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Improvement of ecotourism industry: A study on Mirsharai and Sitakunda in Chattogram, Bangladesh

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ABSTRACT

This study's principal aim was to represent the current status and future prospects of ecotourism industry at Mirsharai and Sitakunda in Chattogram, Bangladesh. The study revealed that Inland transportation was the highest service provider in number through the whole ecotourism spots in the project areas except Sitakunda Eco-park. The average primary income per annum of the service provider was BDT 11855223.9±817433.0 and BDT 12180952.4 ±1318722.7 for Sitakunda and Mirsharai, respectively. On the other hand, the benefit-cost (B/C) ratio showed that all the green businesses were beneficial from their inception. The highest number of visitors per day in Guliakhali beach in season and offseason, was 2040.9±441.1 and 550.0±184.5, respectively. Most of the visitors did not have any disturbance on flora, fauna and aquatic ecosystem. The critical factors which hinder the ecotourism development were retarding the number of visitors and diminish the satisfaction of the tourists visiting the spots. The essential supports needed are electricity, dustbin, quality restaurant, park for children, washroom facility, sitting bench, road improvement, loan facility etc. It was predicted that ecotourism industry would be added value to the Bangladeshi economy if a proper integrated plan and strategy can be built in the study areas and implemented for this purpose. This study will also be useful in monitoring and evaluating the project on ecotourism development in the areas.

Key Words: Ecotourism, Eco-park, Industry, Development and Bangladesh.

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I. Introduction

Globally, the tourism industry is considered one of the most prospectus and promising sectors for continuous employment generation, community engagement, and poverty reduction (Ahmed, 2013;

Brandt and Buckley, 2018; Gunter et al., 2018). To boost this sector, the Government of Bangladesh is also undertaking different policy initiatives now. Likewise, by the updated Tourism Policy 2009, sustainable tourism has been prioritized in the national interest to promote wildlife and nature based tourism industry (Hassan and Burns, 2014). The first step of this policy was to promote ecotourism in some selected Protected Areas (PAs) of Bangladesh. Though Shamsuddoha and Nasir (2011) claimed standard protocols of ecotourism are barely practiced in Sitakunda Eco-park due to infrastructure and other associated facility insufficiencies.

However, Bangladesh is a sub-tropical country with rich biological diversity and scenic beauty due to its favorable geophysical location (Hossain et al., 2018; Hossen and Hossain, 2018; Mamnun and Hossen, 2020). Different forms of tourism, including nature-based tourism, research based tourism, culture based tourism, and ecotourism, are quite evident in this country (Chowdhury and Koike, 2010; Tuhin and Majumder, 2011). Currently, only a few selected sites in Bangladesh are recognized as tourism spot, topping with the Sundarbans and the Cox's Bazar. While there are many other officially unrecognized places, local travelers like to visit and appreciate. Such spots are the Sitakunda and Mirsharai belt. Now a day, the increasing tourist volume is letting the decision makers rethink and pay attention to developing the tourism sector in these areas. Along with domestic travelers, these spots are now also luring foreign tourists. Ensuring minimum requirements, the tourism industry might be boosted in Mirsharai and Sitakunda (Tuhin and Majumder, 2011; Ahmmed, 2013).

This study shows the baseline on the access and availability of eco-friendly tools, equipment, goods, and services in the project area (project implemented by YPSA, Chattogram and funded by PKSF, Dhaka). It also focuses on the identification of the green business skills, the requirement of private sectors in creating more services in the area, finding out the significant factors and policies that hinder in promoting green business in the area, conducting a cost-benefit analysis (CBA) of existing different businesses and provide necessary recommendations to develop ecotourism industry in Mirsharai and Sitakunda. This study will monitor and evaluate the project on ecotourism development in Mirsharai and Sitakunda.

