

## Nature Based Tourism in Bangladesh



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## Nature Based Tourism in Bangladesh

*Prepared For:*  
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*Prepared by*

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## **List of Abbreviations**

BPC:	Bangladesh Parjatan Corporation
ECA:	Environment Conservation Act
PA:	Protected Area
NTO:	National Tourism Organization
SASEC:	South Asia Sub regional Economic Cooperation
NCS:	National Conservation Strategy
BBS:	Bangladesh Bureau of Statistics
NTFPs:	Non Timber Forest Products
NGOs:	Non Governmental Organizations
NP:	National Parks
RF:	Reserved Forests
FD:	Forest Department
MoEF:	Ministry of Environment and Forests
GR:	Game Reserve
WTP:	Willingness to Pay

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# Tourism in Bangladesh

## **1.0 Nature-Based Tourism in Bangladesh**

As Bangladesh leaps into an accelerated economic growth, the economy of Bangladesh has gradually been transformed into a predominantly service economy (with 50% of the GDP derived from the service sector). The growth of the service sector is often linked with a growth of the middle-income groups in the economy and therefore, it is expected that tourism as a home-grown industry will begin to show its strength by the end of this decade. The growth of this sector will depend on several critical factors like a) the rules and regulations governing the tourism industry, b) the facilities developed by the tourism services facilitators to promote the sector and c) the quality of natural capital maintained by the agencies responsible for it. In absence of this, tourism will shift outside the country and the country will risk losing its foreign currencies.

Bangladesh is bestowed with a rich diversity of its nature from the sea in the Cox's Bazar, the Islands in Teknaf, the biggest mangrove ecosystem – the Sundaraban, to the northeastern hills in Sylhet. Cox's Bazar is known for its longest unbroken and widest beach on earth, the lush green forests of the hills of Sylhet is known for its rich biodiversity, the Sundarban is known for its mangroves. Besides these nature reserves, there are many cultural and heritage sites located throughout the country which are gradually attracting an ever increasing number of local tourists as well as foreigners.

**Tourism** is often synonymous to traveling for pleasure and education. In modern era, it has also become a business of attracting tourists and providing for their accommodation and entertainment. Tourism is regarded as an industry that generates income for the local economy, revenue for the operators and helps to pay for the continuous maintenance of the facilities. In the modern mechanized life-style, nature-based tourism has become an added attraction for many and it may soon threaten the nature on which the industry is based. Controlling the number of tourists on a site is an important parameter to sustainable development of nature-based tourism. It is also expected that nature-based tourism should generate revenue for its maintenance. Imposing up annual quota on number of visitors, restricting the rights of the visitors to core areas of the nature, educating and supervising visitors while in the nature, restricting activities while in the parks, are some of the common tools used by park authorities around the world to maintain the integrity of nature. At the same time, nearly all nature-based tourist facilities have introduced an entry-fee to generate revenue, to maintain and expand these facilities.

In fact, maintenance of the nature in its pristine form becomes an added attraction for visitors and therefore, generates more income, employment and facilitates further growth of the sectors. Tour operators, hotels, restaurants, entertainment industry, park authorities, travel agents, transportation businesses are intertwined in this race. To guide the sector, the Bangladesh *Parjatan* Corporation (BPC) was established in 1973.

Following the declarations by the Environment Conservation Act (ECA), 1995, the Forest Department has established 20 Protected Areas and 6 ecoparks in different parts of the country. These national parks, wildlife sanctuaries and game reserves include, Ramsagar National Park, Madhupur National Park, Hail Haor Sanctuary, Bhawal National Park, Rema Kalenga Wildlife

Sanctuary, Sundarban East, West & South Wild Life Sanctuaries, Teknaf Game Reserve, Satchari National Park, Lawachara National Park, and so on which covers only 1.4% [Protected Areas of Bangladesh: A Visitor's Guide, Nishorgo, May 2007] of the land areas of the country or 10% of the forest land (list of PAs in Bangladesh is provided in table 3.2). Since 1989, the Forest Department stopped harvesting timbers from these national parks.

In 2003, the Forest Department with financial support from the USAID developed a project called 'Nishorgo' in order to showcase the management of selected national parks to conserve nature, promote nature-based tourism and poverty reduction for the local people, adopting the new approach of 'co-management'. Under the Nishorgo Support Project, the Forest Department of Bangladesh has been working on developing (a) management plan, (b) benefit sharing program with local stakeholders and (c) infrastructure (both soft and hard) to tap the growing number of nature-tourists touring these national parks. Of them, three most important sites, namely Lawachara National Park, Satchari National Park and Teknaf Game Reserve have been selected as the study areas in the present study.

The objective of Nishorgo Program is to promote a gainful partnership between local people (who are forest dependent) and shared responsibility to preserve the biodiversity. 'Co-management' principle stems from the idea that local people, if empowered to manage their surrounding forest resources can become efficient managers, as well as the stewards protecting nature. These national parks and sanctuaries can also attract tourists and thus the prospect of nature - based tourism becomes brighter for Bangladesh.

## ***1.1 Tourism Patterns in Bangladesh***

The Government of Bangladesh first recognized tourism as an important industry with the framing of a National Tourism Policy in 1992. In 1999, tourism was declared a Thrust Sector, and tax exemptions and other incentives were given to the industry. While tourism has remained at low levels, revenue from tourism has grown at an average of 26% per annum since 1995, reaching \$57 million in 2002 (National Tourism Organization [NTO] Statistics collected by SASEC (South Asia Sub regional Economic Cooperation). Growth in tourism arrivals averaged a healthy 10.4% increase each year from 1999 to 2003, but started from a low base (National Tourism Organization Statistics). Arrivals for 2003 totaled 244,509, of which about 37% came from South Asian countries (National Tourism Organization Statistics collected by SASEC).

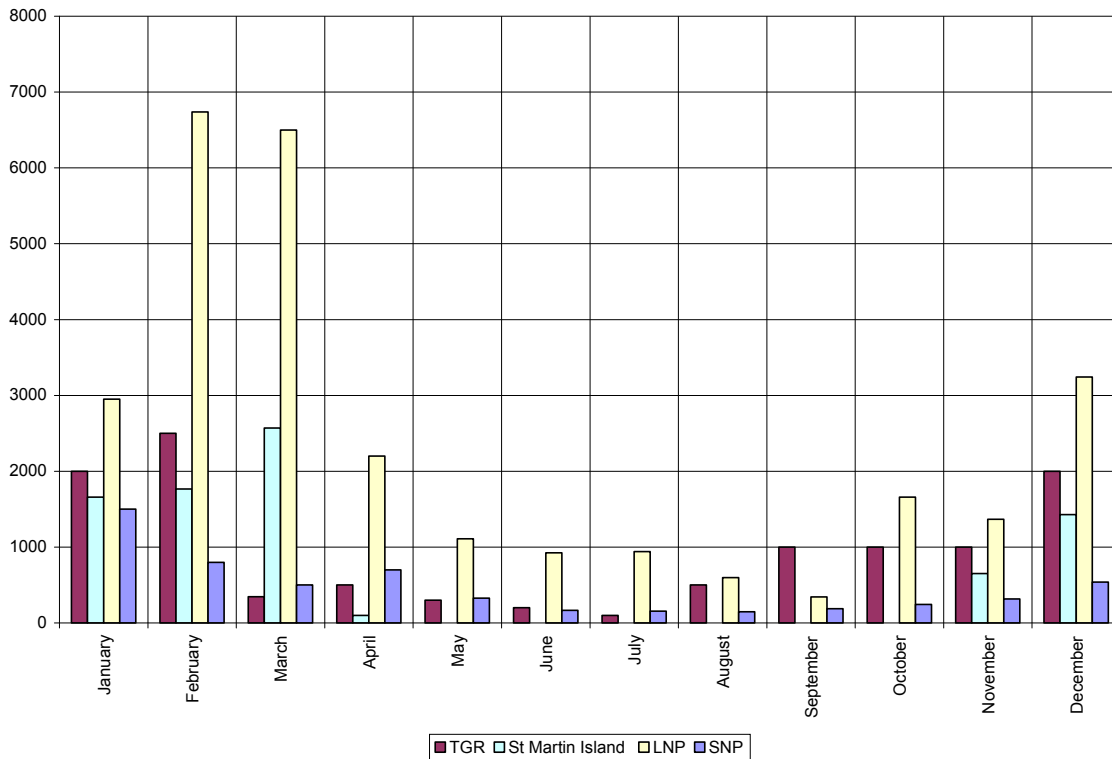
Bangladesh is not a well-established tourist destination in the world market as such and many foreign tourists in Bangladesh arrive for other purposes. According to the foreigners' arrival declaration, only 18.6% (38,448 visitors) of foreign tourists visited for leisure and recreational purposes in 2001.

However, growth of the sector is happening at a fast pace and is well recognized among the investors. Rapid growth in the hospitality and entertainment market segments is helping the expansion of infrastructural development, for potential future international tourism. Besides the star-labeled hotels operating in the main divisional cities of Dhaka, Chittagong, Sylhet and Khulna, numerous hotels and restaurants are operating in the major tourist areas of the country.

Investments in the tourism service industries have been booming in the recent past and indicate a thriving tourism market in Bangladesh.

There is no official statistics of visitors to our tourist sites, especially records of local tourists. However, number of exclusive foreign tourists has increased from 29,345 in 1979 and about 200,000 in 2000 (Ministry of Civil Aviation and Tourism, Bangladesh). Field data from Nishorgo project offices show that maximum number of tourist movements occur between September to April (depicted in Figure 1.1 below). This data is part of a complete enumeration of visitors in the Parks, collected by Nishorgo in 2007. While there are some differences in terms of tourism patterns depending on festivals (Eid and other religious festivals), the overall structure of tourism activities is more or less similar to this data.

**Figure 1.1. Number of Visitors in Teknaf Game Reserve (TGR), St. Martin Island, Lawachara National Park (LNP) and Satchari National Park (SNP) in 2007**



**Source: Field Data from Nishorgo, 2007**

During the randomized field surveys on tourists in these areas, conducted during December 2007 and February 2008, it was observed that about 2% of the tourists in these places are ‘foreign tourists’ (Field Data, 2008). However, most of them are visiting these parks from Dhaka and not from abroad. This confirms our previous hypothesis that most of the ‘foreign’ tourists in Bangladesh do not come from abroad, rather they are the foreigners stationed in Bangladesh for other purposes.

## 2.0 Objectives

The primary objectives of this study are to understand the changing pattern of nature-tourism in Bangladesh and to determine demand for nature-based tourism in three Nishorgo managed national parks: the Lawachara National Park, the Satchari National Park and in Teknaf Game Reserve. It is also expected that the study will be able to provide the guiding principle for determining the entry fees for these nature-based tourist sites.

## 3.0 Nature and Ecology of Bangladesh

Bangladesh is located in the tropics between 20<sup>0</sup>34' and 26<sup>0</sup>33' North latitudes and 88<sup>0</sup>01' East and 92<sup>0</sup>41' East latitudes in South Asia. The Indian states of West Bengal, Meghalaya, Assam and Tripura border Bangladesh in the West, the North and the East; while Myanmar borders Bangladesh in the Southeast corner. In the South, Bangladesh has a long coast along the Bay of Bengal. The total land area of Bangladesh is 147,570 sq. km.

Bangladesh is rich in natural and biological resources. The ecosystem, species and genetic diversity of the land and water of Bangladesh have direct and indirect impacts on the quality of life, economy and environment. The topography of Bangladesh is mostly flat except some hilly areas in the eastern, northern and northeastern parts of the country. The tropical climate of the country, divided into six seasons, has distinct wet and dry seasons. The shifting nature of the rivers and their tributaries along with frequent natural disasters and unusual behavior of climate, specially floods and droughts, have resulted in differences in the composition of vegetation and distribution of species in the land and water creating diverse terrestrial and aquatic ecosystems.

