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# INTEGRATED PROTECTED AREA CO-MANAGEMENT (IPAC)

STUDY ON ECOTOURISM: LAWACHARA NATIONAL PARK

**June 11, 2012**

This report was produced for review by the United States Agency for International Development (USAID). It was prepared by International Resources Group (IRG).

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## STUDY ON ECOTOURISM: LAWACHARA NATIONAL PARK

USAID Contract N° EPP-I-00-06-00007-00  
Task Order No: EPP-I-01-06-00007-00

June 11, 2012

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**Submitted to:**

USAID/Bangladesh

Submitted By:



International Resources Group (IRG)

With subcontractors:

WWF-USA, dTS, East-West Center

Environmental Law Institute, Epler-Wood International

The WorldFish Center, CNRS, CODEC

BELA, Asiatic M&C, Oasis Transformation, Module Architects, IUB/JU

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# ACKNOWLEDGEMENT

Completion of a short duration study overseas requires massive support, help and good wishes of friends, family and acquaintances in field, headquarters and at home. I would like to thank them individually for all the help rendered for the study.

## **USAID & IRG**

Thank you for providing the opportunity to undertake the study. Thanks are due to Shri Alamgir Hossain, Environment & Climate Change Specialist, USAID, Bangladesh for patiently listening to the findings of the study and valuable suggestions.

## **IPAC, Dhaka**

Mr. Reed Merrill, Chief of Party, for giving me the opportunity to undertake the study and facilitating the work. Dr Ram Sharma, DCOP, for imposing faith in me. Sir, I will always be grateful to you for giving me opportunity to come and work in the country. Shri Makhlor Rahman, Director Administration and Finance, for doing all the administrative work to facilitate my visit and stay. Shri Samsuddin, for arranging meetings at Van Bhawan and accompanying me to the meetings. Shri P K Pasha, for sparing his weekends to be in the field with me and provide support for the work. Shri Sudhir, Monikadi, Mehedi, Nawroj and Jahan for all the logistic support extended.

## **IPAC Cluster Team**

Shri Malay Kumar Sarker, Cluster Director, for all the encouragement and support throughout the study. Kazi Nazrul Islam, Site Facilitator, for providing support and facilitating the work. Abdul Khaleq, for providing the necessary support in the field. Shri Balaram Saha, for providing support in accounts. Others in the IPAC team who have helped during the study especially Samir Chandra Samadder, S.A. Samsuddin, Ferdous Nahid, Moniruzzaman Chowdhury, , S.M. Abdullah al Mamun, Polash Sarker, Arjun Chandra Das, Swapan Kumar Chanda, Touhidur Rashman Abu Taher, Babul Sing Mridha and Rimesh Thankyou for the support.

## **Forest Department**

Shri Md Yunus Ali, CCF, Shri Mahbob DFO, Maulvibazar, AKM Azharul Islam, Forest Ranger, Wildlife division, Moulvibazer, Mohd Monirul Islam, Beat Officer, Lawachara. Thankyou for the support and help

## **Co-Management Committee & Council**

Shri Prakash Kanti Choudhury, UNO Kamalganj, Imtiaz Ahmed, President, Lawachara CMC, Syed Nesar Ahmed, Vice-President, Lawachara CMC, Anonda Mohon Sinha, Former CMC Member Lawachara, Jidison Prodhan Shuchiyang, Head man, Magurchara Khasia Punji, Fila Pathmy, Head man, Lawachra Khasia Punji, Hatem ali, Lando, CMC Member, Lawachara, Ombalika Dev Borma, CMC Member, Lawachara. Thankyou for being a part of the discussion of the study which helped in consolidating the strategy.

## **Nature Guides**

Nirupam, Biswajit and Tapas for helping in collection of field data. Shekhar, Russel Alam and Dhiren thankyou for your help.

## **Wildlife Institute of India**

Swati for helping in GIS, Kuldeep Chauhan for doing the layout, K K Srivastava for checking the references.

Like to thank countless others who have been behind the scene and provided a helping hand.

**Bitapi C. Sinha**

# EXECUTIVE SUMMARY

A study was initiated by IPAC to assess the current tourism practices in Lawachara National Park, Bangladesh. The study examined the trends of tourism in Lawachara National Park, Documented the existing visitor facilities and resources, identified impacts of existing tourism and assesses the tourism carrying capacity. The report of study findings concludes with recommendations of appropriate visitor management strategies. It also recommends interventions that CMC and Forest Department can take to address immediate threats that the tourism in Lawachara poses to biodiversity conservation and the well being of ethnic communities.

The visitation to Lawachara is increasing over the years. There is 75% increase in visitation in 2011-2012 over 2007 -2008. Students and minors form 41% of the visitors whereas foreigners were 1.2% in 2011-2012. the seasonal pattern for all the visitors. Students /minors form a significant number of visitors to Lawachara National Park. In the months of February and March more student groups visit the area. From April to August the visitation drops as it is the rainy season. Then there is a drastic increase in visitation in the month of September. The rise in visitation during September coincides with long vacation for Eid and durga puja festivals.

Correlation of rainy days show that during rainy season the visitation comes down .17% of the total visitors visited Lawachara National park during the rainy season i.e 1<sup>st</sup> April to 31<sup>st</sup> July 2011. The park receives heavy visitation on weekends (Friday & Saturday) and holidays. 53% visitors visited Lawachara on weekends , which is 498 visitors per day. This is more than double visitors on weekdays. For visitors who stop enroute, the half an hour trail is an attraction. Also the area has the old Shamoli Forest Rest House and the Lawachara Khasia Punji which are an attraction amongst visitors. The other two zones are relatively less in use.

Lawachara receives large base of national visitors, most of whom are first time visitors and who come with the objective of spending time in pristine environment and enjoy. The group size of visitors varies from couple to group of 200 and more. Word of mouth is the major source of information about the park. The overall rating of visitor facilities by the visitors is not satisfactory. If the facilities are improved and new facilities added then the visitors are willing to pay more and recommend that the entry fee can be raised from 20Tk to 50Tk.

Crowding, littering, picnicking, noise and vandalism are some of the evident impacts of tourism in Lawachara National Park. There is a boom in construction of hotels and resorts in and around the national park. Community members agree that tourism has increased opportunities for their employment and has benefitted in their livelihood.

The effective permissible carrying (ECC) capacity of the three officially designated trails was calculated. It was found that 148 visitors per day can be permitted on the half hour trail and an additional 264 visitors per day can be allowed upto the trail entry point. The one hour trail can accommodate 107 visitors per day whereas the two hour trail at Jankichara can accommodate 258 visitors per day. During peak season and weekends the staff strength can be increased (10%) by deploying personnel through CMC and this would enhance the ECC to Half Hour trail = 246 visitors per day: One Hour trail = 180 visitors per day: Two Hour trail = 431 visitors per day.

Overall, various recommendations were outlined for Lawachara in converting mass tourism into ecotourism.

# CHAPTER I: PROTECTED AREA AND VISITOR MANAGEMENT

Ecotourism, protected area visitation and related visitor activities are becoming increasingly popular in developing countries (Boo, 1990; Boyd & Butler, 1996; De Groot, 1983; Fennel & Eagles, 1990). These activities have resulted in ecological impacts to protected areas, additionally many areas were created for resource protection and therefore were not prepared for the unchecked intensive visitation that has occurred. In developing countries, and to some extent in developed countries as well, the main purpose for the establishment of protected areas has been, until recently, to preserve important natural features and unique habitats, which otherwise would have been at risk of disappearing. As protected areas were established, the opportunity for people's recreation and enjoyment was acknowledged as the positive secondary outcome, but the need for visitor management, aimed to protect the resources from excessive human impacts was not yet recognized.

Visitation to national parks and other protected areas is increasing worldwide (Buckley 1998; Eagles and McCool 2002; Newsome et al 2002). Increase in visitation to natural areas is for a number of reasons, including an urbanised society which seeks to escape to nature (Buckley 2000), an increasing recognition of environmental issues in the wider public arena (Wearing and Neil 1999) and technological advances in transportation making access to remote areas easier (Eagles and McCool 2002)

The increasing numbers of people visiting parks and the impacts thereof from visitation have created one of the most pressing management problems natural area managers are facing (Sowman & Pearce 1996; WTO & UNEP 1992). Park management is frequently described as having dual mandate, they are required to protect the natural resources under their jurisdiction and also encourage recreational use of the area (Beckmann 1991; Fennell 1999; Manfredi & Bright 1991; Manning et al 1996; Pigram 1983; Wescott 1993). In these seemingly conflicting goals, management of visitors to natural areas becomes essential (Buckley 1998; Eagles & McCool 2002).

Over time, the management focus gradually shifted in the direction of visitor management because the increasing popularity of protected areas as tourism destinations was creating problems unforeseen in past. Organisations involved in resource management and interpretation have been slowly shifting orientations from one focused primarily on resources to one that include the visitors (Cheatley, 1994). Today, while many protected areas are still in need of building a constituency of visitors who know and care about place, some are experiencing overuse, habitat degradation and conflicts with local people over the use of scarce natural resources. The gravity of these problems has prompted professionals to stress the importance of providing protected areas with appropriate management tools which can be used effectively to address a range of issues associated with the environment, visitors and local people.

It is today recognized that to be effective, park management decisions cannot be based only on knowledge of natural resources. Protected area managers also need the infrastructure and management capabilities to maximize visitor enjoyment, while minimizing negative impacts to the natural and cultural resources and to the local people. Visitor impacts include trail erosion, wildlife disturbance, water pollution, visitor crowding and conflict (Ceballos Lascurain, 1996; Manning, 1986; Marion & Farrell, 1998; Shelby et al., 1989)

Strategic policy implementation with effective management of visitation is essential to ecological integrity. For tourism to be an effective conservation tool, increased understanding of its beneficial effects and its negative consequences is required. This means a considerable capacity building effort for park staff and communities to ensure the desired outcomes. It also requires a much better level of understanding of park visitation patterns, numbers and trends (Bushell et al 2007)

The benefits associated with visitors to protected areas can be significant, ensuring more people enjoy, respect and value nature.

## **1.2. Supporting Sustainable Use of Protected Area**

The major causes of environmental impacts due to visitors in national parks vary according to the features of the site (soils, topography, aspect and vegetation) prevailing conditions (e.g temperature, precipitation) plus the specific behaviours in which visitors engage (Leung and Marion, 2000; Leung et al 2001)

Buckley and Pannell (1990) broadly summarize the types of impacts as :damage to tracks and soils from vehicles; trampling; damage to river banks; firewood collection; water pollution and depletion; human waste; litter; noise; disturbance to wildlife; vandalism and visual impact due to visitor services; infrastructure such as roads, utility lines and structures.

Additional impacts relate to soil compaction and erosion; damage to flora and habitat; removal of plants and seed sources; introduction of exotic species, weeds and pests; air and water pollution from inadequate waste management techniques and finally loss of biodiversity.

The more visitors a park receives, the more impacts are compounded (Evans,2001).A fundamental question for park managers in this context is : how much is too much, how much change to the natural area is acceptable? The answer is determined by a political or social choice. But it is also important for the park manager to be informed by research.

## **1.3. The Concept of Carrying Capacity**

A burgeoning global economy in tourism coupled with the transition of local communities away from traditional resource extraction to tourism have led to expanding concerns about the effectiveness of tourism as a tool to advance the social, economic and environmental welfare of the people it is supposed to benefit. At the same time, the appeal of the concept of carrying capacity as a paradigm for addressing and limiting the amount of tourism development and use at a destination has clearly emerged, leading to calls to establish carrying capacities in terms of specific numbers of tourists over a specified time period.

The concept of carrying capacity was initially developed in the field of range and wildlife management and was based on the notion that an organism can survive only within a limited range of physical conditions (Carey, 1993). Concerns about the ability of the parks and protected areas to absorb tourists and their impacts developed initially in the late 1930s. The concept of carrying capacity was adapted from range management and was applied to recreation management in the early 1960s (Wagar, 1964). The issue of how much use can be accommodated in protected areas without violating standards is conventionally called carrying capacity. Carrying capacity frameworks include limits of Acceptable change (LAC) (Stankey et al 1985); Visitor Impact management (VIM) (Graefe et al 1990) Outdoor Recreation Management Framework (Manning 1999); Visitor Experience and Resource Protection (VERP)(National Park Service,1997; Manning 2001); Carrying Capacity Assessment process (CCAP)(Shelby and Heberlein, 1986); Visitor Activity Management process(VAMP)(Environment Canada and Park service 1991).

Tourism carrying capacity is the maximum level of use before degradation occurs. Often the literature defines capacity as the amount of use that is accommodated without degrading resources. McIntyre (1993) defines carrying capacity as the “maximum use of any site without causing negative effects on the resources, reducing visitor satisfaction or exerting adverse impact upon the society, economy or culture of the area”. Any use of an area results in some change from existing biophysical or social conditions. Therefore, it is impossible not to have negative effects. To define carrying capacity in terms that are essentially numeric is not only unrealistic, but inappropriate.



#### 1.4. Tourism development in Bangladesh

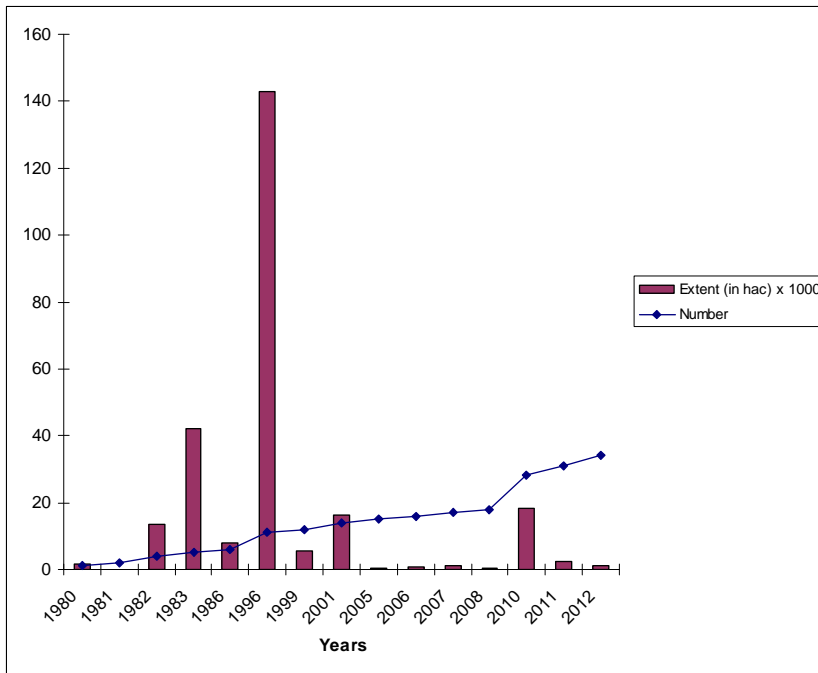
The government of Bangladesh first recognized tourism as an important industry with the framing of the National Tourism Policy in 1992. In 1999 tourism was declared a thrust sector and tax exemption and other incentives were given. Bangladesh is bestowed with a rich diversity of nature – sea in Cox's Bazaar, islands in Teknaf, mangroves in Sunderban and the northeastern hill tracts in Sylhet. Today tourism is a fast growing industry in the country. It is estimated that the contribution of travel and tourism to Gross Domestic Product is expected to rise from 3.9% in 2010 to 4.1% by 2020 (World Travel and Tourism Council).

In the last years the country has several times attracted international recognition of its tourism potential:

- 2007:** Sundarbans and Cox's Bazar two national destinations became candidates in Worldwide New7Wonders of Nature campaign
- 2008:** Lonely Planet nominated Bangladesh as one of the top 10 interested countries 2009 and also published their 6th edition of their tourist guidebook 'Bangladesh'.
- 2009:** Bradt Travel Guide published 1.st edition of their tourist guidebook 'Bangladesh'.
- 2009:** Sundarbans was nominated one of the 28 Official Finalist Candidates in Worldwide New7Wonders of Nature campaign
- 2010:** Nominated Number One Best Value Destination for 2011 by Lonely Planet.
- 2011:** The 2011 ICC Cricket World Cup was played in India, Sri Lanka, and Bangladesh. It was Bangladesh's first time co-hosting a World Cup.
- 2011:** Sundarbans was nominated one of the top 14 Official Finalist Candidates in Worldwide New7Wonders of Nature campaign, but did not make it to the final Worldwide New7Wonders of Nature.

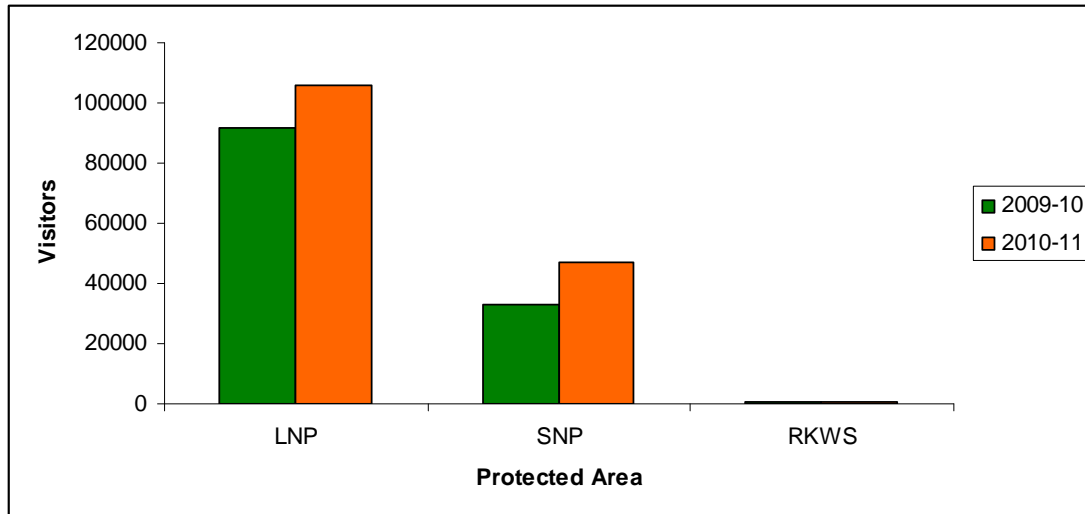
Under the Provision of Wildlife (Preservation) Amendment Act 1974, there are 34 protected areas (national parks and wildlife sanctuaries) and 6 eco parks all over the country (Figure 1.1).