II. Materials and Methods

Study Area

Sitakunda is one of the tourists attracting Upazila under Chattogram district, occupying an area of 483.97 Km². Geographically, it lies between 22°22'-22°42' N latitudes and 91°34'-91°48'E longitudes. In consideration of administrative setup, Sitakunda occupies one urban settlement and ten unions. Mirsharai (22°46.3'N latitudes and 91°34.5'E longitudes) is also essential for serving many tourist spots and as an exclusive economic zone. Mirsharai consists of one urban center and 16 unions (Bangladesh Economic Zones Authority, 2014). Major tourist spots of Sitakunda and Mirsharai Upazilas are mapped out in Figure 01. These two Upazilas are bordered in the North by Feni River, South by the Karnaphuli River, East by the Halda River and the Sandwip channel in the West.

Sampling

An exploratory stratified socio-economic baseline study was conducted in Mirsharai and Sitakunda Upazila under Chattogram district from November, 2018 to October, 2019. It was covered service provider surveys, Focus Group Discussion (FGD) and Key Informants' Interview (KII). In the service provider survey, a man in charge of the specific service provider (Individual or Organization) was the respondent. A semi-structured questionnaire was used for collecting data from the service providers. The sample size was 80. The FGD and KII were conducted to identify the prospects and challenges of the ecotourism leading to ecotourism improvement suggestions.

For each Upazila, one focus group discussion was conducted. School teacher, head of the religious institutes, businessman (Food shop or stall, hotel, and restaurant authority), local government members, and local political leaders were the focus group discussion members. A total of 10 (in Sitakunda) and 11 (in Mirsharai) members carried out the discussion. A total of 14 key informants' were interviewed. It was covered Forest Department (FD) officers, officers from the police department, local leaders, school teachers, religious leaders, tour operators, rent-a-car representatives and leaseholders.