Although most of the plain lands of Bangladesh are devoted to agricultural production, we have distinct divisions representing different ecosystems like the Evergreen and Semi-evergreen forests (hilly areas of Chittagong Hill Tracts, Sylhet, Cox's Bazar, Moulvibazar, Habigong, Netrokona and Sherpur); Mangrove forests (Sundarban in Khulna, Satkhira and Patuakhali in the southwest and in Chokoria and Teknaf in the southeast); Deciduous forests of *Sal* and other mixed species (Madhupur, Gazipur etc.); Coastal islands and coral resources (St. Martin's island, Urir Char etc.); Sand dunes or beach ecosystem (Cox's Bazar to Teknaf, Kuakata etc.). The forested areas are shown in Figure 3.1 below. Table 1 lists the year-wise forest coverage in Bangladesh.

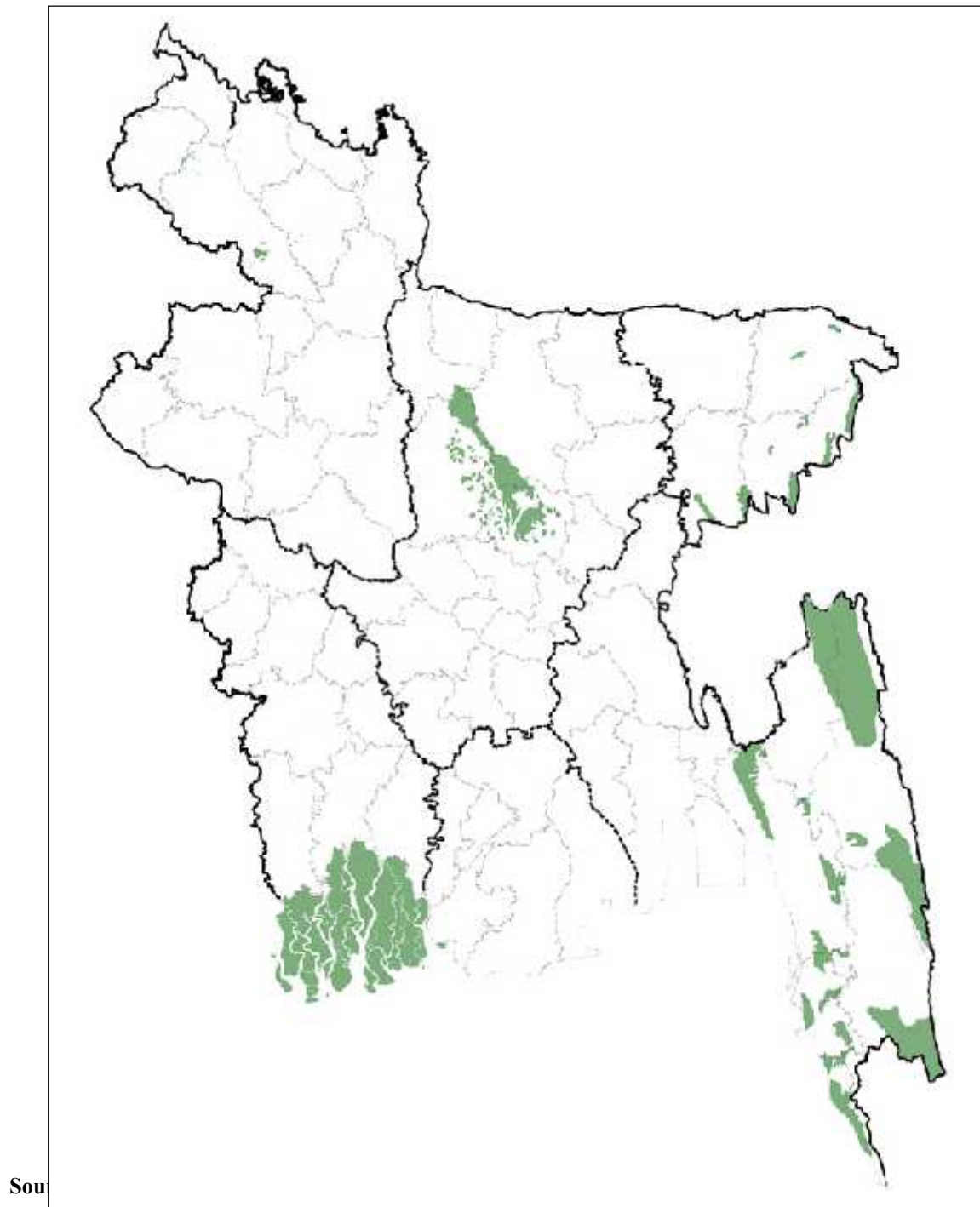
Bangladesh is also a land of rivers. The marine, estuarine, flowing and standing water bodies of the country also represent distinct aquatic ecosystems. These ecosystems include the coastline of the Bay of Bengal and the Continental Shelf extending over 66,400 sq. km.; the Brahmaputra and the Ganges and their tributaries forming about 552,000 hectares of estuaries; fresh water rivers, canals, *beels*, *haors*, *baors*, ponds, lakes etc. These unique ecological systems attract visitors from home and abroad. In the winter months when migratory birds take refuge in these wetlands, visitation to these sites reaches the peak.

Bangladesh has the world's largest mangrove forest which houses flora and fauna of innumerable species, many of which, including the Royal Bengal Tiger are on the verge of extinction. Forests in Bangladesh mainly occur in the east and north-eastern districts of Chittagong, Cox's Bazar, Moulvibazar, Sylhet, Habigonj and Chittagong Hill Tracts and in the south-western districts of Khulna, Satkhira and Bagerhat. The forests in Gazipur, Tangail, Mymensingh, Sherpur, Dinajpur, Rangpur and Noagaon are mostly depleted. The deciduous



forests of *Sal* in the Tangail area have been one of most hard-hit, declining from 20,000 acres in 1970 to 1,000 acres in 1990 (USAID). According to National Conservation Strategy or NCS (1991-92), the growing stock in all major forests shows a decline of 35 percent between 1960 and 1984.

**Figure 3.1:** Forest Areas: Forests cover only approximately 5% areas of our country. (Colored areas indicate forests)



**Table 3.1: Area under forest by type of forest** (sq. miles)

Year	WAPDA & Khash land	Garden area	Reserve forest	Acquired forest	Vested forest	Protected forest	Unclassified state forest	Total	% of total area
1975-76	47.75	0.33	4430	365	41	222	3502	8608	15.48
1979-80	47.80	na	5427	346	42	222	3521	9606	17.28
1983-84	787.29	na	4893	306	41	222	1440	7689	13.83
1989-90	400.60	na	5063	156	87	143	1313	7162	12.60
1995-96	272.55	na	5643	372	33	149	1840	8461	13.60
2002-03	92.99	na	6996	33	15	143	2749	10028	17.50

**Source: Department of Forest**

Bangladesh is endowed with a rich reserve of biodiversity. The 125 species of mammals in Bangladesh includes famous carnivorous mammals Royal Bengal Tiger, spotted deer, barking deer, elephants, monkeys, squirrels etc. About 579 species of birds have been recorded in the country but a lot of them are migratory birds. Herons, falcon, eagles, harriers, vultures, owls, cranes, pigeons, doves, parrots, bulbuls, cuckoos, kingfishers etc. are some notable species of birds of Bangladesh. Lizards, Geckoes, Bengal monitor are important land reptiles among the 124 species that occur in Bangladesh. Common snakes include Rat snakes, Copper head trinket snake, *Kalnagini*, Cobras, water snakes, Pythons etc. Several species of turtles are found here along with around 19 species of amphibians. There are about 5000 species of flowering plants in Bangladesh. There are also about 85 species of orchids. (Task Force Report, 1991 and BBS, 2004).

According to the Department of Forest and BBS, 2004, 40 species of mammals, 70 species of birds, 24 reptiles and two amphibian species in Bangladesh are listed as endangered. The list of extinct wildlife in Bangladesh includes about 12 members of mammals, such as, wolf, rhinoceros and wild buffalo; about four species of birds and fresh water crocodile (Directory of Asian Wetland as collected by BBS, 2004). The list of endangered mammal species includes various familiar names like Asian Elephant, Royal Bengal Tiger, leopard, bear, dolphin, whale etc. Different types of eagles, vultures, owls and falcons are also enlisted as endangered bird species, whereas almost all types of turtles and tortoises along with fresh water crocodiles and *gharials* have become endangered. (BBS, 2004)

There are 20 National Parks and Sanctuaries established by the Government of Bangladesh and many of these sites provide the genesis for nature-based tourism in this country. The list of these parks is given in Table 3.2.

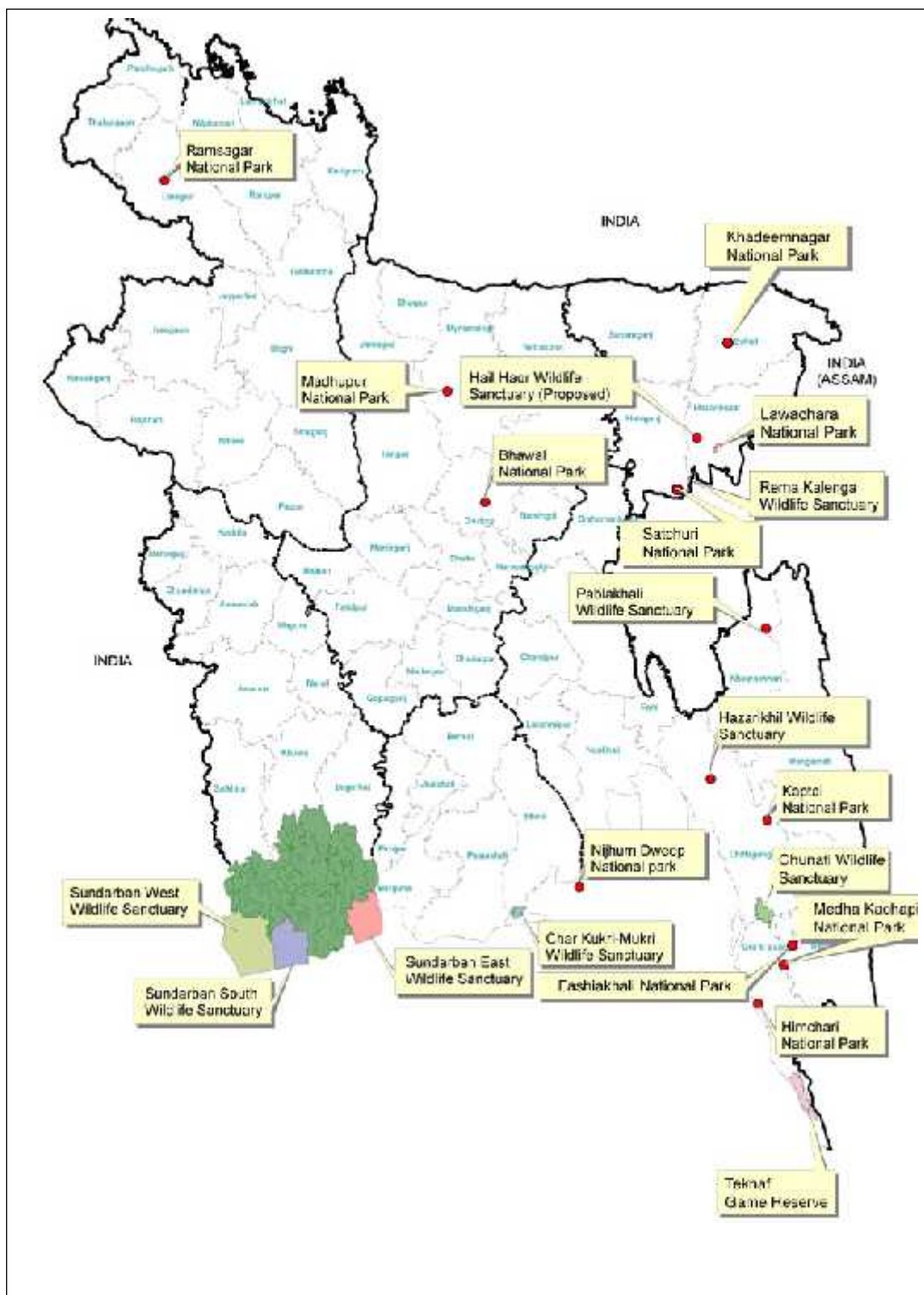
**Table 3.2. Protected Areas of Bangladesh**

