

ASSESSMENT OF ECOLOGICAL TOURISM POTENTIALS FOR TOURISM INDUSTRY IN BIASE LOCAL GOVERNMENT AREA, CROSS RIVER STATE, NIGERIA

LEONARD .E. UKAM

Department Of Urban And Regional Planning Cross River University Of Technology, Calabar Nigeria.

ABSTRACT: Tourism and specifically eco-tourism could be complementary to any other occupation such as agriculture as a strategy for rural transformation. Tourism has been known to provide a variety of benefits for remoter areas and can lead to further improvements. Biase Local Government Area is endowed with natural potentials for the development of tourism industry. Unfortunately, it is surprising to note that in spite of the enormous potentials in this Local Government Area, there is virtually no tourism activity that would bring about further development of the region. It was therefore necessary to carry out a survey of the enormous tourism potentials to ascertain their sufficiency to sustain tourism industry. The method adopted for the study was survey research. Here, all the physical features that constitute tourism attractions were identified and explored in all clans of Biase Local Government Area. Prominent amongst these features were Beaches, Hills (Elevations), Cliffs, Springs, Streams, Lakes, Creeks, Islands, Caves and Forests. Apart from the identification of the physical features, questionnaires and interviews were used to elicit information on the subject matter. It was found out that, using eco-tourism sites assessment factors and their weighting, 51.1% of the site are capable of sustaining tourism industry. Using physical carry capacity (PCC) = $A \times \frac{v}{a} \times R_f$, the physical carrying capacity with the number of visits that some sites can accommodate as follows

LAKES: Average surface area is 430,000m for 5,160,000 visits per day.

BEACHES: Average surface area is 71.53ha for a carrying capacity of 8,583,600 visits per day.

ISLANDS: Average surface area is 513.6ha for a 61,632,000 visits per day. These were some of the features whose carrying capacities were calculated. The only hypothesis that was postulated on whether the tourism potentials in Biase is capable of sustaining tourism industry was accepted and the null rejected. It was therefore recommended that the Local Government Area Council should embark on tourism ventures as a way of diversifying the economy of the rural people. This will also attract revenue to the council. That tourism attractions (features) that do not have competing uses should immediately be developed. Those with high physical carrying capacity such as beaches, cliffs, caves, lakes and streams will follow after.

KEYWORDS: Biase, Potentials, Eco-tourism, Attraction, Carrying capacity and Development.

I. INTRODUCTION

Tourism as an industry is becoming much more desired in recent times in the state, country and the world over. Resort development has been used in some countries of the world as part of a regional expansion program. Biase as a geo-political and cultural entity is endowed with abundant tourism attraction as well as rich cultural and historical potentials for the development of tourism industry. Unfortunately, it is surprising to note that in spite of the enormous potentials in the Local Government Area, there is virtually no tourism activity that would bring about further development of the region. The big question is, whether these attractions can be harnessed for the development of tourism industry, in terms of size, quantity and quality?. Quality here will be referring to whether the site is not polluted and is safe for use as a tourism site. Amongst the tourism potentials of Biase Local Government Area that can be assessed for the tourism industry are hills, caves, beaches, forest, lakes, rivers, particularly the major river (Cross River) that divides the Local Government Area into two sections, East and West. Another factor that would be considered for the study is the rich Cultural heritage, historical artifacts and folklores to mention but a few. The researcher therefore believes that harnessing all these physical and cultural resources into a tourism industry in this region would definitely bring about development in the area. Tourism has been known to provide a variety of benefits for remoter areas and can lead to further improvements. Resort development has been used in some countries as part of a regional expansion program. It is against these backdrop of the various benefits that could accrue from tourism industry to community, that a

survey of the tourism potentials and attractions and ways of harnessing same for the development of tourism industry in Biase has formed the main thrust of the study. The study is based on the concept of carrying capacity.

STATEMENT OF THE PROBLEM: Leisure, recreation and tourism are of benefits to both individuals and societies. Tourism provides a variety of benefits for remoter areas and can lead to further improvement. Resort development has been used in some countries as a part of a regional development program. Biase local Government Area is endowed with natural (Hills, Lakes, Rivers, Forest and Beaches and valleys) cultural and historical potentials for the development of tourism industry. Surprisingly in-spite of the enormous tourism potentials in this local government area, there is virtually no tourism activity that would bring about further development of the region. The researcher was therefore prompted by the enormity of these potentials to carry out a survey of them to know if they are sufficient to sustain tourism industry.

II. AIM OF THE STUDY :

The aim of the study is to assess the tourism potentials of Biase Local Government Area for the development of tourism industry and as a strategy for rural transformation.

