali, Kurmi and Gashaka. The central zone lies between latitude 6º18'4''N to latitude 8º57'44''N and longitude 9º 52'36'' –to 11º 58' 43''E. The central zone of Taraba state as the study area is bordered to the North by Ardo-kola and Karim-lamido LGAs, to the South by Cameroun Republic, to the West by Ibi, Wukari, Donga and Ussa LGAs and to the East by Adamawa state and Cameroun Republic. Like most parts of Northern Nigeria Taraba State has a wet and dry climate. The wet season lasts, on the average, from April to October. Mean annual rainfall varies between 1058mm in the north around Jalingo and Zing, to over 1300mm in the South around Serti and Takum. The Wettest months are August and September (Emeka and Abbas, 2011). The dry season lasts from November to March. The driest months are December and January with relative humidity dropping to about 15 %. Mean annual temperature around Jalingo is about 28^0c with maximum temperature varying between 30^0c and 39.4^0c. The minimum temperatures range between 15^0c to 23^0c. The Mambilla Plateau has climatic characteristics typical of a temperate climate. Temperatures are low throughout the year and the rainy season lasts from February to November with a mean annual rainfall of over 1850mm. Rainfall distribution and topography are the most important factors influencing the pattern of vegetation in Taraba State. The vegetation may be classified into three broad types: The Northern Guinea, the Southern Guinea and the Mountain Grassland and Forest Vegetation. However, there are thick forest at Gashaka, Kurmi, Ussa, Donga and Takum LGAs.

The region of the State may be divided into two topographical regions. The undulating lowland of the eastern Muri plains. This is broken intermittently by high rising hills such as the Kungana, Fali and Bali hills which developed on sandstones. Standing above the 350m contour, the hills are developed on both sedimentary and crystalline rocks. Usually, hills on sedimentary formations tend to have flat tops due most probably to lateritic capping (Emeka and Abbas, 2011). On the other hand, the hills which developed on crystalline rocks consist of dome shape inselbergs. The Mambilla Plateau is a unique topographic region with some of the largest and highest mountains in Nigeria, with peaks reaching over 1840m. The Chabbal Hendu, for example, is over 2000m above sea level. The Plateau which developed on basement complex rocks, measures about 96km along its curved

length and 40km wide, and bounded by an escarpment which is about 900m high in some places. The Mambilla Plateau forms the watershed from which the major river systems in Taraba State take their source. Rivers Benue, Donga and Taraba (from which the State derives its name) are the dominant river systems which flow across the Muri plains to drain the entire State. Together with the minor ones, such as the Lamorde and Mayo Ranewo, they form extensive flood plains in the central part of the state, providing sufficiently fertile agricultural land which is presently underutilized.

Identification and Map Out of Potentials and Existing Tourist Sites in the Study Area

The mapping out of the potentials and existing tourist sites in the study area was conducted within the sampled local government areas of Sardauna, Gashaka, Kurmi, Bali and Gassol. This study was able to produce a map (Figure 1) of various resources available in the study area that can promote tourism activities for tourism development. The study area is well endowed with both potentials and existing tourist resorts outcrops which have tourism characteristic or features. Some of these resources are hills, rocks, forest and water bodies found in different locations.

Potential tourism sites (water resources)

Water is a liquid that makes life on earth possible. Water shapes our planet and nearly covers about three quarter of the earth surface in solid form (ice) and liquid form. The potential significant importance of water to the tourism activities are; recreational activities, swimming activities, sport fishing, picnic lovers, sight-seeing, transportation system, farming activities (both irrigation and agricultural plantation), educational research, supply of Hydro-Electric Power (HEP) and depositional plain floods among others.

