
Role of Ecotourism Development as Biodiversity Conservation Strategy for Climate Change Mitigation in Cross River State-Nigeria

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ABSTRACT

Since the 1970's threats from the Sahelian drought which alerted the world community of a possible climate change and the continued rise in the long term mean temperature of the world, meteorologist, geographers, geologists, climatologist as well as environmentalists and agriculturists have been restive in making efforts to control the envisaged phenomenon. The incessant ecological degradation and attendant biodiversity loss of nature's species all over the world and Nigeria in particular tend to threaten the survival of mankind on planet earth. Efforts so far to mitigate this scenario no doubt have been commendable. These are through brain -storming in conferences and workshops such as the 1987 Montreal protocol, UN sponsored 1992 framework convention on climate change (UNFCCC), the 1997 Kyoto protocol, the Copenhagen conferences in 2010 and the kankok conference in Mexico. Others are introduction of carbon credit and accumulation of carbon in the forest zones, tree planting, awareness campaign, the conservation of forests for Nations with available forest lands, the green wall project etc. This paper focused on highlighting the important role of Ecotourism development in biodiversity conservation efforts and mitigation of increasing climate variability and change in the world and Nigeria in particular. Ecotourism is concerned with nature tourism which advocates conservation of biodiversity, creation of environmental awareness, preservation of biodiversity resources, creates employment and provides other benefits for the stakeholders. These benefits help reduce dependence of people on forest resources and encourage forest regeneration and reclamation which provides avenue for carbon sink and carbon credit to reduce incidence of climate change and provide revenue to Nigeria and the world at large.

Key words: Ecotourism, development, biodiversity conservation, climate change, mitigation

INTRODUCTION

Threats of climate change pose potential challenges to social and economic developments the world over in recent times and measures are being taken to reduce this plague through different options. In Africa and

Nigeria, mitigation and adaptation measures are still a matter of research and difficult task. This is due to the vulnerable nature of the African environment, lack of adequate awareness and the wide spread poverty dominated by farming

systems, cultural and traditional beliefs as well as the low level of technological development prevalent in most African communities.

The factors responsible for the rising temperatures resulting in global warming and possible change in climate no doubt have been unanimously attributed to the increase in green house gases emitted into the atmosphere. These gases emitted include Carbondioxide (CO_2), Nitrous oxide, Methane (CH_4), Ozone (O_3), Carbon Monoxide (CO), Chlorofluoro-carbons (cfc) and Hydrogen Chlorofluoro Carbons (hcfcs) (Ufccc, Odjugo 2012, IPCC, 2007 etc). These gases are produced from known sources such as burning of fossil fuels, combustion from industries, automobiles, homes and massive deforestation of the forest vegetation. Other forces identified are natural sources like earth quake and volcanoes as well as activities of man such as gas emissions, gas flaring (in oil producing areas), refuse incineration and poor farming practices. Researchers have also revealed that these activities produce significant quantities of gases whose proportion greatly overwhelm their natural levels in a normal atmosphere. Global warming and subsequent climate change results from excess accumulation of these gases in the atmosphere. The result of this accumulation is that most parts of the world now witness consistent rise in

temperatures to about 0.6°C yearly. The rise according to Ogogo, has forced analysts to predict that by the year 2100, the world's temperatures will increase by an average of about 1.8°C and up to about 40°C . (Ogogo, 2009).

The impact of the rise in the earth's temperature results in the change of climate. For example, in some areas torrential rainfall and melting of ice often-times lead to flooding which destroy lives and property. In other areas, severe drought leads to low production or crop yield, starvation and death of both humans and animals. Besides, there is also the loss of vegetation cover in most of the forest zones apart from those caused by human activities. The effect also leads to loss of habitats for some fauna and flora species as well as the emergence of exotic species which are parasitic for most environments.

