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Challenges and Risks in Ecotourism Management: Issues and Opportunities

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ABSTRACT

Ecotourism has been identified as among the bedrocks of tourism development in some parts of Africa. These include nations in eastern Africa, southern Africa and part of western Africa. These countries have over the years, leveraged on the opportunities of ecotourism to compete favourably in the global tourism market. However, various issues and challenges have undermined these huge opportunities of ecotourism for tourism development in a place. This study is aimed at examining some of these challenges and recommending various measures that can be applied to promote sustainable ecotourism development in Nigeria and other parts of Africa. The study used field observation and key informant interview approaches in qualitative research. It also adopted a literature method to understand the literary contributions to the subject matter. Identified challenges were classified under environmental, social and economic challenges. The study also considered risks associated with mass tourism in ecotourist destinations. At the end various measures were recommended to facilitate sustainable ecotourism management in Nigeria and other parts of Africa. The study has implications for sustainable ecotourism management in Africa, especially those places with huge ecotourism opportunities, but with less capacity for sustainable management. This is imperative hence ecotourism derives a fair share of the economic fortunes of those nations.

Keywords: Ecotourism; Ecotourist Destination; Tourism Development; Mass Tourism

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1. Introduction

Since the turn of the 21st Century, tourism has positioned itself as among the viable economic paradigms with the capacity to revitalize dwindling economies. This is owing to the huge contribution of tourism to GDP through income generation and distribution [1–4]. This has motivated nations, states, regions, and localities to harness various tourism opportunities within their respective spaces, to leverage the economic viability of tourism in revamping erring economies. As this surge for tourism development gained momentum in the last two decades, emphasis has been on nations to leverage those tourism opportunities where they have a comparative advantage over other nations in the global tourism market. Various facets of tourism abound, and are in most cases location and/or purpose-specific. The implication is that tourism resources and opportunities vary from one space to another. There are so many typologies of tourism that are anchored on the purpose and/or location of the visit. These include medical tourism, cultural tourism, sports tourism, literary tourism, adventure tourism, birth tourism, ecotourism, among others [5]. The choice of a type of tourism to experience is a function of purpose, location, available income, safety and security considerations, mobility type, among other factors that drive such choices. For instance, among all these factors, tourism safety and security concept has been identified as among the integral factors that propel tourism activities within a destination. Tourism safety and security concept has been found topical in the 21st century tourism conversations within the global space. The concept is a combination of two subsets of tourism safety and tourism security. While tourism safety has to do with the safety of lives and properties of tourists, visitors, hosts, workers and other persons that are found within the destination; tourism security has to do with the security and preservation of tourism resources and other facilities that propel tourism experience within the destination. The implication of this concept is that tourists, visitors, hosts, workers and other persons need to be safe for tourism to thrive in that destination; and also, tourism resources and facilities need to be secured, protected and preserved for tourism to thrive within the destination. Each of these two subsets of the concept needs to be guaranteed for tourism to thrive within the destination. However, ecotourism as one of the typologies of tourism as noted earlier, will be the focus of discussion in this chapter.

Nwankwo noted that 'ecotourism is a success story in most developed countries in the world, hence it is born out of a well-preserved environment. The environment itself is a life-supporting system that contains both living and non-living organisms which are inseparable as they relate to each other in one way or the other' [1]. Ecotourism is a type of tourism where tourism resources are part of the ecosystem of a given space. The ecosystem has to do with all the natural features of the human environment. These natural resources can be harnessed to develop ecotourism facilities in a place. This includes: wildlife, forests, rock features, climate and vegetation, water features, among others. Some nations of the world have leveraged their comparative advantage from ecotourism facilities to compete favourably in the global tourism market. For instance, most of the nations in East Africa have more ecotourism resources than nations in Western part of Africa where cultural resources have formed bulk of their tourism resources. However, this analogy does not in any way imply that nations in West Africa do not have ecotourism resources. They have, but not commensurate with what is obtainable at Eastern African nations. For instance, there are some developed ecotourism resources in Nigeria. They include: Obudu Mountain Resort in Cross River State, Cross River National Park in Cross River State, Ezeagu Tourist Complex in Enugu State, Ogbunike Cave in Anambra State, Awhum Monastery in Enugu State, Old Oyo National Park in Oyo State, Okomu National Park in Edo State, Jos Wildlife Park in Plateau State, Kainji Dam National Park in Niger State, Yankari National Park in Bauchi State, just to mention a few.