<b>SL No.</b>	<b>Name</b>	<b>Area (ha.)</b>	<b>Year of Notification</b>
1	Sundarban (East) Wildlife Sanctuary	31,226	1960 (1996)
2	Sundarban (West) Wildlife Sanctuary	71,502	1996
3	Sundarban (South) Wildlife Sanctuary	36,970	1996
4	Lawachara National Park	1,250	1996
5	Rema Kalenga Wildlife Sanctuary	1,795	1996
6	Satchari National Park	243	2006
7	Chunati Wildlife Sanctuary	7,764	1986
8	Teknaf Game Reserve	11,615	1983
9	Bhawal National Park	5,022	1974 (1982)
10	Madhupur National Park	8,436	1962 (1982)
11	Ramsagar National Park	28	2001
12	Himchari National Park	1,729	1980
13	Kaptai National Park	5,464	1999
14	Nijhum Dweep National Park	16,352	2001
15	Medha Kachapia National Park	396	2004
16	Khadimnagar National Park	679	2006
17	Pablakhali Wildlife Sanctuary	42,087	1962 (1983)
18	Char Kukri-Mukri Wildlife Sanctuary	40	1981
19	Fashiakhali Wildlife Sanctuary	1,302	2007
20	Hajarikhil Wildlife Sanctuary (Proposed)	2,908	-

Source: [www.nishorgo.org](http://www.nishorgo.org)

\* Detailed information of the nature tourism sites is available at [www.nishorgo.org](http://www.nishorgo.org).

**Figure 3.2: Locations of National Parks in Bangladesh**



### **3.1 Nishorgo Support Project on Promoting Nature Tourism**

More than 50% of Bangladesh's forest has disappeared in the last 30 years and today, the forests in sanctuaries and national parks – collectively known as 'Protected Areas' are critically threatened. If this current trend of degradation continues, many unique flora and fauna will be lost forever. As a response, the Forest Department has created a new Protected Areas Management Program entitled 'Nishorgo'. USAID is providing financial assistance to the Program through Nishorgo Support Project. The Nishorgo Program is a comprehensive effort to improve the management of the country's Protected Areas. Nishorgo focuses on building partnership between the Forest Department and key local, regional and national stakeholders that can assist in conservation efforts.

In the year 2003, the Forest Department of Bangladesh developed a new vision for management of Protected Areas and launched the Nishorgo Support Project to develop a 'co-management model' in collaboration with local stakeholders. The project is essentially premised on the fact that forest and its resources can only be conserved when local and national stakeholders join hands to conserve the country's natural wealth. The project, spanning five protected areas as pilot sites encompasses a multitude of activities, targeted towards creating national awareness, education and opportunities to experience the idyllic beauty of the forests.

Under the Nishorgo Support Project, the Forest Department of Bangladesh has been working on developing a) management plan, b) benefit sharing program with local stakeholders and c) developing infrastructure (both soft and hard) to tap the growing number of nature-tourists inside these national parks. Of them, the three most important sites are Lawachara National Park, Satchari National Park and Teknaf Game Reserve. The objective of Nishorgo Program is to foster meaningful partnerships between local people, traditionally dependent on forests for their livelihoods and shared responsibility to conserve the unique biodiversity of these forests.

### **3.2 Background of the National Parks**

#### **3.2.1 Lawachara National Park<sup>1</sup>**

Lawachara National Park was established in 1996 by the Government of Bangladesh on 1250 ha of land in the District of Moulvi Bazar.

The following six broad habitat types are there in Lawachara Park and its interface landscape are identified as:

- i) high forests represented by the remaining patches of natural forests,
- ii) plantations including the monoculture of exotics,
- iii) grasslands and bamboos,
- iv) wetlands,
- v) tea estates, and
- vi) cultivated fields

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<sup>1</sup>. From Nishorgo Support Project's *Management Plan for Lawachara National Park*, (undated).

The first three ecosystems are the largest in extent and also important from the Park management point of view. The cultivated fields (mainly of paddies) and grasslands, which harbor some mammals, ground birds and reptiles, get inundated during monsoon. The water bodies contain important fish species, water birds and amphibians that are food to not only local communities but also Hoolock Gibbon and other wildlife.

The forests of Lawachara Park are biologically rich, located as they are on the high rainfall biogeographic zone with evergreen and semi-evergreen forests. The conservation of biodiversity within the Park is very important as the forests form important catchments. Socio-economic values of the Park are also significant because a number of ethnic communities reside within and around the forests, on which they depend for their livelihood opportunities.

Biological values include providing shelter to biodiversity comprising important flora and fauna, habitat connectivity, presence of threatened and endemic species, and improving degrading habitat. Main ecological functions are catchments conservation of several rivers and water bodies (*haors, beels*, ponds, etc.), control of soil erosion, ecological security, irrigation and agricultural production, carbon sink and environmental amelioration. The Park provides significant scope for wildlife education and research, nature interpretation and conservation awareness. It represents a fragile landscape with a very rich biodiversity, which if not timely conserved, may be lost for future generations. The Park also is a potential source of eco-tourism, aesthetic values, dense high forests, historical and cultural values, scenic beauty and ethnic diversity.

The natural forests of West Bhanugach RF, now part of Lawachara NP (National Park), were converted by raising long rotation plantations (of teak, mahogany, garjan, karai, sal, gamari, shisoo, toon, pynkado, agar, jarul, cham, jam, etc). Most of the original forests have been removed and the conservation value of the Park currently stems mainly from old plantations, which have developed a tall, multi-storied structure. An estimated 483 ha of plantations over 50 years of age are included within the Park, representing 40% of the total notified area. Some Non Timber Forest Products (NTFPs) collected by local people (e.g. sungrass) offer opportunities for self-employment if NTFP-based cottage and small-scale industries are promoted locally through co-management committees and their federations. They may be assisted (e.g. micro-level finance from landscape development fund and skill development training through partner NGOs) in establishing value addition units locally.

Encroachment of RF (Reserved Forests) land has resulted in conversion of many low lying areas into paddy fields. As a result, the habitat has fragmented, adversely affecting the wildlife by restricting their movements through a barrier effect. However, at places good natural regrowth, particularly of ground flora and middle storey, has come up due to favorable climatic and edaphic conditions, thereby enhancing the Park's *in-situ* conservation values. Old plantations raised in the Park area have grown up in shape of tall multi-storied structure with regrowth of ground flora and a middle storey of naturally occurring species. Consequently, the vegetation in many areas of Lawachara has approached towards natural structure and species.

A number of animal species (mammals, birds, reptiles and amphibians), both forest-dwelling and wetland-associated species, of different genera and families are found in the forests of Sylhet forest division. Lawachara NP and adjoining West Bhanugach RF are home to avifauna of 237 species (representing nearly one-third of the country's known bird species) dependent on good forest undergrowth and cover. Viable populations of many small and medium-sized mammal species that can survive in limited forest areas and/or disturbed or secondary habitats (e.g.,

jackals, small cats, barking deer, wild pigs, etc.) are found in the remaining disturbed and fragmented habitat of the Park. A rich diversity of other faunal groups such as reptiles, vertebrates, gibbons, langurs, hanumans, fishes and amphibians is present. Aquatic species including turtles and frogs are found in water bodies. Hoolock gibbon is used as a key species for the development and implementation of forest management and conservation measures in Lawachara.

Lawachara NP lies between the Dholai river on the east, the Manu river on the north, with the road from Moulvibazar to Srimongal on the west. A number of sandy-bedded streams and *nallahs* pass through the Park and so aquatic habitats associated with forest cover and riparian (streamside) vegetation and animal species are important part of overall habitat composition. The Park forms the catchments of a number of small streams, locally known as *charas*.

### 3.2.2 Satchari National Park 2

The proposed Satchuri NP (in Chunarughat Upzila of Habiganj District) is located nearly 130 km east-northeast of Dhaka and approximately 60 km southwest from Srimongal (between Teliapara and Srimongal) on the erstwhile Dhaka-Sylhet highway (a recently constructed bypass road now serves as the main Dhaka-Sylhet highway). This road forms the northern Park boundary (nearly 1.8 km) starting from near Satchari Beat Office to the border of Chaklapunji Tea Estate. The NP comprises forests of Raghunandan Hill RF, covered under Satchuri Range. A proposal for notifying the NP, with a total forest area of 242.82 ha (600 acre), was submitted by FD to the MoEF on 22 December, 2003.

The forests of the Park are composed of mixed tropical evergreen and semi-evergreen plant species, characterized by high rainfall and a multi-tier vegetational assemblage of rich biodiversity. Five broad types of habitats in Satchari Park can be identified as i) high forests represented by the remaining natural forests, ii) plantations including the monoculture of exotics, iii) grasslands and bamboos, iv) wetlands, and v) cultivated fields; the first two being the largest in extent and also important from Park management point of view. The cultivated fields (mainly of paddies) and grasslands, which harbor some mammals, ground birds and reptiles, get inundated during monsoon rains. The water bodies are abode to important fish species, water birds and amphibians.

Presently the Park has natural forests, and the plantations raised earlier by converting high forests of great biodiversity value. Large deciduous trees are mixed with evergreen smaller trees and bamboos. The top canopy includes *Artocarpus chaplasha*, *Dipterocarpus turbinatus*, *Elaeocarpus floribundaas*, *Dillenia pentagyna*, *Castanopsis tribuloides*, etc. The shrub species comprise of *Adhatoda zeylanica*, *Carea arborea* and others, whereas bamboos species are *Bambusa tulda*, *Bambusa polymorpha*, *Bambusa longispiculata*, etc, and *Saccharum*, *Daemonorops*, *Thysanolaena* as main grass species. A number of fodder and fruit bearing plants occur naturally in the Park. Forest fires in summer have adversely affected the natural forest regeneration in the Park.

Major parts of natural forests of Raghun and a major parts of natural forests of Raghunandan RF were converted by raising long rotation plantations (of teak, mahogany, garjan, karai, sal, gamari, shisoo, toon, pynkado, agar, jarul, cham, jam, etc) taken up since 1920s for production forestry. Parts of the original forests have been removed and its conservation value currently

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<sup>2</sup>. From Nishorgo Support Program's *Management Plan for Satchari National Park* (undated).

stems from the remaining natural forests and the plantations, which have developed a tall, multi-storied structure.

A number of animal species (mammals, birds, reptiles and amphibians), both forest-dwelling and wetland-associated species, of different genera and families are found in the Park. Satchari NP and adjoining Raghunandan Hill RF are home to avifauna of many species (representing a substantial portion of the country's known bird species) dependent on good undergrowth and forest cover. Some of the forest-dwelling and wetland-associated species are at high risk of extinction. The Park supports herpetofauna, including frogs, toads, turtles, lizards, snakes and a rich diversity of other faunal groups such as invertebrates and fishes.