**Figure 1.1: Number and extent of Protected Areas in Bangladesh**



For proper management of these protected area in 2003 forest department with support from the USAID initiated a program called “Nishorgo”. The objective of this program was to conserve nature, promote nature based tourism and poverty reduction for the communities living around the protected areas adopting the approach of ‘co management’.

**Figure 1.2: Visitation to the three protected area**



With the declaration of protected areas, rise in awareness about nature and also the increase in the capacity to pay local nationals started to travel to natural destinations. Nishorgo Support Project also helped in the marketing of these areas as well as in developing visitor facilities in and around the protected areas. Figure 1.2 shows the increase in visitation in two years. Lawachara recorded an increase of 13% increase in visitation in one year whereas Satchari National Park recorded an increase of 30% in visitation. Protected areas are being preferred as destinations by both national and international visitors alike.

### **1.5. Objectives of the study**

- Look into the trends of tourism in Lawachara National Park
- Documentation of existing visitor facilities and resources
- Identify impacts of existing tourism
- Assess the tourism carrying capacity of Lawachara National Park

### **1.6. Duration of the Study**

The duration of the study was from 12 February, 2012 to 27 March, 2012. The duration of field study at Lawachara National Park was from 17 February, 2012 to 17 March, 2012.

### **1.7. Constraints**

- The duration of the study was insufficient for carrying out detailed study for fulfilling the objectives.
- No baseline data for the study was available
- The record keeping at Lawachara National Park was manual and therefore, information had to be computerized from the scratch and thus was time consuming.

### **1.8. Further Studies**

The duration of the study was very short and thus many aspects could not be covered for a comprehensive study for ecotourism management and planning. Further studies are required in the following aspects:

- Impact of tourism on habitat and wildlife
- Contribution of tourism to local economy
- Visitor awareness and education

# CHAPTER 2: STUDY AREA

Lawachara National Park (LNP) is located northeast of Dhaka in Kamalganj sub district of Maulvibazar district. Declared in 1996, LNP is located between 24°30' to 24°32' n and 91°37' to 91°47'E and covers an area of 1250ha a part of 2740 ha west Bhanugach reserve forest. The park lies between Dholai River on the east and the Manu River on the north (Ahsan, 2007). The park is surrounded by tea estates (Figure 2.1)

## 2.1 Approach and Access

The park is well connected by rail, air and road. It is 180 kms from Dhaka, 90 kms from Sylhet and 8 kms from the town of Sreemongal. The nearest airport is Sylhet.

## 2.2 Significance

The topography of the park is undulating with slopes and hillocks ranging from 10-50 metres along with numerous streams flowing through the park (Aziz, 2007). The soil of the park comprises of brown, sandy clay loam (Hossain et al 1989).

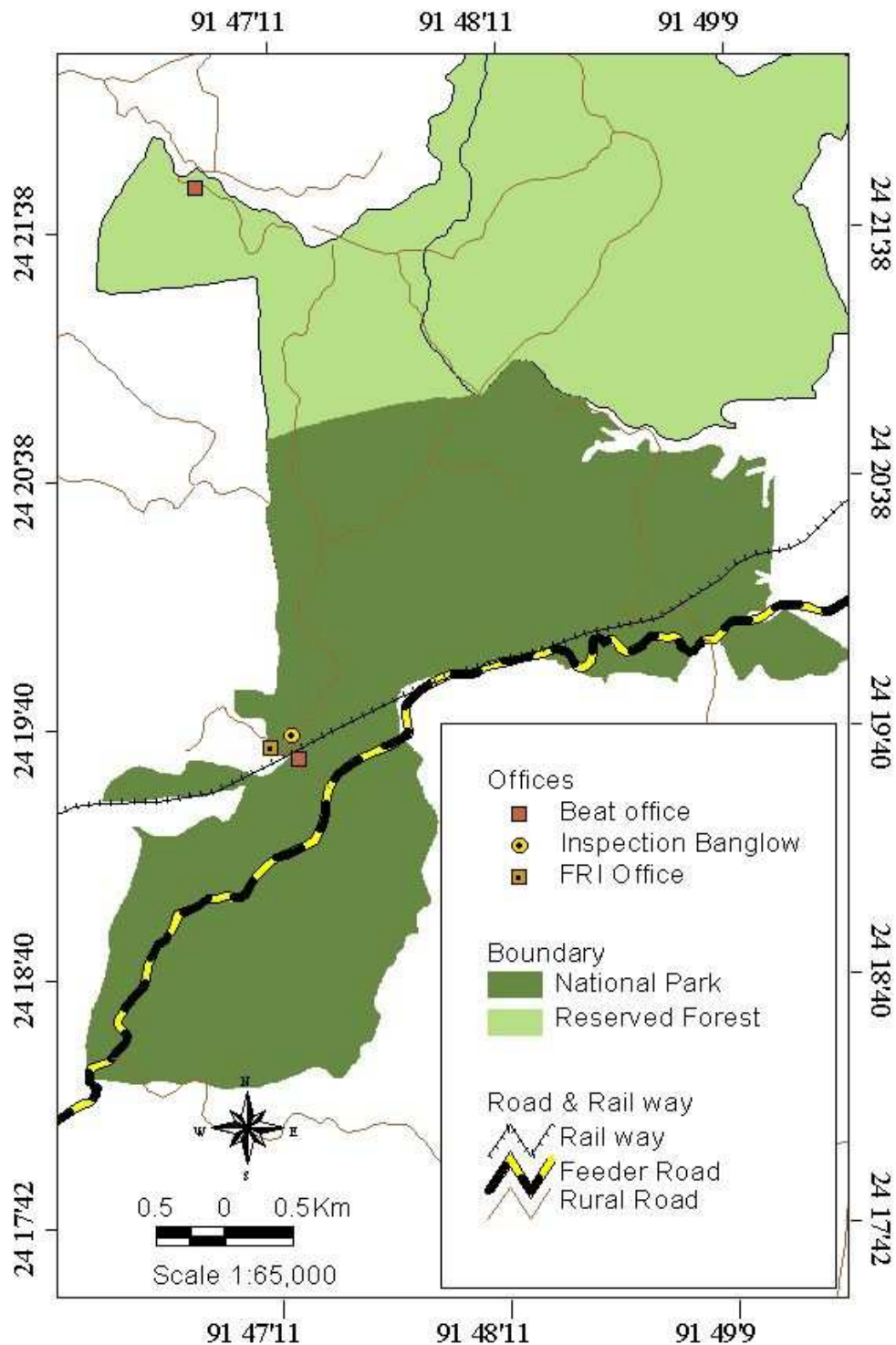
There are six broad habitat types in Lawachara and the adjoining area:

- 1 high forest represented by the remaining patches of natural forest
- 2 plantations including the monoculture of exotics
- 3 grassland and bamboo
- 4 wetlands
- 5 tea estates
- 6 cultivated fields

The forests are mixed tropical evergreen and semi green forests. The forests area was earlier used for jhum cultivation by forest dwelling communities. Major tree species in the area are *Artocarpus chaplasha*, *Dipterocarpus turbinatus*, *Elaeocarpus floribundaas*, *Dillenia pentagyna*, *Castanopsis tribuloides*

Lawachara National Park is rich in avifauna and is home to 237 species of birds which is representing nearly one third of the country's known bird species. Hoolock Gibbon *Hylobates hoolock* and Capped leaf monkey *Trachypithecus pileatus* (Nishorgo, 2006) are the flagship species for the National Park.

Figure 2.1 Lawachara National Park



There are villages of four ethnic communities namely Khasia, Tripura, Manipuri and Santhal in and around the national Park. The park is the first to have a notified Co Management institution. The institution involved local people from different strata by creating a Council and a co management Committee. In the first Co Management there were 50 members in the council and 19 members in the committee (Aziz, 2007). Today, 2012, there are 65 members in the council and 29 members in the committee. (Figure 2.2)

### 2.3 Tourism

The key strengths of Lawachara lie in the exotic ambience, ethnic community in and around and its wilderness areas. It is one of the few protected areas in the country that can offer this diversity of products.

Being easily approachable LNP is a major attraction amongst visitors. The park is open for visitors throughout the year, although visitation reduces considerably during the rainy season i.e May to August each year. The visitors to Lawachara are attracted by the area covered with terraced tea estates, patches of tropical rain forest, pineapple plantations and lemon groves.

Entry to the National park was free upto 2009 but in 2009 November entry fee system was introduced (Table 1)

**Table 1: Entry fee to Lawachara National Park**

Fee charged for	Rate
Adult/per person	20 TK
Student and minor/per person	10 TK
Foreigner	5 US\$
Parking	25TK
Filming	6000TK/day
Picnic/per person	10TK

### 2.4 Interpretive Services

Both attended and unattended services are present in the national park for making the visitors visit enjoyable and educative. Under the Nishorgo Support Project local educated youths were trained as Guides to accompany visitors inside the national park. Of the 25 trained 18 are actively working. Park brochures, trail brochures and signage's were also developed under the project. Most of the materials are bilingual, English and Bengali. Publications are priced and can be purchased from the ticket counter.

The National Park has three entry points for visitors namely Janakichara, Lawachara and Bagmara. Facilities have been created at the three points for visitors.

**Janakichara (Entry1):** As one approaches the National Park from Sreemongal this is the first entry point. The proposed Interpretation centre is likely to come up in this area. The area has a two hour trail for the visitors. Ticket counter, rest rooms and a tourist shop are present for visitors.

**Lawachara (Entry2):** This is the most popular amongst visitors. The entry has parking lot, entry ticket counter and administrative signages. Guides can also be hired from this gate. After procuring tickets visitors can walk down 200mts to the entry of a half hour trail and one hour trail. For the security of the visitors Tourist Police is also deputed in this area and they have an office next to the Beat office & CMC office in the area. Restrooms, resting benches and Tea stall (Tourist shop) are some of the amenities for the visitors.

The half hour loop trail, named Shayamoli stroll, begins near the gate of Samoli Forest Rest House and ends at the same point. The trail covers good forest and visitors can come across hoolock gibbon, macaques and birds. There are 8 observation points of interest on the trail. The trail entry has signage's informing the visitors the route to be followed and the resources/points that the visitors will come across. The trail also passes through Lawachara Khasia punji .

The one hour trail named Dense Forest Walk begins from opposite the Lawachara entry point. The trail is located on both sides of the Sreemongal to Kamalganj metallic road. There are eight observation points on the trail.

Apart from visiting the half hour trail visitors to this area can also visit the ethnic community village, Lawachara Punji, and learn about the lifestyle of Khasia.

**Baghmara (Entry3):** This has been designated as the picnic area. It is also the entry point for the three hour trail. The Old Forest trail starts from the Baghmara camp and ends at the Samoli Forest Rest House. The loop trail passes through tall trees where visitors can come across Hoolock Gibbon, Macaques and Birds. The trail has ten observation points of interest for visitors. The area has parking lot, ticket counter, tourist shop and resting shed. Groups which come especially for picnic cook food here, for which a cooking area has been made.

## **2.5 Other Visitor Attractions in the Area**

### **2.5.1 Ethnic Community Village**

Khasia - There are two villages within the National park namely Magurchara punji and Lawachara punji. Visitors are not allowed in the Magurchara punji, commonly, but they can enter Lawachara punji where they can see and learn about the lifestyle and culture of the Khasia tribe. Visit to the village is not organized, but visitors have to seek permission from the village headman before going around. Visitors can enter and go around the village and talk to the members of the community, see their way of farming especially betel leaf in jhum area.

Manipuri – There are two Manipuri villages in the neighbourhood of the National Park namely Ramnagar and Baligaon. The two villages are not dependant on the resources of the park and therefore do not fall in the landscape. But the two villages are dependant on tourism of Lawachara. Households of both the villages weave conventional cloth. Manipuri handicrafts are very popular amongst the visitors and before or after the visit to Lawachara they come to these villages. The two villages have developed as satellite hub of tourism around the national park.

Tipra – Doluchara village falls within the landscape identified under the Nishorgo support project. Residents of eastern part of the village are Tipra. Not all but some visitors come to the village to see the ethnic community lifestyle. A visitor book was being maintained by a resident of the village since 1993 and has remarks of some of the dignitaries both national and international who visited the village. Some of the households in this village too do weaving. The village has a handicraft shop where the villagers come and give their product for sale to visitors.



Tourist police deployed at Lawachara to maintain security of the visitors



Khasia ethnic community are dependent on Betel leaf cultivation in Jhum





Handicraft for sale at a shop in the Tipra village, Doluchara



Picnic spot at Baghmara, Entry 3





Proposed interpretation centre, CONIC, at Jankichara, Entry1



School groups comprise a large portion of visitors to Lawachara National Park





Manipuri handicraft shop at Ramnagar



Weaving is part of culture as well as income source for the Monipuri ethnic community.





Proposed 5 star hotel under construction near Lawachara to cater to Corporates



Lawachara receives international visitors who come either with the objective of watching wildlife or enjoy nature and spend time in solitude and peace





The seven color tea which is an attraction amongst visitors to Lawachara.



The tea estates around Lawachara are of interest to the visitors to Lawachara

# CHAPTER 3: METHODOLOGY

## 3.1 Visitor Survey design & testing

There should be a number of principles that should be adhered to when designing a survey: avoiding jargon, using simple questions, avoiding ambiguity, avoiding leading questions and asking only one question at a time (Beaumont 1999; Veal 1997) These principles were used when creating the visitor survey.

The survey was a combination of both open ended and closed questions as recommended by De Vaus (1991) for good survey design. The open ended questions were those where a question was asked without prompting the range of answers possible. Closed questions were those where the respondent was given a range of answers to choose from. The advantage of this approach is that the categories created can be more convenient for analysis and they save people the embarrassment of divulging precise personal information such as age and income.

Likert scale was used to allow respondents to indicate the importance they attach to factors for deciding to visit the reserve, and the satisfaction (Likert, R 1932) Questionnaires were pre tested for their efficacy. Visitor survey was conducted inside the reserve. An administered survey was chosen as the mode of survey administration mainly for logistic reasons.

Visitor groups were approached, briefly introduced to the purpose of the study, and asked to participate. If visitors agreed, they were administered the questionnaire which lasted approximately 5-7 minutes. The response rate was good. In all **116** questionnaires were collected of which **6** incomplete questionnaires were discarded.

The survey had 24 questions. The first 10 questions and question 18 to 24 were related to socio demography measures namely age, sex, occupation, education level, number of visit, travelling with, place of residence, reason for visit, duration of visit and mode of travel. These were closed questions with choices given. Question 11, measured using Likert scale, asked visitors about the importance of factors for deciding to visit the reserve. Question 12 was a closed question about the activities that the visitor would be undertaking while in the reserve. Question 15, measured using likert scale, asked visitors about the satisfaction of products, services and hospitality of the reserve. Question 16 was a open and closed question about recommending the reserve and why.

**The questionnaire was pre tested at Lawachara and then modified.**

## 3.2 Village Survey

Questionnaire (direct interview) method was implied to collect data from the villages. Family head or the eldest member present, of each house hold was interviewed to get the information on their socio demographic profile, their livelihood options and their attitude towards ecotourism as well as conservation. Close ended questions were designed to elicit the response.

The second part of the questionnaire was to know about the attitude of the community towards conservation of reserve and tourism. The main objectives of this survey were to find out the attitude of local people towards the protected area. The questionnaire was pre-tested in the field. It consists of one set of eighteen questions. Respondents answered each attitude statement according to their strength of agreement.

206 households were surveyed in 6 villages namely Magurchara punji (24), Lawachara punji (27),Doluchara (43), Baligaon (38), Ramnagar (27) and Radhnagar (45).

### **3.3 Resort Survey**

19 Hotels and resorts around Lawachara and Sreemongal were surveyed. The questionnaire was administered to the manager of the resort. The questions were relating to the establishment of the hotel/resort, the rooms and the beds available, tariff, visitor facilities, eco friendly measures, staff and occupancy.

### **3.4 Tour operator's survey**

There are 5 tour operators in Sreemongal. With prior appointment office of three operators were visited. One operator came and met at the IPAC office and one due to some personal tragedy in the family could not meet. They were asked as to when they were established, what package tours did they promote, who were their clients, where they aware of what ecotourism is and what were their drawbacks and how could they overcome it.

### **3.5 Quantification of Garbage**

In order to quantify the garbage generated by visitors on the trail, the half hour trail was chosen since it was the most popular amongst visitors. All the garbage was removed from the trail and weighed and shifted out of the site. The Garbage was again collected after a week and weighed. Only non biodegradable garbage was collected.

### **3.6 Mapping of Trails**

For calculation of carrying capacity of trails, three officially identified trails were mapped through GPS. The information was used for finding out the length of the trail and the areas with erosion. The trail maps were overlaid on Google image of the Lawachara national park.

### **3.5 Collection of Secondary Information**

Secondary information on the number of visitors coming to the reserves, revenue generated through tourism and the usage of the three gates were collected from Co Management office. Other related documents were collected from the Sylhet cluster office at Sreemongal.

