



Impact of Ecotourism on the Environment, Society and Culture of Ratargul Swamp Forest in Sylhet, Bangladesh

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Authors' contributions

This work was carried out in collaboration between both authors. Author KMJ designed the study, performed the statistical analysis, wrote the protocol, managed the literature searches and wrote the first draft of the manuscript. Author HA has assisted to design the proposal, research tools making, data analysis and supervised the whole work. Both authors read and approved the final manuscript.

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Short Research Article

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ABSTRACT

Aims: The aim of the paper is to know the type of ecotourism going on Ratargul swamp forest and its impact on the environment, society and culture of the area.

Study Design: This paper is a qualitative study and empirical research. It focuses on the change in the local environment and local people's life due to ecotourism. For this purpose, interviews have been collected from people as a representative of the study population.

Place and Duration of Study: Ratargul Swamp Forest on Goainghat upazilla under Sylhet District, between August and September 2014.

Methodology: The respondent sample size was 100. Data has been collected from the local people by using structured observation, semi-structured interview and case study which were selected by stratified random sampling on the basis of education and profession.

Results: Observed evidence shows that foremost influence of ecotourism fall on economic aspect and environmental knowledge. Income level of 80% people has been increased after establishing ecotourism and 57% people have now changed their traditional occupation. Unplanned and unmanaged tourism may disrupt the life cycles of many aquatic biota that thrive there. Many tourists

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carry bottled water or juice, potato chips and other food stuffs while travelling the area and finally discard the resulting waste recklessly in the forest despite the use of warning signs by the forest department and other concerned authorities. More use of engine boats to carry the tourists in an undefined and multiple ways inside and around the forest also creating noise and polluting air and water there which are disturbing the life styles of the habitats inside the swamp forest to be settled like the previous stable and natural environment.

Conclusion: To save this swamp environment, government and forest department should make and implement some management policies which should be maintained strictly considering the opinion of the local people.

Keywords: Ecotourism; environment; culture; economy; impact; management.

1. INTRODUCTION

Ecotourism is a new face of tourism which has been taken as an important element of sustainable development in the underdeveloped countries. Its main attraction is flora, fauna and cultural heritage. Though it has been established on the basis of local people and natural environment, besides society, culture, economy, it also has impact on environment. According to Vishwanath & Dr. Chandrashekara, 'Tourism impact studies need to address three tripartite theoretical domains known as 'environmental, economic and socio-cultural' [1]. Again, Bangladesh constitution also presents the importance of the protection of forest and biodiversity in Article 18A. According to this article 'the state shall endeavor to protect and improve the environment and to preserve and safeguard the natural resources, bio-diversity, wetlands, forests and wild life for the present and future citizens'. Bangladesh, a country of south Asia, has numerous potential spots of ecotourism opportunities. Ratargul swamp forest is one of them. It is the only swamp forest in Bangladesh, located in Gowainghat, Sylhet. Its main attraction is its watery plants and other species live on this. This evergreen forest is getting submerged under 20 feet water in some part during rainy season, which is the habitat of so many species [2]. Recently, it has become one of the most attractive sites of ecotourism which is significantly enriching our economy and also has impact on culture and environment of that area. In this research, impact of ecotourism on the environment, society and culture of the Ratargul swamp forest and the surrounding areas have been described from anthropological point of view. For this, types of ecotourism in Ratargul swamp forest have also been described. Besides, its impact on the local people's culture, production system and environment are presented here.

2. MATERIALS AND METHOD

2.1 Sampling Techniques and Sample Size

Stratified random sampling was used for selecting the participants in this study. This technique was employed to ensure a fairly equal representation of the variables for the study. The stratification was based of education and profession of the local people of the study area.

Though the target population was the local inhabitants of Ratargul swamp forest, proportionate stratified random sampling technique was employed to select 100 local people (80 male and 20 female age ranged 11-60).