Large mammals such as tigers, leopards, bears, wild dogs and sambar have disappeared from the Park due to habitat degradation and hunting. However, viable populations of many small and medium-sized mammal species that can survive in limited forest areas and/or disturbed or secondary habitats (e.g., jackals, small cats, barking deer, wild pigs, etc.) are found in the remaining disturbed and fragmented habitat of Raghunandan RF. A rich diversity of other faunal groups such as reptiles, vertebrates, fishes and amphibians is present. RF were converted by raising long rotation plantations (of teak, mahogany, garjan, karai, sal, gamari, shiso, toon, pynkado, agar, jarul, cham, jam, etc) taken up since 1920s for production forestry. Parts of the original forests have been removed and its conservation value currently stems from the remaining natural forests and the plantations, which have developed a tall, multi-storied structure.

### **3.2.3 Teknaf Game Reserve <sup>3</sup>**

Teknaf Game Reserve, as a part of Teknaf peninsula, is located in the country's far south-eastern corner, near to Myanmar border. It was established in 1983 over a reserved forest (RF) area of 11,610 ha covering 10 forest blocks in three Forest Ranges (Whykong, Silkhalia and Teknaf) of Cox's Bazar (South) Forest Division. It is situated in Ukhia and Teknaf Upzilas of Cox's Bazar District, and lies in between the Naf river on eastern side and Bay of Bengal on western side.

The GR is part of a linear hill range (reaching an altitude of 700m), gently slopping to rugged hills and cliffs running down the central part of the peninsula, with a north-south length of nearly 28 km and an east-west width of 3-5 km. A number of deep gullies and narrow valleys are crossed by numerous streams flowing down to Naf river in east and Bay of Bengal in west. Most of the streams are seasonal and dry up during off-monsoon season. The northern boundary of the GR starts near Whykong town (which is nearly 50 km from Cox's Bazar), extending in south up to Teknaf town. A metallic road connecting Cox's Bazar with Teknaf town runs in between the Naf river and eastern boundary of the GR, and is a major transport corridor for forest products.

Although a four wheel drive can reach Teknaf on western side through an unbroken stretch of beach from Cox's Bazar during low tide, no metallic roads exist presently. Many earthen and brick soled roads traverse the GR from east to west including one on the north most boundary. The forests of Teknaf are located in the high rainfall bio-geographic zone and so comprise wet evergreen and semi-evergreen plant species. Although rapidly being degraded, the GR still contains important floral and faunal biodiversity. Eight broad types of habitats in Teknaf GR and the surrounding landscape are identified as below:

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<sup>3</sup>. From the Nishorgo Support Projects *Management Plan for Teknaf Game Reserve* (undated)



- i) high forests represented by the remaining natural forests,
- ii) plantations including the monoculture of exotics,
- iii) grasslands and bamboos,
- iv) wetlands,
- v) tidal mudflats and mangrove vegetation along the Naf River to the east,
- vi) sandy beaches along the Bay of Bengal bordering the GR to the west,
- vii) cliffs and steep hills, and
- viii) cultivated fields

These habitats support what is considered to be the highest biodiversity in Bangladesh (a documented total of 290 species of plants, 55 species of mammals, 286 species of birds, 56 species of reptiles and 13 species of amphibians). The water bodies and wetlands harbor important fish species, water birds and amphibians. The cultivated fields (mainly of paddies) and grasslands (these get inundated during monsoon rains) are the refuge for mammals, ground birds and reptiles. Presently the GR has natural forests, and the plantations raised earlier by converting high forests of great biodiversity value. The top canopy includes *Artocarpus chaplasha*, *Dipterocarpus turbinatus*, *Elaeocarpus floribunda*, *Dillenia pentagyna*, *Swintonia floribunda*, etc. The proportion of semi-evergreen scrub forests and wet tropical grassland are increasing in those areas where the forests have become heavily degraded due to high biotic pressure.

However, few patches of wet evergreen and semi-evergreen forests have developed in some degraded areas due to less biotic pressure and favorable moisture conditions. Various NTFPs being currently obtained from the forests of the GR include medicinal plants, bamboo, canes, sungrass, fish, prawn, leaves and seeds, wild animals, etc.

The Reserve has long been known for its elephants and was indeed established for their protection. Elephants are still widely distributed in the area, and although numbers very likely have declined, the Reserve and adjacent parts of the Teknaf Peninsula still support an important population. These elephants are part of a larger population scattered over the Chittagong Hill Tracts and down through the Teknaf Peninsula, and contiguous with populations in adjacent parts of India and Myanmar. Elephants are of high conservation importance as they are considered to be endangered within both their total range in Asia and in Bangladesh. A number of animal species (mammals, birds, reptiles and amphibians), both forest-dwelling and wetland associated species, of different genera and families are found in the GR. It is home to avifauna of many species (representing a substantial portion of the country's known bird species) dependent on good undergrowth and forest cover. Some of the forest-dwelling and wetland associated species are at high risk of extinction. The Reserve supports herpetofauna, including frogs, toads, turtles, lizards, snakes and a rich diversity of other faunal groups such as invertebrates and fishes. The easy accessibility of Teknaf from Cox's Bazar and Dhaka through road networks makes the GR very attractive for eco-tourism, particularly to urban dwellers.

## 4.0 Method of Analysis

To study the tourism market and to understand its nature and structure of demand, one often uses survey on tourists to find out the demand for tourism. The analysis can also be used to determine the entry fee at which the manager (of the tourism facilities) could maximize its earnings. The objective of management for nature tourism could, however, differ significantly depending on the particular site and on the market itself.

Conceptually, the analysis suggests that a) people living within the vicinity of a site are the regular or frequent visitors to that site. This is because the site has some degree of monopoly power on its visitors since visiting alternative sites involve higher costs. This means that people living in the greater Sylhet zone (includes Habigonj, Moulvibazar, Sylhet and Sunamgonj) and Brahminbaria and Kishoregonj would have a higher likelihood of visiting the Satchari NP and the Lawachara National Park and the people living in Cox's Bazar and Chittagong would have higher likelihood of visiting the Teknaf Game Reserve; b) people commuting greater distance area will have higher travel costs to visit the site and therefore they have a lower likelihood of visiting the site; c) since tourism is a luxury service consumed at the households, people with higher income from the same areas have higher possibility of visiting a site; and d) people would visit a site with different purposes and that would depend on the demographic characteristics of the visitors.

Considering these hypotheses, it is important to devise a sampling strategy to ensure that a) the survey covers all groups of individuals visiting a site; b) it takes into account the demographic characteristics of the visitors; and c) it looks into the variation of visitation rates for different months of the year.

Given the time frame of the study, it was decided that to realistically capture the seasonal fluctuations of the visitors in a site, a year long sampling strategy would be more useful. This was, however, not possible in this study because of significant time constraints. Therefore, it was not able to fully capture the temporal variations. However, using secondary data, it was possible to capture parts of the variations of the visitation characteristics in the sites.

In order to capture characteristics of all visitors in a site, it is often desired that the survey uses a set of secondary data showing the distribution of visitors from different places. In this case, it was not possible to get that. Therefore, a systematic random sampling technique was used to capture demographic variations of the visitors.

The analyses involved several steps. In the **first step**, the sample was used to identify the pattern of visitors by purpose, by income group, by zone or distance traveled, and by demographic characteristics. Based on this information, in the **second step** it was possible to determine the visitation rate (number of individual visiting a site per 100,000 people) for each zone or geographic locations. In the **third step**, a zonal demand function was estimated using the visitation rate and the travel cost (equals sum of transportation costs, cost of lodging, and cost of food and entry fee, if any). Here a slight underestimation of the travel cost is possible, as the cost of time involved during the tourism activities was not included. In the **fourth step**, the data was calibrated against the actual observed data for the year 2007 to estimate the entry fee and the number of probable visitors.

The survey questionnaire also asked individual's willingness to pay to enter into the sites, given the fact that s/he has already been to the site and have sufficient information to provide price

quotations for entering into the site in future. Such strategy is a variant of the standard contingency valuation method (CVM) given in the literature. The variation between standard CVM method is that the product is 'hypothetical' whereas in this case, the product is 'known' to them because the questionnaire was administered after visitation of the site. The analytical framework is shown in the Appendix T1.

In this study, only the recreational demand function (zonal) was used to understand a) the visitor characteristics by zones, b) to determine the revenue maximizing entry fee for the site operator and c) to determine the potential number of tourist for each of the site at different entry fee levels.

## **5.0 The Survey Method**

There is no systematic data that exists on nature-based tourism activities in Bangladesh. Therefore, the study used the key informant based secondary information to devise a strategy for the survey on the visitors visiting the sites. The guides who were providing the services to the visitors visiting each of these sites were the key informants for this study. It was further understood from the secondary data (shown in Figure 1) that there exists a large degree of variation among the visitors by months and seasons. Based on this a priori information the survey was designed to commence from December (after the Eid Holidays) 2007 and continued until February 2008.

After an initial training of the field investigators, a face-to-face survey technique was used to collect data from the visitors during this period by 12 field investigators. One supervisor was employed to ensure the quality control of data and was responsible for random visits to accompany the field investigators during interview sessions, cross checking on information as per the requirement laid down in the questionnaire. Questionnaires which did not pass the basic test of quality control in terms of responses were thrown out and a replacement was authorized using the same technique.

According to the sampling design, one tourist from every 3<sup>rd</sup>/4<sup>th</sup> visiting group/individual was selected for the interview after they had completed the trip in the park. This means that in a day when large number of visitors arrived, number of responses also went high and the process continued for a period of two months. A total of 940 individual visitors were interviewed during this period.

### **5.1 Socio-Economic Profile of visitors**

A total of 940 visitors were interviewed during the survey, of them 82 percent were male and 18 percent were female. Table 5.1 shows that of the total respondents, 56.6 percent were unmarried, 43.2 percent were married and the rest were either widowed or divorced. In terms of residence of origin, 25 percent of the tourists arrived from divisional cities, 24 percent from district towns, 21 percent for rural townships like *upazila* and the rest 30 percent from rural areas (individuals living outside municipalities).

**Table 5.1: Marital Status and Origin of the visitors**

<b>Marital Status</b>	<b>Percent</b>
Unmarried	56.60
Married	43.19
Widowed/Divorced	0.21
By residence	
Divisional City	24.65
District City	23.59
Upazila/Town	20.81
Rural Area	30.95
Average age of the respondents	27.68 months

**Source: Field Survey 2008**

In terms of the visitors, the average size of the household was found to be 5.88, the ratio of male to female was about 50:50 within the group of tourists (98.6 percent had males in the group and 98% percent had females in the group). However, in each group there are about 2-3 males and 1-2 females while only 50% had children with them. 98.6 percent of the groups had male earning members with them and about 15% of them had female earning members with them.

**Table 5.2: Household Profile**

	<b>Percent</b>	<b>Percent</b>
Size of the Household	5.88	100%
Adult Male	2.38	98.6%
Adult Female	1.95	98.2%
Children Boy	1.52	53.2%
Children Girl	1.55	50.0%
Male earning members	1.67	98.6%
Female earning members	1.19	14.9%

**Source: Field Survey 2008.**

Table 5.3 illustrates the occupational distribution of the heads of households of the tourists visiting the national parks. It shows that majority of the visitors are coming from households from business and service categories. This implies that the visitors are from relatively well off households, who are likely to be more educated than others. They are also likely to have higher income than the average households of Bangladesh. Together these imply that households who are able to meet the basic needs of food, shelter and education are visiting the tourist sites.