Meteorological information was collected from the Bangladesh Tea Research Institute based at Sreemongal.

Discussions were held with the Co Management Committee, Divisional Forest officer, Range officer and Beat Officer of Lawachara Range, UNO Kamalganj and other council members and advisors. Discussions were also held with IPAC Cluster Director and staff and other influential people in the area.

### **3.6 Sharing with the Stakeholders**

To acquaint the Co Management Committee about the work a presentation and group exercise was conducted on 29<sup>th</sup> February 2012. The participants were briefed about the scope of work, what is ecotourism and the preliminary findings. Nineteen CMC members were present in the meeting (Appendix 1). The participants undertook a group exercise in identifying the resources of visitor interest in and around Lawachara National Park, identifying the stakeholders with tourism interest in the area and also identifying the impacts of tourism (Appendix 2). After the completion of the work the findings and strategies were shared with the Council and the Co Management Committee on the 18<sup>th</sup> March 2012. 37 Members were present in the strategy workshop.

### **3.7 Visit to the adjoining areas**

Adjoining sanctuaries were also visited for reconnaissance. The areas visited were Rema Kalinga Wildlife Sanctuary, Khadimnagr National Park and Baikka beel. Discussions were held with the forest department staff, villagers and the IPAC staff present on site in order to know the area and about the existing tourism practices and facilities.



# CHAPTER 4: VISITOR PATTERNS IN LAWACHARA NATIONAL PARK

## 4.1 Introduction

Increase in economic growth, disposable income and leisure time, political stability, and aggressive tourism campaigns among other factors have fuelled the significant growth of tourism (Islam, 2009)

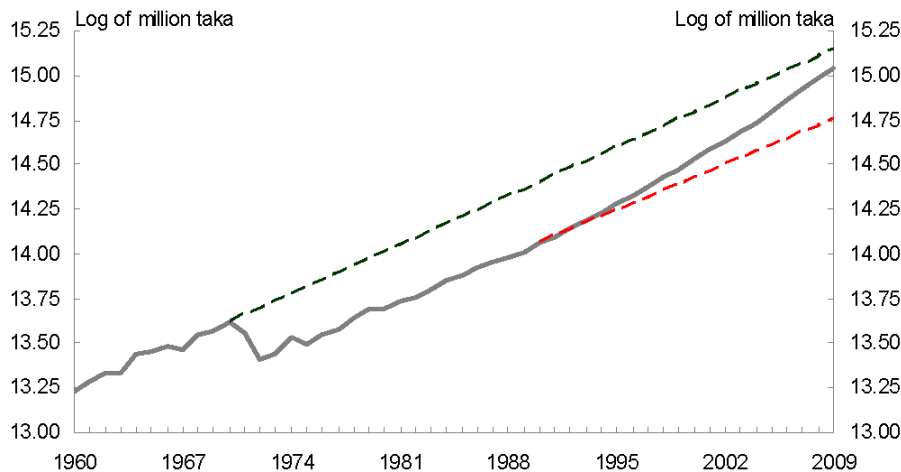
Increase in travel by the local national can be attributed to many reasons. Prominent amongst them are:

- Capacity to Pay
- Rise in Education and Awareness
- Affordable transportation
- Increasing government initiatives on tourism promotion

### (i) Economic Growth

Economic growth has contributed to higher standards of living for the poorest section of the society. In the year 2009 the Government of Bangladesh spent Tk 17,047 crore towards pay and allowances of its employees (Unnayan Onneshan, 2010). The growth of pay and allowances leads to more disposal income. With the increase in disposal income people can travel to destinations.

**Figure 4.1: Real GDP of Bangladesh**



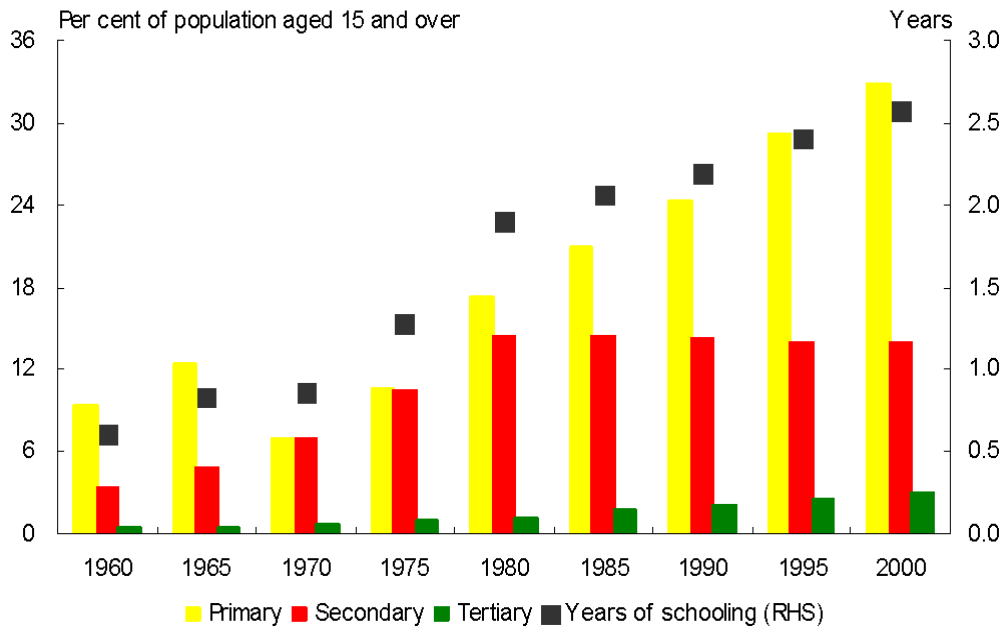
Source: Bangladesh Bureau of Statistics, World Bank, authors' calculations

### (ii) Increasing Education Level

Higher education leads to larger life time earnings. Higher education leads to a broader view of society. Higher education leads to more desire and opportunity to travel. The education attainment of Bangladesh is increasing (Figure 4.2). High education levels are correlated with demand for outdoor recreation and leads to changes in patterns of recreation and tourism.

There is a growth in general interest tourism that involves learning while travelling (eg guided tours), in specific learning travel programs (eg educational tours) and generally in learning activities such as wildlife viewing.

**Figure 4.2: Trends in educational attainment (1960-2000)**



Source: Barro & Lee(2000)

Understanding and responding to the diversity of visitor’s needs and expectations is a challenge. Each visitor arriving at the park brings with them their own set of expectations. Visitor’s experience should be a shared outcome between the visitor and the management of protected area. Visitor monitoring needs to be consistent and systematic in its design and collection (Lockwood, et al, 2006). As a fundamental input site managers require a good understanding of the different types of visitors, their expectations in terms of services, facilities and the experiences they seek (Gilligan and Allen, 2004). Management decisions can then be based on tangible information and not rough judgement. The visitor data, if collected by appropriately designed methods, can also assist in the design of more strategic visitor education activities and interpretation (Bushell and Griffin, 2006).

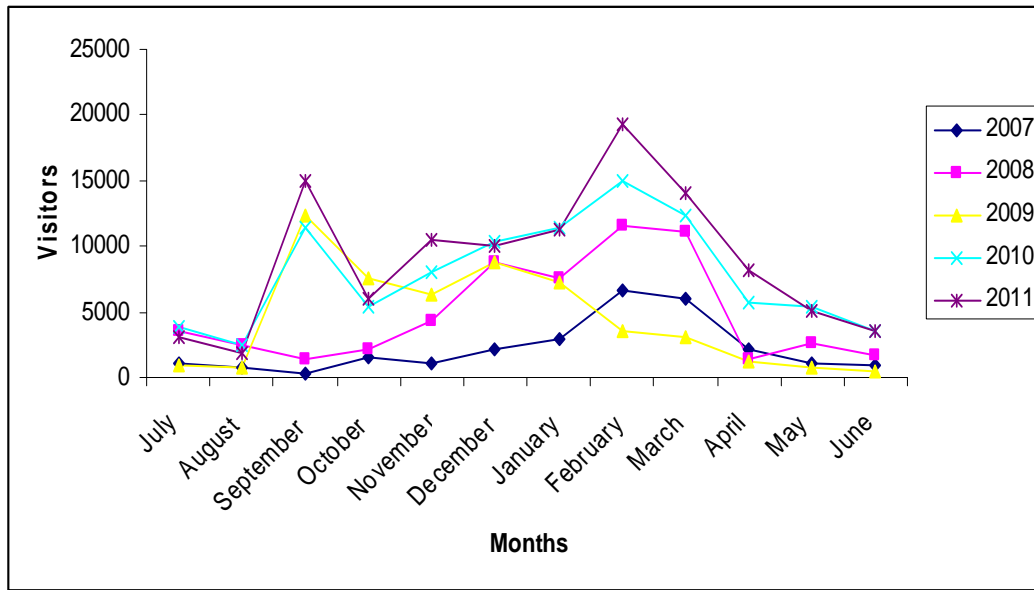
Visitors come with their own agendas and motivations. These visit reasons are as diverse such as education, entertainment, social events (Falk & Dierking, 2000), relaxation, enjoyment, spiritual experiences (Falk 2005), vacations, family outings, visiting with someone else (Prentice et al 1998).

In this chapter we have described the most important aspects of visitor patterns in Lawachara National park.

#### 4.2 Extant of Park Visitation

As shown by the visitation to Lawachara National Park, there is clearly an upward trend in recent years. The annual visitor numbers for national and foreign visitors is shown in Figure 4.3. As can be seen there is a significant increase of 75% in 2011-12 over 2007-08. Visitation to the National park dropped in 2009 due to (a) imposition of entry fee (b) political reasons i.e shift of power from Caretaker Government to an elected Government.

**Figure 4.3: Trend of visitation in Lawachara National Park From 2007 - 2011**

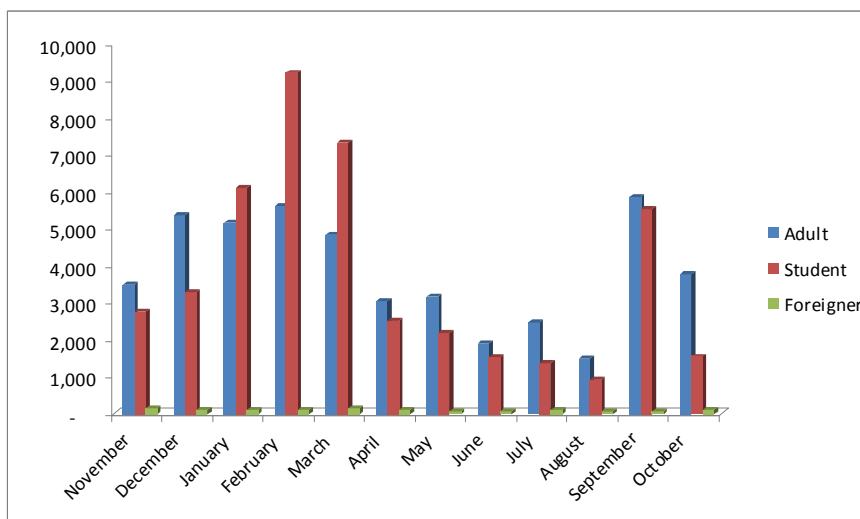


Source: CMC office Lawachara

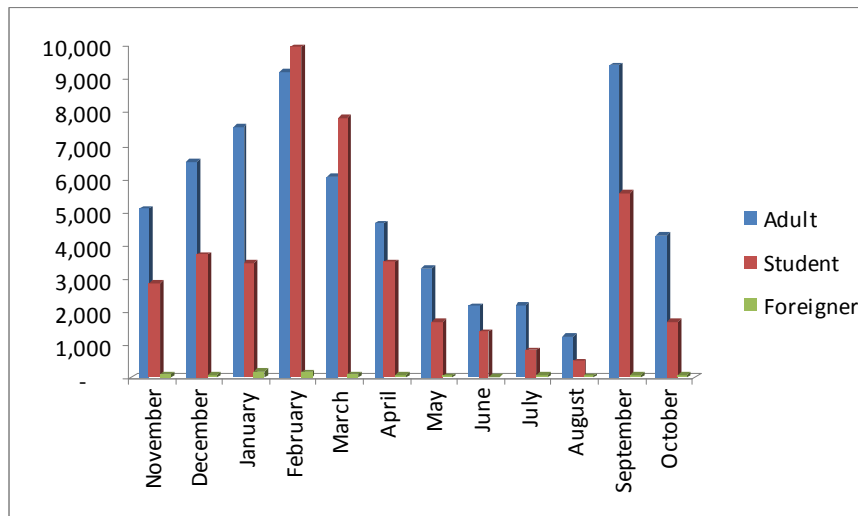
There is a very large base of domestic visitors to Lawachara, with the proportion of foreign visitors showing very little change (Figure 4.4 & 4.5). The entry fee system was imposed in the national park from 2009 November. A discount rate, Tk 10, is offered at the entrance gate for the students and minors. In 2010-2011 students and minors formed 41% of the visitors to Lawachara and Foreigners formed 1.2%.

Not all visitors to the park are exclusive wildlife visitors. Most of the visitors stop for a few hours enroute to Madhopur Lake and Madhob Kunda Waterfall. Not necessarily all foreigners have come to Lawachara from abroad. A large portion of the foreigners are those who are working in Dhaka and other cities.

**Figure 4.4: Visitation to Lawachara National Park in 2009-2010**



**Figure 4.5: Visitation to Lawachara National Park in 2010-2011**



#### 4.2.1 Seasonal Visitor Patterns

Visitor arrival varies seasonally. It is dependant on the climate of both the home and destination of visitors. Furthermore it is affected by social and cultural factors, example school vacations and timings of festivals.

Figure 3.3 shows the seasonal pattern for all the visitors. Students /minors form a significant number of visitors to Lawachara National Park. In the months of February and March more student groups visit the area. This is attributed to the school sessions. The new sessions in school starts in January and since there is not much teaching pressure therefore the students are taken out on excursion. From April to August the visitation drops as it is the rainy season. Then there is a drastic increase in visitation in the month of September. The rise in visitation during September coincides with long vacation for Eid and durga puja festivals.

Visitor management in Lawachara National Park will have to take into account seasonal fluctuations and the associated problems of utilisation of visitor facilities and in organising manpower to cope with lean and peak visitation times.

The park receives visitors throughout the year. Visitors, mostly national, mainly come to see the greenery of the forest. Foreigners and picnickers are very low in numbers during rainy season.

**Figure 4.6: Impact of Rainy days on visitation to Lawachara National Park**

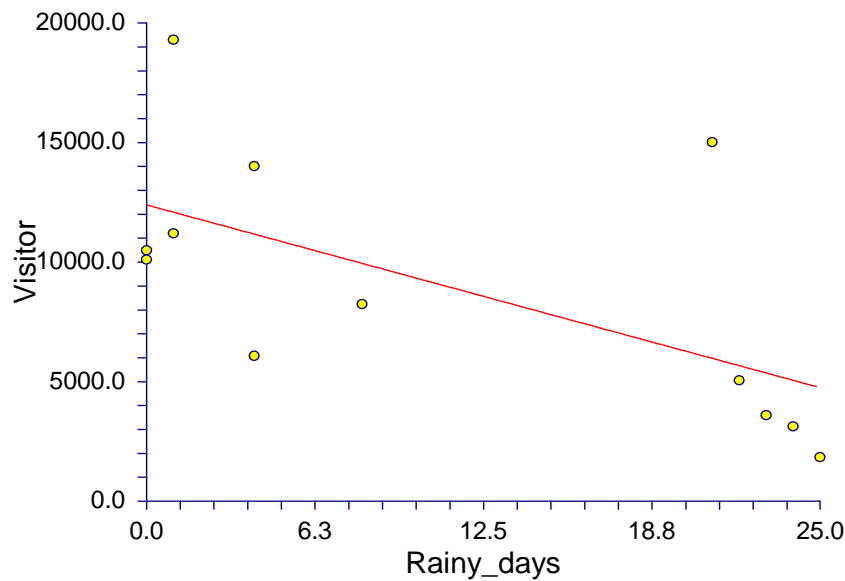
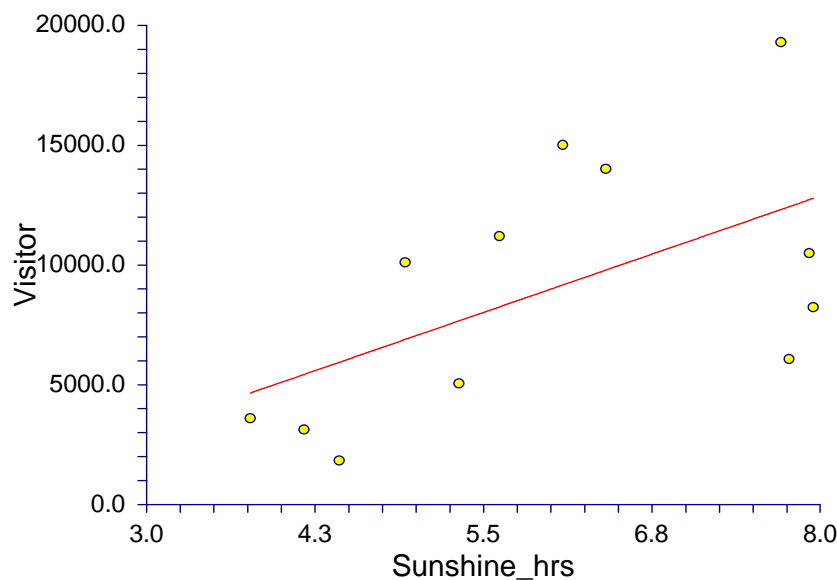


Figure 4.7 shows that sunshine hours has no effect on visitation ( $r=0.56$ ,  $T=0.47$   $p=0.64$ ). Visitors to Lawachara come from Dhaka, Sylhet and other neighbouring districts and upzillas. They start in the morning from their place of origin and reach the national park around afternoon.