2. Method

This is qualitative research where field observation, key informant interviews and documentary sources were used for data collection. While the observational study was focused on past visits to some of the ecotourism destinations in Nigeria, key informant interview was targeted at some of the key staff and visitors to the sampled ecotourism sites in Nigeria. The observational and interview methods were not structured. It spanned through eight years (2014 to 2022). Also, during the visits to the sites, convenient and purposive sampling techniques guided the study in sampling fourteen

(14) key informants for the study (nine park staffs and six visitors to the parks). This was owing to the huge estimated study population for the study. Since the population was not known. It was estimated at twenty-five thousand (25,000). This includes staffs of the sampled ecotourism destinations, and their respective visitors. During the observations and key informant interviews, field notes and recorders were used to record observed data and oral information from key informants. Focused on visitors' activities, carrying capacity, park management procedures, visitor/staff interactions, visitor/environment interactions, etc. It was an overt observation where the intention of the researchers was known. At some points, written permissions were requested from the researchers' institutions, and these were provided. Visited ecotourist destinations include Okwangwo Division of Cross River National Park, Yankari Games Reserve, Gashaka Gumti National Park, and Okomu National Park. At the end, descriptive and thematic methods were used for data analysis. One of the major limitations of the study was that the bulk of the data were sourced from observations and conversations with staff and visitors to the park. During the study, pictorial coverage was prohibited, likewise access to some sensitive documents. However, the study was able to elicit quality information through these observations and conversations. Moreover, it is expected that future studies would address these limitations.

3. Result and Discussion

Despite the gains and other opportunities of ecotourism development within a given space, there are issues of challenges and risks that militate against the functionality and sustainability of these developed ecotourism facilities within their respective tourist destinations. This forms the major concern of this paper which is aimed at understanding the various challenges and risks that are peculiar to ecotourism resources and the possible solutions to guarantee the functionality and sustainability of the ecotourism facilities, especially developed ecotourism facilities. This will be done under strategic subheadings that consider various issues bordering on the risks and challenges of ecotourism resources. It is expected that at the end, readers would have been equipped with critical knowledge on the preservation and sustainability of ecotourism resources.

3.1. Environmental, Social and Economic Challenges of Ecotourism

This aspect of the paper will address various challenges of ecotourism within the Nigerian space as it concerns environment, social and economic dispositions. This is expected to give a balanced conversation on the challenges of ecotourism resources in the 21st Century. From the environmental perspective, despite the fact that ecotourism has some benefits on the human environment like enlightening the hosts and their visitors on the environmental ethics towards the preservation of biodiversity, supporting and promoting the conservation of natural environment, etc, there are some challenges ecotourism can pose to the biodiversity of not well-developed and monitored areas. These include:

a. *Inversion of new species*—ecotourism development invades new species and does not give these new species the opportunity for standardisation and sustainability. This includes those fauna and flora species that are either developing or regenerating. Most of the time, these new species are either lost by death or dispersal to other locations. Hence, ecotourism developers need to be mindful of possible invasion of the biodiversity by ecotourism activities, and design sustainable solutions to preserve and sustain new species for regeneration.
b. *Wildlife disturbance*—wildlife form the bulk of ecotourism facilities in most ecotourist destinations. This informs why ecotourism developers give more considerations to the availability of wildlife resources prior to investment in ecotourism venture. Most of the time this wildlife is disturbed by ecotourism development. This is because most of this wildlife especially fauna, would prefer to settle more in a calm and less noisy environment, where human disturbances are not common. To this end, ecotourism developers need to design sustainable strategies to ensure that human presence and noise are reduced within the natural habitat of this wildlife.
c. *Commercialisation of natural resources*—natural resources like fauna, flora, rock features, water bodies, etc are naturally endowed within the human environment. Ecotourism development is targeted at commercialisation of these natural resources for ecotourism

activities. This implies that these resources are harnessed and maximised for economic gains through ecotourism development. They are the nucleus of ecotourism development; hence if not checked, their original values can be compromised for economic values. This can pose some sustainability issues and regenerative threats to these natural resources within the human environment. However, it is advised that ecotourism experts will give greater consideration to the fact that these natural resources cannot be replicated or restored when completely destroyed by commercialisation for ecotourism development.

d. *Vegetation damage*—ecotourism development causes some indirect damage to the natural vegetation of a given environment. In the design of ecotourism development, the natural vegetation is altered, cleared and invaded. This has a huge indirect damage on the vegetation; hence the regenerative principles of the vegetation will be greatly affected, and in the long run, some of the species would have disappeared from the area due to ecotourism activities. Although in most cases this challenge is inevitable in ecotourism development, ecotourism developers can mitigate the extent of damage through strategies designed and principles.

e. *Pollution*—ecotourism development brings a lot of noise, air and waste pollution within the ecotourist destination. These variants of pollution do not support the sustainability and preservation of the human environment. While noise pollution is generated by mechanical equipment, other sounds, etc; air pollution is generated by carbon emissions from mechanical equipment, among others; waste pollution is generated by dirt and other disposables, etc. Air pollution has negative effects on the fauna and flora, and can cause their migrations out of the destination. Also waste pollution can cause huge damage on the water bodies. Despite the fact that these variants of pollution are also inevitable in ecotourist destination, efforts can be made to reduce their adverse effects through orientations and collaborative engagements among all the concerned stakeholders within the ecotourist destination area.

f. *Changes in animal behaviour*—human presence and interference within the destination have the tendency to impact some changes in the animal behaviour within the destination. This could be in the form of aggression, migration, reproduction, dispersal, etc. The changes in behaviour may be as a result of the need to adapt to the human interference, unnecessary migrations to assumed better locations, aggressiveness to one another or to human beings in a bid to sustain their desirable environment, etc. This is also inevitable due to the fact that ecotourism development can bring about some noise and human interference to the biodiversity. However, strategic designs and implementations can address this challenge.

