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Ameliorating global warming through sustainable ecotourism development

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ABSTRACT: Issues of global warming are currently inciting much talk, conferences, committee meetings and news in the international community, instead of actions towards ameliorating the problem. In the interim, our earth is getting warmer by the second, the hole in the Ozone layer increasing and allowing more cosmic rays than the earth can bear. Ecotourism depends heavily on the preservation of biodiversity (especially forest). Tropical forest in particular, plays a crucial role in regulating climate and determining the health of the atmosphere. They act as Carbon sinks and absorb atmospheric pollution; their destruction by fire also contributes immensely to the 'greenhouse effect'. Sustainable ecotourism development requires humans to view themselves as elements of a larger entity; it is rooted in ensuring that the planet's ecosystems (biodiversity) are protected from the ravages of human civilization. This paper seeks to contribute information to the promotion of ecotourism development as a means to atmospheric pollution and global warming reduction. The earth needs biodiversity to help reduce global warming, governments and their citizens, especially in the developing countries where a greater proportion of tropical forests are located need the financial and employment empowerment which sustainable ecotourism development provide. This is a compromise situation, benefiting the host countries of tropical forests and helping to ameliorate global warming for the benefit of the whole world. Host countries of tropical forests, **should be assisted** to sacrifice their tropical forest to save the earth BUT not at the cost of their own existence. No country will.

Keywords: Global warming, Ecotourism, Biodiversity, Carbon (1V) oxide (CO₂),

Introduction

Ecotourism

Ecotourism, also known as wildlife tourism, (Reid, 2003) is biodiversity tour that enhances the course of conservation of nature. It is actually the non-consumptive utilization of natural resources. It is primarily ecological and geographical in nature. It includes such destinations as National parks, Game and forest reserves, Water falls and beautiful outcrops in strategic places, Warm springs (Ayodele, 2002), ex-situ conservation centres such as Zoological and botanical gardens, herbaria, arboreta (areas planted with different species of trees for study, display and preservation), nurseries, insect and wildlife museums, aquaria, seed orchards, gene banks, tissue culture and germplasm centres (UNEP, 1992).

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Ecotourism in addition to being a tool for the conservation of biodiversity; Is an excellent means of reducing global warming, due to the continual good population of woody vegetation in vast areas of land.

Forest reserves are large areas of tree-vegetation, with all their natural resources, set aside by Government for forestry purposes while, the main reason for creating game reserves is to manage game (fauna) and their habitats and protect them as much as possible from the ever present danger of logging, hunting and poaching. National parks have many definitions; however, most definitions are of the opinion that a national park should be of scenic or scientific interest, less affected by human exploitation and occupation, should be located in areas of low industrialization and probably more importantly, must be protected by a national authority.

Global Warming

Global warming is the progressive gradual rise of the earth and ocean surface temperatures caused by the Greenhouse gas emissions, which include carbon (IV) oxide (CO_2), Methane (CH_4), chlorofluorocarbons (CFC) and Hydro fluorocarbons (HFC) (Anon 2008). Ethane, Nitrous Oxide (laughing gas) used as anaesthetics, chlorofluorocarbons and hydro fluorocarbons, Friend, (1982).

The greenhouse gases trap or absorb long wave length infra-red radiation, causing the atmosphere to warm more than is necessary. The effects of this extra warming include; increasing heat wave, changes in global climate patterns, melting of glaciers, rapid sea rise, increased frequency of droughts and floods, there will be less water available for drinking and irrigation as salt water from the rising sea levels will contaminate ground water in coastal areas, increased stress on wildlife and plants due to rapidly shifting climate which may even hasten species extinction and loss of biodiversity. It influences length of seasons Larry (2008), Hansen (2006) and Lubchenco (2008), increase in diseases that are resistant to known remedies, increase in new strains of diseases and computer viruses (IPCC). Malaria and Dengue fever are already spreading pole wards (Lubchenco, 2008) and the redistribution of Malaria, Dengue fever and Cholera (Epstein, 2008). Tropical cyclones, strong beach erosion on the coasts and more tidal waves are also expected with changing wave patterns, warmer weather and increase in humidity (Trance, 1998).

Global warming is mainly due to those human activities that add extra amounts of greenhouse gases to the atmosphere, especially CO_2 (USEPA, 1998). Sources of CO_2 to the atmosphere include; that exhaled by humans and animals, emission from aircraft, ship, automobiles, industries, gas flaring and forest fires. Drilling for oil and natural gas, coal mining, rice cultivation, garbage siting in land fills, increase in ruminant production. Decay of plants where there is no air, such as swamps, are all natural sources of Methane gas. It stays only 10-years in the atmosphere, but absorbs 20-times more heat than CO_2 (Anon, 2008). Nitrogen based fertilizers, human and animal waste in sewage treatment plants and automobile waste (World Book Volume 1). Waste from automobile exhaust (Trance, 1998), electricity generation from coal powered plants, industrial waste, burning of fossil fuel (fossil fuel contain Carbon, during burning they combine with Oxygen in the air to form CO_2), deforestation (fewer trees in the environment mean less CO_2 conversion to Oxygen) and forest fires. Fossil fuels include; coal, crude oil and natural gas. Many green house gases occur naturally and are actually needed on earth to create the greenhouse effect that keeps the earth warm enough to support life on earth. According to Hopwood and Jordan (2008), greenhouse gases naturally blanket the earth and keep the earth about 33 degrees Celsius, warmer than it would be without these gases in the atmosphere. "This is called greenhouse effect". However, scientists believe that, increase in the concentration of the main greenhouse gases: CO_2 and CFC are the cause of global warming.