**Table 5.3: Occupation of the Head of the Households**

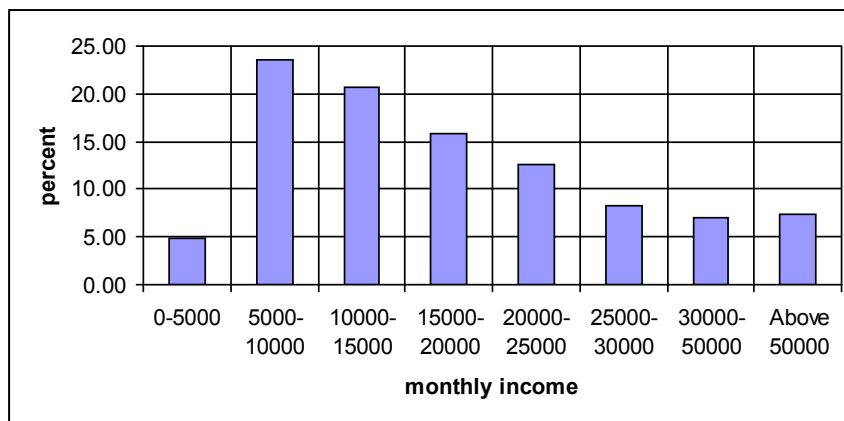
Occupation	Primary	Secondary
Farmer	6.72	17.39
Fishing Labor	0.64	
Animal husbandry	0.21	
Sales person	0.64	4.35
Businessman	41.15	8.70
Transportation Labor	1.39	52.17
Services	44.03	
Professional	1.39	8.70
Laborer	0.64	8.70
Others	3.20	
Total	938	23

Source: Field survey 2008.

Figure 5.1 confirms the hypothesis that most of the visitors are coming from households with higher income groups. It shows that less than 5% of the visitors are from households with income below 5000 taka per month<sup>4</sup> and nearly 50% of the visitors are from income above 15000 taka per month. **Consequently, it is evident that middle incomes to high income families are currently using these sites for tourism purposes.**

Table 5.4 provides the educational background of the respondents visiting the sites. Educational background of 3937 tourists was collected from the 932 respondents (who answered this question). It shows that none were illiterate in the groups. 19.2 percent had studied up to primary level, 28.7 percent up to secondary levels. Similarly, 6.8 percent had Masters Degree level of

**Figure 5.1: Gross monthly household income of the visitors**



Source: Field Survey 2008

education (national average is only 0.2 percent). Table 5.4, therefore, confirms **the second hypothesis that tourists have a much higher level of education than the average households of the country.**

<sup>4</sup> 1 US\$ = 69 Taka (approximately).

**Table 5.4: Educational Profile of the Group of Tourists**

Education Level	Percent
Primary	19.2
Secondary	28.7
SSC	15.9
HSC	15.4
Graduate	10.8
Masters	6.8
Diploma	1.7
Medical/engineering	1.1
Others	0.3
<b>Number of observations</b>	<b>3937</b>

Source: Field Survey 2008

## 5.2 Purpose of visit to a nature-reserve

It has been hypothesized during the initial field visits to the site and discussion with the guides that people visiting a site like Lawachara NP, Satchari NP and Teknaf GR, often visit the site for multiple purposes. Table 5.5 summarizes the responses from nearly 4024 visitors visited the site during the trip. It shows that as many as 4 to 5 reasons exist for making a trip to such a site. The most popular of them are: tourism with friends, bird watching, wildlife observation and photography. In sites like Satchari and Lawachara NPs, looking for Hulloek Gibbon has been one of the major attractions for making the trip.

**Table 5.5.: Purpose of Visit**

Purpose of Visit	All Sites	Satchari	Lawachara	Teknaf
	Percent of responses			
Tourism with Family	42.6	36.2	41	50.8
Tourism with Friends	56.6	72.4	43.8	54.5
Tourism with Colleagues	25.1	36.5	16.5	22.8
Photography	46.3	37.5	43.5	58.1
Film Making	4.8	6.9	5.3	2.3
Picnic	34.8	49.3	26.7	28.7
Bird Watching	48.5	52.6	37.6	56.1
Hulloek/Monkey Watching	51.9	56.9	62.1	36
Wildlife Observation	49.7	28.6	55.6	64.7
Learning about local culture	39.4	32.6	69.6	14.2
Elephant sighting	33.3	2.3	33.5	64
Others	0.1			0.3
<b>Total response percent</b>	<b>433.2</b>	<b>411.8</b>	<b>435.1</b>	<b>452.5</b>
<b>No of responses</b>	<b>4024</b>	<b>1252</b>	<b>1401</b>	<b>1371</b>

Source: Field Survey 2008

Table 5.6 shows that nearly 70% of the visitors have a group size less than 11 or around 10. In other words these are ‘family and friend’ groups visiting the nature reserves. At the same time, the other 30% have group size 30 or above. These are groups visiting the site for picnic, excursion, and other purposes.

**Table 5.6 Group size of the visitors (percentile)**

Percentile	All	Male	Female	Children
10 percent	2.88	1.23	1.07	
20 percent	4.08	1.91	1.56	1.09
30 percent	4.92	2.59	2.05	1.39
40 percent	5.74	3.30	2.55	1.68
50 percent	6.71	4.05	3.08	1.98
60 percent	7.98	4.86	3.88	2.44
70 percent	10.37	6.12	4.99	2.92
80 percent	31.27	10.52	9.33	4.27
90 percent	98.18	40.43	26.80	9.55
100 percent	100.00	100.00	100.00	100.00

Source: Field survey 2008.

The survey also showed that only 58 percent of the visitors were informed about the ground rules of visiting a site while nearly 92 percent were fully aware that these sites are protected forest areas. Clearly, it is important that the site manager considers the following options to ensure conservation of nature and maximum enjoyment for the visitors. First, it is important that visitors are always **guided** inside the park territory. In absence of such a guided tour, over-enthusiasm of the visitors will end up disturbing wildlife in the park and eventually drive them out of their habitat. Second, tourists must be told to uphold the sanctity of the parks and this can be done through introducing meeting room with an introductory video/slide show to educate visitors before visiting the sites and arranging tours using time slots so that guided trips could be arranged properly. This means that visitors shall not be allowed to enter into the forest **as and when** basis. Third, number of visitors to the park must be restricted to its carrying capacity. Fourth, trained guides should be asked to identify and interpret the nature so that visitors can take full advantage and enjoy the wildlife.

A rather disturbing reason (for as many as 34% of the visitors) for visiting the site was to have a picnic party. These parties are often with groups more than 30 in a group and are very noisy in the forest. Such trips could be restricted within a specific zone and for a specific time only. There are other paid sites available in each zone for picnics and so visitors solely for picnic purposes could be either discouraged or charged a much higher competitive entry fee.

### **5.3 Residence of the visitors**

The survey was carried out systematically over a period of two and a half months. The objective of the survey was to also to find out from where the visitors are coming to each of the sites. Table 5.7 summarizes the residence districts of the visitors. Clearly, the Table 5.7 shows that majority of the visitors come from nearby zones and that as the distance from the site and number of visitors are inversely related.

**Table 5.7: Residence of the visitors in each site**

Resident District of visitors	Satchari NP	Lawachara NP	Teknaf GR
Cox's Bazar	0.00	0.31	89.44
Dhaka	20.00	27.08	3.30
Habigonj	34.33	4.92	0.00
Moulvibazar	1.67	24.62	0.00
Sylhet	2.67	21.54	0.00
Brahminbaria	16.33	0.92	0.00
Kishoregonj	11.00	0.92	0.00
Chittagong	1.00	3.08	3.30
Narayangonj	4.33	0.00	0.33
Comilla	3.00	0.62	0.33
Narsindi	2.00	0.31	0.00
Gazipur	0.00	1.85	0.00
Mymensingh	0.00	1.54	0.00
Kurigram	0.00	1.54	0.00
Munsigonj	1.33	0.00	0.00
Khulna	0.00	1.23	0.00
Chadpur	0.00	0.92	0.00
Noakhali	0.00	0.00	0.99
Sunamgonj	0.00	0.92	0.00
Other districts	2.00	4.00	2.31
<b>'Foreign' visitors</b>	<b>0.33</b>	<b>3.69</b>	<b>0.00</b>
<b>Total</b>	<b>300</b>	<b>325</b>	<b>303</b>

Source: Field Survey, 2008.

It also reveals that majority of the 'foreign' visitors are interested in the Lawachara NP, a premier national park of the country. On an average, only 2 percent of the visitors are found to be of 'foreign' origin. The term 'foreign' visitors should be used carefully in this regard because these visitors are resident foreigners living in the country. In other words, they are not traveling from abroad to exclusively visit the NPs.

**Table 5.8. Origin of visitors by Division**

Division	Satchari	Lawachara	Teknaf
Dhaka	39.00	32.92	3.63
Chittagong	20.67	6.15	95.05
Sylhet	38.67	52.00	0.00
Khulna	0.33	2.15	0.00
Rajshahi	1.00	3.08	0.33
Barisal	0.33	3.69	0.99

Source: Field Survey 2008

Table 5.8 further shows that except for the Lawachara NP, the rest of parks attract mostly local visitors from nearby cities and towns. Lawachara NP is, perhaps, the only park among these three which attracts visitors from all divisions of the country.

#### **5.4 Other attractions in mind while visiting**

It was also noted during the pre-testing and during the initial field visits that visitors come to these national parks and some of them stay overnight. While the average stay inside the park is



only about 5-6 hours per trip, visitors spend the rest of the time visiting other nearby facilities or sites. However, only 23 percent of the visitors do use their trip to visit other spots while on this trip. These trips are, however, in addition to their trip to the first site. Most of them also admitted that their primary and major reason for the visit is to visit the first site while the rest of the visits are only a ‘bonus’ attraction.

**Table 5.9. Other attractions to visitors during visiting a site**

	Satchari	Lawachara	Teknaf
		Percent	
Tea estate visit	58.3	17.9	
Jaflong visit	12.5	6.5	
Lawachara NP visit	8.3		
Cox’s Bazar sea beach visit	4.2	6	30.5
Haor visit		33.3	
Madhobkunda water fall visit		14.4	
Visiting sites in Chittagong		4	2.3
Visiting sites in Dhaka	4.2	2.5	
Magurchara site visit		2.5	
Visiting Khasi villages	4.2	6.5	
Safari park visit		0.5	14.1
St Martin Island tour	8.3	1	51.6
Satchari tour		3.5	0.8
Rangamati tour		0.5	0.8
Teknaf/ Game reserve tour		1	
Percent of Visitors	7%	37%	24%

Source: Field Survey, 2008

Table 5.9 shows that visitors visiting Satchari mostly visit this park and only 7% of the visitors reported visiting other places or have expressed their intention to go to another site. 24% of the Teknaf visitors would like to go to a second place but of them 52% will go to St Martin Island tour. At Lawachara NP, the next best attraction is the visit to *haors*, whereas it is visiting the tea estate is the next most important place for visitors in Satchari NP. **Clearly, site operators could arrange for an additional attraction for these tourist to generate more income for the local people and the local economy.**

### **5.5 Travel Cost estimates**

Travel cost generally, includes cost of transportation, cost of food and lodging during the trip, entry fee and opportunity cost of time, if there is any potential or actual loss of opportunity for the trip. The survey questionnaire asked several questions to elicit these information. It has been observed that there are two distinct groups of tourists visiting these sites: a) package tourists – who visit the site on a package deal in terms of food, transportation and lodging, and b) individual or group tourists – who either use their own vehicle or hire vehicles or use multiple means of transportation to make the tour. Data shows that about 52% of the visitors use the package deals to visits the sites. These package deals may be provided by organized tour operators or simply by an organizing institution/association that collected a lump-sum amount of fee for making the trip. Of the rest, majority of them used bus, only 4.4% travels using own/office vehicles and large majority of them spend handsome money for food costs. It should be noted that nearly 17.6% of them actually stayed overnight. Consequently, the impact of

tourism in the local economy could be substantial. Estimate further shows that average distance traveled by the tourists to enjoy the site is around 105 km (one way) and they spent more than two hours to travel this distance. Average stay inside the park is around 4 hours.