These are some of the environmental challenges of ecotourism development within a destination. However, despite the inevitability and intensity of most of the listed challenges, some sustainable measures were outlined to check their respective effects on the biodiversity. More so, the next discussion will consider the socio-cultural challenges of ecotourism development within a given tourist destination. That notwithstanding, ecotourism development has some positive impacts on the socio-cultural structure of the host community. This includes promotion of cultural identity, opportunities for cultural exchange and diversification, awareness and promotion of cultural relevance, conservation and promotion of indigenous arts and crafts, promotion of cultural values and other intangible heritage resources of the host, among others. Take for instance, Yankari Game Reserve Bauchi, Okwangwo Division of Cross River National Park, Gashaka Gumti National Park, etc, are good examples. Despite these huge benefits of ecotourism on the socio-cultural landscape of the host, there are some challenges of ecotourism on the socio-cultural lives of the host community. These include:

a. *Commercialisation of religion and culture*—aspects of the hosts' religion and culture within the ecotourist destination, have been identified as tourism opportunities that can be used to boost ecotourism viability within the destination. It offers other options and alternatives to ecotourists while on ecotourism experience. Incidentally, this has led to undesired commercialisation of the hosts' religion and culture in a bid to boost ecotourism opportunities within the destination. Some of these aspects of the hosts' culture include; traditional dance, religious rituals, folklores, traditional ceremonies, belief systems, religious practices, myths

and legends, just to mention a few. It is expected that while ecotourism developers are making plans to harness the religious and cultural resources of the people to spice up tourist experience while in the ecotourist destination, efforts should be made to preserve the values of the hosts' religion and culture.

b. *Prevalence of social problems and other social vices*—it was stated earlier that while tourism has been identified as an instrument for rural, regional and national transformations, efforts should be made to check incidences of overtourism. Huge presence of tourists within a destination can trigger social problems like crimes, prostitution, drug abuse, alcohol abuse, espionage activities, among others. In the past, it was recorded some tourists visited Cross River National Park during Calabar Carnival, exposing the host to prostitution, child labour, etc. A similar incident was also recorded at Argungu Fishing Festival in Kebi State Nigeria. These issues may unleash untold social crises and unrest in the destination, if not checked. This is owing to the fact that initially tourists would want to feel relaxed in the place visited, but will gradually introduce these vices, either intentionally and/or unintentionally. Suggestively, enlightenment programs, orientations and strategic monitoring within the destination, can check social vices within the ecotourist destination [6–8].

c. *Degradation of host's cultures by foreign invasions*—in Nigeria and other parts of Africa, is dear to the people. They value their culture and other value system; hence this has not only determined their livelihood and communal living, it has also been used as the connect between them and their ancestors. This explains why they could be hostile when they felt that their culture and value system is being abused. Ecotourists within the destination can either directly or indirectly abuse the people's culture and value system, and undermine the values of these indigenous cultures. This could be either because they are not familiar with the culture and value system, or because they do not like some aspects of the culture of the host community. This can arouse hostility from the host against their visitors and ecotourism projects within their locality. This can also be managed by not only orientation and awareness campaigns within the destination, but also by putting in place to separate ecotourists from direct mingling with the culture and value system of the host community.

d. *Undesirable inconsistencies in host's culture calendar*—most of the traditional communities in Africa have abundant cultural heritage resources that have been traditionally designed to run in a calendar year. Every cultural activity has a particular period of the year it is celebrated, except in the case of biennial cultural activities. But with the presence of ecotourism development and the desire to boost ecotourism tourism opportunities within the destination, the developers would always want to harness these cultural heritage resources to make tourists experience within the destination more fascinating. Sometimes some cultural displays are designed to entertain ecotourists while in the destination, without considering the position of those cultural resources within the traditional calendar of the host. For instance, the famous Ikeji Masquerade Festivals among some Igbo communities in southeast Nigeria, which is celebrated in the month of March every year, can be stage-managed to be performed at any time, just to entertain the ecotourists [9–11]. The ecotourism developers need to consider the preservation of the cultural values of the host while designing the ecotourism development activities in any destination.

The previous discussion has been on the sociocultural challenges of ecotourism development within the destination. Some practical recommendations were listed to check these challenges so as to ensure maximum utilization of gains of ecotourism development, at the same time preserving the indigenous cultural heritage resources of the host. Moreover, next discussion will be on the economic challenges of ecotourism development within the destination. Despite the huge economic benefits of ecotourism, such as income generation and distribution, infrastructural and superstructural development, promotion of local economic contents, foreign exchange earnings, external investment opportunities, among others, there are some potential economic challenges of ecotourism. These challenges are discussed below:

a. *Economic leakages and sabotage*—this is situation where economic earnings from ecotourism development are leaking out of the destination to another place.

