

ENVIRONMENTAL IMPACTS OF TOURISM: CHOSE HILL AT NYIKA NATIONAL PARK IN MALAWI

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ABSTRACT

This study investigates whether tourism can be a blight; considering its activities that destroys the environment eventually causing climate change world over. There is always a blame game which has for the past several decades been leveled against the industrialized countries charging them for their green house gas emission into the atmosphere warming the ozone layer, resulting into climate change, can now be mitigated by other research evidence which also seem to show that tourism activities also contribute about 15% to the factors that cause world's climate change especially the climate change that has and still is affecting the African continent. For the past century, climate change was attributed to industrialized countries. The blame has been that CO₂ emitted from industries into the atmosphere caused global warming hence, climate change.

This statement could be true if all things remaining equal. However, research on the impact of tourism on the environment is vivid where tourist activities also seem to contribute to climate change. The study carried out in Nyika National Park (protected area), around Chose Hills in Rumphi District, Malawi, showed empirical evidence that may reverse the blame that was squarely leveled against the industrialized countries. The truth is that tourists bring seeds of destruction to the destination area they visit; destroying, disrupting and despoiling the very environment (attraction) that attracted them. Results further revealed that visitors to Chose Hills contributed to the alteration of the hills appearance through their activities. The visitors drastically and negatively altered the environment that is, from a foliated tree (environment) to almost bare environment which is resulting in less and less rainfall to the area. It was observed that the climate around the area was also getting warmer.

KEYWORDS: Tourism, Environmental Impacts, Monitoring, Nyika National Park, Malawi

INTRODUCTION

Nyika protected area with an area of about 209, 845 hectares and located north-west of Malawi bordering Zambia, is one of the most beautiful iconic park in the world visited by global travelers particularly from the USA, Britain, Germany and Japan. For the past five years, 6500 overnight stays on average were recorded and of these, 70% of visitors visited Chose Hills (Department of Parks, 2014). Out of the total area, 45 percent is open to hikers and horse use. Data indicate that more than 30 percent annually are part of group on overnight stays. In 2012 the numbers of day hikers was estimated at 11,000 and this group contributed to the decline to the area. The most popular tourist activity is game viewing with Zebra and Loan Antelope being frequently sighted. Figure 1: below provides map of Nyika National Park in Malawi showing Chose site.



Source: Department of Wildlife, Park and Natural Resources
Figure 1: Map of Nyika National Park

Research Significance

Nyika is natural protected area managed by the Department of Parks and Wildlife under the Ministry of Tourism and Culture. Monitoring the impact of visitors on the environment is legislative. This research is therefore to guide government allocation of resources gauge tourists attitudes and provide a platform for planning. The department may use the report to arrest the environmental damage before it becomes unacceptable and irreparable.

Lack of randomised visitors monitoring to this iconic sites of the Chose Hills of protected areas prompted this study so the parks managers could give their attention to such areas before the visitors' impacts turn unacceptably bad. Information collected and analysed would be needed to ameliorate impacts and visitors experience maintained. The study through monitoring would also make parks officials understand the cause-effect relationships.

Statement of the Problem

Visitors bring seeds of destruction to the very environment that attracted them. Chose Hills are located west of the park and in 2008, the hills were 80% forested which means that 20% was already removed. Sustaining the hills would entail the Department of Wildlife measuring the impact caused by visitors.

Study Objectives

The general objective of study was to monitor the environmental change attributed to tourism. Therefore the following were the specific objectives

- To find out the number of visitors' per visit to Chose Hills protected area.
- To measure the impact on the environment caused by visitors.
- To recommend remedial action to government.

In order achieve the above objectives, researchers put forward the research questions which enabled to: finding out visitors' frequency to 'Chose Hills'; finding out visitors perception behavior and attitudes and finding out cause-impact relationship.

LITERATURE REVIEW

The paragraphs below presents a review of literature and studies done on the environmental impact of tourism on natural world. The literature review will include some definitions as well as certain measurement concepts.