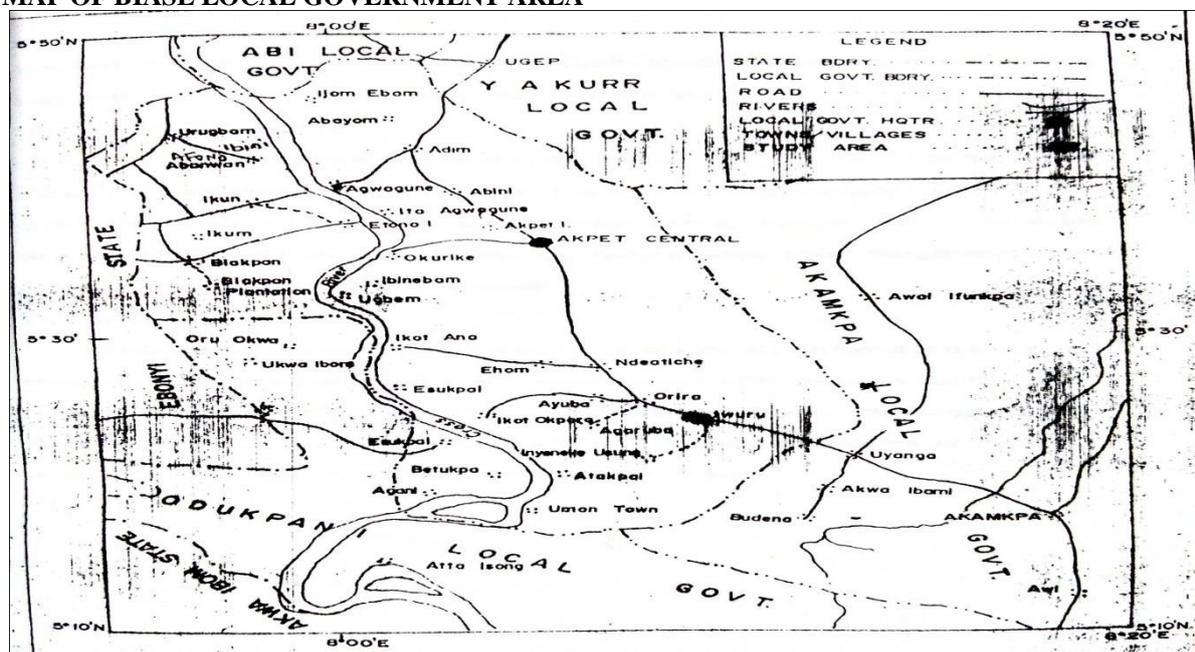
OBJECTIVE OF THE STUDY

1. To identify the various tourism potentials in the area
2. To evaluate some of the tourism potentials in the area in order to know if that potential can sustain the tourism industry
3. To examine the carrying capacity of physical site of the potentials
4. To make recommendation for the use of the potentials

III. STUDY AREA

Location: Biase is a geo-political and cultural entity, endowed with abundant tourism attractions as well as rich cultural heritage. Biase local Government Area is one of the eighteen (18) Local Government Areas of Cross River State, Nigeria. It is located between Latitude $6^{\circ} 0'$ and $5^{\circ} 30'$ N and longitude $8^{\circ} 10'$ and $8^{\circ} 30'$ E. It is bounded in the East by Akamkpa and Yakurr Local Government Areas of Cross River State, in the West by Ebonyi and Abia states, in the North by Abi and Yakurr Local Government Areas of Cross River State and in the South by Odukpani Local Government of Cross River State and Itu Local Government Area of Akwa Ibom State, Nigeria. The Local Government is made up of five autonomous clans, namely Abayong, Egup Ipa, Erei, Ubagara and Umon Clans. It has eleven wards, namely Akpet/Abini, Adim, Abayong, Awuagwune/Okurike, Biakpan, Ehom, Erei North and South, Ikun/Etono and Umon North and South (National Electoral Commission 1997).

MAP OF BIASE LOCAL GOVERNMENT AREA



CLIMATE: The study area is in the rainforest region, enjoying the tropical climate with distinct wet and dry seasons. The dry season comes between the months of November to March while rainy seasons is from April to October. Temperatures are very high during the day and in the dry season while lower temperature are experienced in the night and rainy season.

VEGETATION: The vegetation has changed from its original tropical high forest to a secondary forest because of agricultural activities. Nevertheless, some sections still have such primeval forest in the Akept-Ehom area and in other places where the forest is used for religious worship. It is these cultural and physical features of the Local Government Area that makes it possible tourism region.

RELIEFS/DRAINAGE: The study area is inundated by beaches, hills, river and lakes which if developed for tourism can be used for picnics.

LITERATURE REVIEW : There are various definitions of tourism, Tourism, according to Williams (1998) is a composite concept involving not just the temporary movement of people to destination that are removed from their normal place of residence but in addition, the organization and conduct of their activities and facilities and services that are necessary for meeting their needs. World Tourism Organization (WTO 1996) defines tourism as the activities of person traveling to and staying in places outside their usual environment for not more than one consecutive year, for leisure, business and other purpose. Ojong (2000) sees tourism as an act of traveling out of one's home to place of interest within or outside the country for a night or more, spending and not earning money in the process, as past time vacation for the purpose of recreation. In this regards, one could expect that tourism would comprise a concentration of attractions which the study area tends to find out about Biase Local Government Area. Ofule (2001) while discussing on "Time to Harmonize Nature with Technology" stated that tourism implies the activities of persons traveling to and holidaying in place other than their familiar environment for leisure, recreation and other purposes aimed at unwinding at human spirit and broadening their appreciation of the associated costs on the other tourism components such as the environments and the ecosystem services that function to promote bi-geo-chemical processes (Matheism & Wall, 1993). The cost of tourism development is underscored within the context of damage to flora diversity by ecotourism infrastructure development. Though the study will identify and assess all tourism potentials (Cultural, Social and Ecological Factors) most of the emphasis will be on eco-tourism.