Ideally such earnings are meant to be spent within the destination to boost the economic opportunities of the destination. When a majority of total earnings is leaking out of the destination's economy, it is a huge economic sabotage against the host. This can cause unnecessary hostilities when the economic gains of ecotourism development are not felt by the host. This challenge usually emanates from the developers, workers, expatriates, volunteers, etc, who are working on the ecotourism project within the destination, but are not originally from the areas. However, efforts should be made to encourage these categories of persons who are working on the ecotourism project, to spend a better share of their earnings within the destination. This can be achieved by constructing residential houses, medical facilities, educational facilities, hotels and other accommodation units, etc, within the destination, to guarantee their comforts while working in the destination.

b. *Unnecessary inflation*—inflation has been defined by economists as an economic system where a higher percentage of money is chasing lower percentage of goods, causing unnecessary increase in prices of goods and services. Ecotourism activities can cause huge inflationary rise in prices of goods and services within the destination, as a result of huge traffic of tourists and other visitors to the destination. This unprecedented rise in prices of goods and services is mostly to the detriment of the host community. The challenge can be managed by adopting a systematic and strategic price regulatory system within the ecotourist destination. Also, ecotourism developers can encourage more external investments and supplies to the community to boost availability of goods and services within the destination.

c. *Unhealthy economic competitions within the host community*—one of the general challenges of economic development within a place is that it will lead to unnecessary and unhealthy rise in economic competitions. This is because of the huge opportunities for income generation and distribution, that come with economic development within the destination. This can cause unnecessary rivalry amongst members of the host community or host community and their other external traders and service providers within the destination. Sustainable and strategic economic policies, and legal frameworks, can be designed by ecotourism developers to address challenges of unhealthy rivalry and competitions that may arise from economic competitions within the destination.

d. *Income inequality among members of the host community*—this is when members of the host community have huge economic gap among them. Ecotourism development has the tendency to boost economic opportunities within the destination through income generation and distribution, as noted earlier. However, this can cause issues arising from huge income gap among members of the host community, by creating unnecessary economic class in the community unhealthy rivalry that comes with class system within a society. Apart from unnecessary economic hindrances, this challenge can equally cause serious socio-economic problems within the destination, including causing some problems against the smooth running of ecotourism activities within the destination [12]. Designing relevant laws and policies, and availability of law enforcement agencies within the destination, can check this menace.

3.2. Risks Associated with Mass Tourism in Ecotourist Destinations

This section of the paper will consider some of the risks that are associated with mass tourism at ecotourist destinations. What is Mass Tourism? This can succinctly be defined as the type of tourism where large number of tourists engage in a group tour to a particular tourist destination. This large number of tourists visit the same destination at the same time to reduce overhead cost and enjoy wonderful company with other tourists to have greater tourists experience within the destination. Mass tourism can also be defined as a type of tourism that involves strategic, standardised, and responsive packaged tours that are often marketed to a wider audience, or group of persons, colleagues, classmates, club friends, peers, religious groups, etc. it is mostly done through online booking platforms, travel agents, strategic contacts, online contacts, etc [13, 14]. This type of tourism has dominated tourism market in recent times due to its capacity to guarantee low cost and convenient travel experiences,

less stressful and more engaging tourist experiences among others. Travel agents and/or tour operators who specialise in selling packaged tours to mass tourists, would always set religious groups, schools, social clubs, families, associations, companies, etc, as target markets, hence their potentialities to engage in mass tourism activities to various choice destinations. However, despite the fact that mass tourism has the potential to boost economies and promote tourist destinations to enviable heights, including creating opportunities and income earnings for the host, and promoting the infrastructural base of the destination, there are some inherent challenges mass tourism can bring to a destination, if not managed sustainably. This includes overcrowding, abuse of local culture and tradition, pollution, gentrification, commercialisation of indigenous cultures and traditions, etc. Mass tourism initiatives that are not properly managed, can cause unnecessary rise in hostilities between the host and their visitors, and between the hosts and tourism projects within the destination.

Moreover, mass tourism, just like other types of tourism, has both merits and demerits. The merits would always outshine demerits if proper strategic policies and structural guidelines are designed to put the activities of mass tourism in a given tourism destination in check. In furtherance of this discussion, this aspect of the paper will focus on the risks that are associated with mass tourism in ecotourist destinations. This shall be discussed on two fronts: risks associated with mass tourism at ecotourist destinations as it affects tourists, and risks associated with mass tourism at ecotourist destinations as it affects ecotourism resources.

Risks associated with mass tourism at ecotourist destinations as it affects tourists:

Risks associated with mass tourism at ecotourist destinations as they affect tourists and other visitors, have to do with those risks that tourists on mass tourism trips face at ecotourist destinations. This relates to the concept of tourist safety as highlighted at the beginning of this chapter; although in this case, the emphasis is on ecotourist destinations. Risks associated with mass tourism at ecotourist destinations as it concerns the safety of tourists and other visitors, will be discussed using the six risk dimension models as noted by Rahman and Haque[4]. They include:

a. *The financial risks*—this type of risk represents tourists' and visitors' value for money, and understanding the value of visiting the destination within the context of the value of money invested in such trips. In mass tourism to ecotourist destinations, visitors may face the risk of losing value for their money due to the huge number of tourists involved in the mass tourism trip. Because of the volume of tourists or visitors that visit the site at the same time, some aspects of the expected values and comforts that are anticipated by respective tourists, may be overlooked, and this may lead to feelings of disappointment among tourists. This may not likely be the same for individual tourist experiences at ecotourist destinations.