Natural vegetation, peri-urban reserves (sanctuaries), nature reserves, national parks, Islands, coastal areas, mountains picks, caves and hot springs, concentration of animal life and larger wilderness areas continue to serve as iconic, providing all forms of attractions and scales of tourists' activities (Bianchi, 2004). Additionally, some of the iconic areas are substantially natural for example natural deserts of the Kalahari in Namibia and the arctic Tundra attracting massive numbers of visitors. As stated, tourists bring seeds of destruction destroying the very resources that attracted them. In order to sustain both the environment and visitors satisfaction, it is suggested that monitoring should be randomly conducted. This will further sustain tourism. It must be emphasized that holistic approach including scales of monitoring should be done on the ecological system that supports a particular valued tourism. The negative impacts of tourism on the environment has in many areas contributed to climate changes (Akama, 1996). The debates also continue among scholars as to what constitutes ecosystem that have been affected. Data have been gathered; analysed and integrated into management systems relating to both natural environment and visitors over time. Information on impacts on the natural environment includes data on vegetation cover, damage to vegetation, weed invasion, and soil properties (especially erosion) water quality and wildlife population.

Therefore, there is a need to conduct research for monitoring in natural environment, using appropriate tools for a period of time to discover the effects of tourism activities on the environment or on the ecosystems which has been real; yet monitoring has long been a neglected element of natural area management. Nowadays monitoring is absolutely essential for managers who want to achieve sustainable tourism. Monitoring has been described as a systematic gathering and analysis of data over time. Saarinen et al (2011); Spenceley (2008) and Diamantis (2004) emphasise that monitoring for the effective management of protected area (ecosystems) requires the systematic gathering, analyzing and integration into management systems of data relating to both the natural environment and visitors over time. Most of them seem to agree on certain definitions which implies ecosystems as comprising structural components such as living organisms (biotic components) soil and landforms and other non-living features (abiotics components) such as wind, rain and water flow. Ecology and materials such as water and nutrients flow through this combined system, resulting in ecosystem function according to Newzone *et al* (2013).

METHODOLOGY

Kumar (2011) describes both qualitative and quantitative approaches. Therefore, this research is based on qualitative approach and methodology used involved the following: Taking photographs, the researchers randomly took photos in 2008, 2009, 2010, and 2014 which provided visual records of the Chose Hills (site). These were taken from a fixed point. The second methodology used involved the "condition class: to determine the condition class that could best describe the iron site based on vegetation cover where comparison was made between them without tourist activities (undisturbed hill) and with tourist activities at Chose Hills. Five classes ranging from class one with foliated tree view through to class five, with ground vegetation worn out around the frequented visitors visits due to their activities, ground vegetation lost on most of the iconic site, exposure of tree roots and finally to soil erosion obviously as indicated by photo number one, two, three and four below. The final methodology used was observation. Throughout the years mentioned a

visit was organised in a month of June (winter) to check the condition of Chose site followed by photo taking as records for comparison.

ANALYSIS AND DISCUSSIONS

The survey accompanied by monitoring strategies began in June, 2008 and completed July, 2014. Questionnaires were mostly administered by year three of the Tourism and Hospitality students and the researchers' themselves. Supportive questions ranged from those on how many visitors to Nyika National Park per year to the most frequent visited places, and environmental impacts. 90 per cent of the respondents indicated that about 70 percent of visitors (6500) per year on average, from the USA, Britain, Germany frequently visited Chose View (hills) which is the highest point in the park, and to a lesser extent Ng'anda Hills which this study has drawn comparison with Chose View. Other questions aimed at collecting data on length of stay, total visitor's spending were circulated, but the information collected has not been used in this study on the question of relevancy. Only the data on environmental impact, for example tourist effects on vegetation change, informal trail formation, and visitors activities, have been included and heavily used to determine environmental changes which must have caused climate changes (see the analysis below)

The first approach in collecting data was through taking the photographs of two backcountry sites of Chose Hills and Ng'anda Hills, to show the vegetation quadrats using a 1m x 1m. Laid on top determining changes in vegetation cover. The first photograph number one represents the right side of the hills (Ng'anda) which is less visited by tourists. And photograph number two represents the left opposite side of Chose Hills with frequent tourist visits. Photograph number three represents the far left of the hills showing a backpacker admiring at the left side of the hills.