Ecotourism is generally defined as nature-based tourism. The World Conservation Union (1996) however defines ecotourism as visitation to relatively undisturbed natural environment which has low negative visitor impacted and provides for beneficially active socio-economic involvement of local populations. The International Ecotourism Society (1991), regards ecotourism to be "responsible travel to natural areas that conserve the environment and sustain the wellbeing of local people" Ecotourism is also defined by Fagence (2001) to mean a subset of tourism which clearly refers to the touristic use of natural/ecological resources and most likely the preventions of sensitive and fragile environment. Also Lindsay (2003) says it is the penetration of natural environment. Historically, tourism development in Nigeria is traced to the establishment of roads, and the manufacture of locomotives and airplanes which created accessibility to hitherto inaccessible regions. However, the intensity for tourism heightened after Nigerians independence in 1960 which heightened awareness to Nigeria and increased the demands of people in other industrialized countries to visit Nigeria. The establishment of the Nigeria Tourism Association in 1962 eventually culminated in the creation of the Ministry of Tourism and formulation of a Trade and Tourism Policy, Decree No. 81 of 1992 (Egbaji, 2007). In Cross River State, where Biase Local Government Area the study area belongs, has made concerted efforts towards developing tourism are traceable to the government's policy of 1999 which emphasized the accruing benefits that tourism can induce in the state (Egbaji, 2007). Tourism in Cross River State is geared towards the diversification of the state's economy as a means of improving the state's internally generated revenue base through the propagation of the natural endowments.

EVALUATION OF TOURISM POTENTIALS : Ukpong (2001) posits that every form of tourism, be it natural, eco-tourism, social tourism etc requires an environment. This environment is the tourism attraction. The environment could be natural (Physical features of forest and hills), cultural and or artificial. The natural environment according to him, should have nature based tourism potentials such as water resources (beaches), terrain resources, vegetation resources, wild life etc, while cultural environment must have culture based tourism potentials. This type of tourism environment takes advantage of the cultural attributes of the rural community and open them up for the tourists. These include festivals, craft work, historical monuments, textile works, local dishes etc.

Gamble (1989) calls these potentials tourist attractions (resources). Among these enumerated were sun, sand, sea (forming the “3s” in tourism), natural fauna and flora, monuments and traditions. The researcher postulated that, for these attractions to be reached would require the building of airport and roads (infrastructures) and that tourist must be made comfortable and entertained in hotels and restaurants (the super structure).

Boniface and Cooper (1994) classified the factors of tourism potentials under “push” and “pull”. The push factor they identified as the stage of economic development. Pull factor were said to include accessibility of the attraction and amenities of the destination areas. The relative cost of the visit is also important as in marketing and promotion of the receiving areas. These are regarded as what would determine tourist flow between the generating area and the destination. Gamble (1992) while discussing resources for tourism in Africa considered the tropical and subtropical warmth and reliable sunshine, as a resource. He opined that Africa countries have uncrowded beaches and that most of African countries can offer the resources trio of sun, sand and sea (the three “S”) which is vital for the sun lust tourism which according to him forms 85% of all leisure tourism. Ojong (1992) also confirms the fact that many developing countries (eg. Nigeria) are well endowed with natural attractions can bring income. The views of Uchegbu (1998) is that the attractions are so many that some of them are yet to be developed. He considered the attractions under a variety of cultural, historical and natural, physical potentials. Perhaps this is the case with Biase Local Government Area. Other authors, such as Akpet (2001) and Kellor (1996) considered the vegetation (Flora), fauna and even the culture of the destinations of potentials tourism attractions. Anokwuru (2000) also stated that tourist are attracted to well-preserved archeological sites, architecturally rich urban areas, historic routes as well as tradition, handicraft, folklore and other artistic expression of less known cultures. The identification of these tourism attractions implies that though technology now allow tourist to reach most parts of the world, yet only a small fraction of the world’s potential tourist resource base is developed. The reason is that tourist – demand attraction which are not possessed by their own place of residence. Tourism, according to Boniface and Cooper (1994) does not occur evenly or randomly in space and that various types of tourism will have differing requirement for favourable growth and certain site, regions or actions are more favoured for tourism development than others. The author opined that tourist resource have three main characteristics. Firstly, the concept of tourist is normally taken to refer to tangible objects which are considered of economic value to the tourism industry. The industry and indeed the tourist, have to recognize that a place, landscape, or natural feature is of value before they can become tourist resources. Secondly tourist resources themselves are often not used solely by tourist. Apart from resorts areas or theme parks where tourism is the dominant use of land, tourism shares use with agriculture, forestry, water management or residents using local services. This implies that tourism is a significant land use but rarely the dominant one, and this can lead to conflicts. Tourism is “fitted in” with other uses of land. This is known as multiple use and needs skillful management and coordination of users to be successful. Finally, tourist resource are perishable. They are not only vulnerable to alternations and destructions by tourist pressure, but in common with many service industries. Tourist resource are also perishable in other sense. Tourist service such as accommodation are impossible to stock and have to be consumed when and where they exist. Unused tourist resource (such as bed spaces) cannot be stored and will perish each night it is not used.

IV. RESEARCH METHOD

The research design adopted for the study was the survey research. Here all the physical features that constitute tourists attractions were identified and explored in all clans of the Local Government Area. The survey method was adopted because it has the advantage of deriving information at short but frequent notice. The information provided is usually first hand, more detailed and often specific to the problem of the study. Boniface and Copper (1994) identified other methods of evaluation of resource to include

1. The Clawson’s classification, which refers to User-oriented, based on whatever resource that is available, best resource available with accessible distance to users and resource-base on outstanding resource quality with low intensive development and man-made facilities at a minimum.
2. The outdoor recreation resource and evaluation method (ORRC). This method classifies resources into :
 - High Density Recreational Area
 - General Outdoor recreational Area
 - National Environment Area
 - Areas of Scenic Splendor
 - Primitive Areas
 - Historic and Cultural Sites