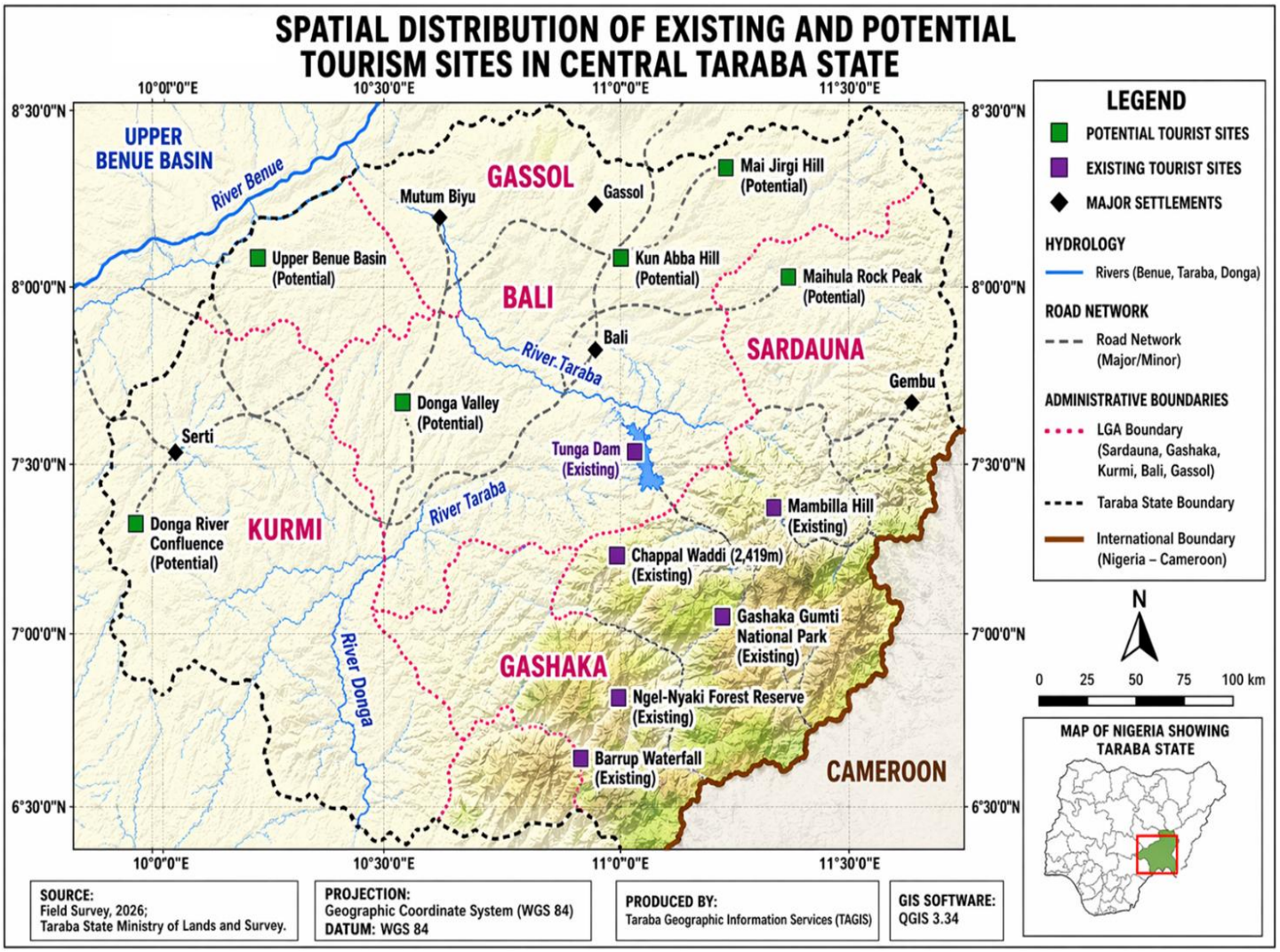

Figure 1: Spatial distribution of existing potential Tourism site in central Taraba State

Source: Taraba State Ministry of Land and Survey. Topographical and Land use Survey of Taraba State (2022)

Donga Valley: The Donga valley is located at the southern part of Buru village with a distance of about ten (10) kilometers from the border with Cameroon Republic. It is largely lowland and one of the best low land forest used for bird-watching in the country (Nigeria). There are over 190 bird species in this river basin and rare birds like the forest francolia, dusky longed-tailed cuckoo, white-believed kingfisher, spotted honey guide, heart laub's duck, green hyla, African pied horn bill and the red-headed malimbe are also found the river basin. (KII 2023)

Donga River: This is the major river that transverses the plateau and has its source or originated from Tsabga hill. A long clay-colored, Donga River runs along the beautiful valley of Gembu mountain with full size of 1200×675. Therefore, Donga River is characterized by cataracts and meanders as it passes through rough terrain. During the raining season, Donga River, like many other Rivers reaches its full capacity, as such submerges its banks, but in the dry season, it returns to its normal position. The river plays significant role to the people residing in and around its catchment areas like Mbella village, which has flood plains that receive deposits from the River, that provides them with opportunities which boost their socio-economic activities such as water for their domestic activities, farming crops such as maize, soya beans, Agricultural plantation (like pears, kola nut, banana), fishing and water transportation. The unique features of the Donga River can support tourism with variety of activities such as fishing, camping scientific research and outdoor-education, sight-seeing, film making among others. Donga river is colourful in nature due to the geological factors. (KII 2023)

Barrup Water Falls: With tens of waterfalls in the study areas, the most popular is the barrup waterfalls. The waterfalls derived its name from the near-by village called Barrup. The Barrup waterfalls is situated within the Gashaka Gumti National Park. The Federal Government of Nigeria, is proposing constructing a hydro-electric power dam project for the Mambilla Plateau at the Barrup waterfalls and it is a site to behold any day. The hydroelectric dam, when completed will supply six countries with power. The potential resources of the Barrup water fall to the tourism activities are transportation, sight-seeing, educational research, picnic lovers, domestic/human consumption, photography, film making and farming activities. (KII 2023)

Tunga Dam: Tunga dam, as the name implies, derived her name from the nearby village called Tunga. Tunga dam was built in (1996) during the military regime or administration of General Sani Abacha, purposely to generate hydroelectric power, and water supply to the Mambilla highland tea plantations, Kakara. Both the factory and the plantations, as well as the communities are benefiting from the dam. The function of this dam is much more important in the daily activities of people such as picnic lovers, camping and outdoor games, education, domestic consumption and gardening. (KII 2023)

River Taraba: River Taraba originated from the Mambilla Plateau and forms the water shed from which the minor river systems in the central zone of Taraba State empty their water, which finally goes into River Benue. River Taraba (From which the State derives its name) is the dominant river system which flows across the Muri Plains to drain the entire zone, together with the minor ones, such as the Lamorde and Mayo Reno. They form extensively flood plains in the central part of the State, providing sufficiently fertile agricultural land which is presently under-utilized (Emeka and Abbas, 2011). The River Taraba system is characterized by two minor Chatchment Basins; Upper Selbe: 27,750 Acres and Upper Kam: 66,200 Acress which together cover a total of 93,900 Acres.