Data collection was collected randomly at six months interval to detect some changes and the photos were supplemented by the condition class strategy for monitoring change. The research through periodic photos saw and experienced gradual change in appearance from foliated to almost bare which led to rock outcropping (photo number three show these described features)

The researchers went further to compare the levels of tourist impact by measuring the change in trails where the researcher began measuring some cross-sectional areas of the trails. Arrow number two on photograph number two shows the informal trail used as shortcut measuring one cent meter deep and close to ten cent meters wide on average and later generalization to the whole hills. Arrow number one shows rock outcropping due to frequent visits by both local and foreign tourists.

Another instrument was the questionnaire which was circulated to capture data on rainfall pattern in and around Chose Hills (Nyika protected area). Respondents indicated that rain gauge was used to monitor rainfall patterns and the table 1 below shows the five years records (from 2008-2013).

Table 1: Showing Rainfall Pattern

Year	Total Rainfall in Inches for January to April	Average year Rainfall
2008	15.8	3.4
2009	12.7	3.175
2010	10.8	2.145
2011	9.8	2.45
2013	8.5	2.125

Further, the depth interview with a good sample unit regarding temperature change was conducted by the researchers and of the total population, 60 percent indicated that a remarkable change from very cold, for example -1° to 5° to $+6^{\circ}$ to 10° of temperatures was experienced. The coldest months being June/July each year. From the temperature figures, the research deduced and concluded that the area is receiving a remarkable change in weather pattern and part of this change was attributed to the decline in the environment partly caused by tourist activities which included cutting down of trees for electing tents, firewood for cooking which sometimes resulted in bush fires further resulting in removal of top soils resulting in soil erosions, root exposures and rock outcrops. Photographs number three and four shows such features. Other tourist's activities causing environmental impacts include hiking, rock climbing and compacting of top soils by trampling the soil resulting into informal trails (shortcuts) and photographs number four depicts these features although the rails as shown on the photographs are still insignificant.

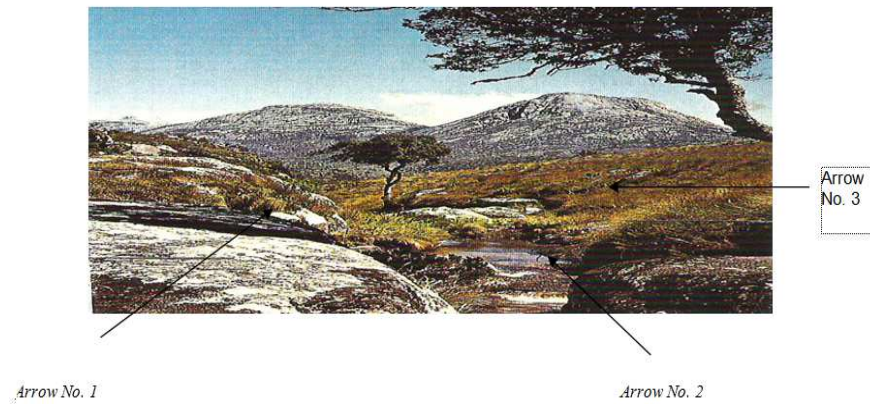


Source: Researchers Data

**Photograph 1: Showing the Foliated Chose Hills at Nyika National Park
Pictured In 2008 When Few Tourists Visited the Area**

Photograph number 2 shows the visitors created social trails as pointed by arrows number two and the trails are visualized by soil compactions where rain water penetration is resisted. In analyzing the different features appearing on different photographs and at different times, the researchers through comparison noted that photo number one was intact and was used as standard and photograph number two, representing the area with frequent visitors' visits, showed low impact of about 28%. The visitors impacts on photo number three shows impaction of 60% and the last one photo number four shows intensive impaction of 80% which has high levels of soil and ground cover damage. However the area disturbed was found to be small compared with that extensively impacted Chose Hill top. Below is the photograph of same Chose Hill photograph number one taken in 2011 when more tourists visited the area.