3. The Duffield and Owen's Resource Evaluation Technique. The technique uses four separate assessments of resource capability and then combines them into a single assessment for two-kilometer grid activities. Suitability for water based recreation activities, scenic quality and ecological significance
4. Further methods of resource assessment as identified by Fagence (2001) include simple methods which requires preliminary reconnaissance of potentially relevant resources and the categorization and weighting of them according to attractiveness for purpose of tourism,
5. Another is the carrying capacity assessments of natural areas and the opportunity spectrum methods which include
 - ROS (Recreation Opportunity Spectrum)
 - TOS (Tourism Opportunity Spectrum)
 - LAC (Limits of Acceptable Change)
 - TA (Threshold Analysis)
 - UET (Ultimate Environmental Threshold)Fagence (2001)

ECOS (ECO-TOURISM OPPORTUNITY SPECTRUM)

Ecos model is considered the most appropriate in the planning of eco-tourism. In this method, the baseline data are first captured and then measured in terms of capacity to be used in eco-tourism with the assessment focusing on the following factors

- Accessibility (To eco-tourism region and eco-tourism sites)
- Relationship (Between eco-tourism and other potential uses of the same resource, complementary, compatibility, integration and competition)
- Attractions (Types of eco-tourism experience, in tropical forest, mountain areas of birds, trees, wild flowers, mammals, by watching, filming, collecting);
- Infrastructure (Supporting infrastructure, support service);
- User pre-requisites (Prior, Knowledge, Prior skills, equipment)
- Social Interaction (level of interaction with other eco-tourists and with the local or host community);
- Visitors impact (Consequences of visitors access and control of visitors access use and management (stake holders involvement and decision process)

Any of the methods mentioned above was used for assessment on the tourism sites as it applies or considered necessary.

POPULATION: A target population of 93,363 person and every cultural heritage, cultural artifacts and landmarks and other land-forms were considered for the study

SAMPLE: An identified eighteen physical attractions and a sample size of four hundred (400) respondents were randomly selected from the Local Government Area from a total population of 93,363 people. The sample size was based on the application of "Yaro Yamane" formula for finite numbers on the total population of Biase in which the researcher arrived at 399.5 respondents approximately to 400 respondents. Consequently, the sample size was divided into indigene and none-indigene respondents in the ratio 40% (160 respondents) indigene to 60% (240 respondents) none-indigene.

The reason for using more respondents from outside the Local Government Area was based on the fact that they shall form the bulk of tourists who will desire to see the rich cultural and ecological tourism attractions in Biase Local Government Area. The number of respondents chosen from each of the five clans was proportional to the population of the clan.

SAMPLING TECHNIQUES : A combination of stratified and sample random sampling techniques as well as the purposeful sampling method were employed in choosing the subjects. All tourism experts that could be reached either within or outside the local government area and whether they are indigenes of the Local Government Area or not were interviewed to get their opinion in their preference and ranking of the tourist attractions. Other potential tourists outside the Local Government Area were purposefully selected and interviewed.

INSTRUMENT FOR DATA COLLECTION : The major instrument for data collection was by personal observation of the tourism attractions, interviews and questionnaire, as well as maps and photographs. This shows that data were drawn from primary and secondary sources.

V. METHOD OF DATA COLLECTION

For the fact that most of the tourism attractions were physical features, most of the information gathered were by direct observation of the researcher. Topographical maps of Biase was equally used, from where most of the measurement about lakes, streams, beaches, islands, highlands (hills or elevations) and caves were calculated using map analysis. Such maps were those of Afikpo south, 313SE/2C3 etc and map of Biase Local Government area drawn by Cross River State survey Department, Calabar, Nigeria and other documents such as textbooks, journals etc. Structured questionnaire were also used to elicit information from respondents. The administration of the questionnaire was personally done by the researcher to each respondents. The researcher's presence aided the correct filling of the questionnaire and also enhanced speedy completion, culminating in high response rate. Each clan was visited while the none-indigenes were interviewed where they were met. Every village that has tourism attractions was visited and interview were held by the researcher with prominent and enlightened people in the Local Government Area to ascertain the willingness to embrace tourism.

VI. DISCUSSION OF FINDINGS

In order to analyze the data gathered from the field, most of the verbal information were weighted and ranked by the researcher according to responses. For instance the various eco-tourism sites were ranked as follows:

TABLE 1: WEIGHTS AND RANKS OF TOURISM ATTRACTION

S/N	Tourism Attraction	Frequency of respondents	Ranks	Weight
1	Beaches(sandbars)	70	1 st	6
2	Lakes	65	2 nd	5
3	Cliffs	51	3 rd	4
4	Hills/Island	50	4 th	3
5	Spring/Streams	45	5 th	2
6	Caves	40	6 th	1

Source: Researchers Field Survey

Note: The ranks were based on responses from the tourism experts.

In order to test the hypothesis that states that the existing eco-tourism attractions in Biase cannot sustain tourism industry was tested using the data, based on ECOS, (Eco-tourism opportunity spectrum) model with respect to the following factors and their weights.

ACCESSIBILITY

- ✓ Access by road and water = 15
- ✓ Access by tracks = 5
- ✓ Not accessible = 0

B. RELATIONSHIP BETWEEN ECO-TOURISM SITE AND OTHER POTENTIAL USES

- ✓ Sites only good for tourism = 12
- ✓ Site has other competing uses = 8
- ✓ Site is better used for alternative = 0

C. AVAILABLE INFRASTRUCTURES

- ✓ Very adequate =12
- ✓ Not adequate = 8
- ✓ No infrastructure = 0

D. ATTRACTION

TABLE 2: TOURISM ATTRACTION RANKED IN DESCENDING ORDER

S/N	FEATURE	RANK	WEIGHT	FREQUENCY OF RESPONDENTS
1	Beaches	1	6	70
2	Lakes	2	5	65

3	Cliffs	3	4	51
4	Hills/Island	4	3	50
5	Springs/Streams	5	2	45
6	Caves	6	1	40

Source: Researchers Field Survey

Note: The ranks were based on respondents scoring of sites with respect to how relevant it is as a tourism resource. The weights for all the features in each village were summed up to 100 and the total weight of all the features from all the villages were added together to get the gross total and the average was divided by the number of villages with tourism sites. The average weight is in the percentage. Also the physical carrying capacity of each sites in each village were calculated as part of the percentage above. Finally, the average physical carrying capacities were calculated for a few of the sites. This was also to evaluate the size of the physical features and to ascertain the level of readiness as a tourism potential. The physical carrying capacity (PCC) is calculated thus.