b. *Time risks*—this kind of mass tourism risk has to do with the probability of tour schedule being delayed or canceled to accommodate huge interests, looking at the volume of tourists that are embarking on that particular group tour. Adequate time management has been identified as among the major tourists risks at ecotourist destinations. For instance, in ecotourist destination with wildlife resources, these wildlife have their period of movements and appearances within the destination. It is usually difficult to track these wildlife timers in mass tourism to ecotourism during mass tourism visits, unlike in individual tours to the same destination.

c. *Performance risks*— Hasan et al.[15] infer that in most cases performance risk on tourists is familiar with nature-based tourism where biodiversity variations form the bulk of tourism resources. Performance risk has to do with when tourist product, services and experiences do not meet the expectation of tourist. This is one of the major risks at ecotourist destination that can discourage future visit from mass tourist and other categories of tourists. This is because on the most ecotourist destination website, some species of fauna and flora may be displayed, but not be sited during visits to these destinations. These could be a result of mortality, disappearance or health issues on the part of resources, or dishonesty on the part of marketers. Such regrets are more pronounced during mass tourism experiences due to the high expectations from the tourist. In some cases, the species might be available but the mass tourist maybe denied access to them due to over-

crowding issue which could be harmful to the health of this wildlife. However, it behoves on ecotourist destination promoters to abide by the principles of honesty as among the basic ethical issues in tourism development when promoting the ecotourist destination on the internet and other prints and the electronic media

d. *Social risks*—In the opinion of Hu [16], social risk has to do with when tourist and other visitors experiences social instability within a particular tourist destination as a result of crime, political unrest, terrorism, kidnapping and other social vices that negatively affect tourist experience within a destination. In the case of mass tourism in ecotourist destinations, social risks tend to be higher due to the volume of tourist that visited the destination at once and the remote nature of the destination. Most ecotourism sites in Nigeria are located in remote area, inside a forest area with minimal human presence. This is due to the fact that such environments are conducive habitats for wildlife. So, social risks on tourist are higher in some places, especially where there is huge presence of tourist on mass tourism experiences. These risks can be checked through constant security surveillance by patrols and cameras, by the management of such destinations.

e. *Psychological risks*—Rahman and Haque [4], in their study concluded that psychological risk affects the choice of ecotourist destination among tourist. The concept of psychological risk posits that the visit to a particular tourist destination will negatively affect the personality or social status of a tourist, despite the massive availability of tourist resources and other facilities within the destination. This kind of risk is not prominent in mass tourism trips to ecotourist destination. Due to the huge availability of tourist that are on mass tourism visit, the personality of social status of each of this tourist may not be given special concentration, hence all individual tourists are treated as a group. Individual personality and classes may not be given preferential treatment due to the main concern on the group. These perception or experiences has the tendency to discourage some individual tourists from participating in mass tourism at ecotourist destinations.

f. *Physical risk*—Fuchs and Reichel [17], claim that physical risk has to do with all the physical harm or danger the tourist is exposed to while at eco tourist destinations. These include food poisoning, auto fatality, facility malfunctioning, hostilities from the host and other visitors, natural hazards, unfavourable weather conditions, among others within the destination. Physical risk, like the previously mentioned risks, has a higher probability of occurrence in eco-tourist destination during mass tourism visit. More so, owing to the huge number of tourists moving at the same time within the destination, this tourist can easily be exposed to service break down, fatalities, natural hazards, animal attacks, insect bite, water accidents, mountain accident, harsh weather conditions unfriendly attitudes from the host, unprofessional behaviour from tour guides and other staff, among others. Most of these tourist issue can be managed in individual tourist visit to eco-tourist destination. However, for mass tourism at ecotourist destination, these can be managed through adequate information and orientation for the mass tourist, prior to their visit. Also, during visit, directional side post can be strategically positioned to guide mass tourist and lead them out of danger spots within the ecotourist destination.

These are the six major categories of risks at ecotourist destinations during mass tourism. The effects of these risks can be checked to the barest minimum using the instrumentality of the relevant information and orientation for prospective mass tourists prior to their visits to ecotourist destinations. Also, the ecotourism developers and promoters should also take the responsibility of conducting quality site analysis of the destination and make the findings known, using the basic information and orientation of mass tourists and other categories of tourists, prior to their visits to ecotourist destinations. The next phase of the discussion will be on the risks associated with mass tourism at ecotourist destinations as it affects ecotourism resources. It is worth noting that ecotourism resources are the major motivator of ecotourism development within a given geographical space. The availability of these resources determines the overall prospects of ecotourism development. This is the major concern of the concept of tourism security, which has to do with the availability, conservation, preservation and sustainability of

ecotourism resources in a given area. These resources need to be preserved to be able to serve as ecotourism resources and attract all categories of tourists including mass tourists to ecotourist destinations. However, despite the huge benefit of mass tourism to ecotourist destinations, there are some risks ecotourism resources can face within the destination as a result of mass tourism activities. Some of these risks are briefly discussed below:

a. *Defacement and unnecessary cracks*—in the case of caves, rock-shelters and rock-overhangs, uncontrolled mass tourism activities are used to exert unnecessary pressures on them by way of defacement and unnecessary cracks. This explains the visible unwarranted writings, paintings and engravings on the surface of these natural formations in most ecotourist destinations, when you visit them. No thanks to mass tourism activities at such sites. Apart from destroying the aesthetics of these natural formations, it also undermines their preservation and sustainability. A typical example can be seen at some of the developed caves in Nigeria like Ogbunike Cave in Anambra State, Marshal caves in Bauchi State, Auhum caves in Enugu State, among others. This explains why it is very necessary to design necessary instruments that can properly manage activities of mass tourists and other categories of tourists at ecotourist destinations.