According to meteorological reports on daily temperatures in Nigeria, evidences of climate change abound everywhere through variability in rise in daily temperatures above their normal levels even in supposedly low temperature states like the Plateau, Lagos, Cross River, Rivers etc as well as the rapid rate of desert encroachment, incessant and frequent flooding, low and reduced rainfall and low crop production among others (Sidi, 2012). In summary, global warming has affected the entire earth's surface viz; land use and the

ecosystem, water resources, air quality, forestry, agriculture, health etc. A major concern of most African countries affected by the threats of climate change is efforts in reducing the emissions either at source or by "locking them up" into oceans and terrestrial stores, (Ekpoh, 2002). These measures are effective through forestation and reforestation programs. Strategies such as ecotourism developments which enhance conservation and preservation of the available forest (wildlife) through the protection of the forest vegetation and biodiversity (protected area option) will yield more results as complimentary measure.

This paper assessed the potentials influence of ecotourism on biodiversity conservation and mitigation measure to reduce climate change incidences in Africa and Nigeria in particular. This is because forest vegetation do not only serve as home for fauna and flora but for the development of ecotourism as a conservation project and as abode for carbon sink to reduce carbon from the atmosphere through photosynthesis and carbon sequestration processes.

CONCEPT OF ECOTOURISM

The term Ecotourism simply refers to ecological tourism. This means a type of tourism which deals with nature with a view to conserve its resources for tourism. Ecotourism is an amalgam of the tourism industry but

differs from the conventional tourism practice in approach and concept. This type of tourism has nature conservation as its main focus.

Tourism in this paper is described as the industry that provides the services required by the visitors and catering professionally for them. According to Matheison and Wall (1982), the term tourism is defined as the temporary movement of people (tourist) to destinations outside their normal places of work and residence, the activities undertaken during their stay in these areas or destination and the facilities created to cater for their needs. From above definition, tourism is a service-driven industry which provides the needs of tourists. This means that the ability to secure the tourist therefore is predicated to a large extent on the quality of services and the facilities offered in a particular destination, be it conventional tourism or ecological tourism.

Ecotourism on the other hand according to the International Ecotourism Society (2003) is described as responsible travel to natural areas that are conserved to improve the well-being of the local people. It is a travel to natural areas to experience rare and beautiful ecosystems in their natural state. Ceballos-lascurain (1991) defined ecotourism to mean "the type of tourism activity which involves travelling to relatively undisturbed or uncontaminated areas with the specific objectives of studying,

admiring and enjoying the scenery and its wild plants and animals as well as any existing cultural manifestations found in these areas". The International Union on Conservation of Nature (IUCN) (1996) viewed it as environmentally responsible tourism or travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature. Fennel (1999) presents ecotourism as "a sustainable form of natural resource-based tourism activity that focuses primarily on experience and learning about nature and which is ethically managed to be of low impact, non-consumptive and locally oriented in terms of control, benefits and scale.

The definition of ecotourism is in exhaustive as many scholars, researchers see it from different perspectives and expected benefits. (Shores 1992, Blangy and Wood, 1992, Honey, 1999, etc). It is important to note that in all these definitions, the term ecotourism is viewed as nature tourism with a normative element. A response to the desire to permit access to areas of natural beauty, a type of travel to fragile, pristine and usually protected areas that strive to be of low impact and small scale. It is a type of development which emphasizes conservation and sustainability of resources of nature. According to Ward (1997) ecotourism is a type of tourism which is not only nature based (natural environment) but that which seeks to minimize the harmful impacts

in resource use and still, seek to promote conservation of the environment. It presents a type of tourism that is designed and managed in such a way that such tourism activity which in most cases focus on the heritage resources can continue indefinitely. It also involves activities which focus on the conservation of resources preferably in their wild or natural state endowed in an environment and inherited by the host communities, some of which may be artificial or natural. Finally it focuses on local cultures, wilderness adventures, voluntary, personal growth and the learning of new ways of life on our vulnerable planet. Ecotourism project ensures a travel to destinations where the flora and fauna and cultural heritage makes the primary attraction to the tourists. This type of tourism development enhances the well-being of people and regeneration of the forest environment (resources) and favorable climatic process in the forest vegetation to serve as carbon sink for the survival of mankind on earth.