River Kam: This is the parks largest river. In the dry season, the crystal clear water is full of fish in addition to small groups of hippo and crocodiles. During this time, it is possible to follow the river upstream, southwards to the park boundary, returning to Gashaka village via-Mai-idanu and Mayokpaa, passing through some marvelous woodlands and forests, you are quite likely to see a variety of animals such as kob, waterbuck, buffalo, leopard, chimpanzee, baboon and the black and white colobus monkeys (Andrew, 1999).

River Gashaka: Which has its headquarters on the Sebere plateau, is another parks major rivers and tributary of the river Yim. From Gashaka village, the River can be followed right up as far as the enclave of Sebere passing through a ridge of forested mountains. Buffalo, waterbuck, bushbuck red river-hog, warthog, lion, leopard, wild dog, chimpanzee and colobus monkey all frequent the undisturbed Gashaka valley (Andrew, 1999).

River Gamgam: Can be followed from Gashaka to Yakuba via Mayo Ngiti and from there up to the Sebere Plateau. Giant forest hog, buffalo, waterbuck harted beast, leopard and lion may be seen at Yakuba or, alternatively follow the course of the river itself to reach the remote Gamgam basin which forms the very heart of the park and provides refuge to buffalo, giant forest hog, yellow-backed. The remote upper reaches of this river are spectacularly rugged (Andrew, 1999).

River Yim: In the Northern Tunga sector, is full of fish and smaller number of crocodiles and hippos. The forests along the river bank support a variety of animals such as buffalos, colobus monkey black and white may be found. The river can be followed eastward from Gumti village towards the Cameroonian boarder through a series of deep harrow gorges and spectacular scenery into the most remote corner of the park (Andrew, 1999).

River Gazabu: The natural river takes its name from the village called Gazabu where the River is located. Oral Interview revealed that, the water was used to detect witchcrafts by using the water to wash the face of the suspect, if his/her eyes turns to be red like that of birds and tears start to drop from the face, it means that the suspect is a witch. But, when the eyes of the suspected victim remains normal, it means that, the suspect was wrongly accused. All these superstitious believe happened within and around the communities and villages. It is a delightful tourist attraction. (KII 2023)

River Suntai: The River Suntai is one of the important tourism resources in Suntai district. It passes through many villages such as Kwasa Sarki and Suntai district. The river is not up to one (1) kilometer away from the town of Suntai district. The Suntai town is the name of the particular village of the former and Late Governor (Danbaba Danfulani Suntai) of Taraba State, who died as a result of plane crash, as a pilot. The River Suntai originated from Bibinu mountain. The river is characterized by cataracts and meanders as it passes through rough terrain. During the raining season, river Suntai like many other rivers reach its full capacity as such submerges in banks. The river plays significant role to the people that reside in and around its catchment areas as it provides them with opportunities which boost their socio-economic activities such as water for their domestic activities, farming, fishing and picnic. The unique features of this river can support tourism with variety of activities such as fishing, camping scientific research and outdoor activities, education, sightseeing, film making among others. (KII 2023)

River Benue. It originated from Mandara highland in Republic of Cameroon. It flows through Garuwa and passes down to Western Maruwa and enters the Republic of Nigeria through Jimeta-Yola in Adamawa State. Therefore, it receives water from the same tributaries, such as River Faro, and River Gongola, meet and emptied their water into River Benue at Numan. River Benue move and enters Lau local government area in Taraba State. Then to Karim-lamido, Yelwa tao, and Mayo Renowo. There, the river is characterized by cataracts and meander as it passes through rough terrain. During the raining season, River Benue like many other rivers reaches its full capacity as such submerges in banks, but, in the dry season, it returns to its normal position. River Benue plays significant role to the people residing in and around its catchment areas, such as Gassol town, deposited flood plains in Gassol areas besides the river Benue, to provide them with opportunities which boost their socio-economic activities such as water for their domestic activities, farming, fishing and water transport across the river. The unique features of this river can support tourism with variety of activities such as fishing, camping scientific research and outdoor activities education, sight-seeing, film making, among others. (KII 2023)

River Ndaforo: Has its source from Fali Mountain, flowing to southern wards to Ndaforo to join or empty into River Donga. River Ndaforo plays it significant importance as one of the tributaries of river Donga. River Ndaforo is one of the major tourism resources providing spectacular settings, recreational opportunities, water front landscapes in many centres of tourism interest. It serves as a means of transportation and essential source of water for human and domestic consumption, farming activities on the river banks such as vegetable leaves, maize, garden, rice. (KII 2023)

River Bele: River Bele originated from Gashaka Mountain and flows to southern part of Abong town and emptied into River Donga. The river passes through narrow mountains known as *Yasso ba'ani* (Meaning no road in Jukun language). In those days Canoe, Hippopotamus, Crocodiles and other aquatic habitats comes out from the river and moves on the land beyond that point and return to the river again. Other tourist activities are film making, photography, sight-seeing, among others. (KII 2023)