Consequently, it should be noted that a) possibility of increasing the time spent in the park exist for visitors who stays overnight but for this the site management must think of improving the quality of the site; and b) local expenditure includes food, lodging, guide costs, and other expenses like purchasing souvenirs and so in order to benefit the local population, these facilities could be improved.

**Table 5.10. Travel Related Costs**

Item	All sites		Satchari		Lawachara		Teknaf	
<b>Transport Cost (package)</b>	748.09	52.1%	385.49	87.3%	1,173.55	63.3%	1,294.53	5.2%
<b>Non package costs</b>								
Bus fare	414.64	72.7%	120.00	2.6%	1,102.24	56.7%	234.56	88.7%
Rail fare	163.75	0.9%			163.75	3.3%		0.0%
Air fare	6,500.00	0.2%					6,500.00	0.3%
Fuel Costs	252.00	4.4%	63.87	17.9%	434.89	5.0%	283.37	2.4%
Food Costs	290.38	78.9%	69.01	33.3%	714.82	58.3%	191.73	93.5%
Hotel/lodging cost	633.25	17.6%	50.00	2.6%	1,345.50	17.5%	381.07	19.6%
Other cost	538.08	4.9%			400.00	2.5%	559.88	6.5%
<b>Transport Cost (package + non-package)</b>	<b>562.38</b>	<b>877</b>	<b>354.65</b>	<b>281</b>	<b>972.53</b>	<b>296</b>	<b>352.26</b>	<b>300</b>
Distance Traveled for the park	105.47	908	79.72	301	160.44	312	73.80	304
Time needed for traveling (hrs)	2.56	908	1.99	292	3.44	312	2.19	304
Time spent in the park (hrs)	3.93	927	4.64	301	3.31	320	3.88	306

Source: Field Survey 2008.

Table 5.11 further shows that nearly 36 percent of the visitors came on a ‘picnic’ party. These groups often make noise inside the parks and do not always abide by (from individual observation as well as discussion with tour guides) all the rules while in the forests. This is a major point of concern from conservation point of view. Wildlife in the forest will become more threatened if the rules are not properly maintained.

**Table 5.11. Engagement of Activities inside the Park**

Activities in the park	All sites	Satchari NP	Lawachara NP	Teknaf GR
	Percent of responses			
Picnic	36.7	56.3	25.9	28.4
Trekking with guide	55.1	65	53.2	47.4
Trekking in groups	75.5	76	58.9	92.2
Reading billboards/signboard	56.5	56.7	59.8	52.9
Trying to identify species	43.8	34.7	59.5	36.6
Learning about birds	46.2	35.7	50.9	51.6
Learning about trees	57.6	52	75.3	44.8
Spend time with family	29.9	27	23.4	39.5

Walking along the trail	43.8	22.7	51.9	56.2
Others	0.9	1	1.3	0.3
<b>Total</b>	<b>4112</b>	<b>1281</b>	<b>1454</b>	<b>1377</b>

**Source: Field Survey 2008**

Furthermore, a large number (nearly 76 percent of the visitors do enter into the forests in a group and only 55 percent use guides. The most likely scenario is that the picnic groups do not like to use the guides and so their entry should be restricted to some selected zones. The management of the sites must develop zones inside the park to allow for picnic or similar activities, trekking zone for groups and trekking in the forests. It is also clear from the above table that nearly 56 percent of the current tourists do enter into the forests after reading the bill boards, and want to know more about the parks. While it is impossible to understand who are less likely to remain respectful to the norms of a conservation park, it is clear from the above description that groups entering for picnic are the most likely violators.

**At present, commercial sites exists under both private as well as public initiatives that offer picnic facilities where crowd could be contained within a specific zone or facility. Therefore, government should discourage people entering into the national parks for ‘picnic’ purposes. This will significantly improve the quality of tourists and they are likely to benefit both the nature and the local people.**

## **5.6 Tourism and Entry Fee**

It clear from this study that there is a definite interest among the public to enter into the parks and enjoy the pristine natural beauty in these national parks. The quality of forests and the quality of wildlife add to their attractions. These tourists derive significant satisfaction through this activity. It is therefore, important to determine the followings:

- a. The potential number of tourists in these parks,
- b. The entry fee at which the tourism can be restrained within a reasonable limit or to divert tourists from over-crowded sites like Lawachara NP and
- c. The strategy to increase the level of satisfaction of the visitors, in absences of which the higher income segment of the tourists are likely to consider going abroad for tourism purposes.

## **5.7 Potential Number of Tourists into National Parks**

Based on the above visitation rate information and based on the population projection based on 2001 Census of Bangladesh Population and the projected growth rate, the table shows the number of potential tourists who are likely to visit the NP from each zone. It should be noted that this number refers to the number of population who are likely to visit the site.

It is however, important to estimate the maximum possible number of visitors to a site if all of them happen to visit the park every year. However, the study could not ascertain (due to lack of longitudinal data) proportion of those visiting the park but the number provides a guideline for park managers in terms of the potential market size for nature tourism in Bangladesh.

Survey data and Census of Bangladesh Population data for broad occupational groups based on this survey are shown in Figure 5.1. It reveals that majority of the tourists come from families in which the major occupation of the head of the household are business and services. As a result,

it can be concluded that a relatively affluent households (belonging to business and services) are using tourism as a source their entertainment. Therefore, the survey result on tourism in Bangladesh is consistent with the literature where tourism is found to be a luxury product.

**Table 5.12: Visitation Rate to the Parks**

	Satchari NP	Lawachara NP	Teknaf GR
	Per 100000 population		
<b>Bangladesh</b>	<b>9</b>	<b>38</b>	<b>14</b>
Rajshahi division	<sup>a</sup>	2	<sup>a</sup>
Khulna division	<sup>a</sup>	4	<sup>a</sup>
Barisal division	3	23	5
Mymensingh greater district	<sup>a</sup>	6	<sup>a</sup>
Keshoregonj	50	17	<sup>a</sup>
Dhaka and suburbs	24	132	6
Gazipur	<sup>a</sup>	43	<sup>a</sup>
Narsingdi	13	8	<sup>a</sup>
Narayanganj	24	<sup>a</sup>	3
Faridpur/Munshigonj	2	<sup>a</sup>	<sup>a</sup>
Sunamganj	<sup>a</sup>	22	<sup>a</sup>
Sylhet	12	402	<sup>a</sup>
Moulvibazar	12	727	<sup>a</sup>
Habiganj	229	133	<sup>a</sup>
Brahmanbaria	80	18	<sup>a</sup>
Comilla	8	6	1
Chandpur	<sup>a</sup>	19	<sup>a</sup>
Noakhali	<sup>a</sup>	<sup>a</sup>	3
Chittagong	2	21	99
Cox's Bazar	<sup>a</sup>	8	880
Rest of Bangladesh	10	37	14

Source: Based on Census Survey on Visitors in 2007. <sup>a</sup> refers that the visitation rate for this zone is included inside the calculation of visitation rate for 'Rest of Bangladesh'

Based on the secondary information and the distribution of population by these occupational characteristics it can be shown that:

a) Of the 29.2 percent of the farming households, only 6.72 percent visited the respective sites. Meaning while only 5,160 tourists from this group visited the sites, the total number of eligible tourists according to population data is around 2.55 million who are only 2 percent of the total potential tourists.

**Table 5.13. Potential vs actual tourists in Bangladesh**

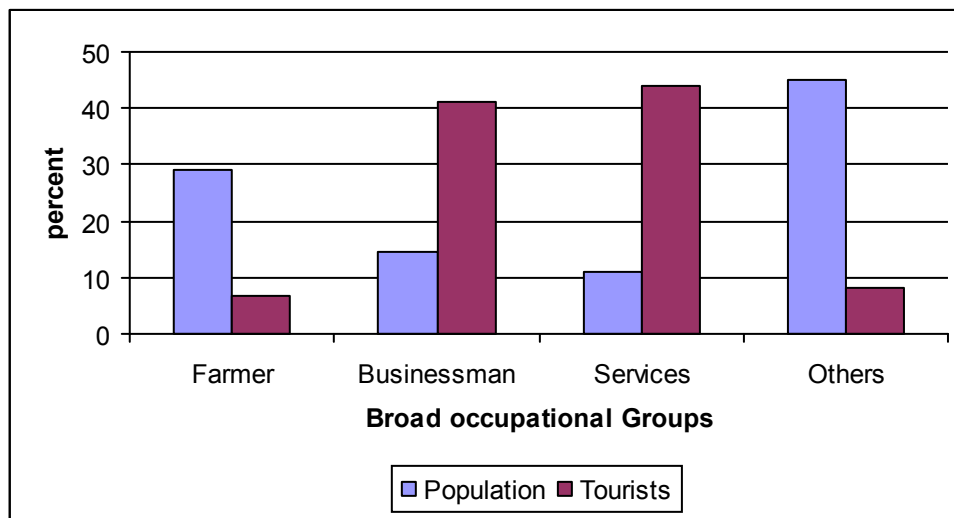
Major occupation of Head of Household	Percent of Tourist <sup>1</sup>	Percent of Population <sup>2</sup>	No of Visitors in three NPs in 2007 <sup>3</sup>	Potential Tourists 2007 estimates (in million) <sup>4</sup>
Farming	6.72	29.2	5,160	2.55
Businessman	41.15	14.7	31,612	7.87
Services	44.03	10.9	33,824	6.24
Others	8.10	45.2	6,224	4.76
<b>Total</b>	<b>100</b>	<b>100</b>	<b>76,820</b>	<b>21.42</b>

Source: Col 1 and col 3– Census of Tourists by Nishorgo 2007, Column 2 – Census 2001, Col 4- calculation based on Cols 1-3.

b) Of the 14.7 percent of the business households, 41.15 percent visited the sites meaning a total of 7.87 million individuals are likely to visit the parks. However, only 31.6 thousands visited the sites in 2007. This is only 4% of the total business households.

c) Of the 10.9 percent of the households involved in the service sector.

**Figure 5.2 Percent of Population and Percent of Nature-based Tourism by Major Occupations in Bangladesh**



Source: Population data form Census 2001 and Tourist data from Field Survey 2008.

Table 5.13 shows that of the 21.42 million potential tourists in 2007, the three major sites in Bangladesh (Satchori NP, Lawachara NP and Teknaf GR) only attracted 76 thousand visitors. The number is very small compared to the potential market. Therefore, it is important that the site management understand the huge potential that exists in the nature-based tourism sector in Bangladesh.