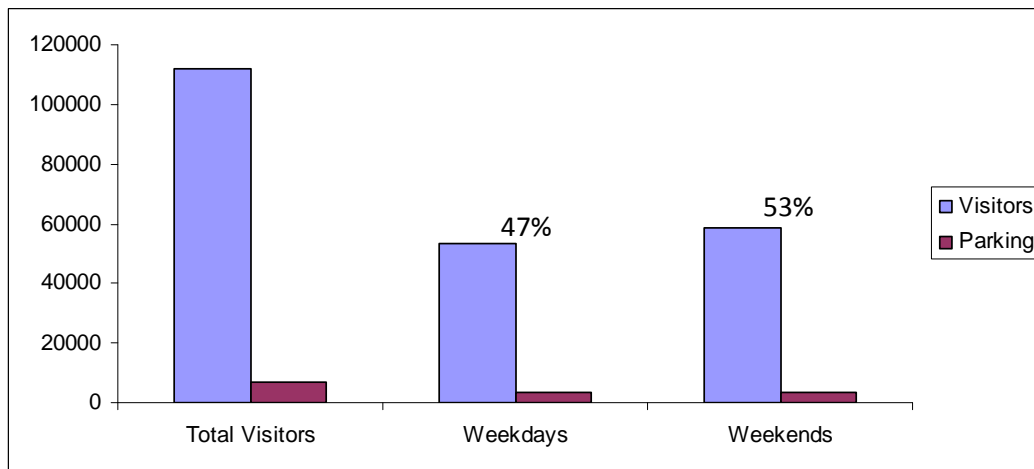
**Figure 4.7: Extreme heat due to sunshine does not deter the visitors from coming to Lawachara National Park**



#### **4.2.2 Distribution of visitors**

The park receives heavy visitation on weekends (Friday & Saturday) and holidays. In the year 2011 there were 247 weekdays and 118 weekends and holidays. Figure 4.8 shows that of the total visitors 47% visitors came on weekdays (approx 215 visitors per day). 53% visitors visited Lawachara on weekends, which is 498 visitors per day. This is more than double visitors on weekdays.

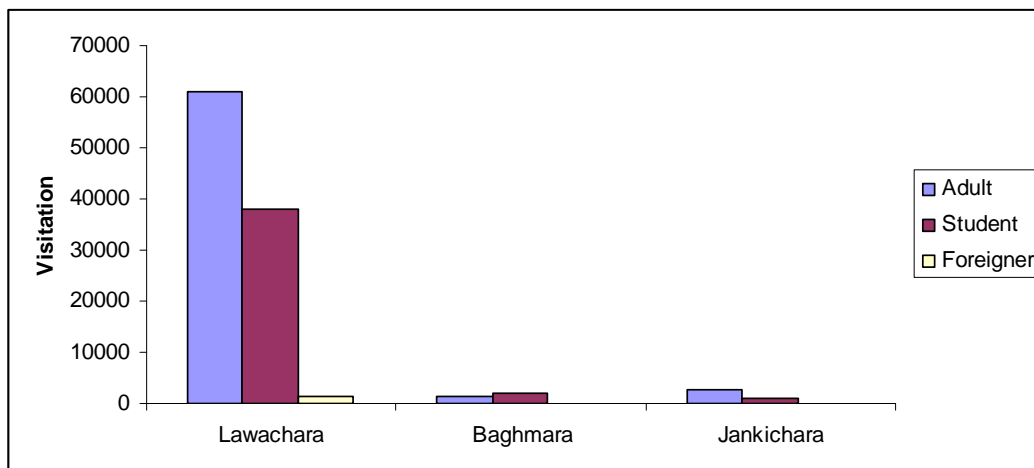
**Figure 4.8 : Distribution of visitors over weekdays and weekends in 2011**



**Distribution of visitors throughout the park**

Figure 4.9 shows that Lawachara Zone is the most used area in the park. This is attributed to the visitors perception of the name. For visitors who stop enroute, the half an hour trail is an attraction. Also the area has the old Shamoli Forest Rest House and the Lawachara Khasia Punji which are an attraction amongst visitors. The other two zones are relatively less in use.

**Figure 4.9: Distribution of visitors throughout the park**



**4.3 Visitor and Trip Characteristics**

110 visitors were interviewed in order to find out the socio demography and other factors related to their visit.

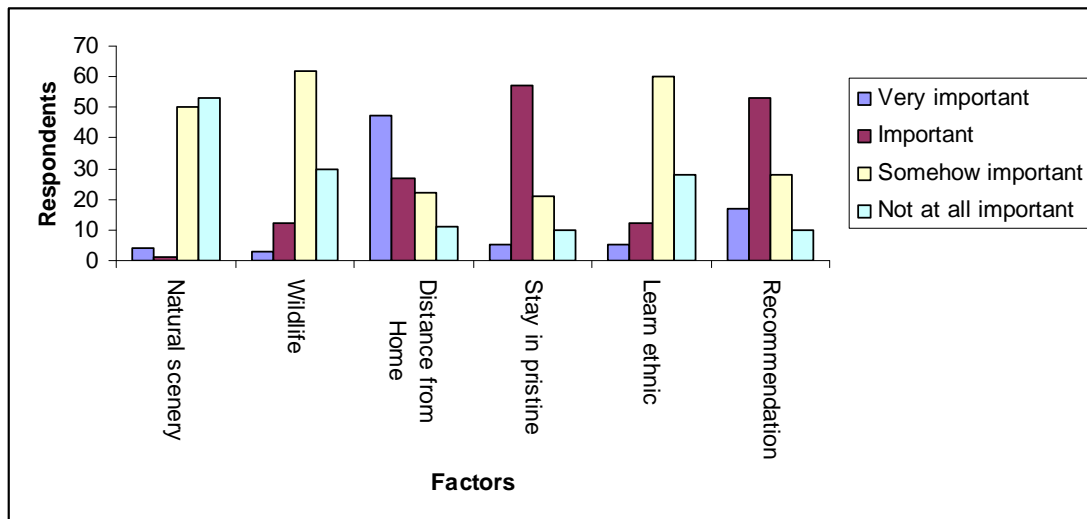
**4.3.1 Factors influencing choice of destination**

In order to understand as to what factors were important for them to choose Lawachara as destination. Figure 4.10 shows that the respondents felt that the distance from home was very important. Visitors would like to visit Lawachara on day visit only.

Stay in pristine environment and enjoy and recommendation from friends were important for the respondents to choose Lawachara as a destination.

For majority of the respondents, the landscape of Lawachara was somewhat important but not so relevant and so was wildlife viewing and learning about ethnic culture. It shows that the visitors are not aware of the concept of national park and neither are they aware of the resources that they can see on their visit. 77% respondents are first time visitors to the national park.

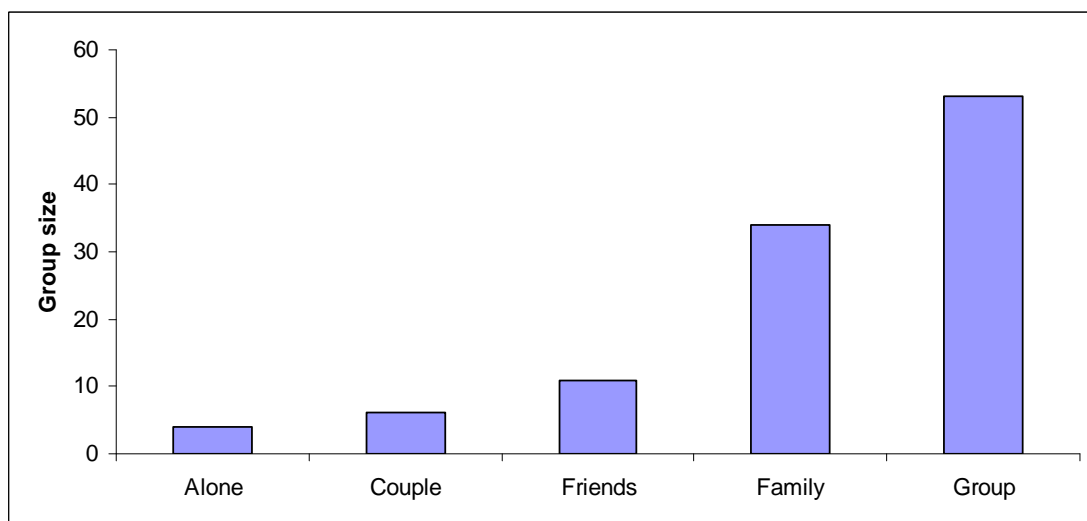
**Figure 4.10 : Factors influencing decision to visit Lawachara National Park**



#### 4.3.2 Profile of visitors

People of all ages visit the protected areas. Each age group has different interests and needs. Visitors to Lawachara visit in groups with friends and family. The group size varies from a couple to more than 200 visitors in a group.

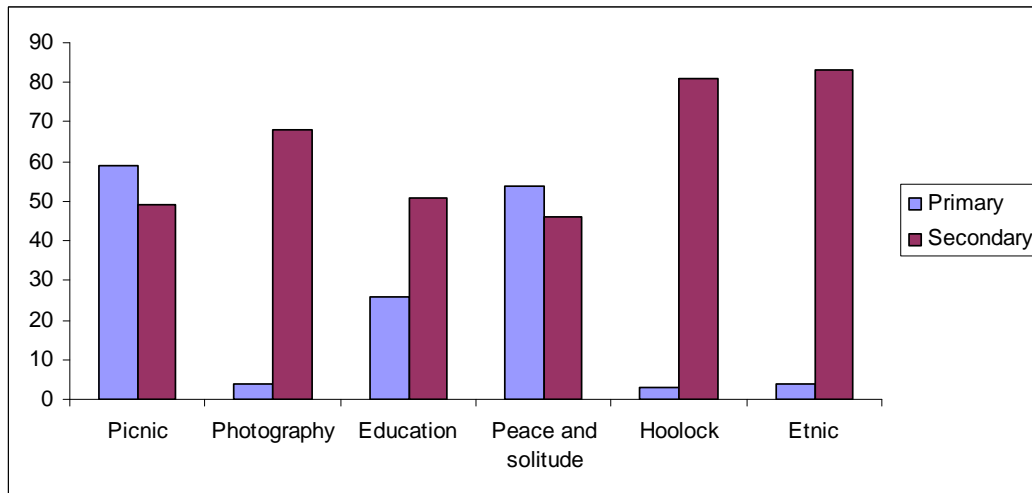
**Figure 4.11: Group size of visitors to Lawachara National Park (n=110)**



#### 4.3.3 Motivation for Visit

Visitors were asked as to respond from a range of options as to why they chose to visit Lawachara National Park. They were asked to rate the reasons as primary and secondary. There is no one reason for visitation but a number of attractions have been rated by the visitors. From the response it was found that majority of the visitors rated picnic and peace and solitude as the primary reason for visiting Lawachara. Viewing Hoolock, visiting ethnic community and learning about their culture and photography was rated as the secondary reason for visit to Lawachara National Park. This indicates the perception in the minds of the visitors about national park.

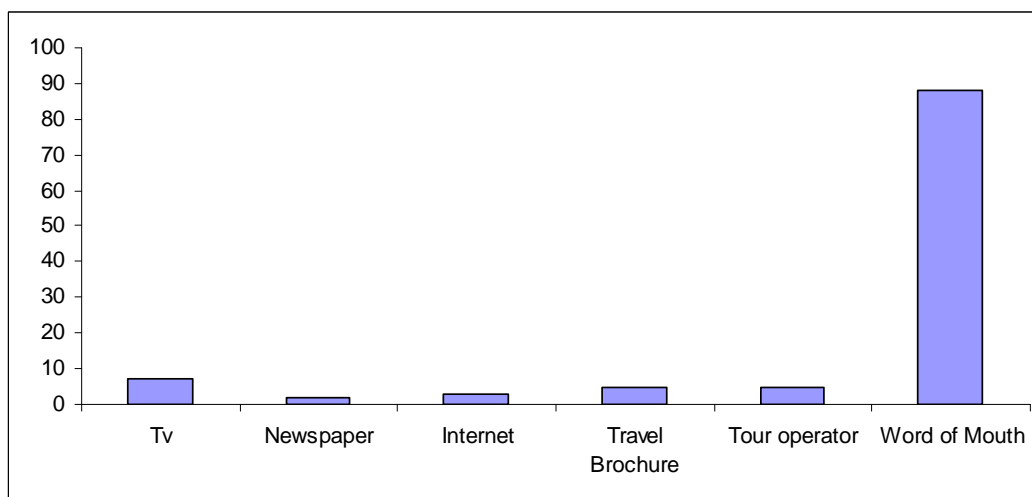
**Figure 4. 12: Visitors response to the reasons for visiting Lawachara National Park**



#### **4.3.4 Information about the National Park**

Visitors were asked as to from where they received information about the national park. 80% respondents came to know about Lawachara national park from word of mouth i.e from visitors who had visited the area earlier.

**Figure 4.13: Source of information about Lawachara National Park for respondents**



#### **4.3.5 Activities undertaken**

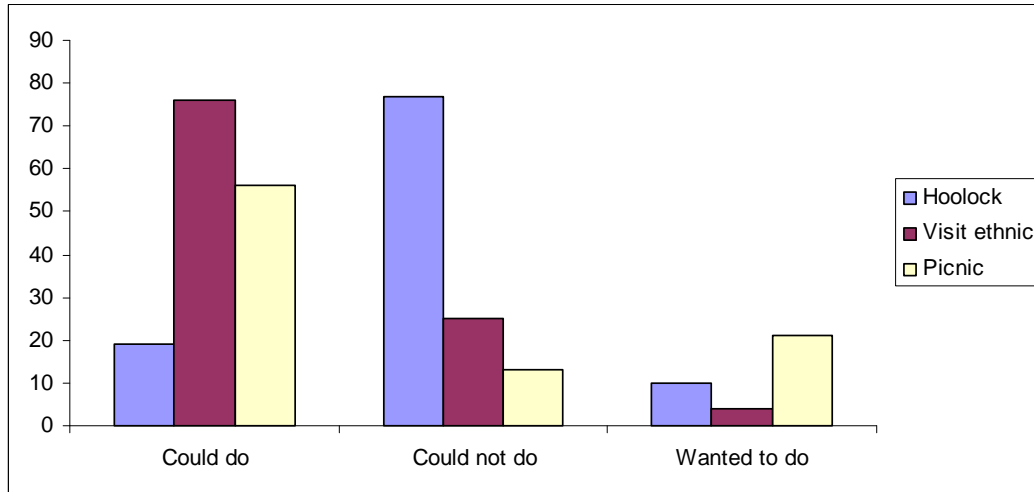
Visitors were asked as to what they could do , could not do and wanted to do during their visit to the national park. 70% of the visitors responded that they could visit the ethnic community and 51% said they could do picnic (Figure 4.14)



Visiting ethnic community was a secondary reason for visiting the national park by the respondents but still majority visited the ethnic community on their visit. This is so because the village is one of the attraction on the one hour trail in Lawachara area. Picnic by visitors does not necessarily mean picnicking at Baghmara, also the visit to Lawachara, having the seven color tea, eating food in the trail amounts to picnicking by the respondents.

Majority of the visitors also responded that they could not see Hoolock Gibbon.

**Figure 4.14: Activities undertaken by the visitors while in Lawachara national park**



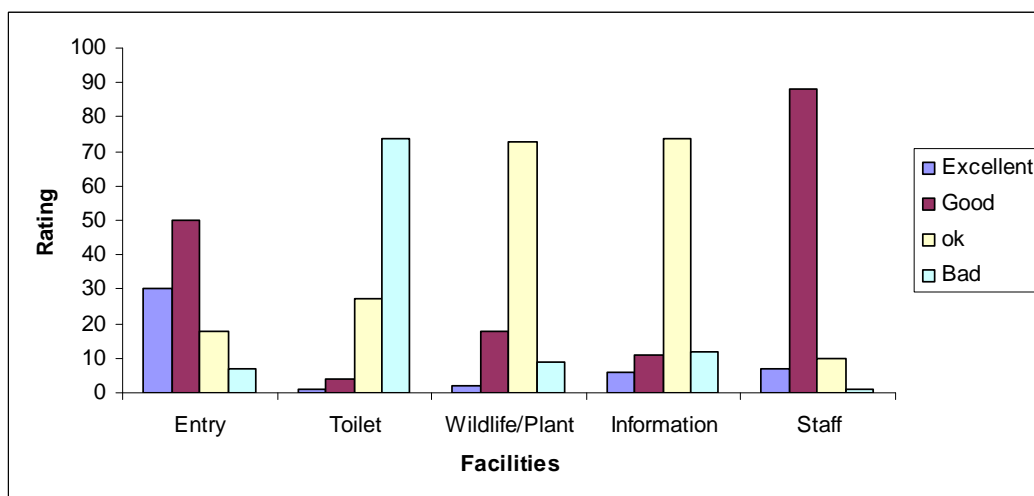
#### 4.3.6 Satisfaction about the existing Visitor Facilities

Visitors were asked to rate the visitor facilities. The respondents rated toilet as bad whereas wildlife and plant viewing and information availability as ok. The entrance gate has a map, signage on doors and doors. The trees from the entrance to the Beat office at Lawachara have names. The signages on the trails are vandalised (Figure 4.15)

Majority of the visitors rated the staff behaviour as good. The staff are those which are under the Nishorgo network and CMC and are manning the entry gates, ticket counters and parking lots.

Thus the overall rating of the visitor facilities is not satisfactory.