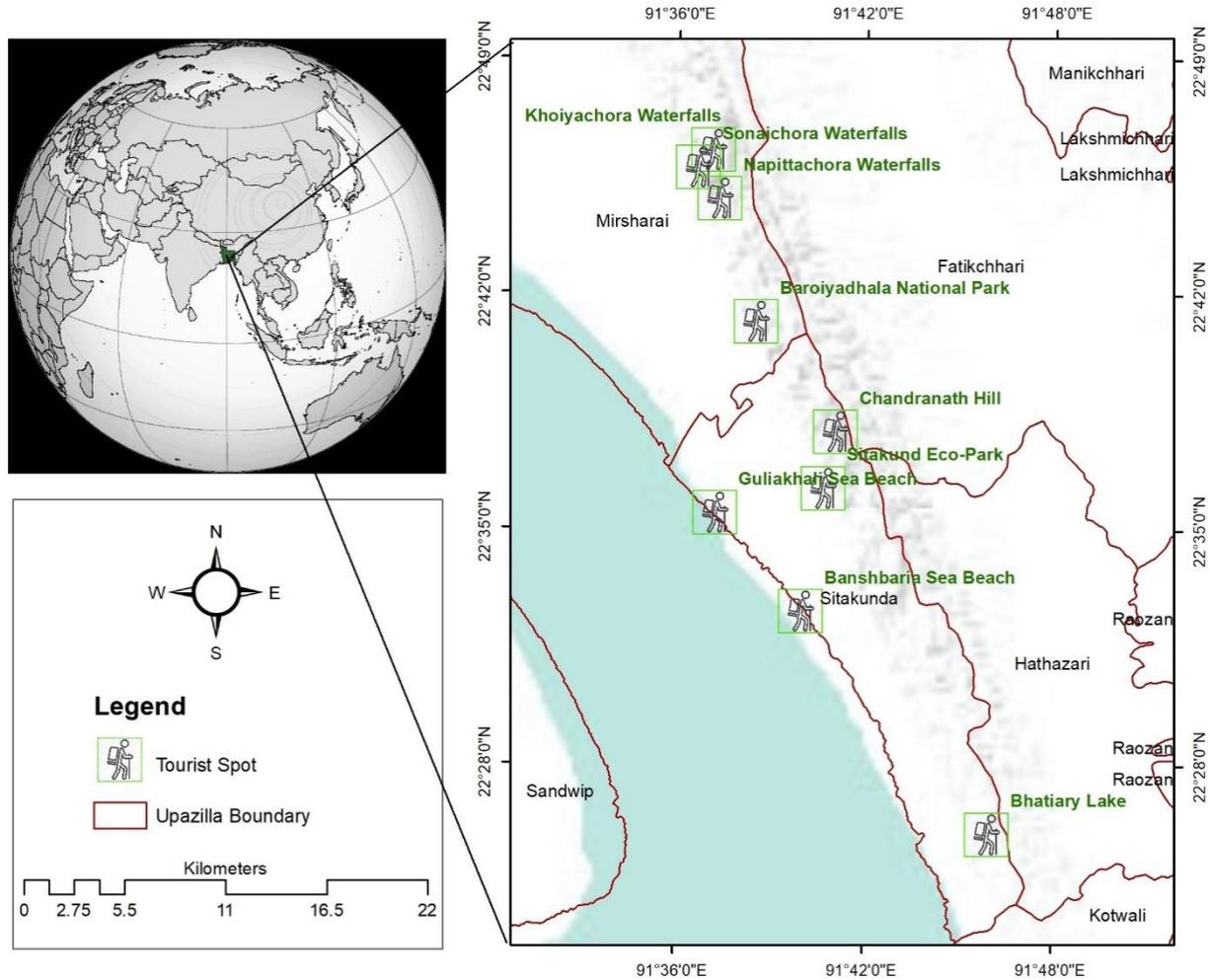


Figure 01. Tourist spots in Sitakunda and Mirsharai Upazila in Chattogram District.

At first the service providers nearby the tourist-spots were identified. The required number of samples was selected by randomization. The sample size was determined by using the following formula (Cochran, 2007).

$$\text{Initial sample size } (n_0) = \frac{Z^2 pq}{e^2}$$

$$\text{Final sample size } (n) = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Here,

n_0 = Sample size.

Z = Level of confidence (at 95% confidence level the value of $z = 1.96$)

p = Estimated proportion of an attribute that present in the population ($p = 0.5$) and q is $1 - p$.

e = Margin of error to be attained (here $\pm 10\%$).

N = Number of population.

Data analysis

The existing green business's cash flows were collected on both costs and benefits from the starting year to the present year (2018). After collecting the data, the data were analyzed for NPV (Net Present Value) using the standard bank rate (5%) of Bangladesh Bank. Five green businesses were evaluated for NPV. After finding the NPV, the benefit-cost ratio was calculated for each green business. The NPV was calculated as below (Mishan, 1976);

$$NPV = \sum_t \frac{B_t - C_t}{(1 + r)^t}$$

Where,

B_t = Benefit at time t; C_t = Cost at time t; r = Interest rate (%); t = period to be considered.

As the existing green business was evaluated at present, the cost and benefits were evaluated using the compounding rule as below

$$FV = P(1+r)^t$$

Where,

FV= Future value; P= Present value; r= interest rate (%); t= period to be considered.

On the other hand, it was calculated the Mean along with Standard Error (S.E.) of mean for scaled socio-economic vectors. The percentage of multiple responses also been summarized. To do such analysis, the data were fed into the Excel Spreadsheet and SPSS package of IBM.