Ecotourism depends heavily on vegetation and the animal population they support, in addition to other features natural or man made within the environment in question. Where ecotourism is properly developed, the trees and in fact all the components of the immediate environment are jealously preserved. Thus serving the multiple purpose of tourism, provision of fauna browse crops and animal habitat cover, flora specie conservation, and global warming ameliorating agent. This later function is ensured as follows;

Trees Ensuring Reduction Of Global Warming

Trees store carbon as they engage in photosynthesis and grow with their high percentage foliage and high density boles, thereby reducing the amount of CO_2 in the atmosphere. They however release it when the wood is burnt or decayed (Riccard, 2008). Trees, weather in forests or wooded savannah are actually known as carbon sinks (Trance, 1998). There is growing scientific evidence that forests and the Carbon they sequester, are under valued. Recent studies have shown that, huge amounts of carbon are stored in peat and other organic matter in soils. Indeed more CO_2 can be taken up by sufficient forests, tree plantations, prairies and other ecosystems than is released by

industrial activities (Hoover, 2008). From global warming standpoint, tropical forests are the worst kind of forests for the earth to lose, since they are able to absorb twice as much carbon per acre as temperate forests owing to their higher rate of photosynthesis. There is therefore a need to maintain existing tropical forests, as large standing reserves, where carbon is sequestered. A coordinated program to plant appropriate species of trees in cities and around public buildings to reduce the need for air conditioning, while storing carbon emissions is urgently encouraged. It is suggested that in view of global warming amelioration, land owners should not fell all the trees on their land when erecting buildings.

Vegetation is known, to absorb and convert the major greenhouse gas CO_2 , water and some minerals into energy and purify Oxygen during photosynthesis (encyclopaedia Britannica, 1988). Thus acting as atmospheric filters or lungs of the earth, Filtering pollution out of the earth's atmosphere. This Oxygen is the primary element required to sustain life on earth. One big tree is said to produce Oxygen for four people in its life time.

Trees help in controlling the temperature of the environment. Places where there are trees are cooler and more hygienic for living (Vinay, 2008). They provide wind breaks during storms, shed leaves that enrich the soil for the much needed woody vegetation growth.

Trees are so important in reducing the adverse effects of global warming to the extent that a device to remove CO_2 from the atmosphere is being developed and called "synthetic tree" (Schwal, 2007). In the August 2008 meeting in Ghana, delegates focused on ways to discourage tropical forest deforestation. The discussion got to the extent of proposing, financial incentives, to tropical countries with considerable amount of forest. The truth about the matter is that, tropical forests which are more suitable for global warming reduction and are located in countries where the citizens and their government depend heavily on the proceeds from the felling of trees and the fauna species. Thus, tree disappearance can not be prevented, but a situation where the same biodiversity meets their needs in a non-consumptive manner (ecotourism), they will be encouraged to help the world to preserve and even increase the extent of the resource forever. In this way, the progress of global warming and its attendant consequences will be reduced and kept at that level, till something favourable happens about the gap in the Ozone layer.

Trees purify the atmosphere by absorbing CO_2 , thus helping to better the global warming situation by reducing the CO_2 concentration of the atmosphere. Tree planting is one of the most efficient ways to remove excess amount of CO_2 from the atmosphere. A tree can absorb as much as 1.5 pounds of CO_2 for every pound of growth added to a tree by growth (Koopman, 2005). Therefore, necessary modalities should be put in place to ensure that the trees planted during the tree planting campaign survives and matures into forests.

Fruit trees, ornamental and shade providing trees are not left out. They are usually planted and retained along highways as avenue trees, around human dwellings, in orchards and on farms where they play the role of beautifying the environment and fruit for consumption, for as long as they can survive because of the benefits derived from them. If this is encouraged world wide, there will be sufficient trees world in short time to handle global warming. According to Peter (2008) a village head, in northern Zimbabwe said, 'we discourage one another from cutting the Musau (*Ziziphus mauritiana*) fruit trees for poles because we all know that the fruit is our source of income from June to November each year. Anyone who cut the trees, are banned from harvesting the fruit'. Wherever fruit trees are; in orchards, on taungia farms, lined up along roads as in urban centres, planted in dwelling places, botanical and even in horticultural gardens, their existence is an added advantage. This is because of their additional benefit of supplying Man and his livestock food and fodder for consumption, shelter from the sun and protection from wind and heavy rainfall. For the rural dwellers and the urban poor, fruit trees ensure income for the owner. In the words of Wonder Dondo (2008) 'fruit trees are cash crops. Although fruits are seasonal, more income is earned from them compared to some food crops such as maize and millet which are grown for subsistence'. Economic reasons such as this, reduces the chances of felling them for any reason even for timber purposes. Thus contributing to the removal of CO_2 from the atmosphere and the safe storage, of the global warming carbon element from the environment through fruit trees.

Currently, countries are searching for any thing to raise the social economies of their citizenry; this can be achieved through the promotion of ecotourism. This will ensure the continuous growth of the trees which are the habitat and the browse materials for the wild animal population, thus removing CO_2 from the atmosphere.

This paper also seeks to submit to all and sundry especially the western world, that any help anyone in the world can render to the host countries of tropical forests towards sustainable tourism development, is in the interest of all who live on earth and not just the host countries. There is a desperate need to reduce deforestation, establish new ones and restock existing ones where necessary.

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