$$PCC = A \times \frac{V}{a} \times R_f$$

Where A = Available area for public use

$\frac{V}{a}$ = one visitor per square meter (m²)

R_f = Rotation factor (number of visits per day) as calculated

$$R_f = \frac{\text{Opening period}}{\text{Average time of one visit}}$$

Other response from the questionnaires were either rated or percentage calculated on likert scale.

SPATIAL DISTRIBUTION OF TOURISM POTENTIALS IN BIASE LOCAL GOVERNMENT AREA

In order to find out where the eco-tourism potentials are located, respondents were asked whether they have tourism potentials in their village, 284 respondents, spread across the villages in the Local Government Area and representing 71% admitted that there are various types of tourism attraction in their villages. 24 respondents representing 6% do not have attracting tourism site in their villages. That also did not imply that they do not have cultural dances and festivals that form part of the tourism asserts. For this paper, concentration is on ecological tourism assets. Another 24 respondents representing 6% had no response. This may have been as a result of ignorance on their part about tourism issues. Various eco-tourism and cultural features were listed by the respondents. It was also realized that the features were located at different places in the villages some which are accessible by roads and by waters. While other are only reached by bush tracks explaining the fact that tourism infrastructures are still inadequate in the Local Government Area and so constitutes an impediments to the development of tourism industry in the area. Respondents were asked to rank the eco-tourism sites by scoring them according to preference, their average scores and their ranks are shown in table 3.

TABLE 3: AVERAGE SCORE, RANK AND WEIGHTED VALUE OG TOURISM ATTRACTION

S/N	TOURISM ATTRACTION	AVERAGE SCORE AND NUBER OF RESPONDNETS	WEIGHTED VALUE	RANK
1	Beaches	70%	6	1 st
2	Lakes	65%	5	2 nd
3	Cliffs	51%	4	3 rd
4	Hill/Islands	50%	3	4 th
5	Springs/Streams	45%	2	5 th
6	Caves	40%	1	6 th

Source: Researchers field survey

IDENTIFICATION OF TOURISM ASSETS IN BIASE (PHYSICAL LANDMARKS) : BEACHES:

The location of Biase Local Government Area where the Cross River traverses the Local Government Area from the North to the South, dividing it into East and West Biase is responsible for various beaches found in the area (see plate I). The following riverine areas have beaches or sand bars (banks). The areas include Ibini and Abanwan village (in Ereei South Ward) Ikun, Etono and Biakpan (in Ubagara clan) all on the West Bank of the Cross River while, Abrijang, and Abaribara (in Abayong Clan), Agwuagwune, Itu Agwuagwune, Okurike and Ugbem (in Egup Ipa clan and Umon and Ikot Okpora in (Umon Clan) all on the Eastern bank of Cross River. This river stretches for about 70.6km long from North to South (from Ibini to Umon) and with an averagewidth of 1.3km (East to West).

The beaches on the river are much more pronounced and conspicuous at different sections of the river during the dry season (November to April). The beaches form very interesting sites for sun lust tourism. Beaches form the best eco-tourism attraction in Biase Local Government Area

HILLS (ELEVATION): Though Biase Local Government Area may not be said to have very high hills or mountains, the elevations in this area ranges from 30m to 500m high. These elevations form another area of scenic beauty where tourist will find interesting. These areas are found at Egbor in Erei North Ward, Okurike, Akpet Central and environs in Egup Ipa ward. Such high elevations present a very beautiful scenery for pony – trekking type of tourism activity. These areas stretches for over 300meters with footpaths on them. They are therefore good for land-based recreation, as recommended by Duffield and Owen’s Resource Evaluation Method. Other areas with interesting rolling hills at Abaribara (in Abayong clan) and Akpet No 1, Akparavuni, Ibogo and Ehom (in Akpet-Abini and Ehom Wards) respectively.

These areas satisfies a tourism condition of being located on a grid or along a transportation route (the Ikom-Calabar highway) a major road in Cross River State which links up all or most big towns in Cross River State. A stop over at Biase from Calabar (The Cross River State Capital), enroute Obudu cattle ranch (a major attraction in the state and the country- Nigeria), offers a breathing space to the cattle ranch to avoid over use. See plate II cliffs at Obum and Etana villages.

CLIFFS: Beautiful Cliffs were identified at Obum and Etana villages in Erei North Ward (see plate II). These features offer beautiful eco-tourism resource for rock climbing tourists activities. This is in line with Duffield and Owen’s suggestion that cliffs faces which are over 30 meters high qualify as rocks climbing tourist activities. The cliffs here are over 30meters high.

SPRING, STREAMS, LAKES AND CREEKS

SPRING: This feature may not be too common and well known feature in Biase Local Government Area, except for a few of them at Akpet-Abini and Ehom Clans. One was also identified at Ijom (Abayong Clan) known as Idobine.

STREAMS: This was the commonest feature in Biase, especially those areas that are close to the river. This makes the riverine communities in Biase to be difficult to reach. Among the leading communities in the Local Government with streams were Ibini (see plate III and IV), Umon, Abanwan and Ikun. A big stream was also identified between Akpet No 1 and Abini known as Udip streams communities in Biase that close to the streams and river make a living out of them.