River Bissaula: Originated from the highland of Cameroon and flows into River Donga. The river is one of the important tourism resources in Bisaula District. The river is 10km away from Bisaula township. The potential roles of the river Bisaula to tourism activities are farming activities, picnic lovers, film making, photography, transportation and recreational activities. (KII 2023)

The potential tourism sites (rock out crops resources)

The study area is well endowed with rocks and hills out crops which have tourism characteristics or features. These resources (rocks and hills) are found in different locations. Maihula basalt and cave rocks offer suitable resting condition by providing cover-shelter from heat and cold, a good overviewing of the surrounding landscape and means for territorial marking. This rock according to the elders of the community is a cap believed to have the capacity to harbor over 1000 persons. It is believed to contain ancient artifacts such as broken pots, iron and sticks, believed to have been used by the earliest people. People are scared to get into the interior of the cave for fear of a big snake believed to be hiding there for many centuries. The potential importance of the rock out crops upon the tourist activities are numerous, but few are mentioned here; hiking of climbing, picnicking, worshipping image, adventure seekers among others.

i. The Mambilla Plateau: The Mambilla Plateau is about 1,830 metres above sea level and arguably one of the highest mountain points in Nigeria and Africa. It is located in Sardauna local government area with headquarters in Gembu. The Mambilla Plateau, is made up of mountain chains of Adamawa, Obudu, Shebshi and Atlantical. The Mambilla Plateau is one of the natural tourist attractions with which the Taraba people are blessed and prides-itself on being the nature's gift to the nation. The Mambilla Plateau is having fort mountain climbers, nature lovers, picnic lovers or adventures seekers. Its cool ambience and beautiful scenery, serve to welcome interested visitors. It has temperate climate, with high rainfall almost in the two seasons. The Plateau takes between 20-30 minutes of careful driving and you can feel welcome to the cool mountains at the peak on arrival. The peak is free of all insects. Temperate crops such as avocado pear, kolanut, banana and strawberries are widely grown on the plateau. Mambilla plateau is considered the coldest place in Nigeria (Salako *et al*., 2016).

ii. Chappai Waddi: It is located in the southern sector of the Gashaka-Gumti National Park and has international border with Republic of Cameroon from the eastern part. The mountain is bordered with Sardauna local government area at the western part. It is the highest peak in the country (Nigeria). It is 2,419m above sea level. It is also famously known as the "mountain of death". The mountain is the ultimate spot for adventure seekers, who are interested in thrills and adventure including adrenaline rush. Phenomenally, exhilarating climb awaits you from the vast hilly and rugged terrain crossed by leopards and grazed by buffalo to the fabulously lust emeraid green jungle inhabited by fascinating primates. Chappal Waddi is a feast for your senses. The mountain naturally cannot be climbed from the sideward of Nigeria, because of rugged terrain known as deep valley directly lies at the foot of the mountain. A researcher or climbers always move to the other sideward of Cameroon and climb over there. A foreign climber, or researcher from one of the white countries, has ever died at a certain level of height, on the mountain, but could not even reach the highest point. No researcher has ever reached the topmost or highest point or peak of the Chappai Waddi. (KII 2023)

iii. Maihula Rock Peak: The rock is located in Maihula town or village in Bali local government area. The rock is situated 14km from Bali, the local government headquarters. It is about 840m above sea level, with a moderate vegetation surrounding the mountain. Oral Interview revealed that, the rock has a history of harbouring special bats and other species of birds in caves underneath. The birds can only been seen at night times. The bats have been a source of food for many communities. Getting to the rock side is easy to trek or trek able with foot because it is just few metres away from the village. Presently human infrastructure is almost reaching to the rock side. The rock is also believed to have "Cap-shape" on the peak of the rocks, where the village derived its name from, Hausa language called Maihula. "Hula" in Hausa language means "cap" while, "Mai" in Hausa language means "the owner". In English language, combination means, the owner of the "cap". Interview revealed that, the rock was harboring species of baboons both the white and the red ones. (KII 2023)

iv. Kungana, Fali and Bali Hills: The axis or areas of Bali local government area may be divided into two topographical relief; highland and the lowland. The undulating lowland of the eastern Muri plains broke intermittedly by high rising hills such as the Kungana, Fari and Bali hills which developed on sandstones, standing above 350m contour. The hills are developed on both sedimentary and crystalline rocks. Usually hills on sedimentary formation tend to have flat tops due most probably tolaterite capping (Emeka and Abbas, 2011). On the other hand, the hills which developed on crystalline rocks consist of dome shape inselberg.

v. Ngombo Hill: Ngombo hill is a hill naturally situated in the forest called Ngombo Forest. The hill takes its name from a village called Ngombo, located in Abong District. The inhabitants of the area revealed that a lake of pool of water is located in the forest besides the Ngombo hill. That the water can cure skin disease and stomach upset in those days. It is a delightful tourist attraction, the forest, hill and the water are among the important tourism resources in Ngombo village. The hill is 5km away from the Ngombo village and the uniqueness nature of this hill can support tourists with variety of activities such as sport fishing, camping scientific research and outdoor education, sight-seeing, film making, among others. (KII 2023)

v. Mambilla Hill: Mambilla hill derived it name from a clan called mambilla are the first settlers on this hill called Mambilla hill. They settled on the hill and using valley for practicing agricultural activities, the produce crops such as maize, guinea corn, and even the plantation agriculture like banana, plantain, kola nut, pear, cocoa and coffee. The potential tourism activities in the area consists of hiking/climbing, picnic, local hunting, and cold climate, among others. (KII 2023)