2.2 Methods and Techniques of Data Collection

Key informant technique was used to reach to the study population and find out the appropriate sample according to the research design. For this study, there were 2 key informants who were well known about the research area and study population. Total 60 semi-structured interviews were taken with a questionnaire. Questions were related to what changes they can identify in the environment and social and cultural life after ecotourism has taken place and confirmed by a pilot survey. 20 semi-structured observation and 20 case studies were also taken by using checklists related to the study.

2.3 Data Analysis Procedure

Semi-structured observations were recorded in notebook was used as an element to cross-check the data validity. Case studies were both recorded by tape recorder and notebook and transcribe verbatim to analyze by following test

method. Semi-structured interviews were placed in spread-sheet of MS Excel.

3. RESULTS AND DISCUSSION

3.1 Physiognomy, Climate and Community Based Ecotourism in Ratargul Swamp Forest

Freshwater swamp forest consists of flood-tolerant evergreen trees of about 10 to 12 meters height. Ratargul swamp forest is one of the 22 Fresh Water Swamp Forests around the world. It is known as 'Sundorban' to the local people. Some also call it as 'The Amazon of Bangladesh'.

Tropical air from the north-west of Sylhet causes heavy rainfall. According to Sylhet Weather Centre, average rainfall is 4162 millimeter per year. Highest rainfall occurs in July which is 1250 millimeter. On the other hand, December is the driest season with 74% relative density which jumps up to more than 90% in July-August [3].

The topography of the side is chopping in general. Mainly, the flood plains are agricultural farmlands. The site is lowland and is oriented along the bank of the river Goain. The soil of this region is gray, heavy, silty clay loam with clays that predominant. The soils of the agricultural fields are loamy and are reported to be fertile [3].

Ratargul has become familiar to the tourists since 2011 and from 2012 and 2013, it has become a famous tourist spot for its natural beauty. 80% of its area is covered by trees. It contained around 73 species of tree, 26 species of mammals, 20 species of reptiles, 175 species of birds and 9 species of amphibian [3].

The Freshwater swamp forest is dominated by reed swamp species, locally known as pujaban and consists of tall grasses mainly Nall, Khagra and Ekra. It consist evergreen trees like Hizol, Koroch, Bhuri, Jarul, Murta, Bet, Banyan, Arjun, Varun, Kadam, etc.

Snake and worm snake can widely be seen in this water-drown forest. Mongoose can be seen in dry season. Monkey and Water Monitor also resides in the forest. Heron, Egret, Kingfisher, Parrot, Bulbul, Swan, Dove, Water fowl, Eagle and kite bird are some of the birds of the swamp

forest. Cotton Pygmy Goose and other migratory birds and Vulture visit the forest in winter. Name of the some local fishes available in the forest are Batasio, Rita, Pabda, Rohu, etc south [2].

The type of ecotourism going on Ratargul can be called Community based ecotourism. Cause by the side of enjoying natural beauty it also makes income opportunity for the local people.

3.2 Impact of Ecotourism on Society

Ecotourism in Ratargul swamp forest also involves the people of nearby villages. That is why their lifestyle has become tourism centered and left great impact on the environment. The impact of ecotourism on the society and culture of the local people have been described below:

3.2.1 Professional changes occurred mostly

Ecotourism in Ratargul swamp forest has opened a new door of income for the local people. Those who used to catch fish or do farming for livelihood, now can work as boatman in rainy season to ferry tourists. Also some have shops near the tourist spot. These have increased their income in high level. Variations in the profession of respondents are as follows.

Fig. 1 shows that, among 100 respondents, 15 (15%) are fisherman, 15 (15%) are farmer, 7 (7%) are CNG driver, 20 (20%) are shopkeeper, 10 (10%) are boatman, 9 (9%) are employee, 5 (5%) are businessman, and 19 (19%) are working in other sector. By observing their professional variation, it can be said that they are not only dependent on fishing or farming but also do new types of job related to tourism. These people are becoming more depended to the forest environment. By being such over exploited by people who are not so much aware of it, environment of the forest is going to lose its natural habitat.