Lakes: One of the commonest eco-tourism attraction in Biase Local Government Area are the lakes. A leading village in the proliferation of lakes is Ibini village with over fifteen lakes. The biggest among the lakes in the village id “Ake-bob” translated “Big lake” (see plate V). This lake has been a traditional fishing festival site (Lake Resort) in which people from all works of life and from all nooks and crannies come to participate. This festival takes place in April, every year. What goes in this place can be compared to the Arungu Fishing Festivals in Niger State, Nigeria. Another largest natural lake that could be referred to as Crocodile Lake was also found at Afono village in Erei South Ward. It is locally called “Egwebe” lake. The villagers owe religious /superstitious attachment to this lake. The lake is believed to have protective powers over the inhabitants of the village where it situates and beyond (for those who desire the protection). The lake is worshipped as a shrine with juju priest. The lake is also believed to have revengeful powers which anybody who feels slighted anywhere could go to seek spiritual revenge or redress. It is equally regarded as the goddess –of-war.

Egwebe, harbors a large number of crocodiles because it is an abomination to kill crocodiles in this lake. The consequences of this offence from the deities are very serious. The lake also offers a good and exclusive fishing ground for both male and female fishers in the area (Afono Village).While the lake has all the above attributes it must be stated that these are various “don’ts” about the lake, violation of which results in death or other forms of spiritual punishment or diseases on the offender or his/her children or relations. In some situations, everybody in the defaulter’s family could be afflicted with one form of disease or the other resulting in dead tolls or madness. Other lakes with similar spiritual characteristics in Erei South include Ipah lake; Ugbene-bob lake, Ogbak stream; Tooka lake, Eviem lake as well as Ebiem lake in Abanwan. In Erei North Ward, Eviem lake at Obum and Etana villages also has religious attachment and is worshipped as goddess-of-water. It is necessary to state here that all lakes in Erei South Ward are seen and worshipped as deities with a belief that they have protective, curative and revengeful powers.

They are associated with the supply of abundance of food, especially fishes for fishermen and women. Utu stream at Urugban (Erei South) and Ohono stream between Abanwan (in Erei South) and Ikun in Ubagara clan also shares these characteristics. Other lakes include Uruk lake in Biakpan; Utoruge lake in Umon (Umon clan). Generally, most lakes in Biase are believed to be inhabited by deities which have supernatural powers to cure diseases, remove misfortunes, offer protections as well as give abundant supply of food. This is why all poor catches during fishing festivals and crops failures are attributed to the ill-will of the goddess. The lakes in Biase are quite large with an average surface area of 42.95 hectares and an average depth of 7.5m.

ISLANDS: A beautiful island was identified at Umon, from where the village actually derived her name. This island is located in Umon clan. The Island is 971 hectares squared. Similar, Island were identified at Awuagwune beach right inside the Cross River between Agwuagwune and Abanwan.

CAVES: A natural cave that would pass for nature's monument were identified at Agwuagwune and Adim (Irep Ogwa). These caves have the capacity of harboring human beings and reptiles. However, how the caves were formed was not known. When properly developed the caves can form quite a beautiful site for eco-tourism

FOREST: Amongst all the features of Eco-tourism, forest is the most valued in the sense that if undisturbed contains more than one single feature of nature tourism attractions. Forest may contain the trees and grasses (flora) that constitutes the forest as well as birds, animals, reptiles etc which is the fauna. It is as a result of this that forest are regarded as unique tourism sites. In some cases, they are protected as wild life conservation programme (National Parks). In Biase Local Government Area, it was discovered that there is still "patches" of primeval forest as depicted by those identified at Biakpan; Akparavuni, Akpet No 1 and Akpet Central; Etono Conral; Abanwan (Black forest for religious purpose); Ibini (with peculiarly large expanse of elephant grass surrounded by forest trees), Ikun, Ikot Ana, Ikot Ewo (Umon); Ehom; Etono II and Okurike to mention but a few. A conservation strategy in these forest will enhance its rapid development to full-grown forest region, thereby presenting it not only as eco-tourism attraction but also for educational purposes. It must be stated here that what remains of most forest in Biase Local Government Area have religious inclination. The religious and superstition attachments to these forests by the people of Biase, where the forest exist, cannot be over emphasized. Most of these forest are considered sacrosanct. The impression held by the indigenes about the forest could be taken as a traditional way of conserving these forest (Ukam 1999). It was discovered that some of these forest were regarded as where deities resides and only a few initiates (if still alive) of such cult goes there.

Others refers to them as evil forest where the wicked are buried (Ukam 1987). The researcher believes that if a detail research in the flora and fauna of these forest is carried out, it will be discovered that some of them could still be harboring unique animals and reptiles as well as special species of plants. This aspect is however not within the scope of this research. Nevertheless, it is important to state that apart from where Biase Local Government Area shares common boundaries with Akamkpa Local Government Area, the forest in Biase generally has turned to secondary forest or oil palm bush as a result of agricultural activities and buildings (Expansion of settlements due to increase in population). The dimensions of some of these tourism sites and the possible tourism activity or activities that can go on in them are stated in table on Eco-tourism assets (sites) in Biase Local Government Area/Dimensions.