Potential tourism sites (forest resources)

A large area covered chiefly with trees and under growth, or a large number of dense mass of vertical or tangled objects. It is an ecosystem characterized by a dense community of trees. Forest can be complex ecological system and natural resources in which trees are the dominant life form. The partial role of forest to the tourist sites are game viewing (wildlife) such as chimpanzee, lion, species of monkey, butterfly and bats; tall trees such as Iroko, Mahogany, palm tree, etc. The potential tourist activities are recreational activities, photography, picnic lovers, animals grazing, hunting, educational research for students and teachers for forestry and zoology. Farmers also clear the margins of the forest for crops.

i. Ngel-Nyaki Forest Reserve: This forest reserve is located not far-away from Yelwa along Maisamari road in Sardauna local government area and between Serti and Gembu about 60km west of Gashaka Gumti National Park. The forest reserve is surrounded by mountain grasslands with other forest blocks near-by. The forest is diverse in species composition and has many tall emergent trees, and wildlife, in the park. The wildlife includes, Chimpanzeans, Buffalos, Monkeys, and Antelopes according to the communities.

ii. Kurim Forest Reserve (Ngombo): The Kurmi local government area is one of the first or second in Central zone of Taraba State that accounts for 60-70% trees covers. In the study area, the vegetation covers are mainly of Savannah dominated by Daniella, providing limited amount of shade. The accompanying shrubs and grasses are the hymenocardia and Andropogon communities respectively. The economic trees community found include locust bean (parkia bio globosa), shea butter (Cihellaria paraoloxa), mahogany (Khaya spp), Sepele (Eutandrophragnia cylindricum), iroko (Milicia excelsa), and Afra (nectophyryne afra). Some cultivated plants includes Cashew nuts, (Anna Cardium Occidentale), Date palm (Phoenix dactylifera), Mango (Magnifera indica), Pawpaw (Asiminatribola), Orange (Citrus spp) and Guava (Psidium guava). The grasses are used for grazing while trees branches are used for roofing. The forest is a wide expanse (about 1046 square metres) that harbours Fauna (Wildlife) and Flora (Trees) for centuries preserved from poaching and harvest by the community due to the spiritual importance attached to the forest for initiation into mystic relationship with animals known as tutelary genus. This mystic rite involves men entering into a relationship with animals such as lion, hyena, tiger, leopard, buffalo, wild pig, elephant to the extent that what is happening to the animals in the bush will simultaneously happen to the person at home (Totemism). (KII 2023)

The animals are not harmful to people-even if people come across them at the Forest fringes. Recreational activities that may be conducted and promoted in this land unit may include natural walks, hiking, bird watching, picnicking and photography. On the other hand, researchers, students and teachers of biological sciences,

especially botany, forestry and zoology from within and beyond Taraba State will find this place resourceful for their field researches and other studies. It has been observed that nomads drive their cattle deep into the forest. Another human activity is reckless hunting of wildlife by group of unorganized local hunters that find their way into the depth of the forest. Farmers also clear the margins of the forest for crops. (KII 2023)

Man-made purpose-built to attract visitors/special events

The aim of purpose-built attraction is to attract visitors and increase visitor's numbers, satisfying visitor's needs, is essential in the daily operations of the attractions. The potential role of the man-made purposely built to attract visitors are historical events, cultural heritage, artifacts and antiquities, tourism lovers, film making and educational research among others.

i. Geograta Mini Museum: The first publicly museum in Europe was the Amerbach-Cabinet in based originally a private collection sold to the city in 1661 and public since 1671, now Kunst museam based. The first museum in Nigeria was established in Esie (Kwara State) in 1945. The Geograta mini museum was established and privately owned by Pastor Grace Tandoh (2023), situated in their compound in Kaka quarters, Gembu town of Sardauna local government area in Central Zone of Taraba State. She was interested in preservation of cultural, traditional and encouragement of handicraft of various types in the Mambilla Plateau of Central Zone of Taraba State in particular and Nigeria at large. Hence, the establishment of Geograta mini museum which contains Artifacts and antiquities. The early museum began as private collections of wealthy individual families or institutions of Arts and craft or curious natural objects and artifacts. These were often displayed in window rooms or cabinets of curiosities. Geograta mini museum was established primarily for the purpose of history, education, maintenance of our cultural norms, encouragement of handicraft and for revenue generation. Geograta mini museum is the largest privately owned museum in Central Zone of Taraba State. (Grace Tandoh).

ii. The Mambilla Highland Tea Plantation Kakara: The Mambilla highland tea plantation, Kakara, was established in 1982. Tea production output has taken over the lead in beverage production because of its commercial value. Interview revealed, hundreds of hectares of tea farms also exist at Kakara and Maisamari, which are owned and managed by Highland tea and Lever brothers respectively. Moreover, private tea farms are also common phenomena in most areas of the plateau particularly at places like Nguroje, Maisamari, Gembu, Kusuku and Tunga. The Products are taken to the tea production firms to be processed into consumable tea. The popular highland tea is produced at Kakara, while lipto tea is produced at Maisamari. All are packaged in Kakara. Both green and black tea plants are cultivated. The good yields are possible by the healthy state of the plants, especially those grown on the experimentation farms, at Kakara and Maisamari. Extension of plantation increase in production rate, construction of factories for processing and packaging. About 450 and over 300 hectares of land are reserved for the development of tea estate farms at Kakara and Maisamari respectively.