III. Results and Discussion

Service providers in the project/study areas

The covered ecotourism areas were Chandranath Hill and Temple, Guliakhali Beach, Kumira Ghat, Mohamaya Lake, Ruposhi Spring, Sitakunda Eco-park, Sohoshradhara Waterfall, and Vatiary Lake. Among them, Mohamaya Lake was situated in Mirsharai and others were in Sitakunda. More to mention that Ruposhi spring and Sohoshrodhara waterfall represent the Baraiyadhala National Park in the side of Northern and Southern respectively. The study revealed that total service providers in Mirsharai and Sitakunda were 165 and 1003, respectively. The categories of services were Inland transportation, Food, Guide, Tools and equipment¹, Boat, Washroom, Camera, and Site management. Inland transportation was the highest service provider in number through the whole ecotourism spots in the project areas except in Sitakunda Eco-park. This was 26±6.3 (Food), the highest in Sitakunda Eco-park (Table 01), while the second most frequent service providers in all the ecotourism spots except Sitakunda eco-park were 62±6.2 (Boating) in Mohamaya lake, 30±8 (Food) in Chandranath Hill and temple, 12.4±1.6 (Food) in Guliakhali beach, 26.6±5.5 (Food) in Kumira ghat, 14.6±1.1 in Ruposhi spring, 28.7±2.8 (Guiding) in Sitakunda eco-park, 5.6±1.1 (Food) in Sohoshradhara waterfall and 0.3±0.1 (Food) in Vatiary lake.

Table 01. Service providers in the ecotourism development areas in Sitakunda and Mirsharai of Chattogram

Upazila	Tourist spots*	Total household involved	Total service provider	Inland transportation	Food	Guide	Tools and equipment	Boat	Washroom	Camera	Site management
		Mean± S.E.	Mean±S.E.	Mean±S.E.	Mean±S.E.	Mean±S.E.	Mean± S.E.	Mean± S.E.	Mean± S.E.	Mean± S.E.	
Mirsharai	4	237.0±82.7	165.4±21.6	66.5±21.3	19.0±3.3	-	0.1±0.1	62.0±6.2	0.2±0.2	3.7±0.6	0.04±0.04
	1	96.3±23.1	139.0±37.2	40.0±3.3	30.0±8.0	-	6.3±1.2	-	-	-	-
Sitakunda	2	95.5±9.6	122.7±17.3	70.0±7.5	12.4±1.6	-	-	4.2±1.8	-	-	0.9±0.9
	3	315.0±31.5	357.0±31.4	252.0±36.1	26.6±5.5	-	-	1.2±0.7	-	-	20.0±13.8
	5	45.3±9.1	59.8±8.5	20.4±2.0	6.6±0.9	14.6±1.1	-	-	-	-	-
	6	110.0±37.6	192.5±82.8	21.7±2.8	26.0±6.3	4.0±2.0	-	-	-	-	-
	7	31.1±8.9	30.4±3.7	18.1±3.1	5.6±1.1	1.1±1.1	-	1.1±0.6	-	-	-
	8	91.9±10.1	101.3±8.4	95.8±9.1	0.3±0.1	-	-	-	-	-	-

[Here, *1= Chandranath Hill and Temple, 2= Guliakhali Beach, 3= Kumira Ghat, 4= Mohamaya Lake, 5=Ruposhi Spring, 6= Sitakunda Eco-park, 7= Sohoshrodhara Waterfall, 8=Vatiary Lake]

In Mohamaya Lake, about 43.5% of service providers were involved with food supply, followed by 39.1% with transportation, including boating (Table 02). In Chandranath Hill and Temple, about 52.5% were involved with food supply, followed by 12.5% with Priesthood, Transportation and Site management separately. It was also found that about 54.5% were involved with food supply in Guliakhali beach, followed by 27.3% with transportation. In Kumira Ghat, about 40% were involved

¹This category includes service providers who offer safe locker service for the tourists. Tourist might keep their valuable baggage or other belongings within a safe and secure facility. Currently, only few service providers use bamboo made shelf or locally made wooden wardrobe to offer this service. Also, this service includes renting bamboo sticks to aid hiking in sloppy areas. Moreover, some service providers are equipped with DSLR camera to offer photo-shoot to the tourists.

with both food supply and transportation followed by 20% with job. In Ruposhi Spring, about 57.1% were involved with tour guiding followed by 42.9% with food supply.