**It is, therefore, important that the site management should consider measures to improve the facilities within the sites to attract more visitors and turn the parks into a genuine commercial corporate operation catering to the needs of nature-based tourists and at the same time take measures to increase the revenue earnings from these facilities.**

## 6.0 Improving the Parks to add value

Survey results show that a large number of visitors visiting national parks in Bangladesh belong to lower middle-income (5000 taka per month) to lower higher-middle income group (up to 25000 taka per month) groups. This clearly shows that with growing incomes, it is also likely that fewer people will remain attracted to visiting the national parks (Table 6.1). This is a potential problem in terms of raising income from conservation efforts. At present highest percentage of visitors come from income group 5000-10000 taka per month and as income grows less and less percent of people from each higher income group are interested to visit these parks. **Therefore, it is important that the parks authority recognize this aspect of demand for tourism in the parks in future.**

**Table 6.1 Monthly Income group of visitors**

Income Group (gross monthly income)	Percent
0-5000	4.79
5000-10000	23.54
10000-15000	20.66
15000-20000	15.87
20000-25000	12.57
25000-30000	8.20
30000-50000	7.03
Above 50000	7.35
Total	939

Source: Field Survey, 2008

The survey studied the preferences of the consumers in terms of different facilities, amenities available in each of the park. The questions were asked after they had finished visiting the site so that the responses are based on the facilities that they have used already and not based on perceptions.

### 6.1 Improving the facilities at site

Views regarding the facilities and amenities show that majority of the people (65%) want to see improvement in the nature and also wilderness for them to come back or continue visiting this parks. The second most important item in their agenda is facilities like rest houses (for spending more time at the park). This is an issue which has to be carefully considered. On one hand, visitors cannot effectively enjoy the site because facilities for over night stays are far away from the site and so it restricts their opportunity of spending time inside the park. **On the other hand, building rest houses/hotels inside the park could also create disruption to nature and so many park facilities have strategically encouraged or placed such facilities outside but adjacent to the parks.**

**Table 6.2. Visitors' perception on improving recreational facilities in the Parks**

	<b>All sites</b>	<b>Satchari</b>	<b>Lawachara</b>	<b>Teknaf</b>
Natural beauty and wilderness	64.5	52.5	73.7	67.1
Information about animals and birds	45.8	50.5	37	50.3
Rest house	52.2	47.9	63.3	44.7
Toilet facilities	40.1	35.7	55.2	28.6
Walking trails and its maintenance	43.4	62.3	28.2	40.5
Availability of tour guides	13.4	13.8	11.6	14.8
Enjoying the forest and wildlife	35.3	33.8	24.8	48
Others	2.9	3.3	1.9	3.6
<b>Total responses</b>	<b>297.6</b>	<b>299.7</b>	<b>295.6</b>	<b>297.7</b>

Source: Field Survey 2008

The third most important improvement needed is information on animals and birds at site. It has been observed that the least preferred option was to increase the number of guides, meaning that tour guides were not able to provide sufficient information to meet their expectations. Nearly 45.8 percent of the visitors wanted more information on the wildlife during the visits to the nature reserves.

Visitors were also asked what else they would like to see while visiting the nature reserves. The topmost priority need among the visitors was the construction of a small museum and an information centre. The next most sought improvement is a pictorial guide while visiting the site. The third one is pictures, postcards and other information bundles (Table 6.3).

**Table 6.3 Improvement sought in the parks for visitors**

<b>in information on the parks</b>	<b>All visitors</b>	<b>Satchari</b>	<b>Lawachara</b>	<b>Teknaf</b>
Map of the park	45.1	28.9	56.2	50
Pictorial guides for tourists	62.2	65.9	54.9	66.1
Information pictures and information rel	60.5	68.2	59.6	53.6
Small museum and information centre	68.6	75.7	69.4	60.5
Indicative signs and billboards	38.6	43.9	27.4	44.7
Guide books	15.2	12.8	18.6	14.1
Others	1.3	1.6	1.3	1
<b>Total responses</b>	<b>291.5</b>	<b>297</b>	<b>287.4</b>	<b>290.1</b>
<b>No obs</b>	<b>926</b>	<b>305</b>	<b>317</b>	<b>304</b>

Source: Field Survey 2008

Visitors further provided a set of suggestions in terms of improving the sites to make more tourist-friendly. These are presented in Table 6.4. It shows that traffic safety is a cause of concern for the visitors but parking facilities at the site is the most important demand. Furthermore, infrastructure to take food and also waste disposal bins were among the most demanded facilities by the visitors.

**Table 6.4 Changes suggested by the visitors in terms of facilities on ground**

	All visitors	Satchari	Lawachara	Teknaf
<b>Traffic arrangement at the Site</b>				
Road condition	55	47.7	39.5	78.3
Traffic safety	41.3	36.5	52.2	34.9
Traffic signs	28.9	41.1	26.1	19.4
Parking facilities	72	71.7	77.1	67.1
Others	1.2	1	2.2	0.3
<b>Total responses</b>	<b>198.4</b>	<b>198</b>	<b>197.1</b>	<b>200</b>
<b>No obs</b>	<b>922</b>	<b>304</b>	<b>314</b>	<b>304</b>
<b>Other on-site facilities</b>				
Waste disposal systems	53.3	42.3	67.3	49.7
Restaurants for food and beverages	57	53.8	59	58.3
Place for stay at night	38.6	41.3	51.7	22.2
Marked places to take pictures	27.3	32.5	13.3	36.8
Play ground for children	34.8	33.1	17.5	54.6
Souvenir shops	10	14.8	13.3	1.7
Special arrangements for elderly and physically challenged persons	25.2	23	37.1	14.9
Medical facilities	29.1	42.3	13.3	32.1
Prayer facilities	20.3	10.8	23.2	26.8
Others	0.1	0.3	0	
<b>Total responses</b>	<b>295.7</b>	<b>294.1</b>	<b>295.9</b>	<b>297</b>
<b>No of obs</b>	<b>922</b>	<b>305</b>	<b>315</b>	<b>302</b>

Source: Field Survey 2008.

Considering the above information, it is important to recognize that visitors to the nature reserves do want further improvement in the facilities and it reveals that the basic standard in terms of service requirement at the site has gone up significantly and it also shows that there is a win-win gain by the site management to improve the facilities while charging them an entry fee.

**On site improvement recommended are: a) establishment of a small museum in the site to help visitors know the birds and animals and their habitats, b) audio-visual program to introduce visitors about the habitat, the animals and the birds prior to visiting a site and c) improving posters, billboards, pamphlets, booklets, etc. explaining the wildlife in the area, d) providing better training to the guides, e) better rest rooms and waste disposal facilities, f) restaurants on site and possibly hotels in off-site (nearby) locations for overnight stay, and g) parking facilities for vehicles entering the parks.**

## **6.2 Stated Pattern of Willingness to Pay (entry fee)**

The surveyors interviewed tourists only after a visitor had finished touring the site. As a result they had a clear idea after visiting the site and could easily decide on the Willingness to Pay (WTP). The study also wanted to probe whether visitors could appreciate the raising of funds through entry fees to maintain the park and its facilities.

Table 6.5 shows that an overwhelming majority (80%) want the government to finance maintenance of the parks. Given that the facilities were so far been maintained by the government this type of response is not unexpected. However, knowing that there is dearth of funds for the government to support the total facilities, a large number 85% of the visitors are



willing to pay an entry fee. Furthermore, visitors do suggest that government should raise funds through a corporate adoption plan or simple donations. Only 23.6% percent thought that only entry fee could be used to support the parks.

**Table 6.5 Raising Fund for Maintenance of the Parks**

How to raise money for maintenance of the parks	All visitors	Satchari	Lawachara	Teknaf
Entry fee	23.6	28.5	10	32.6
Government Budget	80.5	86.6	77.8	77.3
Donations/adoption	51.4	47.2	36	71.4
Plough back entry fee	39.2	36.7	65.9	14.5
Others	0.8	0.7	1.3	0.3
Total responses	195.5	199.7	191	196.1
No of obs	920	305	311	304
Percent of visitors willing to pay	84.50	84.54	73.72	95.67
Average Willingness to Pay as Entry Fee	14.59	7.34	19.13	16.94

Source: Field Survey 2008.

Table 6.5 shows that on average people are willing to pay 15 taka to enter in a park while their willingness to pay vary between the parks. For Lawachara NP, the willingness to pay goes up to 20 taka per entry while for Satchari it drops to about 7.3 taka. **This WTP bids shall be interpreted in the following manner- people are willing to pay 14.59 taka per entry and they are still ready to visit the park. In other words, there will be no reduction in the number of visitors if such entry fee is imposed.**

Table 5.6 shows that nearly 94% of the people agree that they should pay an entry fee to ensure that such natural sites are protected for future generations. Table 6.6 also illustrates that nearly 84 percent of them want to come back to parks because they love the nature. About 68 percent said that they would like to participate in conserving the nature and for this they are willing to pay an entry fee. Table 6.6 illustrates the general feeling that visitors are skeptical about the usefulness of paying an fee to enter the parks because most of them did not think that the money might not be used to improve the park. However, they are ready to pay if there is an arrangement that would guarantee that funds collected as entry fee will be used to improve facilities and to conserve the nature. These feelings are not specific for the Department of Forests but it is possibly a general feeling due to absence of transparency in government spending at large.

**Table 6.6: Reasons for agreeing to pay entry fee at the park**

Reasons for WTP for the parks	All visitors	Satchari	Lawachara	Teknaf
Love visiting national parks	84.3	68.6	85.3	98.7
I should bear the costs of conservation	68.6	80.5	59.4	66.2
Want to conserve for my future generations	93.7	92.7	91.7	96.7
Would contribute if money is genuinely spent for conservation	62.6	71.9	58.5	57.7
Want to contribute to the cost of conservation	53.4	47.9	75.7	36.1
Want to contribute if money goes to	53.5	48.2	62.6	49.5

site for improvement				
Others	0.3	0.3	0.6	
Total responses	416.5	410.2	433.9	404.9
No of obs	921	303	313	305

Source: Field Survey 2008

## 7.0 Entry Fee

The study, however, provided more information than simply stating the visitor's willingness to pay to visit a site. It contained information on the characteristics of the visitors, their income groups, origin of their trips and so on. These were explained above. Using these information, it is possible to estimate a Demand function for nature-tourism in Bangladesh. This has been done using a regression analysis on the model explained in the Appendix T1.

After much iteration in terms of determining the relationship between the revealed travel cost (includes transportation expenses, cost of food and lodging but excluded cost of time) and the visitation rates from the zones, the final demand function is shown below.

$$\ln(\text{VR}) = 10.219 - 1.221 \ln(\text{TC}) + 1.781 (\text{Lawachara}) + e \quad (1)$$

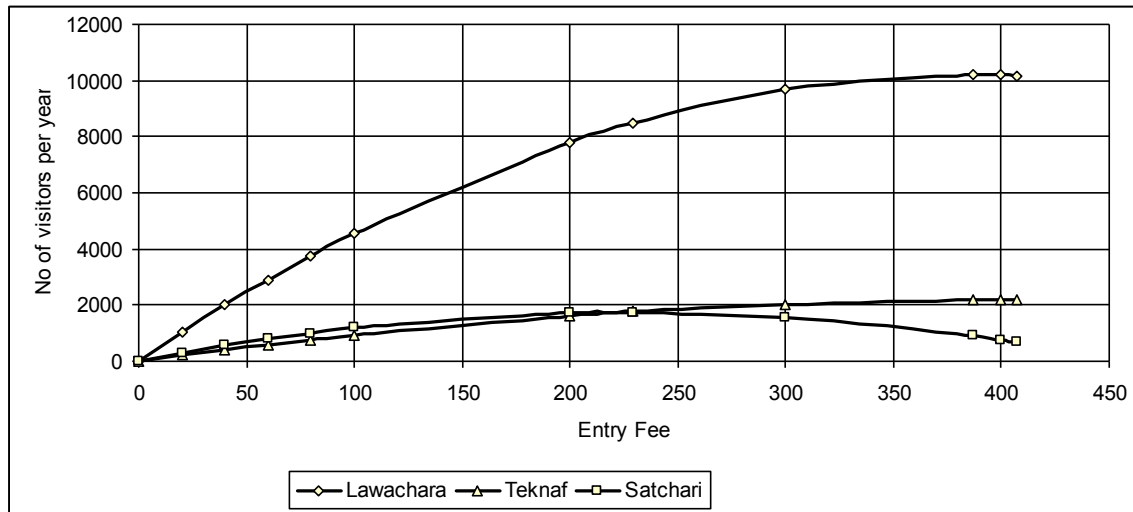
(4.207)\*\* (-3.227)\*\* (3.484)\*\*  $R^2 = 0.363, n=34$

Where VR is the visitation rate for zone i, TC is the average travel cost estimated from field data, Lawachara is the dummy variable which is 1 for Lawachara but 0 for others, and e is the error terms. \*\* refers to significance at 1% level.