3.2.2 Production system is changing

Though local people are being attached to the tourism, their profession is also changing. Many of them are now working as boatman by the side of farming and fishing. Some are setting shops in nearby tourist spot. Some are driving CNG. As a result agriculture base economy has become business based. Numbers of respondents who took new job are as follows.

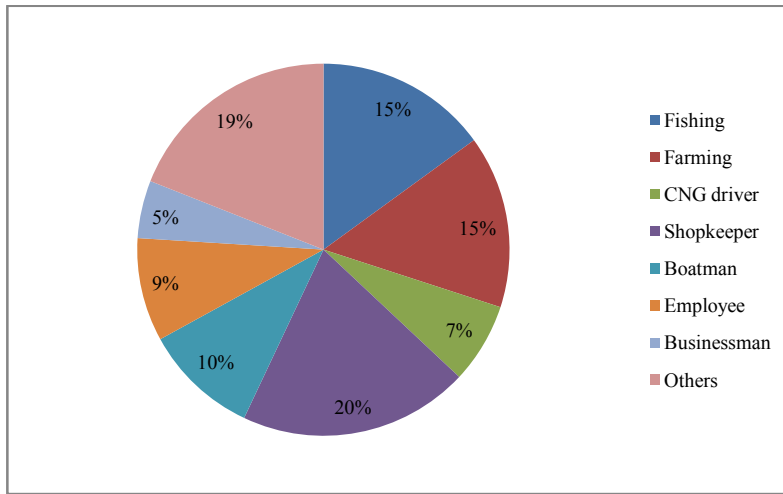


Fig. 1. Variations in the respondents' profession
 Source: Field data-2014

Table 1. Percentage of respondent's new profession

New profession	Frequency	Percentage (%)
Boatman	20	43.86%
Shopkeeper	13	22.81%
CNG driver	19	33.33%
Total	57	100%

Source: Field data-2014

Table 1 show that, 57 respondents have changed their profession. Among them, 25 respondents (43.86%) work as boatman, 13 respondents (22.81%) work as shopkeeper, and 19 respondents (33.33%) are working as CNG driver. So, it can be said that, establishment of ecotourism in Ratargul swamp forest changed their profession. It changes their production system and creates vast opportunity for work. It has some negative impacts too. Without living on environment friendly farming or fishing, people of the Ratargul are becoming more involved in technology based earning, like driving motor vehicles, riding engine boats which increase the risk of environmental pollution by taking part in CFC gas emission.

3.2.3 Communication system is being developed

Local people come to Motorghat, Ratargul village and Chiringi with their boat to carry tourists in the Ratargul swamp forest and its nearby villages. Tourist's go to these place with CNG and tourist's personal vehicle. A road has been made

from Shaheb bazar to Motorghat for these vehicles. Ratargul shows its beauty in rainy season when tourists visit the area by boat. Villagers of Ratargul made one kilometer road from Ratargul village to swamp forest by their volunteer afford to make it easy to go to the forest in other seasons. So, it can be said that communication system of that area are being developed as the blessing of ecotourism.

But, it also has negative impact on environment. To carry tourists from Motorghat or other two places to the tourist spot, most of the boatmen use engine boats. These engine boats use petrol as fuel that emits CO₂ at a high rate which causes harm to the environment. We all know that, CO₂ is very much responsible for greenhouse effect. More use of engine boats to carry the tourists in an undefined and multiple ways inside and around the forest also creating noise and polluting air and water there which are disturbing the life styles of the habitats inside the swamp forest to be settled like previous stable and natural environment.

3.2.4 There are local politics surrounding the ecotourism

Faction and conflicts are created around this village for tourism. Though Ratargul swamp forest is located on Gowainghat upazilla, Motorghat of Aolarkut village under Sadar upazilla is another way to go there. Therewithal this way is easier and most of the tourist use this way. But without inhabitants of Sadar upazilla, other villagers can't ferry tourists from this

Motorghat. They only can ferry local people from this ghat. If they go to ferry any tourists, conflict starts instantly. It seems that, only inhabitants of Sadar upazilla get the benefit from tourism. On the other side, staying such closer to tourism, inhabitants of Gowainghat upazilla can't take any benefit from that. They go to local leader for solution. They also seek help from the government, but there is no solution of it.