On the other hand; In Sitakunda Eco-park, about 50% was involved with food supply, followed by 16.7% with Priesthood, Transportation and Farming. In Sohoshrodhara Waterfall, about 55.6% was involved with transportation, followed by 33.33% with food supply. The study also found that about 66.7% of respondents did not have any involvement with any service to the tourists in Vatiary Lake where 16.7% were involved with food supply (indirectly) and transportation separately (Table 02).

Table 02. Profession of the respondent service providers in Mirsharai and Sitakunda of Chattogram

Upazila	Tourist Spots	*Existing services (%)								
		0	1	2	3	4	5	6	7	8
Mirsharai	Mohamaya Lake	0.0	43.5	13.0	0.0	39.1	0.0	0.0	0.0	4.3
Sitakunda	Chandranath Hill and Temple	0.0	62.5	0.0	12.5	12.5	0.0	0.0	12.5	0.0
	Guliakhali Beach	0.0	54.5	0.0	0.0	27.3	0.0	0.0	9.1	9.1
	Kumira Ghat	0.0	40.0	0.0	0.0	40.0	0.0	0.0	0.0	20.0
	Ruposhi Spring	0.0	42.9	0.0	0.0	0.0	57.1	0.0	0.0	0.0
	Sitakunda Eco-park	0.0	50.0	0.0	16.7	16.7	0.0	16.7	0.0	0.0
	Sohoshrodhara Waterfall	0.0	33.3	0.0	0.0	55.6	0.0	0.0	11.1	0.0
	Vatiary Lake	66.7	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0

[*0= No involvement, 1= Food supply, 2= Accessories provider, 3= Priesthood, 4= Transportation, 5=Guide, 6= Farming, 7= Site management, 8= Job]

Income from the service providers

The study revealed that the average primary income per annum of the service provider was BDT 11855223.9±817433.0 and BDT 12180952.4±1318722.7 Sitakunda and Mirsharai, respectively. The secondary income of the service provider per year was BDT 16492.5±3098.4 and BDT 27000.0 ±12036.5 for Sitakunda and Mirsharai, respectively. It was also depicted that the major primary income source for both Sitakunda (32.8%) and Mirsharai (57.1%) was business². The major secondary income source in Sitakunda was also business (61.5%) while it was Foreign Service (44.4%) in Mirsharai (Table 03).

Table 03. Income from the service providers in Sitakunda and Mirsharai of Chattogram

Type	Upazila	*Income source (%)									Member involved Mean±S.E.	Annual Income (BDT) Mean ±S.E.
		1	2	3	4	5	6	7	8	9		
Primary	Sitakunda	10.4	17.9	32.8	3.0	20.9	10.4	1.5	1.5	1.5	1.1±0.0	11855223.9 ±817433.0
	Mirsharai	0.0	4.8	57.1	0.0	28.6	9.5	0.0	0.0	0.0	1.0±0.0	12180952.4 ±1318722.7
Secondary	Sitakunda	7.7	23.1	61.5	0.0	3.8	3.8	0.0	0.0	0.0	1.1±0.1	16492.5 ±3098.4
	Mirsharai	0.0	22.2	11.1	0.0	11.1	0.0	44.4	0.0	11.1	0.8±0.8	27000.0 ±12036.5

[*1= Day labor, 2= Farming, 3= Business, 4= Religious leader, 5= Driving, 6= Service³, 7= Foreign service, 8= Fishing, 9=Others]

Benefit Cost (B/C) analysis

The study depicted that the engine boat, Bivatek Rikshaw, Pedal boat, Shop and CNG taxi were considered green business in the project area. The B/C ratio showed that all the green businesses were beneficial from the time of their inception. Pedal boat derived the most profits (B/C ratio: 3.60) with net worth BDT 3605823 to the provider. The B/C ratio for Engine boat, Bivatek Rikshaw, Shop and CNG taxi were 1.62, 1.36, 1.3 and 1.68, respectively (Table 04).