**Figure 4.15: Rating of visitor facilities in Lawachara by the respondents (n=110)**



### 4.3.7 Promoting additional facilities and Willingness to Pay

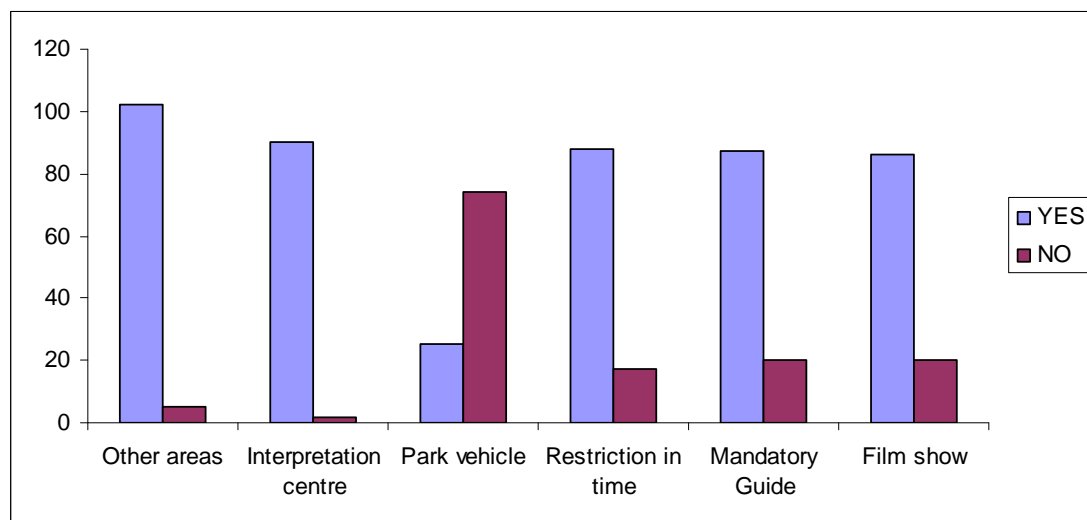
Visitors were asked to respond as to development of which facilities within the national park would help them to enjoy their visit more. Majority of the respondents agreed that opening of alternate area would be useful and setting of interpretation centre will assist in their visit (Figure 4.16).

Respondents also agreed that there should be restriction on entry timings, hiring of guides should be mandatory and film shows before the visit would help in the visit to the national park.

However, 67% of the respondents did not agree to the idea of using park designated vehicles to go from Jankichara to Baghmara or Lawachara.

In order to estimate the reaction of visitors to increased entrance fee charge, visitors were asked if they were willing to pay a higher entry fee if the facilities were in place. 71% of the respondents were willing to pay a higher fee. When asked as to how much were they willing to pay, 65% visitors said they were willing to pay 50 Tk. However some of the foreign visitors were not in favour of a raise in entrance fee.

**Figure 4.16: Respondents response to upgrading facilities for visitor use in Lawachara National park**



## 4.4 Impacts of tourism in Lawachara National Park

.....tourism which is developed and maintained in an area (community environment) in such a manner and at such a scale that it remains viable over an indefinite period and does not degrade or alter the environment (human and physical) in which it exists to such a degree that it prohibits the successful development and wellbeing of other activities and process. (Butler, 1993, p23)

The presence of people in natural environment may cause disturbance to habitat and wildlife. In Lawachara national Park the major disturbance is due to over crowding, vandalism and littering.

### 4.4.1 Overcrowding

The major concern of overcrowding in Lawachara national Park is the noise made by the visitors especially in the Lawachara area and the trails. Although overcrowding might not affect the wildlife, especially Hoolock Gibbon since it is an arboreal species, but the noise made by the visitors is sufficient to deter the animals from the area. A survey among 110 visitors showed that 50% suggested that there was crowd.

#### ***4.4.2 Littering***

Presence of litter in a national park is perceived as a major problem associated with visitors. Spread of litter has a variety of negative impacts; it pollutes the environment and poses danger to wildlife.

Besides visitors there is also some littering by villagers using the trails to approach the village and labour working for the forest department. The litter is in form of cigarette butts and packets, soft drink bottles, water bottles, food packets, tissue and plastic wrappers of sweets and chips. Most of the litter collects along the trails, parking lots, picnic area and holding areas.

Concrete bins have been constructed at a number of places and on the trails. But most of the litter is collected outside the bins. The CMC has appointed one person to collect the litter but it is not being cleaned properly.

In the absence of any waste disposal system there is greater reliance on treating the waste inside the national park by burning the waste in concrete tanks. Pollutants released by burning plastics are dioxins. They persist in the environment for long periods of time and thus is harmful both for humans and wildlife.

During the study, the half hour trail in Lawachara was cleared of all the non biodegradable garbage. The total weight of the garbage was 13kg. After 5 days 2.5 kg garbage was again generated by visitors on the trail.

#### ***4.4.3 Vandalism***

Vandalism means destruction or defacing of property. The directional signage's on the trails have been damaged. Interpretive signage's of birds found have been torn and defaced.

All along the trail visitors have broken twigs of plants on the sides of the trail. Trees and bamboo clumps have graffiti on them.

#### ***4.4.4. Noise***

During the study it was found that that the vehicles in which the visitors are travelling have music systems and large amplifiers and they play loud music during the journey. Not only have this visitors especially hired music systems to play loud music in the picnic area at Baghmara which is a part of the national park.

The sound pollution not only disturbs wildlife but also disturbs other visitors in the area.

#### ***4.4.5 Picnicking***

Visitors to Lawachara come with the idea of picnicking. Baghmara area of the national park is designated as picnic area. Picnickers to Lawachara national park are large groups ranging from 50 to 250 visitors who come on a day trip. Visitors hire professional cooks for cooking lunch.

When enquired, the picnickers said that they bring their own fuelwood but it is also not sure that they are not collecting fuelwood from the area. Fire is a potential hazard in the area during the dry season.

After the picnic is over the area is littered with garbage which includes disposable plastic plates, water and soft drink bottles, wrappers and food waste. Besides the waste generated during picnic the waste generated in the bus during journey is also cleaned and left in the area.

### **4.5 Tourism and Infrastructural development**

Visitors have a wide range of choice of staying around Lawachara national park and in Sreemongal. Hotels and resorts in the area are continuing to diversify in order to meet the requirements of

different types of visitors. Hotels are mostly in Sreemongal. Guest Houses are either located in the town or on Sreemongal – Banughacha road or on Sreemongal – Kakiabazar road. Most of them are mid price range, a few catered to visitors of low budget and a few were at the higher end market.

Since the last few years there is boom in construction of guest houses and resorts in the area. A 5 star hotel is also coming up in the region.

**Table 4.1: Accommodation around Lawachara National Park**

Name of Accommodation	Rooms	Bed Capacity	Tariff Range (TK)	Occupancy	Estb
Harmitage	7	11	1500-3000	2	2010
Nirob Eco-Cottage	4	7	1000-1500	3	2008
Tea Resort	36	15	2000-5000	2	2006
Hill View	10	20	1500-4500	3	2010
Srimangal Tourist House	18	50	1200-1500	-	-
Mou Valley	6	12	1500	--	-
Rain Forest	6	10	2000-4500	2	2011
Srimangal Resort	8	12	2000-3000	1	2010
Srimangal Guest House	12	45	1500-3500	-	-
Tea Town	28	53	200-2200	3	2001
United	26	40	70-1000	3	2001
Tajmohol	25	50	80-400	-	-
Plaza	20	50	200-1200	-	-
Sondha	30	60	150-1000	-	-
Green View	30	41	500-2500	0	2012
Litchi Bari eco Lodge	5	9	2000-3000	2	2011
Garden view	7	12	1500-2500	2	2011
Green Valley GH	3	6	2500-3000	1	2011
Lemon Garden Resort	10	11	4000-5000	2	2011

- data not available

#### 4.6 Raising Local Benefits

206 households of six villages were surveyed in order to find out their attitude towards tourism and their awareness about issues. The villages selected were the ones which were tourism dependant.

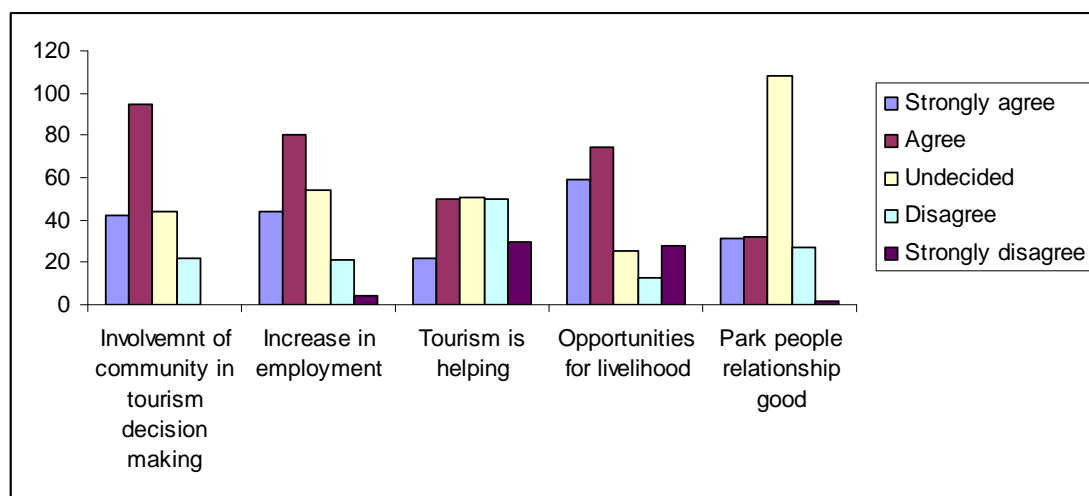
They are not necessarily dependant on the resources of Lawachara but are dependant on the visitors of Lawachara for their livelihood.

Figure 4.17 shows that 60% of community members agrees that tourism has increased opportunities for their employment and has 65% say tourism has benefitted in their livelihood. The community members are involved as guides, producing handicrafts and selling to visitors, are VCF or CPG members, Nishorgo sahayak or CMC members.

67% respondents feel that community should be involved in decision making about tourism development in the area.

52% respondents were undecided if the park people relationship was good as these respondents are not directly influenced by the national park and are not resource dependant. Whereas 30% respondents feel that the park people relationship is good.

**Figure 4.17: Attitude of community towards tourism**

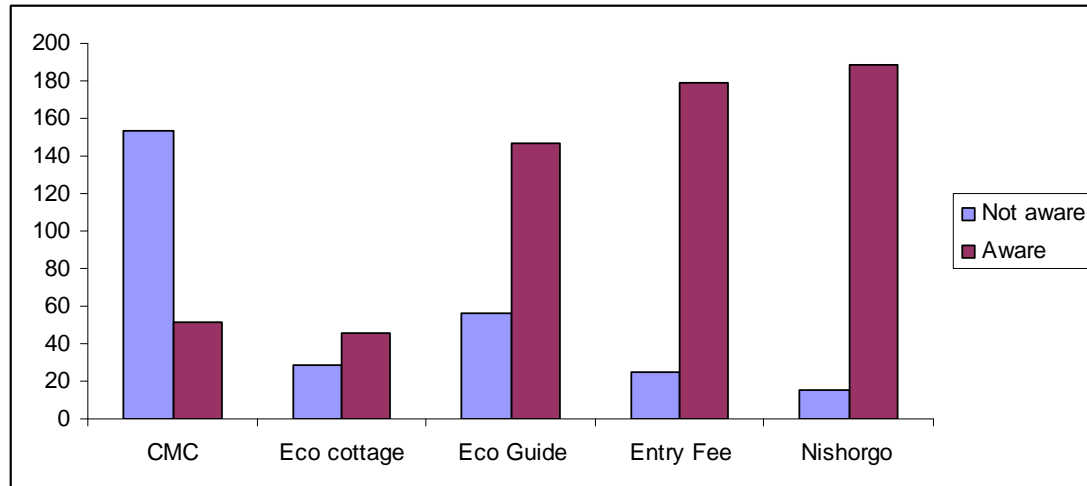


To find out the awareness of the community respondents were asked if they knew about the Co Management committee, eco cottage, ecoguide, entry fee and Nishorgo network.

Figure 4.18 shows that 74% of the respondents were not aware of the co management committee. When enquired further some of the respondents said that they were aware that the village headman or some member of the community goes for a meeting but is not aware of what is being discussed in the meetings as no one comes and discusses it with them. This shows that the linkage of the Co Management committee with the grass root is very weak.

71% of the respondents are aware about eco guide, 86% are aware about Entry fee in Lawachara for visitors and 91% are aware about Noshorgo.

**Figure 4.18: Awareness of the community**



### Conclusion

With the increase in income, leisure time and mobility more and more people are travelling. Overall visitations to Lawachara National Park, is on the increase. Domestic visitors are a growing constituency. Visitors to the parks benefit in an exclusive way through their experience and their enjoyment of the environment. This is particularly true if their experience is enhanced by infrastructure and interpretation investments. The purpose of the study was to develop a profile of visitors to Lawachara national Park. The views and preferences of recent visitors to the national park enabled the identification of factors that attract the visitors and what makes their trip educative and enjoyable. The results of this study provide a baseline of visitor information which is helpful in controlling the visitor experience and to target programmes and services to visitor interests. Measurement of satisfaction with specific services, facilities and attributes provides information to assist in park planning and management decision making. Satisfaction serves as a measure of the current performance of the attribute from the visitor's perspective. Wildlife and plant viewing and information are critical components of the park experience but the satisfaction is poor.

Involvement of community in tourism initiatives is an important principle of ecotourism. The study shows that the community members agree that tourism has improved employment opportunities and also has benefitted in their livelihood. But the awareness about Co Management committee is poor amongst the community. There is an urgent need to improve the linkages with the grassroot.





**Household survey to find out dependency and attitude of local community living around Lawachara National park**



**Interviewing visitors to get their response**





Concrete bins placed at locations for garbage



Garbage, mainly food packets on nature trail





Weighing of the garbage collected from the trail





**Garbage collected from the half hour trail**



**Graffiti on Bamboo clumps in Lawachara**



**Vandalism to signage in the nature trail**





**Destruction of directional signage on the trail**



**Music systems in the picnic area in Baghmara**





Logistic arrangement made by visitors for picnicking





**Cooking meals for the picnickers in Baghmara**



**Clearing of garbage generated enroute in the National Park parking lot**

# CHAPTER 5: DETERMINATION OF THE CARRYING CAPACITY OF EACH VISITOR USE SITE

Carrying capacity of the three trails namely half hour, one hour and two hour trail was calculated. The following section presents the results of how we have measured the different carrying capacities of Lawachara national park. However it must be remembered that none of the figures arrived at can be considered definitive. There should be continuous monitoring and revision.

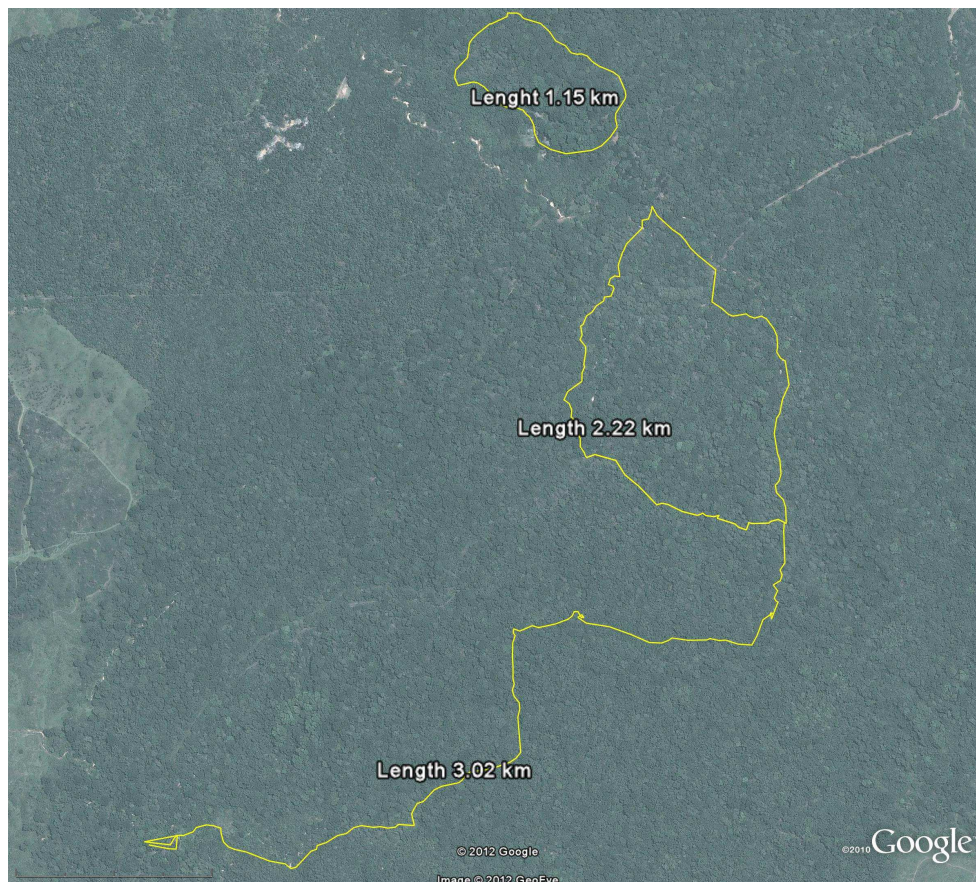
The following three levels of carrying capacity are established:

- a. physical carrying capacity (PCC)
- b. real carrying capacity (RCC)
- c. effective or permissible carrying capacity (ECC)