HYPOTHESIS: The only hypothesis for the study was stated in the Null form (H_0) that "The existing tourism potentials in Biase Local Government Area cannot sustain tourism industry. The alternative hypothesis states that the existing tourism potential in Biase Local Government Area can sustain tourism industry. To test the hypothesis, the various tourism sites were ranked by respondents based on sites assessment factors and preference and the ranks were weighted accordingly by the researcher. Furthermore, certain factors according to ECOS (Eco-tourism Opportunity Spectrum) were considered and weighted as seen on appendix IV showing Eco-tourism sites and their assessment. The factor used were – Accessibility, Relationship, Available infrastructure, Attractions and physical carrying capacity which was calculated earlier in appendix II. Every factor was scored 20 and for the five factors in each village where tourism sites are found, the total amounted to 100%. After this, the totals for all villages were added together and the average score taken, based on the number of eco-tourism sites so as to bring the scores back to 100%. The average score was regarded as the final score and it was used to explain the availability of eco-tourism potentials in Biase. The scoring of the factors were based on the response of tourism experts who considered how important each factor is, to tourism development. Total, of all the factors for each tourism site were computed. The gross total were calculated from twenty-four eco-tourism sites from which the average total was calculated to be 51.1%. The computation is found on appendix IV.

STATISTICAL DECISION: The implications of this percentage was that 51.1% of the existing eco-tourism potentials can sustain tourism industry in the area. In other words, the site that make up this percentage are qualified to be developed as tourism sites. The remaining 49% could not be ready because of lack of infrastructural facilities such as electricity, accessibility, hotels and pipe borne water. The result therefore suggest the rejection of the null hypothesis and the acceptance of the alternative hypothesis that tourism potentials in Biase Local Government Area can sustain tourism industry particularly those sites that score above 50%. To confirm the above findings further, the researcher decided to calculate the physical carrying capacity of a few groups of the attractions using their average surface areas. The sites considered were those of Lakes, Beaches and Islands. See Appendix V.

The implication of the above physical carrying capacity for lakes, beaches and islands was that the eco-tourism attraction in Biase are large enough to accommodate as many visitors as possible without much impact on the potentials. Suffice this to mean that they can sustain tourism industry conveniently. Based on the hypothesis tested and the researcher's field survey, Biase Local Government Area have enough tourism potentials that can sustain tourism industry. Ecologically, the terrain in Biase offers a very unique environment where different eco-tourism activities (land based or water based) can take place. The location of Biase Local Government Area between Calabar (the state capital of Cross River State) with all infrastructural and social amenities for tourism such as international airport, hotels, good tarred roads, pipe borne water, electricity etc and the Obudu Cattle Ranch (a tourism haven in Cross River State, Nay the country Nigeria) makes Biase Local Government Area an effective potential tourism region that has not been exploited and needed to be exploited. The beaches in Ibini, Awguagwune, Etono, Ugbem, Ikun, Ikot Okpora, the lakes at Ibini, Afono, Ikun, Abanwan, Biakpan, the high elevations, (Hills) of Akpet Central and environ, Okurike. Abaribara, the granite rocks at Abini, the Islands of Umon and Agwuagwune, the springs at Ijom and finally the Caves of Agwuagwune and Adim are all unique eco-tourism attractions. Not forgetting also the streams and creeks of Ogbak at Ibini and Otiep at Ugbem, which are ready to be exploited for tourism. The only major problem in the development of tourism in Biase was lack of infrastructural facilities.

The researcher therefore recommended that the Local Government Council should embark on tourism venture as a way of diversifying the economy of the rural people. This will also attract revenue to the council to reduce over dependence on statutory allocation from the Federal Government. This will create jobs, for young school leavers. Tourism attractions (sites) that do not have competing uses should be developed first as well as those whose physical carrying capacity is high. Such sites include beaches, cliffs, caves, lakes and streams. There should be provision of the infrastructural needs of the area in order to make the tourism areas or region conducive to foreigners. This calls for the development of villages where the eco-tourism attractions exists as camp sites or tourism villages, with medium and small scale hotels with quality services but with moderate prices to meet the needs of the rich business tourists who would have preferred big deluxe hotels. To attract foreigners, the tourism sites which are the points of attractions must be developed in readiness for tourists. This requires the Local Government setting up a committee that will prepare a feasibility study on tourism development for the council using this research study as a basis. Finally, since the government policy on tourism at the Federal and State Government levels is favorable, the council should encourage people or even itself to embark on tourism bearing in mind that investment in tourism is only difficult at the initial stage, after that every other investment is provided by the income earned from tourists. It is necessary to suggest that people should not only go into difficult the hospitality industry but private sector should be encouraged by NTP (Nigerian Tourism Board) to go into the establishment of resorts centers, amusement parks and family vacation in the Local Government Area. The study should therefore be seen as a basis for further studies on tourism industry in the Local Government Area aimed at using tourism as a basis for rural development (Transformation). Though this study is centered on eco-tourism, further research of tourism in Biase Local Government Area, shall focus on cultural and religious aspect of tourism in the area.



Plate I: An Example of a Beach at Agwuagune



Plate II: Cliffs at Obum and Etana Villages



Plate III: Ogbak Creek, Ibini



Plate IV: Ogbak Stream, Ibini



Plate V: “Ake-bob” Lake at Ibini (Traditional Lake Resort Center for Fishing)

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Appendix

APPENDIX IVA

ECO-TOURISM SITES ASSESSMENT FACTORS AND THEIR WEIGHTING (RATING)