Bangladesh government has established a bit office in Ratargul swamp forest for its maintenance. Also projects have been taken to announce this forest as ecopark. For the forest officers, modern office and residence are being made in the forest. The project has nothing for the protection of the forest, but all about the tourism. Total 5 crore 61 lakh taka has been funded for the project. From this 80 lakh taka for bungalow and park inspection, 30 lakh taka for watch tower, 15 lakh taka for 7 engine boats, 20 lakh taka for box culvert, 20 lakh taka for jetty, 20 lakh taka for road construction and so on. These types of activities can extremely harm the environment of the forest. But this project is already going on and started work in the nearby villages. Some villages (about 8-10) already got electricity connection. Local people who are aware of it protested against this project. For this purpose, they established Ratargul Shobuj Biplob Shomiti, Bhoomi Shontan Bangladesh, Ratargul Jolarban Shongrokkhon Committee etc,

and also includes Bangladesh Poribeshbadi Andolon (BAPA), Bangladesh Environmental Lawyer Association (BELA), Green Explore Society (GES), Pradhikar, etc. to conserve the forest environment.

3.2.5 Safety is being ensured

Everyday many tourists visit in Ratargul swamp forest. But as respondents opinion it does not leave any impact in their safety. They are living in peace as before. Tourists never disturb them.

Local people inform that, several steps have been taken to ensure the security of the local people. Like full time police patrol and local guards are there.

3.3 Impact of Ecotourism on Culture

3.3.1 Changes in local languages

Though it is a relatively new tourism area, there is not much change in local people's language. As it has become a famous tourist area, everyday lots of tourist from home and abroad visit here. Local people try to talk/communicate with the tourist by using standard Bangla language by the side of their mother tongue (Sylheti language). Its impact has been shown in their normal conversation. Respondent's views regarding this are as follows.

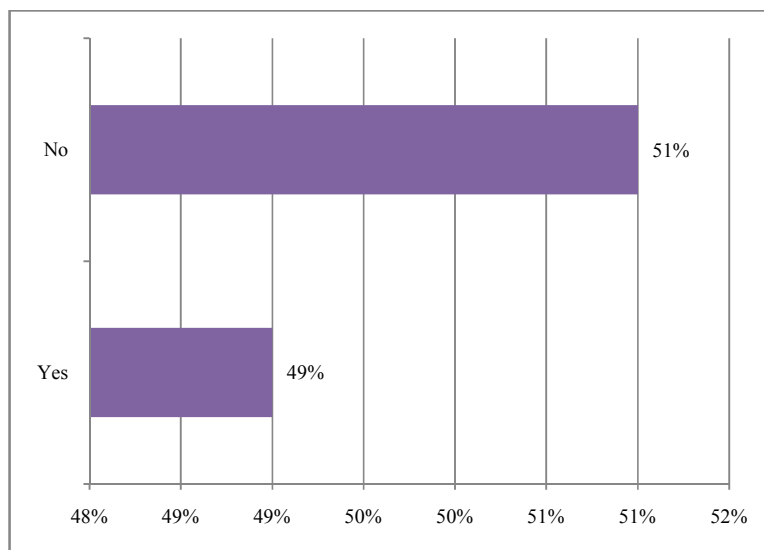


Fig. 2. Percentage of changes in local language

Source: Field data-2014

According to the Fig. 2, 49 respondents (49%) think that a little change has been seen in their language. But other 51 respondents (51%) think that there is no change. That means, they think that there are no impact of ecotourism in their language.

3.3.2 Variation found in dress pattern

Ratargul swamp forest is located in a remote village of Sylhet. But by following the tourists visited that place, local people also change their dress pattern. Respondent's opinions regarding changes in dress pattern are as follows.