PCC is always greater than RCC, and RCC is greater or equal to ECC:

$PCC > RCC$  and  $RCC \geq ECC$

**Figure 5.1: Location and length of the three nature trails in Lawachara National Park**



## 5.1 Physical carrying capacity (PCC)

PCC is defined as the maximum number of visitors that can physically fit into a defined space, over a particular time, and can be expressed according to the following formula:

$$PCC = A \times V/a \times Rf$$

where: A = available area for public use

V/a = one visitor per m<sup>2</sup>

Rf = rotation factor (number of visits per day)

In order to measure the PCC, the following criteria and basic assumptions must be taken into account:

- that a person generally requires 1 m<sup>2</sup> of horizontal space in order to move about freely (V/a)
- that the available area (A) is determined by the particular conditions of the site; for open areas, the available area might be limited by physical features (rocks, crevices, ravines, etc.) and by limitations imposed due to fragility or as a result of the need for safety precautions; in the case of nature trails, space limitations are dictated by tour group sizes and by the distances required between groups in order to avoid interference or mutual disturbance
- the rotation factor (Rf) is the number of permissible daily visits to a site, and is determined thus:

Rf = opening period/Average time of one visit

### 5.1.1 Physical Carrying capacity of Trails

#### 5.1.1.1 Half hour trail

- It is an open space that allows visitors to move about freely
- Each person occupies a space of 1.5m<sup>2</sup> of the nature trail: the nature trail is 1.5 m wide.
- The recommended minimum distance between visitor groups is 50m
- Maximum recommended group size to be handled by a guide is 20 persons
- One hour is required to visit the site
- Site is open 8hrs per day
- Trail length is 1150m, including the holding area in the starting of the trail is 3738m

If each person needs 1m of trail, then each group will require 20m. Since the recommended distance between groups is 50m, 23groups can fit into the trail. These groups will require 460m of the trail if they are present at the same time. Since the nature trail is open 8hrs per day and each visit takes an hour, a person can make 8 visits per day.

$$\begin{aligned} \text{Thus PCC of the trail} &= 460\text{m of trail} \times 1 \text{ visitor/m} \times 8 \text{ visits /day} \\ &= 3680 \text{ visits per day} \end{aligned}$$

$$\begin{aligned} \text{The PCC including holding area} &= 1500\text{m} \times 1 \text{ visitor/m} \times 8 \text{ visits/day} \\ &= 12000 \text{ visits/day} \end{aligned}$$

### 5.1.1.2 One hour Trail

- It is an open space that allows visitors to move about freely
- Each person occupies a linear space of 1.2m<sup>2</sup> of the nature trail: the nature trail is 1.2 m wide.
- The recommended minimum distance between visitor groups is 50m
- Maximum recommended group size to be handled by a guide is 20 persons
- Two hours is required to visit the site
- Site is open 8hrs per day
- Trail length of the trail is 2220m

If each person needs 1m of trail, then each group will require 20m. Since the recommended distance between groups is 50m, 44 groups can fit into the trail. These groups will require 888m of the trail if they are present at the same time.

Since the nature trail is open 8hrs per day and each visit takes two hour, a person can make 4 visits per day.

$$\begin{aligned}\text{Thus PCC} &= 888\text{m of trail} \times 1 \text{ visitor/m} \times 4 \text{ visits /day} \\ &= 3552 \text{ visits per day}\end{aligned}$$

### 5.1.1.3 Two hour Trail (Jankichara)

- It is an open space that allows visitors to move about freely
- Each person occupies a linear space of 1.5m<sup>2</sup> of the nature trail: the nature trail is 1.5 m wide.
- The recommended minimum distance between visitor groups is 50m
- Maximum recommended group size to be handled by a guide is 20 persons
- Two hours is required to visit the site
- Site is open 8hrs per day
- Trail length of the trail is 3020m

If each person needs 1m of trail, then each group will require 20m. Since the recommended distance between groups is 50m, 60 groups can fit into the trail. These groups will require 1208m of the trail if they are present at the same time.

Since the nature trail is open 8hrs per day and each visit takes an hour, a person can make 4 visits per day.

$$\begin{aligned}\text{Thus PCC} &= 1208\text{m of trail} \times 1 \text{ visitor/m} \times 4 \text{ visits /day} \\ &= 4832 \text{ visits per day}\end{aligned}$$

### 5.1.2 Real carrying capacity (RCC)

RCC is defined as the maximum permissible number of visits to a site, once the corrective (i.e. reductive) factors derived from the particular characteristics of the site have been applied to the PCC. These corrective factors are obtained by considering biophysical, environmental, ecological, social and management variables.

RCC may be expressed by the following general formula:

$$\text{RCC} = \text{PCC} - \text{Cf}_1 - \text{Cf}_2 - \dots - \text{Cf}_n,$$

Where Cf is a corrective factor expressed as a percentage. Thus, the formula for measuring RCC is:



$$RCC = PCC \times [(100 - cf_1)/100 \times (100 - cf_2)/100 \times (100 - cf_3)/100]$$

It is important to note that the group of corrective factors is not necessarily the same for each site. In other words, corrective factors are closely linked to the specific conditions and characteristics of each site and emphasize again that the carrying capacity of a protected area must be measured site by site.

Corrective factors are expressed in percentage terms, using the following general formula:

$$Cf = (M_1/M_t) \times 100$$

where: Cf = corrective factor

M<sub>1</sub> = limiting magnitude of the variable

M<sub>t</sub> = total magnitude of the variable.

### 5.1.2.1 Correction Factors for Real Carrying capacity of the Trails

#### 5.1.2.1.1. Rainy days

$$Cf_1 = 115 \text{ rainy days per year} \times 6 \text{ hrs}$$

$$690 \text{ hrs of limiting rain/year}$$

Number of visiting hours

$$365 \times 8 \text{ hrs/day}$$

$$2920 \text{ visiting hrs/yr}$$

$$Cf_1 = 690$$

$$\frac{690}{2920} \times 100 = 23.9\%$$

$$2880$$

This factor would be uniform for all the three trails.

#### 5.1.2.1.2. Erodibility

As regards visitor use, sites with slopes of less than 10% regardless of the soil type, present little or no risk of erosion. Gravel, sand and clay soils on slopes of between 10 and 20% present a high risk of erosion, as do all the soil types on slopes exceeding 20%

	<10%	10%-20%	>20%
Gravel or Sand	low	medium	high
Lime	low	high	high
Clay	low	medium	high

**(a) Half hour trail**

- Total trail length of 1150m
- A total length of 50m has a medium erosion
- A total length of 50m has high erosion
- In order to assess the different erosion risks a weighting factor of 2 is used for medium risk and 3 for high risk

$$50 \times 2 + 50 \times 3 = 450m$$

Hence the erodibility corrective factor is:

$$Cf2 = 450/1150 \times 100 = 39 \%$$

**(b) One hour Trail**

- Total trail length of 2220m
- A total length of 150m has a medium erosion
- A total length of 100m has high erosion
- In order to assess the different erosion risks a weighting factor of 2 is used for medium risk and 3 for high risk

$$150 \times 2 + 100 \times 3 = 1200m$$

Hence the erodibility corrective factor is:

$$Cf2 = 1200/2220 \times 100 = 54 \%$$

**(c) Two hour Trail**

- Total trail length of 3020m
- A total length of 100m has a medium erosion
- A total length of 100m has high erosion
- In order to assess the different erosion risks a weighting factor of 2 is used for medium risk and 3 for high risk

$$100 \times 2 + 100 \times 3 = 900m$$

Hence the erodibility corrective factor is:

$$Cf2 = 900/4832 \times 100 = 19\%$$

**5.1.2.1.3 Disturbance to Wildlife**

Hoolock gibbons mating period is March to May. Birth occurs from November to February. Since park closure is visualized from April therefore there is 5 limiting months for the Hoolock gibbon.

$$Cf3 = 5 \text{ limiting months / year} \\ \frac{\text{-----}}{12 \text{ months /year}} \times 100 = 41.7\%$$

This would be same for all the three trails

#### 5.1.2.1.4 Real Carrying Capacity of the Trails

##### (a) Half Hour Trail

$$\begin{aligned} \text{RCC} &= 3680 \times \left[ \frac{(100 - 24)}{100} \times \frac{(100 - 39)}{100} \times \frac{(100 - 42)}{100} \right] \\ &= 3680 \times (0.76 \times 0.61 \times 0.58) \\ &= 3680 \times 0.268 \\ &= 986 \text{ visits per day on the trail} \\ &\quad (2748 \text{ visits per day in the trail and holding area}) \end{aligned}$$

##### (b) One Hour Trail

$$\begin{aligned} \text{RCC} &= 3552 \times \left[ \frac{(100 - 24)}{100} \times \frac{(100 - 54)}{100} \times \frac{(100 - 42)}{100} \right] \\ &= 3552 \times (0.76 \times 0.46 \times 0.58) \\ &= 3552 \times 0.202 \\ &= 718 \text{ visits per day on the trail} \end{aligned}$$

##### (c) Two Hour Trail

$$\begin{aligned} \text{RCC} &= 4832 \times \left[ \frac{100 - 24}{100} \times \frac{100 - 19}{100} \times \frac{100 - 42}{100} \right] \\ &= 4832 \times (0.76 \times 0.81 \times 0.58) \\ &= 4832 \times 0.357 \\ &= 1725 \text{ visits per day on the trail} \end{aligned}$$

#### 5.1.3 Effective or permissible carrying capacity (ECC)

Effective (or permissible) carrying capacity (ECC) is the maximum number of visitors that a site can sustain, given the management capacity (MC) available. ECC is obtained by comparing real carrying capacity (RCC) with the management capacity (MC) of the corresponding protected area administration.

MC is defined as the sum of conditions that the protected area administration requires if it is to carry out its functions and objectives. Measuring MC is not an easy task, since many variables (several of which are quite subjective) are involved, such as policy measures, legislation, infrastructure, facilities and equipment, staff (number and qualifications), funding, motivation, etc.

For Lawachara National Park, owing to the paucity of staff the MC is 15%.

**(a) Half Hour Trail**

$$\text{ECC} = 986 \times 0.15$$

$$= 148 \text{ visitors on the trail per day}$$

(412 visitors on the trail including the holding area)

**(b) One Hour Trail**

$$\text{ECC} = 718 \times 0.15$$

$$= 107 \text{ visitors per day}$$

**(c) Two Hour Trail**

$$\text{ECC} = 1725 \times 0.15$$

$$= 258 \text{ visitors per day}$$

Thus the Effective Permissible Carrying Capacity on any single day on half hour trail is 148 visitors, on one hour trail 107 visitors and on two hour trail 258 visitors.

During peak season and weekends the staff strength can be increased (10%) by deploying personnel through CMC and this would enhance the ECC to:

$$\text{Half Hour trail} = 246 \text{ visitors per day}$$

$$\text{One Hour trail} = 180 \text{ visitors per day}$$

$$\text{Two Hour trail} = 431 \text{ visitors per day}$$

**Conclusion**

Carrying capacity is not about the number of visitors but about how visitors are managed in the protected area. Planning and management for tourism growth is becoming essential for Lawachara national park. Although prospects of growth of tourism are promising in the national park, but there is an uncertainty of how tourism will evolve in the future.

The half an hour trail along with the holding area can accommodate 412 visitors. As per visitor record of 2011-2012 there were 75 days when the visitor number exceeded 412 visitors which includes 11 days when there were more than 1000 visitors in the area.

Carrying capacity limits are not only perceived in ecological terms but also in physical terms. Carrying capacity can change as the organisational and technical capacity of the national park improves. Currently the management capabilities of Lawachara national park is 15% and when it is increased upto 25% then the number of visitors on half hour trail will increase from 148 to 246 visitors.

Assessment of carrying capacity does not provide necessarily limits for development but opportunities for re orienting tourism development. Carrying capacity is an opportunity to safeguard development and secure further growth through adoption of appropriate measures rather than a mean to stop development.

# CHAPTER 6: APPROPRIATE STRATEGIES FOR VISITOR USE MANAGEMENT

.....promote sustainable tourism development in order to increase the benefits from the tourism resources for the population.....and maintain the cultural and environmental integrity of the host community.....promote linkages within the local economy in order that benefits may be more widely shared; emphasizing greater efforts for employment of local workforce and the use of local products and skills. (CSD, 1999)

## 6.1 Converting Mass Tourism into Ecotourism

A variety of planning and management systems exist that assist managers in ensuring that tourism sustains the values for which protected areas exist (Eagles et al 2002). A range of issues need to be addressed in order to empower local people and park managers and to enable them to turn mass tourism in Lawachara National Park into ecotourism.

### 6.1.1 Impact on Conservation

- Ensuring sufficient revenue for re-investment in conservation and ecological restoration
- Changing policies and regulatory conditions to benefit conservation
- Improving visitor management to minimise the adverse ecological impact of tourism

### 6.1.2 Revenue for local people

- Increasing local people's income and benefits from tourism in national park
- Identify the changes which would enable local people to secure benefits of employment from tourism in the national park.

### 6.1.3 Raising Conservation Awareness

- Increasing facilities and infrastructures in protected areas which will help in conservation awareness

### 6.1.4 Opportunities and problems of integration into tourism market

- Assess perceptions of protected areas and tourism in order to improve marketing and visitation profiles, maximizing revenue benefits.

**Table 6.1: Strategies and management techniques**

Strategy	Management Technique	Responsibility
Encourage use of entire tourism Zone	<ul style="list-style-type: none"> <li>• Rotation of trail usage</li> <li>• Develop alternate site and encourage use</li> <li>• Limit number of visitors</li> </ul>	Forest Department and CMC

Reduce use of problem areas	<ul style="list-style-type: none"> <li>• Discourage picnicking</li> <li>• Limit number of visitors on ½ hr trail</li> <li>• Eliminate facilities from problem areas and develop in alternate sites</li> <li>• Charge differential guide fee</li> <li>• Discourage off trail usage</li> <li>• Locate facilities at concentration point</li> </ul>	Forest Department, CMC and Nature Guides
Modify seasonal use	<ul style="list-style-type: none"> <li>• Discourage/ban use during monsoon</li> </ul>	Forest Department
Modify type of use and visitor behaviour	<ul style="list-style-type: none"> <li>• Discourage damaging practice like cooking food, noise, vandalism and graffiti</li> <li>• Teach park ethics</li> <li>• Encourage a limit to a party size</li> </ul>	Forest Department, CMC, Guides, IPAC
Modify visitor expectations	<ul style="list-style-type: none"> <li>• Inform visitors about appropriate Protected area use</li> <li>• Inform visitors about the resources of the protected areas</li> </ul>	CMC, Guides, IPAC
Increase resistance of the area	<ul style="list-style-type: none"> <li>• Prevent the trails from impact</li> <li>• Closure of the area during monsoon</li> <li>• Involve ethnic community to guide visitors in their village and acquaint them about ethnic culture and traditions.</li> </ul>	Forest Department & CMC

Management techniques are listed as **Priority one**: those that will not involve any financial implications but would need policy decisions and **Priority two**: those that will need finance and can be undertaken in the next two years.

## 6.2 Zonation

Zoning is designed to allocate geographical areas for specific levels and intensities of human activities. Zoning involves decision of what kind of recreational opportunity will be provided and where. There is a choice of either concentrating or dispersing visitors. In case of Lawachara dispersal technique is chosen to deal with negative impacts in small areas.

At present the park has three major entry approaches namely Jankichara, Lawachara and Baghmara. Of the three Lawachara is the most utilised. Visitors can pay entry fee at any of the one zone and utilize all the three.

Priority one:

- All ecotourism activities to take place in delineated ecotourism zones
- The four tourism zones identified for Lawachara would be :
  - Jankichara- Conservation education zone
  - Lawachara –Nature watch zone
  - Baghmara – Recreation zone
  - Chautoli – Recreation zone
- Since the interpretation centre, CONIC, is coming up at Jankichara and it is also the first zone as the large portion of yearly visitors enter from Sreemongal, it is recommended that the visitors get the first contact here. This zone should have the ticket counter and also the guides.
- The other two zones will have facility for only checking of entrance tickets.
- Picnic area at Baghmara to be discontinued- visitors will not be allowed to cook food or have picnic in the national park area.

- Visitors should be allocated trails on a rotation i.e first come first serve. If a visitor has a special request for a particular trail then they will have to wait for the allocation. This would ensure utilisation of all the trails. The problem of parking space and crowding too will be taken care of.
- The four zones will provide visitors with opportunity to experience park values through nature trails, signages and facilities and services. The facilities will include shelter shed, toilets and drinking water.
- The zones to be declared as plastic free zone
- Complete ban on burning and burying non biodegradable garbage in tourism zones – garbage to be collected and segregated and taken off site away from the park and water sources once in a week to identified sites by the Upzilla administration.
- Speed limit to be controlled for all vehicles in the silence zone.
- Designated Parking Zones – Currently all the three zones have parking but on weekends when the crowds are more there is spill over. Heavy vehicles like bus to be only allowed upto Jankichara.
- Parking fee to be collected separately, not at the ticket counter. This can be done through CMC, automated parking ticket machines to be provided to the parking assistants. Other alternative is to conditionally lease out the parking lot through tender by CMC.
- The park gates to open from 6am to 5.30 pm during summers and 7am to 4pm during winters.

Priority two:

- All ticketing to be computerised and data downloaded and backup prepared everyday.
- Develop Chautoli as alternate recreation zone – Large groups to be diverted towards this zone. Visitors from Sylhet and Maulvibazar would also use the area as it is close (*refer point 5*)
- Traffic regulation- groups with bus to be only allowed till Jankichara and diverted to Chautoli and not allowed entry to the other two zones
- The road from the entrance to the park to Baghmara, 10 kms, to be declared as “Silence Zone.” No horns and music amplifiers would be allowed and appropriate signage’s to be placed on the road.
- Two gates and check points to be installed at the entry of Lawachara from Sreemongal side and one at the entry of the park from Bhanugach/Kamalganj side (near HEED Bangladesh). This is important to maintain speed limit and keep a watch on the vehicles entering the park area.