b. *Unnecessary abuse of water resources*—Among the dominant features of notable ecotourist destinations, is scintillating water resources. This includes lakes, waterfalls, streams, rivers, etc. Many of the ecotourist destinations in Nigeria have water resources as part of their features that attract tourists and other visitors (Yankari National Park, Cross River National Park, Okomu National Park, Old Oyo National Park, Kainji National Park, just to mention a few). Incidentally, during mass tourism visits to ecotourist destinations, most of these water bodies are heavily abused by tourists and other tourists. They litter these water bodies with dirt, defecate and urinate in them and around them. Most of the time these foul plays around the water bodies are not seen by the tour guides due to the huge number of tourists that visited the destination at the same time in the name of mass tourism. Apart from the fact that these foul activities do not support the preservation and sustainability of these water bodies, it can also contaminate these water bodies and make them unhealthy for both humans, animals and plants within the vicinity of the water resources within the destination. This calls for a systematic carrying capacity analysis for the destination, to be able to manage the activities of mass tourism.

c. *Distraction of natural habitats for the wildlife*—In most ecotourist destinations, wildlife resources have their peculiar habitats where they live, grow and reproduce. They have come to live in their natural habitat without prior knowledge that it is an ecotourist destination. However, human presence and noise during mass tourism activities have caused more harm to the serene environment of the wildlife. This has either affected the reproductive behaviour of the fauna and flora species especially fauna, making them become more aggressive, or caused their migrations to far away locations. This has resulted to the dearth of big games in most ecotourist destinations around Nigeria and some other parts of the globe. This risk is much possible with the activities of mass tourism at ecotourist destinations, due to the huge number of tourists that are involved, including other visitors. This risk will not only degrade the values of these ecotourist destinations, but also cause serious dearth of big games in the wildlife. For instance, as of 2006 there were over 650 species of birds within the Yankari National Park in Bauchi State. But recently, in 2025, this number has depreciated significantly. These were a result of noise and other distractions at the natural habitat of these species of birds, hence many were said to have migrated out of the park to more conducive environments for their habitats. As noted earlier, this challenge is common at most ecotourist destinations in Nigeria and other parts of Africa and beyond, due to the activities of mass tourism. Also, big games have equally disappeared to some other more conducive environment for their habitation. Mass tourism contributes a lot to this challenge as a result of huge number of tourists that visit the sites at the same time. It is strategically advised that park managers and other managers of ecotourist destinations should strictly apply the principles of carrying capacity that is peculiar

to the site, during mass tourism activities at these ecotourists destinations.

d. *Animal poisoning and mortality*—incidences of animal poisoning and mortality are relatively higher during mass tourism at ecotourist destinations. This is because during mass tourism activities, some of the tourists may wish to throw objects at the animals, try to feed these species without understanding their dietary habits. In most cases, the tour guides or park managers may not be able to monitor these behaviours from the individual tourists during mass tourism activities, especially at the natural habitats of these animal species. Cases of mortality and illness have been reported after some of the mass tourism activities at some ecotourists destinations. The risks can be controlled by designing strategic policies on tourist habits and movements within ecotourist destinations. Apart from the facts that these mass tourists are given quality orientations prior to their visits to the natural habitats of these animal species, some directional signposts can also be mounted at strategic locations to remind tourists and other visitors of those issues that were discussed during orientations.

e. *Unrestricted poaching and logging activities*—poaching and logging activities have been identified as among the major challenges of ecotourism development in Nigeria[18]. It has to do with the illegal hunting of animals and cutting of timbers and firewood, within the destination. Many of the ecotourist destinations in Nigeria that were mentioned earlier are not left out. It has crippled some sections of the ecotourist destinations and drastically reduced the optimal functions of these destinations. While logging will deforest the forest and make the natural habitat of big games and other animals porous, poaching will not only reduce the availability of games due to killings for economic and subsistence purposes, but it will also cause the migrations of these animals to other places that look more conducive for them. Uncontrolled mass tourism activities at ecotourists destinations, have the tendency to fix the destination to the risk of poaching and logging activities. Some individuals among the mass tourism group may indulge in these activities either while on the trip, or during a repeat visit. This explains why it was noted earlier that ecotourist destination managers should have good strategies for checking activities of individual tourists during mass tourism at ecotourist destinations.

In conclusion, these are some of the risks that are associated with mass tourism at ecotourist destinations as it affects ecotourism resources. These resources need to be conserved and preserved to ensure a sustainable growth of ecotourism resources and destinations, so that these sites can compete favourably in the global ecotourism market.