The demand function for tourism shows that the price elasticity of demand for nature-based tourism is -1.221. This means that the demand is elastic and that the demand is also likely to be a luxury product. A possible substitution could have been the actual income data from field survey but it was not asked because it would have likely to alert visitors to hide other relevant information related to their traveling arrangements.

Using the elasticity of demand, the likely revenue functions (for each site) at different entry fee were estimated (as shown in Appendix T1) and it is shown in Table 7.1.

**Table 7.1 Revenue income from entry fee**



Source: Simulated for real data of 2007 using price elasticity of demand for nature-based tourism.

Table 7.1 illustrates changes in the number of visitors if government impose different entry fee to enter into the national parks. It also shows that while Satchari and Teknaf are very similar in terms of visitor numbers, Lawachara is an exception and demand for tourism at Lawachara NP is much higher than that of other parks.

This brings back a question – are these national parks be treated equally in terms of designing entry fee? If yes, what is consequence in terms of visitor numbers in each park? And finally, is the carrying capacity of visitors in each parks same?

Table 7.2 shows the current visitor number (as of 2007) at 0 entry fee. As entry fee is imposed visitor numbers will decrease and we can see that at even 60 taka entry fee visitors in number of visitors will be above 10,000 per year at Satchari and above 16,000 at Teknaf, while it will be nearly 44,000 at Lawachara NP. As such in order to ensure that none of the parks are over crowded **a differential entry fee structure is suggested.**

Carrying capacity of each park depends on a) the physical facilities of the park, b) the area of the nature reserves and c) the quality of visitors. Depending on these factors it is further suggested that **National Parks like Lawachara NP should be considered a premier site for nature-based tourism and so it should have a much higher entry fee.**

**Table 7.2 Number of visitors per year and revenue earnings at different entry fee**

ENTRY FEE	No of visitors per year			Revenue in lakh taka		
	Satchari	Lawachara	Teknaf	Satchari	Lawachara	Teknaf
0	11714	47644	18017	0	0	0
20	11203	46416	17575	2	9	4
40	10693	45188	17132	4	18	7
60	10182	43960	16690	6	26	10
80	9671	42732	16248	8	34	13
100	9160	41504	15806	9	42	16
120	8650	40276	15364	10	48	18
140	8139	39048	14922	11	55	21

ENTRY FEE	No of visitors per year			Revenue in lakh taka		
	Satchari	Lawachara	Teknaf	Satchari	Lawachara	Teknaf
160	7628	37820	14479	12	61	23
180	7117	36592	14037	13	66	25
200	6607	35364	13595	13	71	27
229	5866	33584	12954	13	77	30
240	5585	32908	12711	13	79	31
260	5074	31680	12269	13	82	32
280	4564	30452	11826	13	85	33
300	4053	29224	11384	12	88	34
320	3542	27997	10942	11	90	35
340	3031	26769	10500	10	91	36
360	2521	25541	10058	9	92	36
387	1831	23883	9461	7	92	37
400	1499	23085	9173	6	92	37
407	1320	22655	9019	5	92	37
440	478	20629	8289	2	91	36

Source: Simulation results using elasticity of demand from nature-based tourism.

## 8.0 Recommendations

The study seeks to understand the demand for nature-based tourism in Bangladesh. Despite its limitation in terms of capturing the seasonal variations in the demand for tourism in the National Parks of Bangladesh, the study has shown the following facts:

1. Potential for nature-based tourism is quite high in Bangladesh. Out of every 100,000 population about 27 are likely to demand these services.
2. A comparatively wealthier section of population wants to participate in the nature-based tourism activities. They are mostly from business groups and from salaried income groups. This means that the poorer sections of the population do not usually use these sites for tourism purposes.
3. Nearly one-third of the tourists use the parks for annual picnic trips. This is a potential problem if park authorities do not consider some ground rules for management of these tourists. They are likely to affect the integrity of parks, if not organized or monitored properly.
4. Parks with better wildlife, forests attract relatively a large number of tourists than parks with not so good natural beauty. Considering these, parks authorities should take interest in managing the wildlife in the forests.
5. A large number of tourists are ready to pay for entry into the parks.
6. Nature based tourism is a luxury product.
7. Tourists facilities should have amenities like a) toilets, b) parking facilities, c) walking trails, d) guide and information center, e) booklets/pamphlets with information on the wildlife and the forests, f) adequate number of billboards to guide tourists, g) restaurants,

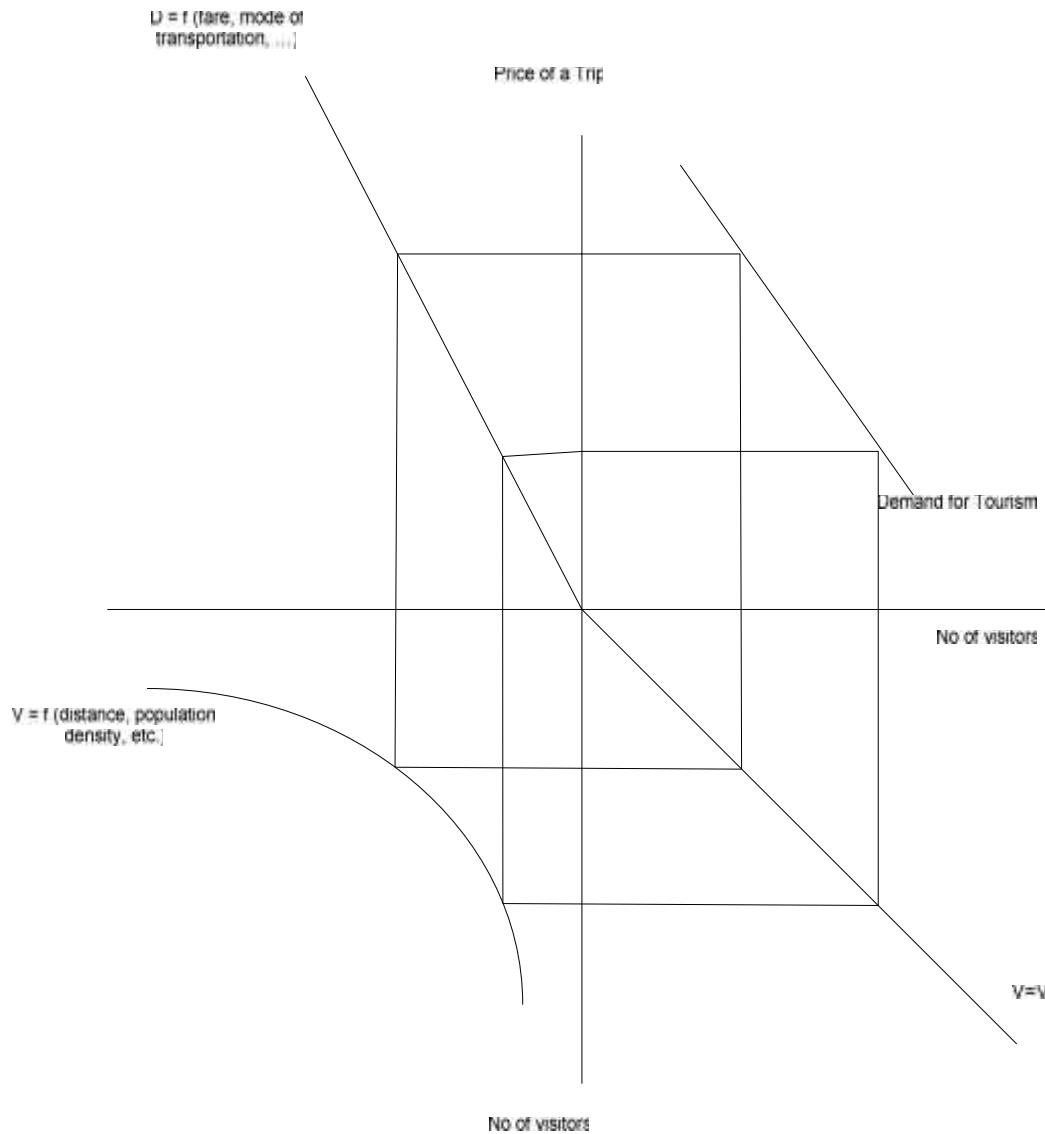
h) night halting facilities in nearby areas, i) museum for information and display of wildlife of the area.

8. Average willingness to pay for entering into the park is significantly different between parks. For example, Lawachara NP visitors are ready to pay as high as 400 for entry into the park and yet there will be enough visitors to raise revenue whereas, visitors to Satchari and Teknaf parks will be willing to pay up to 200 taka per entry. This means that the market for nature-tourism is quite segmented.
9. The study therefore, recommends different entry fee for visitors to different parks. Parks like Satchari NP or Teknaf GR shall be labeled in one group whereas parks like Lawachara NP shall be labeled as a premier site for nature based tourism and hence the entry fee shall be at least double of the usual sites.
10. Quality of visitors to these national parks can be improved with programs of awareness to the visitors so that these national parks are preserved for the future generations.
11. Local people shall be trained to supply 'trained tourist guide' for the visitors and individuals shall not be allowed to enter in to the forests without a guide. Guide services shall be included as a part of the package during entry.
12. Like many other sites in the world, group visitors, family visitors, students should not be allowed to enter into the forests without a guide. This will ensure that the wildlife in the forests remained undisturbed.
13. Guides have to be qualified and trained to a) describe the forests, b) explain and identify the wildlife (birds and animals), and c) explain questions regarding the plants, animals and the culture of the local people. The current level of training is inadequate.
14. Facilities like hotels need to be built around the forests with provision that they can enter into the forests easily. At the same time, activities inside the parks will increase, to ensure that people prefer to stay overnight while visiting the parks. This will become a vehicle to increase income of the local people who are likely to be employed in these facilities.
15. Part of the entry fee shall be distributed among the local forest people as reward for protecting the forests.

## Appendix T1. Recreational Demand Function and Revenue Generating Function for Site Operators

Figure 5.1 shows that using the relationship between travel cost and distance, and using the relationship between visitors and distance, it is possible to find a demand curve for tourism to a particular site.

**Figure 5.1. Understanding the Demand for Tourism**



Using the estimated elasticity of demand from above, it is possible to find a) the number of visitors to a site for a given entry fee and b) the entry fee at which the management of the site will receive maximum revenue. Analytically, it can be shown in the following equation

$$R = E \cdot V \text{ where } V = (a - b(TC + E))$$

where  $E$  is the entry fee,  $a$  and  $b$  are the parameters of the demand function calibrated through the actual data points and  $TC$  is the actual average travel cost for a site from a zone.

In theory it is possible to use the above equation to find  $V$  for each value of  $E$  and it is also possible to find  $E^*$  at which the revenue earnings could be maximized. This is shown in the following diagram it shows that for two sites 1 and 2 (for example). It shows that at an entry fee of  $E^*$  and  $E^{**}$  revenue earnings will be maximized for site 1 and site 2 respectively (Figure 5.2).

**Figure 5.2. Determination of Entry fee from a Revenue Generating Function**