ECOTOURISM AS A TOURISM ACTIVITY

The emergence of ecotourism concept can be attributed to an American environmentalists-"Bodoski". This concept emanated from his article entitled, "Tourism and Environmental Conservation, Conflicts, Co-existence and

Symbiosis" in the 1790's. According to Ward (1999) Bodoski is quoted to have suggested that the tourism activity should be considered as having one of the three relationships with the environment. These are conflicts, co-existence and symbiosis. He emphasized on the later (Ecotourism) as the best description of nature tourism which takes care of conflicts and co-existence and can benefit both nature and man. He equally explained that in most situations, the tourism industry was in a co-existent relationship which tends towards conflicts. He concluded that to counter this relationship therefore, importance must be placed on educational management strategies so as to promote a symbiotic relationship in order to avoid future conflict between the tourists and the natural environment (Ward, 1977).

Besides, ecotourism concept emerged also as a reaction to the devastating effects of the conventional mass tourism and the growing environmental awareness at the time of environmental conservation. The term Ecotourism is a concept coined out within the tourism business. This idea was a result of the desire to appreciate nature through the preservation of nature and its resources and at the same time derive satisfaction of leisure and recreation.

More so, there was the establishment of National Parks at that time especially in the United

States. These were meant to achieve harmony between resource protection and public use. This idea was due to the realization of the fact that the traditional African game safaris were a consumptive form of tourism based on hunting and otherwise exploiting natural wild life resources. Ecotourism is a non-consumptive recreation activity which is closely linked to natural history. This is also related to wild life such as bird watching, wildlife watching, nature photography, botanical study and wildlife track and safaris as well as interest in recreation, nature study and conservation of ecology (Ward, 1977).

ECOTOURISM AND BIODIVERSITY CONSERVATION

Related fields of studies like Biology, Agriculture, Environmental Management, Geography etc, no doubt reveal that Ecotourism and Biodiversity Conservation relate closely and complement each other in their goals, objectives and benefits. There is also a symbolic relationship in their definitions since each enhances the operation and success of the other which are recreation and conservation. These disciplines have also proved the fact that the earth's environment is the home of a rich and diverse array of living organisms whose genetic diversity and relationships with each other as well as with their physical environment which make up the planet's

biodiversity. The term biodiversity here refers to the variability among living organisms from all sources. These sources include terrestrial, marine and other aquatic ecosystems as well as all ecological complexes which are a part of it. The complexes includes the diversity within species, between species and ecosystems and composition of species over time in response to natural and human induced selection pressures, their occurrences and relative abundance of these species in an ecological community, changes as well as of ecological and physical factors (Ogar in Bisong (ed), 2001).

For some time now, the world and Nigeria have experienced gradual loss in biodiversity resources due to persistent human exploitation and natural forces resulting in the persistent effects of climate change/variability. The rate of extinction of biological species especially wildlife species has been on the increase for at least 350 years now (Ogar, 2001). More so, the Nigerian ecosystem is also threatened with extinction and the wildlife species have reduced drastically through unguided exploitation and escape to neighboring countries like the Republic of Cameroon and Benin due to loss of habitat (WWF, 1999).

Ecological tourism being nature based and whose objective includes conservation of the environment

serves as a tool for restoring this biodiversity stock while maintaining the variability and socio-cultural elements of the environment. The enhancement of biological stock in an environment through determined conservation practices and awareness programmes will contribute in vegetation and biodiversity regeneration and in the reduction in climate change incidences in Nigeria and the world at large.