Interview revealed that there are "small holder tea schemes" and under the scheme, the local farmers are encouraged to develop small tea farms, assisted and supervised by the staff of the companies. The schemes in turn sell their harvest to the companies. Timely pruning, weeding and application of agro-chemical and fertilizers are ensured (says companies). Interview revealed that the production of tea on the Mambilla is either from seeds or by vegetative propagation. Plant is kept at between 3 and 4 feet high through constant pruning and shaping, has a life span of up to 100 years or more. Plant cultivation is achieved by the sufficient rainfall of above 100mm; altitude of between 1450 and 1550m above sea level. The three main methods of tea manufacture, include, the cut/tear and curl (CTC) method; the orthodox method; and the Lawrie tea processor method (LTP). The later is the method used in the highland tea factory. The production process of the tea is firstly done by plucking the leaf shoots. The green leaf trailers transport the leaf from the farm to the factory. The leaf is received and weighed at the factory, and spread on troughs, subsequently on ranks in warm dry air to remove the moisture from the leaf leaving it limps. Withering, the withering leaves are collected from the troughs and put into bags for cutting, and in the cutting room, the leaves are passed to a lawrie tea processor to cut the leaves into fine particles, and crushed the leaves for fermentation. The fermentation leaves are subjected to a hot air from the heaters to dry. The familiar tea or made tea, is sorted

from the sorters to obtain good appearance which will attract good market price. The final stage is to taste the tea so as to ensure its consistency with manufacturing standards. The products of the Mambilla tea firm are marketed under the brand name of Highland Tea (NBPC, 2001).

iii. Rural Settlements: The type of rural settlements in Donga River are mostly clustering pattern which can be found in expanding population and the relief of the area. More land area is required for settlement, buildings as well as agricultural lands. The highlands are for settlements and grazing reserve while valleys are for crops farming. The settlements are predominantly made of mud-bricks usually in rectangular structure and round huts. The buildings are generally roofed richly with thatched grasses and few houses having zinc roofs. Compounds which are mostly fenced are usually spacious. The rural settlement of Donga River lack facilities like health centres, electricity and portable water supply. However, the communities dominantly depend on streams and springs for their water supply.

Existing National Tourist Site (Gashaka Gumti National Park)

It is located in a mountainous region of North-Eastern Nigeria adjacent to the International border with Cameroon and immediately to the north of the Mambilla Plateau. No road cross this remote region and only a few loudy foot path wind through the forested mountains towards Cameroon visitors are able to enjoy lust forest, wide sweeping grasslands, cool highland plateau, rugged moody mountains, abundant wildlife and fascinating ethnic cultures, all combined within a single protected area. There are other few places in the world that contain such spectacular scenery and such diverse wildlife. The hidden corner of West Africa, covers an area of wildness greater than 6,600 sq kms. The park's name is derived from two of the regions oldest and most historic settlements (Andrew, 1999); Gashaka village in Taraba State with River Gashaka and Gumti village in Adamawa State, with Rivers Kam, Gamgam, yim respectively. Gashaka Gumti National Park was created by Federal Military regime of the former Head of States General Ibrahim Badamasi Babangida with Decree 10 in 1991 by the merging of Gashaka Game Reserved with Gumti Game Reserve (Andrew, 1999). The Northern Gumti sector of the park, is relatively flat and covered with woodlands and grasslands, while the southern Gashaka sector is more mountainous and contains vast expanses of rains forest as well as areas of woodlands and mountains grass land. This rugged terrain is characterized by steep, thickly forested slopes, deep plunging valleys precipitous escarpment and switly flowing rivers. Altitudes ranges of the northern sector to the peaks and pinnacles of Gangirwal in the Southern park sector at a staggering of 2,419m above sea level, represent Nigeria highest mountain (Andrew, 1999). It is the sheer variety of different habitants within Gashaka Gumti National Park which makes the area so uniquickly rich in wildlife. Infact, the pack is actually on intricate mosonic of montane grassland, savannah woodlands, swamps lake, mighty rivers, dark lowlands, rainforest strewn with ferns and orchids. Each habitat supporting its own distinctive community of plants and rain forests, provide a haven of animals such as the giant forest hog, leopard, yellow bucked duiker, golden cat, and many different primate species, elephant and wild dog in addition to various antelopes such as water buck, roan antelop, giant eland, kob and hartebeest (Andrew, 1999). The mountain is of park harbour populations of the rare Adamawa mountain reedbuck. In addition to black and white colobus monkeys, baboon, warthog, oribs and klips pringer. While its largest unspoits rivers contain hippos, crocodile, others and a wide variety of fishes. An abundant of birds lifes butterflies, flowers and trees, make this a naturalist paradise unrivalled anywhere for diversity (Andrew, 1999).

Streams and the river of Gashaka Gumti National Park: Most of the rivers in Gashaka LGA originated from or flows across the Gashaka Gumti National Park. In the National parks many rivers, in addition to their important ecological functions act as reservior's of biodiversity. Remote and unspoilt, they contain a number of hippos, crocodile, otters and a wealth of fishes, while their forested banks support a variety of primates birds and other animals. These magnificent rivers are one of the parks best features and provide the basis for a number of spectacular walking tours (Andrew, 1999).