### 6.3 Improvement of Trails

Officially there are three trails that have been identified. They are half hour trail and one hour at Lawachara and three hour trail at Baghmara. But guides and visitors have been using many trails. They enter the forest and make their own trail as per convenience of time.

Priority One:

- Visitors should follow designated trails. These trails should be identified and marked
- Visitors to be allowed only on guided tours in the trail
- One more trail can be introduced from Janki chara to Lawachra which would be of two hours
- A trail to be identified and place signage at Chautoli & Kalachara area

#### Priority Two:

- Each trail should have trail brochures which can be provided to the guides who can provide it to their visitors. Visitors have a choice of choosing from Bengali and English version of the trail brochure
- Some of the resources on the trail can be “Sign at Place” e.g information about the flora on the trail & cautions
- For those interested in Bird watching a checklist of birds in Lawachara to be prepared. This can be priced and sold from the souvenir shop at the Interpretation centre.
- Wooden or bamboo platform across the chara to cross the stream. Concrete construction to be avoided as it does not aesthetically gell with the environmental setting of the nature trail.
- Resting shelter in the trail with benches for visitors to rest enroute and enjoy nature.
- Security hut to be manned by the Tourist police on the trail for assistance of the visitors

#### 6.4 Guides

About 23 guides were trained under the Nishorgo Support Project of which only 12 are actively working in the park. Of the rest 02 died, 04 migrated abroad, others lost interest as guides are mainly used by foreign visitors.

#### Priority One:

- Visitors will not be allowed without the guides to the park. Even if the visitor is accompanied by a tour and travel agency guide, it is still mandatory for the visitor to hire a guide accredited to the park. 79% visitors interviewed felt mandatory hiring of guide will help them to enjoy the visit more.
- Each year during monsoon the guides should undergo refresher course to update their knowledge and also for the management to monitor their behaviour.
- The guides should be on a roster every day so that each guide gets a chance in the day. It should be ensured that the accredited guides work as park guides for at least ten days a month.
- All guides to be registered with the CMC. No unregistered guide to be allowed
- Guides to pay a token fee to the CMC. This fee to be utilised towards providing uniform, guide kit and training.
- The guides should be provided uniform and an identity
- Regular formal interaction of guides with the CMC sub-committee on ecotourism for exchange of ideas, observations and suggestions

#### Priority Two:

- At least 50 young boys/girls from the adjoining area to be trained as guides
- All guides to be based at Jankichara.
- The guides can be classified based on their qualification and scored performance



Category	Qualification
A	<ol style="list-style-type: none"> <li>1. Fluent in communication in English and Bengali</li> <li>2. Knowledge of the resource</li> <li>3. Knowledge of birds</li> <li>4. Knowledge of flora and fauna</li> </ol>
B	<ol style="list-style-type: none"> <li>1. Fluent in communication in Bengali</li> <li>2. Knowledge of the resource</li> <li>3. Knowledge of Birds</li> <li>4. Knowledge of flora and fauna</li> </ol>
C	<ol style="list-style-type: none"> <li>1. Fluent in communication in Bengali</li> <li>2. Knowledge of the resource</li> </ol>

Category A guides are specialist who can accompany international visitors. Category B are also specialist who can accompany elite national visitors and category C are generalist who can accompany the general visitors to the reserve. The guide fee to be fixed as per category.

- Each year the guides would be given an opportunity to upgrade their category.
- The guide fee will also be decided as per the length of the trail

## 6.5 Pricing

Charging visitor fees can fulfil several management objectives. High fees can dissuade visitors from using a particular area and thus reduce impact. People much more value something they pay for. Setting appropriate fees is a complex task and is fraught with contentious politics reflecting conflicting ideologies about protected areas (Eagles, 1999). Low entry fees are often the result of a wide range of socio-political factors. These include political concern about increases in park fees upsetting local constituencies; lack of research into appropriate methods of determining reasonable pricing policies; lack of partnership between private operators and park agencies and varying levels of visitor services and infrastructure. Experience indicates that modest fees generally do not have a significant effect on visitation.

- The entry fee to the reserve to be increased. 65% of the visitors interviewed to the raise in entry fee.
- Proposed entry fee Tk 50 for adults and Tk 20 for students and minor
- Differential pricing for national and international visitors
- Parking fee to be increased based on the space occupied by the vehicle i.e 200 Tk for heavy vehicles, 100Tk for small vehicle and Tk. 20 for motorbikes

Category	Fee Structure in TK
Foreign nationals (non resident)	400
Foreign national <12 yrs	200
National (resident of Bangladesh)	50
National < 12 years /Students	20
National or foreign children <2years	FREE
Vehicle parking Bus	200

Micro	100
Car	100
Motorbike	20
SAARC nations	200

- (vi) Use fee revenues for quality improvement of trails, toilets and signage
- (vii) Make small increases in fee rather than a jump every two years considering the economic inflation of the country.
- (viii) Free entry for local school/collage students once in a month for one institution on a weekday.

### 6.6 Development of alternate sites

In order to distribute visitors to other areas alternate sites to be developed.

Priority One:

- Chautoli beat adjacent to the National Park is identified as the alternate site. 93% visitors interviewed agreed to an alternate site for tourism around Lawachara National park
- Chevron has a setup of gas plant in the area and might have some security concerns. CMC should discuss the strategy for the alternate sight with the management of Chevron.
- Strengthening of the Community Patrolling Group for Protection and patrolling of the area.
- Identification of trails and resources
- Construct separate ticket counter, toilets, resting sheds, litter bins and water facilities
- Training of guides to conduct visitors in the area
- Development of eco cottages and tourist shop in the area for the visitors

Priority Two:

- Creation of Visitor centre at Chautoli

### 6.7 Live interpretation at ethnic community villages

One of the reasons for visitors coming to Lawacahra is also to see and learn about the ethnic community. At present the visitors just enter the village. During the study it was found that the ethnic communities are now worried about the flood of visitors to their door as it affects their privacy and lifestyle.

Recommendation

- Community members dressed in their traditional attire welcome and guide the visitors through the village, house and agriculture and talk about their history
- The villages identify and develop sites at the entrance of the village for visitors
- The ethnic community themselves conduct visitors through live interpretation and charge a fee
- Souvenir shop selling handicrafts produced by the community
- Restaurant serving ethnic cuisine

- Cultural programs showcasing the culture of the ethnic community by the community performers.

## 5. Utilisation of Tourist Police

Lawachara National Park is the first protected area in the country to have deployed tourist police in 2009 for the security of the visitors. But they are now posted near the CMC office, give protocol to VIP and sometimes move to trails mainly half an hour trail. Most the team member are deployed on a very temporary basis.

### Recommendation

- Development of Terms of Reference for the personnel on duty in the park
- Should deploy for a significant time frame
- Training of the tourist police – about the protected area, role and mandate for deployment, first aid and emergency handling
- Deployment of the personnel at strategic locations like – ticket counter, entry of the four (three existing and one proposed) zones and nature trails
- Develop Rules to record tourism related offence – vandalism, making noise, eve teasing and obscenity, destruction to park resources by graffiti or plucking. Violators to be penalized
- Provide map of the protected area and the trails to the tourist police as aid for patrolling.

## 6.8 Park Closure

The park receives visitors throughout the year. Visitation decreases during the rainy season i.e from April to August. This is also the period when the vegetation gets a fresh lease of life. Only 17% visitors come during this period.

### Recommendation

- Park to be closed for visitor use from 1st April to 31<sup>st</sup> July each year.
- Since Jankichara and Choutoli will be open the visitors can be directed to these two zones during the closure period.
- Only the interpretation centre to remain open for the visitor use
- Training of guides
- Maintenance of visitor use infrastructures

## 6.9 Park information and Interpretation

It is important to provide data, facts and advice to visitors concerning the park, its biology, and significance, location of visitor facilities, rules and regulations. When parks do not provide their own information, they are at a risk of others providing in accurate or misleading information. Providing park information will assist in appropriate behaviour by the visitors and thus reduction in impact.

Interpretation is disseminating information to visitors in such a way that they learn more about the resource and appreciate. Interpretation is more than stating facts and presentation of data. It is bringing them together so that the visitors come to understand and appreciate the values for which the park was established. This can help reduce visitor impacts and provide greater public support for the park.

Interpretation has three objectives:

1. to promote management goals
2. to promote understanding of the protected area

3. to promote understanding of the resource

#### Priority One:

- Development of CONIC at Lawachara
- Mandatory for the guides to take their visitors through the interpretation centre before the trip
- Entry to the interpretation centre to be for free
- Provide information directly to the visitors through personal services like:
  - Guides
  - Information duty at the ticket counter, parking lot and CONIC
- Provide information to visitors through non personal services:
  - Publications – guide book about the park, brochure about the park, checklist of birds of Lawachara, Checklist of trees of Lawachara, Leaflet containing Map and do's and don'ts
  - Signages- administrative about do's and don'ts, timings, map, location of Facilities, Rates of services. Interpretive signages about the resources (Figure 6.1)
  - Film- orientation film about the park
  - Website – information about the park for the visitors to prepare for their visit, announcement of events and special days
  - Trail- Sign at place or Leaflet cum Marker trail
  - Entry tickets to be made attractive – visitors can keep as souvenir
  - Live interpretation of ethnic community- Visitors to Khasia punji or Manipuri punji conduct live interpretation about the lives and culture of the ethnic community
- Development of a logo for the reserve to provide an identity – Graphic standard manual
- Stationery used by the park staff, CMC, tickets and other publication to have uniform style and color code

#### Priority Two:

- Regular film shows for visitors in the interpretation centre
- Maintenance and up gradation of the exhibits at the interpretation centre to be the responsibility of the CMC
- Development of Visitor centre at Chautoli
- Establishment of Souvenir shop selling local handicrafts and park publications at CONIC and the visitor centre.
- Generate public private partnership for non personal services – trail signage's and publications. Companies can adopt trails and provide financial support for its upkeep

### 6.10 Strengthening of the CMC

- Revise the existing ecotourism plan for the protected area and get it approved by the Government
- Review ecotourism in the protected area and make recommendations
- Monitor tourist facilities in close proximity of the national park to ensure site specific restrictions – ownership, type of construction, solar power, waste recycling, sewage disposal and merger with the environment
- Monitor activities of tour operators to ensure they adhere to the rules and regulations of the protected area

- Based on the recommendation of the carrying capacity study indicate ecotourism zones and set a ceiling to level of visitor use
- Develop code of conduct for the tour operators- Develop guidelines for environmentally acceptable and culturally appropriate tourism practices
- Develop Do's and Don'ts for visitors
- Develop monitoring mechanism for assessing impact of tourism activities.
- Creation and strengthening sub committee of CMC exclusively for ecotourism
- Ensure that all tourist facilities aim to generate at least 50% of their energy and fuel requirement from alternate energy source such as solar power and biogas.
- Networking with Brands for generating funds for interpretation
- Management of Dormitories to be under the CMC

### 6.11 Capacity Building

In order to implement the recommendations and create effective visitor use management system, it is essential to undertake capacity building of staff and personnel.

Recommendation

- Training of guides – 15 days rigorous on the site training
- Refresher course – one week refresher course during rainy season
- Orientation course for Travel and tour companies of Sreemongal and also select resorts and Hotels - providing and updating information about park resources and the rules and regulations for conducting visitors in the park
- Training of Tourist Police (*refer point 7*)
- Training of Park Staff – for visitor use management and assessing and monitoring impacts
- Capacity building of local communities in planning, providing and managing ecotourism facilities
- Capacity building of ecotourism sub committee of CMC – planning, implementing and monitoring
- Strengthening financial capabilities of park staff, CMC ecotourism staff and the CMC
- Strengthening capacity of the CMC for planning, development, implementation and monitoring.
- Exposure visit of CMC members on regular basis to know and learn about visitor use management in PAs world over.
- Effective and regular linkage between CMC and the grassroots forums.
- Linkage with the tourism cell of the District Collectorate.

### 6.12 Tourism Networking

Lawachara is being promoted by tour and travel agencies across the country. Sreemongal has five travel companies but they are neither organised nor do they compliment tourism related efforts. Besides the travel, operators there are Hotels and resorts also.

- Create a network of Travel and hotel industry in the area – this would help in communicating with the network and keeping them updated about the developments in the national park and gaining support for conservation
- The regional tour operators and hotel network would then create a link to other national networks/associations in the country.
- Implementation of code of conduct for tourism in Lawachara National park

- Regional Guide network to be created – this would be connected to the national network. They would be governed by a code of conduct.
- 5% Cess to be imposed on Eco Cottages. The entrepreneurs to share the 5% of the profit with the Co management.

### 6.13 Human Resource

Currently the protected area is understaffed. Forest Department does not have the desired number of personnel.

- Take steps to identify critical vacancies in the Forest Department and take steps to fill up posts
- Creation of a tourism patrolling group consisting of community members who would patrol the tourism zones during visitation hours
- An officer of the rank of Deputy Range Forest Officer to be deputed as Tourism Officer and would be responsible for the tourism in the park
- Tourism officer should also use the services of the accredited guides for tourism management and for monitoring during the park closure period.
- Identify and train 30 community members for handling tickets and parking at the four zones. In case parking is leased out then 16 personnel.
- CMC to recruit 16 cleaners, 8 male and 8 females, to take care of the toilets and the tourism premises.
- Tickets counters at Jankichara and Chautuli and Parking lot at the four Zones to be manned by staff designated as tourism staff by the CMC. They would be working under the instructions of the RO/ tourism officer, who in turn would report to the CMC.
- Deploy more staff especially on weekends and holidays for managing visitors.

### 6.14 Infrastructure Requirements

Component	Infrastructure Requirement
<ul style="list-style-type: none"> <li>• Zonation</li> </ul>	<ul style="list-style-type: none"> <li>• Guide hut at Jankichara</li> <li>• Barrier at Jankichara, Baghmara, Lawachara</li> <li>• Toilets (4 each- 2 male &amp; 2 Female at the 3 Zones)</li> <li>• Tourist police shed (8 shed – one each at the 3 zones, 2 in two hour trail and 1 each on ½ hr and 1hr trail)</li> <li>• Visitor shed at Jankichara</li> <li>• Day shelter at Baghmara</li> <li>• Computer for ticketing– 2 at Jankichara</li> <li>• Drinking water points</li> </ul>
<ul style="list-style-type: none"> <li>• Trails</li> </ul>	<ul style="list-style-type: none"> <li>• Trail Brochure</li> <li>• Signages and Markers</li> <li>• Wooden platforms across chara</li> <li>• Resting benches in the trails</li> </ul>
<ul style="list-style-type: none"> <li>• Guides</li> </ul>	<ul style="list-style-type: none"> <li>• Uniform</li> <li>• Binoculars</li> </ul>
<ul style="list-style-type: none"> <li>• Pricing</li> </ul>	<ul style="list-style-type: none"> <li>• Administrative Signages</li> <li>• Tickets</li> </ul>

<ul style="list-style-type: none"> <li>• Alternate site</li> </ul>	<ul style="list-style-type: none"> <li>• Ticket Counter at Chautuli</li> <li>• Guide hut</li> <li>• Toilets (2 male and 2 Female)</li> <li>• Tourist police shed</li> <li>• Visitor shed</li> <li>• Day shelter</li> <li>• Computer for ticketing -2</li> <li>• Drinking points</li> <li>• Barrier</li> </ul>
<ul style="list-style-type: none"> <li>• Live Interpretation</li> </ul>	<ul style="list-style-type: none"> <li>• Development of model site</li> <li>• Amphitheatre for cultural shows</li> <li>• Restaurant</li> <li>• Visitor shed</li> <li>• Souvenir shop</li> </ul>
<ul style="list-style-type: none"> <li>• Park closure</li> </ul>	<ul style="list-style-type: none"> <li>• Signages</li> </ul>
<ul style="list-style-type: none"> <li>• Park information and interpretation</li> </ul>	<ul style="list-style-type: none"> <li>• Interpretation centre – Jankichara</li> <li>• Visitor centre – Chautuli</li> <li>• Publications</li> <li>• Signages</li> <li>• Film</li> <li>• Website</li> <li>• Development of logo</li> <li>• Stationery with Logo</li> <li>• Souvenir for sale</li> </ul>
<ul style="list-style-type: none"> <li>• Strengthening of CMC</li> </ul>	<ul style="list-style-type: none"> <li>• Preparation of ecotourism plan</li> <li>• Development of code of conduct for guides, tour operators and hoteliers</li> <li>• Impact monitoring studies</li> <li>• Office of CMC</li> <li>• Staff (2) at CMC office</li> <li>• Operational cost of CMC office</li> <li>• Computer (2) for CMC office</li> </ul>
<ul style="list-style-type: none"> <li>• Capacity Building</li> </ul>	<ul style="list-style-type: none"> <li>• Guide training</li> <li>• Refresher course for guides</li> <li>• Orientation course for Hotel and travel operators</li> <li>• Training of tourist police</li> <li>• Training of Park staff</li> <li>• Training on Financial management</li> <li>• Training of community members for ecotourism entrepreneurs</li> </ul>
<ul style="list-style-type: none"> <li>• Networking</li> </ul>	<ul style="list-style-type: none"> <li>• Publications</li> <li>• Meetings</li> </ul>
<ul style="list-style-type: none"> <li>• Human Resource</li> </ul>	<ul style="list-style-type: none"> <li>• Tourism Officer</li> <li>• Staff (30) for ticketing and handling parking</li> <li>• Cleaners (16)</li> </ul>