ECOTOURISM ACTIVITIES AND CLIMATE CHANGE

The threats of climatic variations and change globally and Nigeria in particular has become a worrisome scenario. These threats have forced the world nations to converge and evolve possible ways to stem the emerging phenomena. Examples of these are the 1987 Montreal Protocol; the UN sponsored 1991 frame work convention on climate change (UNFCCC), the 1997 Kyoto protocol, the Copenhagen conference of 2010 and the Kankok conference in Mexico 2013. In the various meetings, strategies have been put forward to find out possible ways to reduce the menace of climate change and general environmental stress. The most common strategies now available and adopted are mitigation and adaptation measures. Adaptation here refers to the process or ability of human and ecological systems to manage or cope with

climatic variability. But adaptive capacity in most cases involves a complex combination of knowledge, institutional, technological and money ingredients which are likely scarce in most poor or developing countries of the World. This poses a barrier in achieving more realistic adaptation measures in these countries. Mitigation processes are more realistic especially in nations with sufficient forests like Nigeria. These processes are, the creation of protected areas to conserve forests, working with communities to identify and adopt sustainable land use practices, alternative sources of income to reduce dependence on natural resources extraction, planting of community wood lots for fuel wood and construction materials to reduce pressure on the forest resources etc.

Ecotourism by the definitions alluded above encourage these options and has the attributes and characteristics of relevant mitigation measures listed above. For instance, ecotourism development through its objective and practice will facilitate the achievement of these measures; enhance the sustainable use of the forest ecosystem resources as well as conservation of all forest/biological resources in the protected areas and other forest vegetation while providing leisure and recreation in an ecological zone. This development will help mitigate or reduce incidences of climate change by preserving forests in

their wild and enhance the process of carbon sequestration. This is because ecotourism activities preserves natural environment as its primary objective and prevent waste and damage to resources. Apart from boosting the generation of income and foreign exchange earning of a nation, it helps to generate the much needed knowledge and greater awareness on the processes that shape the development and conservation of the environments (destinations) of the area through their education programs. Being a tool that promotes environmentally and culturally friendly tourism in the World today, it has the potentials for assisting in resource conservation and community development which enhances the sustainability of the forest ecosystem in the country and in the world. Ecotourism assists in the reduction of the level of dependence by the local people on the consumptive use of natural resources and enhance forest regeneration through its land regulations and the alternative benefits they provide to the people such as jobs creation. This is because participating in ecotourism activities of guiding, providing camel rides, food services and other vocational trainings, the local people can earn supplementary incomes while at the same time ensure the conservation of biodiversity which otherwise would have been exploited. Ecotourism also encourage forestation projects and the

realization of the needed forest for the accumulation of carbon sink and carbon credit as alternative source of income and revenue for countries with available forests. This will enhance the reduction in global heat budget within an area.

Ecotourism allows the tourist to appreciate the surrounding nature and at the same time learn about a unique culture which creates educative experiences to learn about the environment. It also helps to promote environmental awareness, cultural understanding, causes and effects of climate change/ variability and preservation ethics among people of the surrounding communities through interpretative programmes it offers to tourist and the host communities. The Eco-tourists normally volunteer and contribute to conservation or development projects in the area. These include identifying birds watching, and wildlife as well as participating in ecosystem restoration projects such as tree planting, education and awareness programme and other social project as "felt needs" in the host communities etc.

Finally, Ecotourism development, apart from its potentials in biodiversity conservation generally encourages the formulation and creation of parks or natural protected areas within an area. This according to Lindberg et al (1996) aid environmental protection of the area, increase vegetation cover in the

fragmented forest zones which will increase the accumulation of carbon from the atmosphere, generate financial revenue through enhanced fees, donations to host communities and with government support, provide jobs that will add to the social and economic structure of the host communities.

RECOMMENDATION

Based on the above perception, this paper recommends that:

1. Ecotourism development should be encouraged within the tourism industry in Nigeria and other nations with available forests to serve as carbon sink from the atmosphere.
2. States and communities with abundance of rainforest should be supported with alternative occupations/employment to reduce their dependence on the forest for livelihood to enhance the health of the available forests.
3. Aforestation and agro forestry programmes/ projects should be reintroduced to increase the forest zones of Nigeria.
4. Environmental awareness should be encouraged and practically exhibited in schools and the communities.
5. Buffer zones and exotic trees should be introduced to reduce forest deforestation and cater for human needs in terms of timber resources.