²Business in the tourist spots includes all kind of permanent or temporary shops. Most of these shops offer dry foods and snacks (For example- Chips, Cakes, Fruits, Biscuits, Bread, and Water) in the tourist spots. Some others temporary hawkers may offer cigarettes, peanuts, crispy puffed rice, fuska and chotpoti.

³Service includes site management, lineman, guard, ticket selling and parking in-charge.

Visitors in the tourist spots

The study depicted that the highest number of visitors per day in Guliakhali beach in season and offseason was 2040.9 ± 441.1 and 550.0 ± 184.5 , respectively. The lowest number of visitors per day was found in Sohosrodhara waterfall. The visitor present in the Chandranath Hill and Temple in special occasion (Shiva Chaturdashi Mela) was 1068750.0 ± 309800.8 , which was the highest number in all the tourist spots (Table 05). It was also found that the tourists mostly visited Mohamaya lake, Guliakhali beach, Kumira ghat and Vatiarylake during Eid vacation.

Table 04. Benefit-cost ratio (B/C) analysis of green business

Green business	B/C ratio	Net worth	Years of net worth
Engine Boat	1.62	591662.00	9
Bivatek Rikshaw	1.36	95340.00	4
Pedal Boat	3.60	3605822.50	3
Shop	1.30	936947.36	10
CNG taxi	1.68	696419.36	4

Table 05. Visitors in the tourist spots in Mirsharai and Sitakunda of Chattogram

Upazila	Tourists spots	Season (Month-Month)	Visitors/day in season	Visitors/day in offseason	Visitors in special case	Special occasion name (%)		
			Mean \pm S.E.	Mean \pm S.E.	Mean \pm S.E.	Eid	Government holiday more than 3 days	Shiva Chaturdashi Mela
Mirsharai	4	Dec-Apr	2013.0 \pm 143.5	323.5 \pm 47.4	28260.9 \pm 1771.8	100.0	0.0	0.0
Sitakunda	1	Oct-May	521.3 \pm 105.5	132.5 \pm 29.1	1068750.0 \pm 309800.8	0.0	0.0	100.0
	2	Nov-Feb	2040.9 \pm 441.1	550.0 \pm 184.5	14909.1 \pm 2029.1	100.0	0.0	0.0
	3	Jan-Dec	590.0 \pm 62.0	N/A	17000.0 \pm 2000.0	100.0	0.0	0.0
	5	Apr-Aug	621.4 \pm 88.0	130.0 \pm 22.1	14357.1 \pm 1443.5	78.6	21.4	0.0
	6	Jan-Mar	566.7 \pm 102.2	171.7 \pm 66.4	200000.0 \pm 28867.5	0.0	100.0	0.0
	7	Mar-Jun	237.8 \pm 28.1	50.0 \pm 7.3	51000.0 \pm 22725.4	0.0	11.1	88.9
	8	Jan-Dec	870.8 \pm 88.2	N/A	107500.0 \pm 43656.3	100.0	0.0	0.0

Tourists' prior knowledge on tourist spots and disturbance on flora and fauna

Most tourists (91.3%) visiting Mohamaya Lake opined that they had 'somehow' knowledge of the given tourist spot before the visit. More than 90% of tourists did not disturb flora, fauna, and aquatic ecosystems (Table 06). About half (50%) of the tourists had excellent knowledge of Chandranath Hill and the temple before the visit. Of the tourists visiting Chandranath Hill and temple, about 62.5% did not disturb flora, and about 50% had moderate disturbance on fauna, especially the monkey. On the other hand, in Guliakhali beach visiting tourists of 54.5% had 'somehow' knowledge on this spot before visiting. Most of the visitors in Kumira Ghat, Ruposhi Spring, Sitakunda Eco-park and Sohosrodhara Waterfall had prior knowledge of ecotourism. Most of them did not find disturbing to the flora, fauna and aquatic ecosystem (Table 06).