An analysis of photograph number two shown below depicting rock outcrop as shown by arrows number one. There are also two informal trails depicted by arrows number two and three respectively.

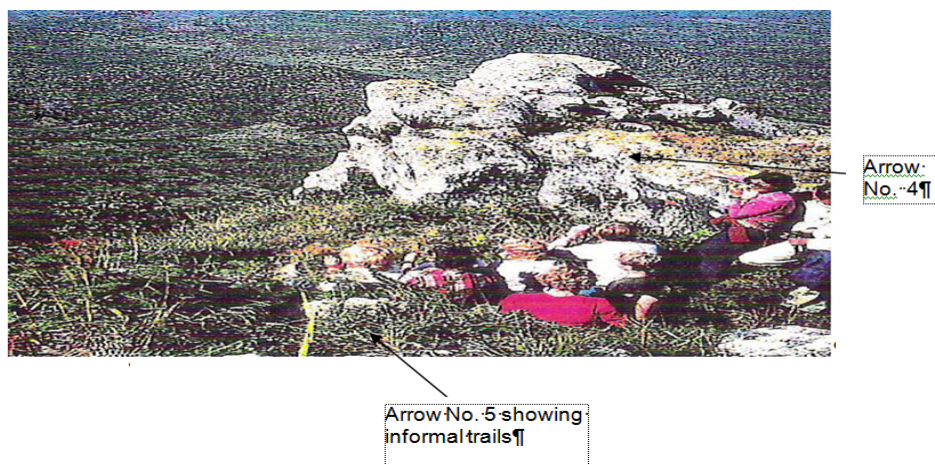


Photograph 2: Showing Rock Outcrop as Shown by Arrows Number One and Two Informal Trails Depicted by Arrows Number Two and Three



Source: Researchers Data

Photograph 3: Showing Rock out Crop Due to Denudation Attributed to Tourist Activities (Backpacker or Tourist on it) as can be Seen on the Photograph



Photograph 4: Showing Removal of Top Soils in the Area by Frequented Visitors. Also Showing Rock Outcropping and Informal Trails Resulting on the Other Side of the Chose Hills Turning Bare

CONCLUSIONS AND RECOMMENDATIONS

Tourists are known to bring seeds of destruction, destroying the very attraction that attracted them. World Tourism Organisations and their agencies including the Department of National Parks in Malawi which is responsible for protected natural areas should not only aim at the growth in quantity-in tourism numbers, built facilities and total turn-over, but should also aim for long-term benefits and sustainability of the tourism industry inclusive of the environment. This research is therefore, recommending that natural areas' authorities should be conducting monitoring activities on the environment, the visits and the visitors' attitudes characteristics, expectations and experiences. This will make them understand the cause-effects relationship between levels and types of visitor use and the resultant impacts. Tourism Ministry and their agencies should plan for tourism development particularly monitoring visitors' management which would provide information on visitors' numbers, visitors' characteristics, activities, resources use and expectations.

Furthermore, governments approach should encourage community based tourism which should further also clearly be defined as making use of a community's resources both cultural and environmental for tourism activities in order to:

- Promote social economic development and provide local people with income.
- Encourage community commitment on conservation of the bio-diversity and sustainable management of the natural resource based.
- Involve people in the process of their own development and give them more opportunity to participate effectively in development activities and conservation.
- Involve the communities in design and decision making where possible, Government (Ministry of Tourism, Wildlife and Culture) to organize itself into three operational divisions of Bio-diversity, Tourism and Partnership.
- Monitoring would also contributes to slow down (mitigation) of climate change.
- Finally, researchers may concluded that tourism will come out of the blame game.

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