6. Alternative technology to produce human resources which tend to encourage forest exploitation should be explored.

CONCLUSION

The earth environment is seen as the home of a rich and diverse array of living organisms whose genetic diversity and relationships with each other and their physical environments constitute our planet's diversity. It provides the goods and services essential to support human livelihood and aspirations and enables societies to adapt to changing needs and circumstances. The protection of these assets and their continued exploration through science and technology offers the only means by which the nations of the World will hope to develop sustainably. This paper perceived that under current conditions of prolonged global warming and threats of climate change in most countries of the World, especially developing nations, the remaining tropical forest habitat have less an even chance of surviving the next several decades because of the simple but critical fact that the benefit of managing the environment and forest conservation fall far short of the local opportunity costs. Eco-tourism being a nature based tourism activity is identified as a strategy that can boost forest regeneration and development to serve as abode for atmospheric carbons which increases global heat budget that contribute in

ozone layer depletion. It is a veritable option to mitigate the incessant climatic variability and change through its conservation ethics and objectives, the creation of abode for the accumulation of more carbon emissions and the generation of greater and higher level of photosynthesis will reduce the carbons from the atmosphere through the process of carbon sequestration by the forest vegetation cover in all environments developed.

REFERENCES

- Bisong, F E (ed), Ogar D, Agbor C, Eze B E, et al(2001):*Natural Resources Use & Conservation Systems for Sustainable Rural Development*. Bisong (ed), Lagos. Baaj International Company, Calabar.
- Blangy, S and Wood, M.E. (1992): *Developing and Implementing Ecotourism Guidelines for Wildlife and Neighboring Communities*. Internet Production, 2006.
- Cater, E. (.1994): *Ecotourism in the Third World: Problems and Prospects for sustainability*, In *Ecotourism: A Sustainable Option?* Chikester, John Wiley and Sons.
- Ceballus-Lascurain, H. (1991): *Tourism, Eco-tourism and Protected Areas*: In Kusier(ed). *Ecotourism and Resources*

- Conservation Vol.1,
Ecotourism Resource
Conversation Project.
- Ekpoh, I. J. (2002): Environmental Change and Management. Nigeria, Calabar St. Paul's Printing Company.
- Femell, D. (1979) Ecotourism: an Introduction New York, Routledge Publishers Ltd.
- Honey, M. (1999): Ecotourism and Sustainable Development Paradise? Washington D.C., Island
- Ibor, O. (2009): Managing the forest of Cross River State. In Degrading the Earth's Environment. A Green Impact publication.
- Inter- Governmental Panel on Climate Change (IPCC) 2007: Climate Change 2007. Fourth Assessment Report.
- ODA & W.W.F. (1990): The Cross River National Park (Okwangwo Division). Plan for Developing the Park and its support Zone Communities.
- Odjugo, P A O. (2012): Impact of Climate Change on Human Health. A conference paper presented at Annual Conference on Climate Change and Variability, university of Benin, 5th – 9th Nov. 2012.
- Ogogo, A. (2009): Understanding Climate Change. In Mou-News (2009): Ecotourism & Biodiversity, Vol.10 no.1 A Bi-monthly Journal of the Cross River State Ministry of Finance, Calabar. P.40 – 41.
- Ogar, D A (2001): Wildlife Resource Conservation for Sustainable Rural Development in Nigeria. In Bisong (ed) 2001 Natural Resource Use and Conservation systems for Sustainable Rural Development, Calabar, Baaj Publishers.
- Paul, C., Philip, C. and Mark G. (2005): Introducing Human Geographies. Second Edition, London: Hodder Arnold.
- Shores, J. N. (2003): Dealing with Definitions; when is it Ecotourism and when is it not? Internet Production. 2006.
- United Nations (1992). United Nations Framework Convention on Climate Change (UNFCCC). Rio de Janeiro, Brazil.
- Ward, N.K. (1977). Ecotourism Development in the Quintana, Roo, Mexico.