Fig. 3 shows that, 15 respondents (15%) think that there are some changes occurred in their

style of using dress. They say that, local people especially young and teenagers are doing new style to attract tourist by following them. Again, rest 65 respondents (65%) say that there are no impacts of ecotourism on their changing style. They see it as modernity. And 20 (20%) of them have no comment on it. That means most of the respondent don't give much importance to the impact of ecotourism on the change in their dress pattern.

3.3.3 Increasing awareness of education

There are 5 primary schools, 1 high school and 1 college in the nearby villages of Ratargul swamp forest. FIVDB (Friends In Village Development Bangladesh) and BRAC (Bangladesh

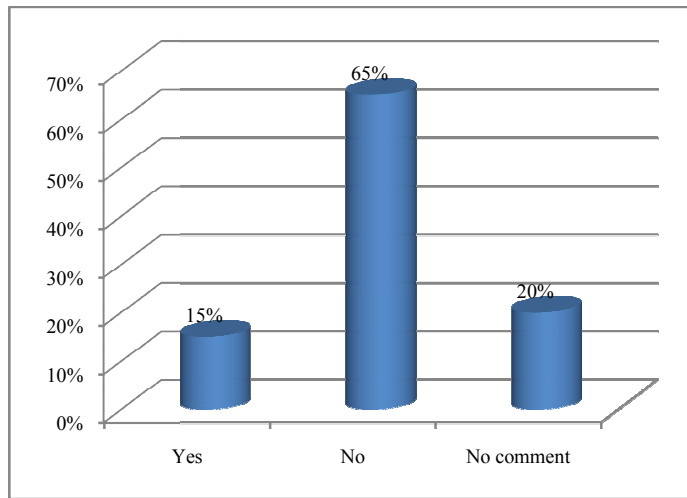


Fig. 3. Respondent's opinion about changes in dress pattern
Source: Field data-2014

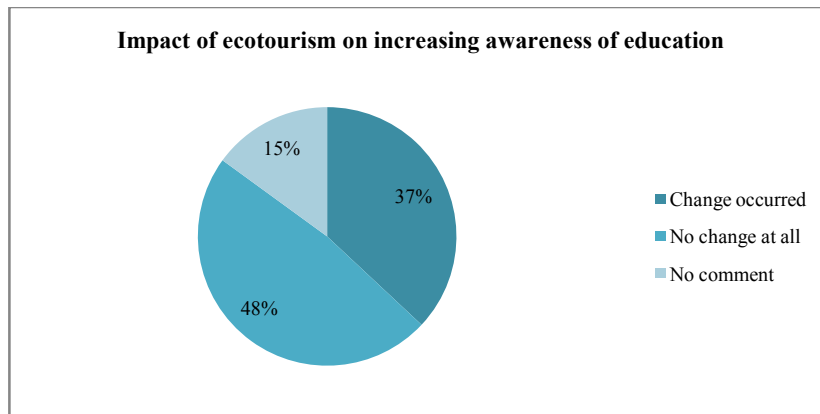


Fig. 4. Impact of ecotourism on increasing awareness of education
Source: Field data-2014

Rehabilitation Assistance Committee) are working in the villages to increase the rate of education there. Further, being attached to different types of people also increases both awareness and rate of education. But there are differences in their opinion about the influence of ecotourism about it. Most of them say that there is not much influence of ecotourism on it. Rate of education are increasing naturally and without any influence of ecotourism. Their opinions are as follows.

Fig. 4 shows that, 37 respondents (37%) say that ecotourism has increased their income and that is why they can spend more in the education of their children. That's the reason of the change in this sector. Again, 48 of them (48%) say that there are no such impacts. Other 15 (15%) have no opinion about this. So, it can be said that most of the respondents are not aware about the impact ecotourism in education. They are knowledgeable about sustainable use of forest resources from many sources. They also can take part to make other people aware of it. This can increase the number of people who are aware about environmental pollution and can take part in nature conservation.