3.3. Managing Tourist Impacts on Fragile Ecosystem

The immense contribution of ecosystem to the development of ecotourism cannot be undermined. Ecosystem is a community that comprises two sub-communities called biotic and abiotic communities. While biotic community refers to living things within the ecosystem, abiotic community refers to all the non-living things within the ecosystem. These two sub-communities support each other symbiotically to ensure a sustainable ecosystem. Ecosystem can also be seen as a community within a biosphere of two subsets who interact to ensure a self-sustaining system that impacts sustainably on the subsystems of the whole ecosystem. Having considered a brief understanding of the nature and functionalities of ecosystem, this aspect of the work will focus on how to manage tourists impacts on the fragile ecosystem. This is necessary owing to the vital position of ecosystem in the harnessing and development of ecotourist destinations in a given space. First and foremost, Weaver[19], had identified two principal approaches to ecotourism development, that will not only make ecotourism sustainable and productive, but also preserve the variables in the ecosystem and ensure their regeneration and sustainability. This includes the minimalistic approach and comprehensive approach. While the minimalistic approach is focused on the present gains and opportunities of ecosystem in ecotourism development within a given area, the comprehensive approach which is the opposite of the minimalistic approach, is focused on the future of ecotourism variables to promote ecotourism development. The deep concern of the comprehensive approach is on the understanding and collaborations among various stakeholders towards ensuring a sustainable future for the ecotourism project, by preserving the future of the ecosystem.

Therefore, comprehensive approach promotes regenerative ecotourism principles within a given destination. Regenerative ecotourism principles are those principles that state that even as you develop ecotourism within a destination for economic and other gains, the major concern should be on the revival, survival, growth and sustainability of those ecosystem variables that were harnessed for ecotourism development.

However, the issue of managing tourists impacts on fragile ecosystem will be discussed under some critical models. These models will enhance the understanding of managing fragile ecosystem during ecotourism development activities within a given destination. These models include:

a. *The Destination Region Model*—this is one of the critical models that can be used to preserve and sustain fragile ecosystem in ecotourism development. This model states that to ensure adequate protection and preservation of fragile ecosystem, there is a need to divide the available space into two: fragile and none fragile spaces. This creates two sub-regions within the entire ecosystem space. With this separation ecotourism activities would be restricted or limited from the fragile region, concentrated more at the none fragile region of the ecosystem. This would enhance the conservation and preservation of the fragile ecosystem from ecotourism activities within the destination. The application of this model to ecosystem conservation entails a careful and strategic identification of the various variables in the entire ecosystem. This identification will be followed by the categorisation of all the variables in the ecosystem into two sub-groups of fragile and none fragile variables.

b. *Circuit or Tour Model*—this is another interesting model that was designed to protect fragile ecosystems. It acts as a follow up to the previous model, destination region model. For instance, while destination region model posits that the ecosystem should be divided into two sub regions of fragile and none fragile areas, to protect and preserve the fragile ecosystem, Circuit or Tour Model posits that within the ecotourist destination, tour routes in the destination should be created through the areas where tourists' presence will not hamper the preservation and sustainability of the ecosystem. These routes are created bearing in mind the fragile nature of some ecosystem variables. The tour routes limit access to the fragile areas in the ecosystem. In most cases, directional signs are strategically positioned to direct tourists through those routes that have been created off the fragile ecosystem areas. However, while some fragile ecosystem areas are completely denied access routes, limited routes are created in some fragile ecosystem areas, but with strategies to preserve and sustain the fragile ecosystem variables. In most cases such unusual routes within the fragile ecosystem areas are not meant to be used by tourists/visitors, but to facilitate periodic oversight and inventory of the fragile ecosystem by the park staff.

c. *Twin Model*—the operation of this model is positioned on the strength of the two previous models (Destination Region Model and Circuit or Tour Model). For instance, while the Destination Region Model identifies and divides the ecosystem into two sub-regions of fragile and none fragile ecosystems, the concern of the Circuit or Tour Model is to create routes and access within the none fragile or less fragile ecosystem areas to reduce the degree of human damage on the fragile ecosystem. However, the Twin Model posits that in an ecotourism space, a large area will be mapped from the none fragile ecosystem areas for ecotourism development activities like the construction of hotels, guest houses, supermarkets, hostels, discotheques, eateries, bars, event centres, etc. Developers and other providers of ecotourism services would largely focus in this specially mapped area for the various development activities within the destination. Cinema houses and other man-made attractions can equally be cited in such areas. This position of the Twin Model is aimed at reducing and eradicating damage or distraction from the fragile ecosystem areas within the destination by directing the attention of tourists within the destination, off the fragile ecosystem areas, to other areas where they can relax, express themselves, build memorable experiences and engage themselves with other recreational activities within the destination.

d. *Recreation Opportunity Spectrum (ROS)*—it is worth noting that every space would always have a limit to what it can accommodate to manage the incidences of overloading or overuse on the space. The focus of