METHODOLOGY

Research Design

This study adopted a descriptive survey research design integrated with spatial analysis techniques. The descriptive design was appropriate as it enabled the systematic identification, documentation, and evaluation of

existing and potential tourism resources and infrastructure within the study area. The integration of spatial analysis further enhanced the study by providing geographic visualization and spatial distribution patterns of tourism assets, thereby strengthening the analytical depth and empirical validity of the research.

Population of the Study

The study population encompasses both the physical environment and the human demographics relevant to the tourism sector in the zone. This includes physical features such as water bodies (rivers, lakes, natural springs, and waterfalls), hills and rock outcrops, and forested areas. Additionally, it includes a human population of selected residents, local staff, and individuals from the five LGAs who possess comprehensive knowledge of the tourism sites.

Sampling Technique and Sample Size

A multi-stage sampling technique was employed to ensure adequate representation of the geographical sites and the respondents. In Stage 1 (Stratified Sampling), the study

area was stratified into its five constituent LGAs (Sardauna, Kurmi, Gashaka, Bali, and Gassol) to serve as the foundational sample base. In Stage 2 (Simple Random Sampling), a simple random sampling technique was used to select the human participants within selected LGAs. Finally, in Stage 3 (Sample Size Determination), the Krejcie and Morgan (1970) table for determining sample size was utilized.

Based on the 2006 population census and a 2022 population projection, the total projected population of the five LGAs was 1,351,100. From this, a total sample size of 300 respondents was selected. The sample was proportionally allocated across the LGAs to minimize bias, as detailed in Table 1.

Table 1: Sample of the Study Distributed Across Selected LGAs

S/ N	Local Government	Population Census (2006)	Population Projection (2022)	Sample Size	Population Percentage
1	Sardauna	224,437	352,900	68	23%
2	Kurmi	91,531	143,600	50	16%
3	Gashaka	87,781	137,100	45	15%
4	Bali	211,024	332,000	65	22%
5	Gassol	244,749	385,500	72	24%
Total		**859,522**	**1,351,100**	**300**	**100%**

Sources: Field Survey 2025

Both primary and secondary data sources were utilized in this study to ensure comprehensive coverage. Primary data were obtained directly from the field through field trips and oral interviews with key informants and residents. Secondary data were sourced substantially from existing literature, including journal articles, relevant textbooks,government and tourism reports, and online materials.

Methods of Data Collection

Data collection involved a hands-on, qualitative approach supported by spatial mapping. The primary method of human data collection involved structured and semi- structured oral interviews with staff, community leaders, and knowledgeable individuals regarding tourism potentials and challenges. Direct field investigations were conducted across the Mambilla Plateau, Gashaka-Gumti buffer zones, waterfalls, and other sites to assess physical conditions, accessibility, and developmental potential. Furthermore,

geographic coordinates (latitude and longitude) of existing and potential tourism sites were recorded during field trips to facilitate accessibility ratings (1–5 scale) and spatial mapping.

Data Analysis Techniques

The data obtained were analyzed using a blend of descriptive narratives and thematic evaluation. Qualitative data gathered from oral interviews and field observations were analyzed using simple discussions and narrative field investigation summaries.

Participant responses were organized thematically to evaluate development potentials and infrastructure gaps. Demographic data and accessibility ratings were summarized using

descriptive statistics, specifically frequencies, percentages, and rating scales (e.g., the 1–5 accessibility rating system), to clarify patterns and site viability.

GIS and Spatial Analysis

To enhance the mapping and analytical framework of the study, Geographic Information System (GIS) techniques were systematically employed to provide a robust spatial inventory of tourism resources within the Central Zone of Taraba State. This analysis primarily focused on five Local Government Areas Sardauna, Gassol, Bali, Kurmi, and Gashaka—geographically bounded between latitudes 6°18’4’’N to 8°57’44’’N and longitudes 9°52’36’’E to 11°58’43’’E. The integration of GIS allowed for the conversion of field-collected coordinates and narrative data into a precise digital representation of the region’s diverse topographical and ecological assets. Central to this spatial framework were high-resolution elevation data and topographical parameters, including the Mambilla Plateau at 1,830m, the peak of Chappal Waddi at 2,419m, and the Maihula Rock Peak at 840m. Furthermore, the GIS analysis quantified the spatial extent of the River Taraba system, identifying two significant minor catchment basins: the Upper Selbe, covering 27,750 acres, and the Upper Kam, covering 66,200 acres, resulting in a total catchment area of 93,900 acres. Connectivity and accessibility were assessed through precise proximity measurements, such as the 10km distance of Donga Valley from the border and the 60km distance from Serti to the Ngel-Nyaki Forest Reserve. The study categorized and mapped over 25 unique sites, ranging from 15 water resource locations to geological formations like the Kungana and Fali hills, which are characterized by 350m contours. These resources were further classified by their development status (existing versus potential) to provide a comprehensive baseline for regional planning. The resulting spatial map, designated as Figure 1, serves as a vital visualization tool that illustrates the distribution and spatial relationships of these resources. By utilizing GIS, this study transitions from qualitative descriptions to a data-driven model, offering the technological precision necessary to highlight connectivity patterns and inform sustainable tourism infrastructure development across the Central Zone.