	ACCESSIBILITY			RELATIONSHIP			AVAILABLE INFRASTRUCTURES			ATTRactions (SITE WERE RANKED)						PHYSICAL CARRYING CAPACITY			REMARKS			
	ACCESSIBILITY BY ROADWATER	BY TRACKS	NOT ACCESSIBLE	SITE IS ONLY GOOD FOR TOURISM	SITE COMPETING USES	SITE IS BETTER USED FOR OTHER ALTERNATIVES	ADEQUATE: BORNE WATER & ELECTRICITY ROAD	NOT ADEQUATE ONLY ONE FACTOR	NO INFRASTRUCTURE	1 st	2 nd	3 rd	4 th	5 th	6 th	260 VISITS AND ABOVE	150 - 250 PERSONS	0-150 PERSONS	TOTAL SCORES	NO. OF VISITS	FAVOURABLE	NOT FAVOURABLE
WEIGHTED SCORES	15	5	0	12	8	0	12	8	0	6	5	4	2.5	1.5	1.0	10	7	3	100			
NAME OF SITE AND LOCATION																						
A.1. BEACHES																						
i. Ibeji/Abirajung Beach	15	5	-	12			-	8		6						10			56	695	✓	
ii. Agraguna/Abanwan	15	5	-	12			12			6						10			60	1022	✓	
iii. Ikun/Etono/Beakpan and Ugbem	15	5	-	12				8		6						10			56		✓	

B. LAKES																						
i. Ibeji lake (Ake-Ibeji)	15	5	-	-	8		8			5						10			48	240	✓	
ii. Eken Group of lakes Abanwan	15	5	-	-	8		8			5						10			51	720	✓	
iii. Bob Erei lake (Eken) Otum	15	5	-	-	8		8			5						10			51	360	✓	
iv. Egwebe lake (Alono)	15	5	-	-	8		8			5						10			51	190	✓	
v. Eken lake (Abanwan)	15	5	-	-	8		8			5						7			48	-	✓	
vi. Bob Ikun group of lakes Ikun	15	5	-	-	8		8			5						7			48	-	✓	
vii. Uruk lake (Etono)	15	5	-	-	8		8			5						7			48	-	✓	
C. CLIFFS																						
i. Otum/Etono Cliffs	5	-	-	12	-		8				4					10			38	-	✓	
D. HILLS/ISLANDS																						
i. Agraguna Island	15		-	-	12		8					2.5				10			47.5	974	✓	
ii. Umon Island	15		-	-	8		8					2.5				10			43.5	11652	✓	
iii. Akpet/Isae and Environ	15	5	-	-	8		12					2.5				7			49.5	-	✓	
iv. Okurike highland	15	5	-	-	8		8					2.5				7			45.5	-	✓	
v. Egbor Hills	15	5	-	-	8		8					2.5				7			45.5	-	✓	
vi. Ibeji hill	15	5	-	-	8		8					2.5				7			45.5	-	✓	
vii. Alono Elevations	15	5	-	-	8		8					2.5				7			45.5	-	✓	
viii. Beakpan Hills	15	5	-	-	8		8					2.5				7			45.5	-	✓	
E.1. SPRINGS/STREAMS AND CREEKS																						
i. Ogbak stream/Creeks Ibeji	15	5	-	-	8		8						1.5			10			47.5	480	✓	
ii. Otap Creek-Ugbem	15	5	-	-	8		8						1.5			10			47.5	822	✓	
iii. Idobase Spring-Ijam	5	-	-	-	8		8						1.5			10			32.5	-	✓	
F. CAVES																						
i. Agraguna Cave	5	-	-	12			12	-							1.0	10			40	-	✓	
ii. Adim Cave	5	-	-	12			12	-							1.0	10			40	-	✓	

Gross Total of all sites=1,225.5
 Total Number of Eco-tourism sites=24
 Average Scores= $\frac{\text{Gross Total}}{\text{Total Number of Sites}}$

$$= \frac{1,225.5}{24}$$

 =51.1%

APPENDIX IV B

WEIGHTED VALUE AND RANKS OF ECO-TOURISM SITES

S/N	TOURISM ATTRACTION (SITES)	FREQUENCY OF RESPONSE	WEIGHTED VALUE	RANK
1.	Beaches (Sand bars)	50	6	1 st
2.	Lakes	45	5	2 nd
3.	Cliffs	35	4	3 rd
4.	Hills/Islands	30	3	4 th
5.	Springs/Streams	22	2	5 th
6.	Caves	18	1	6 th
		200		

Source: Researcher's Field Survey

APPENDIX V

CALCULATION OF PHYSICAL CARRYING CAPACITY OF SOME SELECTED ECO-TOURISM SITES

$$PCC = A \times \frac{V}{a} \times Rf$$
 Where A = Available area of public use

$$\frac{V}{a} = \text{One Visitor per metre Squared (m}^2\text{)}$$

$$Rf = \text{Rotation factor (Number of visits per day)}$$

$$\text{i.e. } Rf = \frac{\text{Opening Period}}{\text{Average Time of One Visit}}$$

For purpose of this research, the opening period will be from 6 am to 6 pm (12 hours). This is to ensure that the natural features are not over impacted upon by the rate of visits of the visitors or the duration of visits.

i. LAKES:

Average Surface areas of lakes in Biase = 42.95 ha approx 43 ha (430,000m).

$$PCC = 430,000 \times \text{Visitor/m}^2 \times 12 \text{ hours per day}$$

$$= \text{Per day per visitor}$$

$$= 430,000 \times 1 \times 12$$

$$= 5,160,000 \text{ visits per day}$$

ii BEACHES:

Average Surface area of Beaches in Biase = 71.53ha

$$PCC = (71.53 \times 10,000)\text{m} \times \text{Visitor/m}^2 \times 12 \text{ hours per day}$$

$$= 715,300 \times 1 \times 12 = 8,583,600 \text{ Visits per day}$$

iii ISLAND:

Average Surface area = 513.6ha

$$PCC = (513.6 \times 10,000)\text{m} \times 1 \times 12 \text{ visits per day}$$

$$= 61,632,000 \text{ visits per day}$$