# REFERENCES

- Ahsan, M (2007) Perceptions of tourism by indigenous communities living in and adjoining Lawachara National Park.
- Aziz, M.A ( 2007) Co-management of Protected Areas Without Local Knowledge and Participation: A Case Study of Lawachara National Park
- Beaumont, N K (1999) Ecotourism:the contribution of educational nature experiences to environmental knowledge, attitudes and behaviours. Unpublished doctoral thesis.
- Beckmann, E.A. (1991): Environmental interpretation for education and management in Ausratrian national parks and other protected areas. Unpublished doctoral thesis. University of New England: Armidale, NSW
- Boo,E (1990) Ecotourism: the potential and pitfalls (Vol 1). Washington, DC World Wide Fund
- Boyd,S and Butler, R W (1996) Managing ecotourism: An opportunity spectrum approach. *Tourism Management* 17(8), 557-66
- Buckley, R. (2000): NEAT trends: Current issues in nature,eco and adventure tourism. *International Journal of Tourism Research*. 2(6):437-444.
- Buckley, R. (1998): Tourism in wilderness: MandM toolkit pp 115-116 in Watson, A E, Aplet, G H and Hendee, J C (eds) Personal, societal and ecological values of wilderness: Sixth world wilderness congress proceedings on research, management and allocation.
- Bushell Robyn & Griffin Tony (2006) Monitoring visitor experiences in protected areas. *Parks* Vol 16 No 12
- Bushell, R., Staiff, R and Eagles, F.J. (2007) *Tourism and Protected Areas: Benefits Beyond Boundaries*. CAB International
- Ceballos Lascurain, H (1996) *Tourism, ecotourism and Protected Areas*. Gland, Switzerland:IUCN
- De Groot, R S (1983) Tourism and Conservation in the Galapagos Islands. *Biological Conservation* 26, 291-300
- De Vaus D A (1991) *Surveys in social research*. 3<sup>rd</sup> edition. Allen and Unwin: London
- Eagles, P.F, McCool, S.F., and Haynes, D (2002) *Sustainable tourism in protected areas:Guidelines for planning and Management*. IUCN
- Eagles, P.J.F. and McCool S.F. (2002): *Tourism in national parks and protected areas: Planning and Management*. CAB International: Wallingford, UK
- Eagles, P.F.J(1999) *International trends in Park tourism and Ecotourism*. Background paper for the Mediterranean Protected Areas: Status, Adequacy, Management and Training Needs Workshop, Italy
- Environment Canada and Park service (1991) *Selected Readings on the Visitor Activity Management Process*. Ottawa, Ontario: Environment Canada
- Evans, S (2001) *Community Forestry: Countering excess visitor demands in England's National Parks*. In : McCool, S E and Moisey, R N (eds) R

- Falk, J (2005) Free choice environmental learning: Framing the discussion. *Environmental Education Research*, 11(3) 265-280
- Falk, J and Dierking, L D (2000) *Learning from museum: Visitor experiences and the making of meaning*. Walnut creek, CA : AltaMira Press
- Fennell, D.A. (1999): *Ecotourism: An introduction*. Routledge; London and New York.
- Fennel, D A and Eagles, P F J (1990) Ecotourism in Costa Rica: A conceptual framework. *Journal of Park and Recreation Administration* 8(1)23-24
- Gilligan, B and Allen, C (2004) Resource and Visitor Management in NSW National Parks. In Buckley, R (ed) *Tourism in Parks*. Griffith University, Brisbane 132-149
- Graefe, A., Kuss, F. and Vaske, J (1990) *Visitor impact management: The Planning Framework*. Washington DC. National Parks and Conservation association Hammitt, W.E and Cole, D N (1989) *Wildland Recreation: Ecology and Management* (2<sup>nd</sup> edn) New York, John Wiley & Sons
- Hossain, M K., Islam, Q. N., Islam, S A., Tarafdar, M A., Zashimuddin, M and Ahmed, A (1989) Assistance to the second Agricultural Research Project, Bangladesh: Status report on the activities of the Silviculture Research Division. Working Paper No 6
- Islam, S M (2009) *Tourism Marketing in Developing countries: a study of Bangladesh*
- Leung, Y F and Marion, J L (2000) Research on recreational impacts of wilderness: A state of the knowledge review. In Cole, D N and McCool, S F (eds) *Proceedings: Wilderness Science in a time of change*.
- Leung, Y F., Marion J L., and Farrell, T A (2001) The role of recreation ecology in sustainable tourism and ecotourism. In: McCool, S F and Moisey, N (eds) *Tourism, Recreation and Sustainability: Linking culture and Environment*. CAB International
- Likert, R (1932) A Technique for measurement of attitudes. *Archives of Psychology*. No 140.
- Lockwood, M, Worboys, G and Kotahri, A (2006) *Managing Protected Areas: a global guide*. Earthscan, London.
- Manning, R. E. (1986) (2<sup>nd</sup> edition 1999) *Studies in Outdoor Recreation: Search and Research for Satisfaction*. Corvallis, OR: Oregon State University.
- Manning, R (2001) Visitor experience and resource protection: A framework for managing Carrying Capacity of National Parks. *Journal of Park and Recreation Administration* 19:93-108
- Manfredo, M.J. and Bright, A.D. (1991): A model for assessing the effects of communication on recreationists. *Journal of Leisure Research*. 23(1):1-20
- Pigram, J.J. (1983): *Outdoor recreation and resource management*. Croom Helm: London
- Wescott, G. (1993): Loving our parks to death? *Habitat Australia* 21(1):12-19
- Buckley, R. (1998): Tourism in wilderness: MandM toolkit pp 115-116 in Watson, A E, Aplet, G H and Hendee, J C (eds) *Personal, societal and ecological values of wilderness: Sixth world wilderness congress proceedings on research, management and allocation*.
- Cheately, B. (1994): Managing the visitor experience: knowing your current and potential visitors is the first step. In E A Backmann and S Hull (eds) *Interpretation attached to heritage: Papers presented at the Third Annual Conference of Interpretation Australia Association*. Collingwood.

- Buckley, R. and Pannell, J. (1990): Environmental impacts of tourism and recreation in National Parks and Conservation reserves. *Journal of tourism studies* 1(1),24-32
- Manning, R.E., Ballinger, N.L., Marion, J. and Roggenbuck, J.W. (1996): Recreation Mangement in natural areas: problems and practices, status and trends. *Natural Areas Journal*. 16(2):142-146
- Marion, J L and Farrell, T A (1998) Managing ecotourism visitation in protected areas. In K Lindberg and D Englestrom (eds) *Ecotourism Planning and Management* (pp 152-82)
- McIntyre,G (1993) *Sustainable Tourism Development: Guide for Local Planners*.Madrid: World Tourism Organisation
- National Park Service (1997) *VERP: The Visitor Experience and Resource Protection framework-A handbook for planners and Managers*. Denver, CO
- Newsome, D., Moore, S.A. and Dowling, R.K. (2002): *Natural area tourism: Ecology, impacts and management*. Channel View Publications: Clevedon, UK
- Nishorgo (2006) *Management plans of Lawachara National Park Vol 1 & 2 Nishorgo Support Project: Dhaka, Bangladesh*
- Prentice, R Guerin, S and McGugan, S (1998) Visitor learning at a heritage attraction: a case study of Discovery as a media product. *Tourism Management* 19(1),5-23
- Shelby, B.,Vaske, J.J and Heberlein, T A (1989) Comparative analysis of crowding in multiple locations: Results from fifteen years of research. *Leisure Sciences* 11, 269-91
- Shelby,B and Heberlein, T. A (1986) *Carrying Capacity in Recreation Settings*. Corvallis: Oregon State University Press
- Sowman, P. and Pearce, D. (2000): *Tourism, national parks and visitor management*. In : Butler, RW and Boyd SW (eds) *Tourism and National Parks*, John Wiley and Sons, Chicester, UK.
- Stankey,G D., Cole, R., Lucas,M.,Peterson,S.,Frissell and R Washburne (1985) The limits of Acceptable Change(LAC) system for Wilderness Planning. USDA Forest Service General Technical report INT-176
- Unnayan Onneshan (2010) *Bangladesh economic update: Growth, Tax, Inflation and Consumers*. Bangladesh Economic update vol 1 No1 July2010.
- Veal, A J (1997) *Research methods for leisure and tourism*. 2<sup>nd</sup> edition. Financial times management: London.
- Wearing, S. and Neil, J. (1999): *Ecotourism: Impacts, potentials and possibilities*. Butterworth-Heinemann: Oxford
- World Tourism Organisation and United Nations Environment Programme (1992): *Guidelines: Development of national parks and protected areas for tourism*.

# APPENDIX I

## Participants' list of the CMC Workshop on 29 th February 2012

### Group-1

- Syed Nesar Ahamad
- Md. Monirul Islam
- Md. Lutfor Rahaman
- Mrs. Khaleda Begum
- Md. Salek Miah

### Group – 2

- Aumbalika Deb Borma
- Absul Hai
- Jonok Deb Borma
- Masud Mostafa Khan
- Md. Imtiaz Ahammad

### Group – 3

- A.K.M Azharul Isalm
- Lokkhi Narayan Shingh
- Parul Koriya
- Abdul Kuddus
- Subedar Kholilur Rahaman

### Group – 4

- Badrul Alam Jenner
- Manjur Ahammed Manana
- Hatim Ali Lando
- Khodeja Begum



# APPENDIX 2

## Compilation of group work of Lawachara CMC Members

### 1. What would interest the visitors in and around Lawachara National Park (Inventory of Resources)

- Tea state/Garden
- Protected Forest- a. Natural trees & Sal Forest, Palm tree, teak  
b. Wildlife (Hoolok Gibbon, Rare birds, Monkey, Barking Deer,)
- Madhabpur Lake
- Hamham Falls
- Ethnic community
- Cottage industry
- Indigenous culture
- Memorial monument of martyred Hamidur Rahaman
- Baikka Beel (Permanent Fish Sanctuary)
- Pineapple Garden
- Haor & Beel
- Zoo
- Eco-cottage, resorts, hotels & Five star hotel
- Hilly Forest
- Hilly Cannel

### 2. Who are the stakeholders in and around the area?

- Rickshaw Puller
- Rickshaw Owner
- Travel companies
- Drivers
- Small shop owner & Employees
- Residential Hotel owners & Employees
- VCF Members
- Ethnic community
- Social Forestry beneficiaries
- Small cottage industry owner
- Eco-tour guide
- Fuel Wood collector
- Nature Lover students
- Illicit feller
- Brick field Owner

- Sow mill owner
- Furniture shop owner
- People living near by villages

### 3. What are the impacts of tourism in the area?

#### **Positive Impact:**

- Nature Conservation
- Increased revenue collection
- Increased Employment opportunities for local communities
- Improvement of Social lifestyle
- Increased scope of natural resource related research.
- Awareness building on forest conservation of local people
- Publicity of Ethnic culture
- Forest is being protected
- Socio-economic improvement
- Image building
- Lot of researchers from home and abroad come here
- Illicit felling has been lessening.

#### **Negative Impact:**

- Sound pollution; as result wild lives are being disturbed.
- Environment is being polluted due to waste garbage (Polyethylene, water bottle) .
- Illicit felling
- Private life of Ethnic community is being hampered.
- Ecological imbalance
- Wildlife habitat is being destroyed
- Forest fire might occur due to visitor's unconscious dropping of cigarettes.

# APPENDIX 3

## Staff Position of Moulvibazar Wildlife Range, Sreemangal

Moulvibazar Wildlife Range consists of 3 beats- Lawachara Beat (core zone covering an area of 3250 Acre), Kalachara Beat (buffer zone covering an area of 2660 acre) and Choutali Beat (buffer zone, covering an area of 1070 acre)

Sl. No.	Sanctioned Post	Filled up	Vacant	Remarks
1. ACF	01	-	01	No sanctioned post of Driver, Office Assistant, Night Guard and other staffs related to Wildlife Management and Eco-tourism Management.
2. Forest Ranger	01	01	-	
3. Deputy Ranger	01	-	01	
4. Forester	05	05	-	
5. Forest Guard	09	03	06	
6. Plantation Mali	03	03	-	
7. Speed Boat Driver	01	01	-	
8. Boatman	02	02	-	
Total	23	15	08	

*Source: DFO, Moulvibazar*

# APPENDIX 4

## List of Participants in the Strategy Workshop on Ecotourism

Integrated Protected Area Co-management (IPAC) Project  
Center for Natural Resource Studies (CNRS)  
Srimangal, Moulvibazar.

Attendance sheet

Purpose: strategy workshop on Eco-tourism  
Venue: Kamalgonj UNO conference room  
Date: 18.03.2012

SL.	Name	Designation	Address	Signature
01	শ্রী অরুণ কুমার	C M C	শ্রী অরুণ কুমার	[Signature]
02	Janak Debebarma	Member CMC LNP	Daluchara	[Signature]
03	Md Saadikur Rahman	member CMC LNP	Basmae gew	Saadikur
04	শ্রী (ক): অরুণ কুমার	সভাপতি - (সহ) অরুণ কুমার	সরকারি কর্মসূচী	[Signature]
05	আবুল কালাম মল্লিক	Member CMC	Baligan	[Signature]
06	শ্রী অরুণ কুমার	সভাপতি	শ্রী অরুণ কুমার	[Signature]
07	শ্রী: অরুণ কুমার	C.M.C	LNP	[Signature]
08	শ্রী: অরুণ কুমার	C. N. C	শ্রী অরুণ কুমার	[Signature]
09	শ্রী: অরুণ কুমার	সভাপতি	শ্রী অরুণ কুমার	[Signature]
10	শ্রী: অরুণ কুমার	সভাপতি	শ্রী অরুণ কুমার	[Signature]
11	শ্রী: অরুণ কুমার	cmc, mcm	LNP	[Signature]
12	শ্রী: অরুণ কুমার	সভাপতি	শ্রী অরুণ কুমার	[Signature]
13	শ্রী: অরুণ কুমার	cmc, lnp member	শ্রী অরুণ কুমার	[Signature]
14	শ্রী: অরুণ কুমার	cmc, lnp member	LNP	[Signature]
15	শ্রী: অরুণ কুমার	cmc, lnp member	LNP	[Signature]
16	Malay K. Sarker	CD-IPAC	Srimangal	[Signature]
17	হুতাপি C. SINGHA	Ecotourism Consultant IPAC		[Signature]
18	P. K. Par. Khan	Ecotourism Associate	D. K. Khan	[Signature]

Prepared By: [Signature]



**Integrated Protected Area Co-management (IPAC) Project**  
 Center for Natural Resource Studies (CNRS)  
 Srimangal, Moulvibazar.

Attendance sheet

Purpose: Strategy workshop on Eco-tourism

Venue: Kamalgong Upzila UNO - conference room.

Date: 18.3.12  
26/3/2012

SL.	Name	Designation	Address	Signature
১৭১	Md. Monirul Islam	Beat officer	Lawachara	MIB 18.03.2012
২০৭	Manzur Ahmad (Mannu)	Member CMC, LNP	Bhanugach Kamalgong	<del>Manzur</del> 18.03.2012
২০১	Md. Mahbubur Rahman	Dfo, Wildlife Division, Sylhet	→	AS 18.03.2012
২২১	আব্দুল হকিম	(অতিরিক্ত) DFO	৫১: ৫৫১১১ ১১.৫.৫.	হকিম ০৬/০৩/২০১২
২০১	ডাঃ জাহাঙ্গীর আলম	President CMC LNP	LNP	CMC 18/3/12
২৪১	পারভেজ-আখতার	UP Chairman (Act)	UP Zilla Kamalgong	Pervez 18.3.12
২৫১	ডাঃ জাহাঙ্গীর আলম	সিনিয়র সি.এম.এ	LNP	ডাঃ জাহাঙ্গীর আলম
২৫১	আব্দুল হকিম	member CMC	LNP	আব্দুল হকিম
২৭১	ডাঃ আব্দুল হকিম	U.Y.D.O	কামালগঞ্জ	আব্দুল হকিম
২৮১	ডাঃ আব্দুল হকিম	সিনিয়র সি.এম.এ	LNP	ডাঃ আব্দুল হকিম
২৮১	ডাঃ আব্দুল হকিম	B.G.B	কামালগঞ্জ	ডাঃ আব্দুল হকিম
৬০১	ডাঃ জাহাঙ্গীর আলম	CMC, LNP member	CMC, LNP	ডাঃ জাহাঙ্গীর আলম
৬০১	ডাঃ জাহাঙ্গীর আলম	TUN.O	Kamal gong. TUN.O	ডাঃ জাহাঙ্গীর আলম
৬০২	ডাঃ জাহাঙ্গীর আলম	FO LNP	IPAC	ডাঃ জাহাঙ্গীর আলম
৬০১	ডাঃ জাহাঙ্গীর আলম	AAA, CMC, LNP	CMC, LNP	ডাঃ জাহাঙ্গীর আলম
৬০৪	ডাঃ জাহাঙ্গীর আলম	সিনিয়র	LNP	ডাঃ জাহাঙ্গীর আলম
৬০২	ডাঃ জাহাঙ্গীর আলম	COF	IPAC-Sylhet cluster	ডাঃ জাহাঙ্গীর আলম
৬০৬	ডাঃ জাহাঙ্গীর আলম	ED SF	IPAC-LNP	ডাঃ জাহাঙ্গীর আলম
৬০৭	ডাঃ জাহাঙ্গীর আলম	EST	11	ডাঃ জাহাঙ্গীর আলম 18/3/2012

Prepared By:

*(Signature)*



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