3.4 Impact of Ecotourism on Environment

3.4.1 Environment of Ratargul swamp forest is threatened greatly

Five years ago Ratargul was unknown to the people of the world. But in last five years this scenario has been changed greatly. Around 20 to 23 thousand tourists visited the swamp forest in a week during rainy season. This excessive crowd of the tourist is hampering the forests environment. Guideless tourists are roaming in the forest recklessly without thinking about the animals of the forest. They make too much noise, talk loudly, shout, ride on the trees, play music at a high volume, and so on. Many tourists carry bottled water or juice, potato chips, biriani, and other packed food stuffs while traveling the areas and finally discard the resulting waste recklessly in the forest despite the use of warning signs by the forest department and other concerned authorities. They throw stone to the monkey or other animals as a matter of fun. But all these activities are responsible to reduce the number of trees, birds and animals there.

3.4.2 Number of trees and animals are decreasing

A respondent informed that, 'few years ago, we could see monkeys, entellus and other animals

roaming through the branches of trees in the forest. But after ecotourism introduce here, due to crowd of noisy tourists visited here, the monkeys and other animals seem to have disappeared from the outskirts of the forest'. Respondents also informed that, there are major threats for the illegal collection of woody branches, reeds and woods. Some irresponsible local people cut branches of trees to use as fire wood or fuel, building and industrial raw materials. They also inform that, a group of politically influential locals are behind the deforestation of the swamp forest also. Reed forest comprising about 2400 ha was allocated to the Sylhet Pulp and Paper Mills (SPPM) for the supply of fibrous raw materials in 1975.

3.4.3 Awareness regarding environmental conservation increased

Local people are now more aware about environmental conservation. They take part in forest conservation, bio-diversity conservation and forest cleaning. They are knowledgeable about the sustainable use of forest resources from many sources. They get these knowledge from forest officer, journalist, NGO's and some are self-aware about preservation of forest. But on the other hand, the floating plastic bottles, polythene packets and other garbage's in the swamp area signify that tourist awareness is needed more and forest preservation laws should to be strictly maintained. Otherwise, unplanned and unmanaged tourism may disrupt the life cycles of many aquatic biota that thrive there. Besides, forest office has established watchtower inside the swamp forest. And many of these activities are responsible to reduce the number of trees, birds and animals there. More use of engine boat to carry the tourists in an undefined and multiple ways inside and around the forest also creating noise and polluting air and water there which are disturbing the life of the habitats inside the swamp forest to be settled like a previous stable and natural environment. To save this swamp environment, government and forest department should make and implement some management policies which should be maintained strictly considering the opinion of the local people.

4. CONCLUSION

This research has been done with the objective to observe and analyze the impact of ecotourism on the environment, society and culture of the Ratargul swamp forest. Here, types of

ecotourism in Ratargul swamp forest have been described, besides the impact of ecotourism on society, culture, economy, politics, production system, environment of the area. It has created job opportunity for unemployed peoples. Alongside doing traditional jobs now local peoples are involved in additional economic activities. It has enriched their economy. Ecotourism has not only positive impacts, but also has some negative impacts. Tourism activities damaged the ecology, forest depleted, destroyed and biodiversity considerably degraded. To save Ratargul from ecological damage, Ratargul to be declared as reserved forest, a buffer zone to be made, core zone of the forest should fully prohibited for tourists, tourist management system to be introduced. For this, local people's participation should be ensured considering their opinion. Government and forest department can apply these in time of implementing policies regarding Ratargul swamp forest. This can save the environment of the forest. Again, though local people are mostly related to the forest, their opinion should be considered while taking any decision related to the forest.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Vishwanath S, Chandrashekara B. Economic impacts of ecotourism-A perceptual study. International Journal of Innovative Research & Studies. 2014;3(3): 15-23. ISSN 2319-9725. Available: www.ijirs.com/ (Accessed 20 August 2014)
2. Hasan, Istiak, Swamp Forest Ratargul. Spot light. The Daily Kaler Kantho; publish date: 28 August, 2011. Accessed 13 August 2014
3. Choudhury JK, Biswas SR, Islam SM, Rahman O, Uddin SN. Biodiversity of Ratargul swamp forest, Sylhet. IUCN, Bangladesh Country Office, Dhaka, Bangladesh. 2004 iv+24PP.

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