Recreation Opportunity Spectrum is to give an analysis of the carrying capacity of a given ecotourism space. The model can be used to assess the number of tourists or visitors a destination can accommodate at any point in time. It would strategically organise the destination and influx of tourists/visitors to ensure that the carrying capacity benchmark of the site is not exposed to the menace of overuse, overcrowding and or other challenges of non-controlled huge traffic to the site. More so, Recreation Opportunity Spectrum (ROS) model has four tools that it uses to actualise its aims on the analysis of the carrying capacity of a site. This includes:

a. Allocating and planning environmental resources—This ROS tool is used in projecting specific recreational activities to be experienced during ecotourism activities in a destination, while giving a huge consideration on other available opportunities in the destination. It exposes those resources that have the capacity to accommodate a greater number of tourists/visitors to the site, and protects those resources with limited capacities to accommodate huge tourist/visitor traffic in the destination.
b. Inventory of recreational resources—This ROS on the other hand is used in taking strategic inventory of all the resources within the ecotourist destination. It aids in giving a clear understanding of the record of specific resources within the ecotourist destination. It will also give information on the degree or extent of satisfaction of tourists and visitors within the site.
c. Estimating the consequences of management—This ROS tool is focused on assessing the consequences of management decisions on environmental conservation. In most cases, many ecotourism managements have management plans and policies that are focused on maximising economic gains of ecotourist destinations at the expense of the conservation of various resources in the site. The primary interest of ecotourism development is to conserve various natural resources and reposition them for ecotourism activities, without jeopardising their regenerative and sustainability tendencies.
d. Marching visitors experiences with available resources—It is important to note that although one of the aims of ecotourism development is to conserve the biodiversity of the destination, the central aim of tourism development in most tourist destinations is economic motivations and other gains. However, this particular ROS tool is focused on economic aspects by ensuring that tourist experience at the destination is top-notch, so that future visits can be guaranteed. This is actualised by ensuring that the expectations of the tourist are met at the end of the experience.
e. *Limits of Acceptable Change (LAC)*—This is another model that can be used to manage tourist/visitor's impacts at ecotourist destinations with fragile ecosystem. This model tries to predict the extent to which given ecosystem can adapt to a particular change arising from ecotourism development. The model has some indicators that predict what is conditionally and commonly acceptable to the destination, and suggests managing the change to the limit of what the site can accommodate. This is another form of environmental impact assessment, but within ecotourist destination. The LAC model has the capacity to preserve fragile ecosystems and other reserved areas within the site by predicting the extent of change the site can accommodate. More so, De Witt [20], gave some eight implementational phases to be used in actualising the objectives of the LAC model within an ecotourism destination:

a— The first phase is to select the indicators of various resources and their social conditions within the site.
b— The first phase is followed by carefully taking an inventory of all the existing resources within the destination and their respective social conditions.
c— In the third stage, the developer is expected to specify the acceptable standard of the resources, and their social conditions.
d— In the fourth phase of the LAC model implementation, the developer is expected to identify alternative

opportunities and class allocations for the resources.

e— The fifth stage is the evaluation and selection of preferred alternatives for the resources.

f— In phase six, the developer is expected to identify strategic management actions for each of the alternatives towards ensuring a sustainable implementation.

g— In phase seven of the LAC model implementation, the developer will identify all the specific issues and concerns for each of the resources.

h— In the last phase, the developer is expected to consider defining and describing wilderness recreation opportunity classes for the various stakeholders and developers[1].

These are some of the models that can be explored to check destruction of fragile ecosystems within ecotourism destinations. Ecosystems are the backbones of ecotourism development, hence the need for the conservation and preservation of the ecosystem for its sustainability. More so, the application of these models is site specific. This implies that the application is dependent on the peculiarities of ecotourism sites. Developers are expected to carefully consider models that are peculiar to a particular site and explore them as tools for managing fragile ecosystems within the space.

4. Conclusions

Tourism development through ecotourism, has aided economic development of many nations globally[21–23]. This is especially with those nations with huge ecotourism potentialities (i.e Kenya, Tanzania, Botswana, South Africa, Zimbabwe, Zambia, etc). These nations have consistently leveraged on this comparative advantage at the global tourism market. However, the ever-present challenges of ecotourism have hindered the maximization of economic advantages of ecotourism for national growth and productivity[24–26]. This study has been able to discuss these challenges and various risks that are associated with ecotourism, and also made useful recommendations on the way forward. In conclusion, many of the practical recommendations that were made in the work need collaborative management techniques to achieve success. This is the collaborative engagements of relevant stakeholders like the host community, public sector, private sector, tourists/visitors, relevant agencies, security agencies and international collaborations. This collaboration will facilitate the application of international best practices in ecotourism development and management within a geographical space.

Author Contributions

The study made a significant contribution by drawing conversations to ecotourism and mass tourism challenges in ecotourist destinations in Nigeria. It also provided collaborative engagement frameworks for relevant stakeholders towards enhancing sustainability principles in ecotourism management in Nigeria. Two authors were involved in the study, and each of them made significant contributions to the work. For instance, while E.A.N. did the conceptualization, methodology, discussion and general supervision; C.E.K. handled the field observations, interview sessions, and literature review. More so, the two authors have read and agreed to the published version of the manuscript.

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