Validity and Reliability of Research Instruments

To ensure validity, the interview guides and observational frameworks were subjected to expert review to confirm they adequately captured the study's objectives. Reliability was maintained through consistent administration of the oral interviews and standardized field observation protocols across all five LGAs.

Ethical standards were maintained throughout the data collection phase. Participants engaged in oral interviews were informed of the research purpose, and their participation was entirely voluntary. Confidentiality and anonymity of individual responses were strictly ensured.

RESULTS AND DISCUSSION

Table 2: Identified Potential and Existing Tourism Sites in the Central Zone of Taraba State

Tourism Site	Location (LGA)	Status	Attractions/Features	Accessibility Rating (1–5)	Development Potential
Mambilla Plateau Extension Areas	Sardauna	Existing	Scenic landscapes, cool climate, tea plantations	4.5	High

Mayo Selbe Hot Springs	Gashaka	Existing	Natural hot water springs, eco-tourism potential	3.8	High
Barup Waterfalls	Kurmi	Potential	Waterfall, surrounding forest reserve	3.2	Medium
Ndaforo Rock Formations	Bali	Potential	Unique rock shapes, hiking trails	3.0	Medium
Gashaka-Gumti Park Buffer Zones	Gashaka/Bali	Existing	Wildlife, birdwatching, camping	4.2	High
Mutum-Biyu Historical Mosque	Gassol	Existing	Centuries-old architecture, religious tourism	3.5	Medium

Accessibility rating scale: 1 = Poor; 5 = Excellent.

Source: Field survey and mapping exercise, 2025.

DISCUSSION OF RESULTS

The mapping exercise identified eight key tourism sites within the Central Zone of Taraba State, comprising five existing attractions currently in operation and three potential sites with varying degrees of development viability. The results confirm that the zone possesses a diverse portfolio of natural, cultural, and recreational assets; however, a significant portion of these remains underdeveloped, under-utilized, and largely absent from formal tourism circuits.

Data analysis reveals a clear correlation between infrastructure and site utilization. Existing sites such as the Mambilla Plateau Extension Areas, Mayo Selbe Hot Springs, Kashimbilla Dam, and sections of the Gashaka-Gumti National Park recorded high accessibility ratings (≥ 3.8). These scores reflect the presence of essential road networks and visitor amenities that facilitate flow. These findings align with Anunobi et al. (2024), who identified accessibility as a primary determinant of tourism site viability in Taraba State. Conversely, sites with high potential, such as the Barup Waterfalls, Ndaforo Rock Formations, and the Karim River Bank Leisure Area, scored lower on accessibility (2.8–3.2). Their underdevelopment is directly attributable to poor road networks and the absence of basic visitor facilities. This mirrors the observations of Okpiliya and Ayodele (2020), who emphasized that infrastructural deficits often serve as the primary barrier preventing the transformation of natural attractions into economically viable tourism products in rural Nigerian settings.

From a development perspective, sites characterized by unique topography (e.g., Mambilla Plateau) and water-based recreational assets (e.g., Kashimbilla Dam) demonstrate the highest potential for immediate investment. Integrating these assets into cohesive eco-tourism and adventure circuits could significantly increase visitor dwell time and spending. Furthermore, cultural landmarks like the Mutum-Biyu Historical Mosque present an untapped opportunity for heritage-focused tourism.

Despite these clear advantages, a critical gap exists: the absence of consistent branding, professional tour packaging, and coordinated marketing strategies. Currently, the region's natural assets are managed in isolation rather than as an integrated destination. This finding is consistent with the research of Esu and Ebitu (2015), who noted that many rural tourism sites in Nigeria lack the integrated promotional strategies required to bridge the gap between local resource availability and national or international tourism demand.

The results underscore that infrastructure, professional promotion, and community participation represent the three essential pillars for unlocking the tourism potential of the Central Zone. The inherent appeal of these sites is currently constrained by logistical and managerial challenges. Without coordinated investment in access roads, visitor amenities, and destination marketing, these high-potential sites will remain stagnant. In conclusion, the mapping exercise confirms that the Central Zone of Taraba State holds a strategically valuable mix of resources. Developing these assets through infrastructure upgrades, professional site management, and integrated

marketing campaigns would position the zone as a competitive destination, capable of attracting both domestic and international tourists within the West African sub-region.

CONCLUSION

The analysis of the identification and the Mapout of the tourism potentials and existing in the central zone, Taraba State, Nigeria has clearly shown that, there are vast areas with tourism potentials and that there is inadequate of tourism infrastructure. This may be due to inadequate Government participation, public private participation, (P.P.P) and voluntary organization, involvements in the tourism developments. Tourism is capital intensive, Government alone cannot catter for the tourism development.

In the light of the findings of the study, the following are recommended:

i. There should be political will by the Government for the development of tourism in the study areas to stride
ii. There must be enlightenment campaign (creation of awareness of the tourist sites in the central zone through mass media to draw the attention of the tourist).
iii. There is need for public private participation (P.P.P) and voluntary organizations involvement in the development of tourism in the central zone of Taraba State.
iv. Since the grass root people or communities are the custodians of the tourism products, they should be encouraged by the State Government to safe-guard these facilities and to maintain natures gifts in their domain as well as man-made attractions by providing the communities with infrastructural development, e.g. good roads, electricity, water schools, hospitals and good communication system.

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