However, it's expected that tourists gathering in/near any water body may slightly pollute water, which was happening in the Mohamaya Lake of Mirsharai. Tourists were not causing water pollution directly but the oil spillage from tourists' transportation through engine-trawler, causing water pollution. However, the good thing was as the spring water continuously added to the lake in a year or two, a considerable amount of water of the lake was being replaced with new water. Consequently, tourists' volume was not changing the water quality significantly (Source: FGD in Mirsharai). In other tourist spots of Sitakunda, tourists were not causing any considerable pollution (Source: FGD in Mirsharai and Sitakunda).

On the other hand, fish availability was significantly reduced in Mohamaya Lake, according to the persons who catch fish with a hook to satisfy their hobbies. Officer of the Bangladesh Forest Department cited that the Fishery Department used to release fish fry in the lake a few years back every year but stopped this practice. So, fish was only exploited, not gap-filled in the lake. Every day,

about 4-5 hooks in each fishing-hotspot (≥ 8) were being allotted for fishing in Mohamaya Lake (Source: KII in Mirsharai).

Table 06. Tourists' prior knowledge on tourist spots and disturbance on flora and fauna in Mirsharai and Sitakunda of Chattogram

Upazila	Tourists spots	Tourist's prior knowledge on ecotourism (%)			Disturbance on flora (%)			Disturbance in fauna (%)			Disturbance on aquatic ecosystem (%)		
		Excellent	Somehow	Do not know	Highly	Moderately	No disturbance	Highly	Moderately	No disturbance	Moderately	No disturbance	
Mirsharai	4	4.3	91.3	4.3	0.0	4.3	95.7	0.0	4.3	95.7	8.7	91.3	
Sitakunda	1	50.0	37.5	12.5	0.0	37.5	62.5	12.5	50.0	37.5	50.0	50.0	
	2	45.5	54.5	0.0	0.0	9.1	90.9	0.0	0.0	100.0	18.2	81.8	
	3	20.0	40.0	40.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	100.0	
	5	23.1	76.9	0.0	7.7	15.4	76.9	0.0	7.7	92.3	30.8	69.2	
	6	0.0	100.0	0.0	0.0	0.0	100.0	0.0	16.7	83.3	50.0	50.0	
	7	33.3	55.6	11.1	0.0	0.0	100.0	0.0	0.0	100.0	11.1	88.9	
	8	0.0	33.3	66.7	0.0	0.0	100.0	0.0	0.0	100.0	18.2	81.8	

Factors hindering the ecotourism development and tourists' satisfaction

The critical factors which hinder the ecotourism development were insufficient security, inadequate washroom/Change room, rough road condition, absence of drinking water supply, accommodation shortage, sitting facilities absent, inadequate publicity, extra transportation charge, low-quality restaurants, weak mobile network and disturbance to agriculture (Table 07). The primary factor hindering was inadequate washroom facility in Mohamaya Lake. About 43% of respondents opined that it was a significant factor that hinders ecotourism development. In Sitakunda, about 23% of respondents espoused that lack of security and bad road conditions hindered ecotourism development (Table 07). These factors showed the tourist spots' problems and limitations retard the number of visitors in the spots. It also diminished the satisfaction of the tourists visiting the spots.

Table 07. Perception on factors hindering the ecotourism development and tourists' satisfaction in Mirsharai and Sitakunda of Chattogram

Factors hindering	Mirsharai (%)	Sitakunda (%)
Security	9.5	23.1
Washroom/Change room	42.9	16.5
Bad road condition	0	23.1
Water supply	4.8	7.7
Accommodation/night staying	28.6	6.6
Sitting bench	0.0	2.2
Lack of publicity	4.8	3.3
Transportation	0.0	3.3
Lack of quality restaurant	9.6	1.1
Mobile Network	0.0	3.3
Disturb to agriculture	0.0	3.3
Permission to access	0.0	1.1
Tourist guideline	0.0	1.1
Many does not take guide	0.0	1.1
FD does not allow permanent shop	0.0	1.1
Weak management	0.0	2.2
Total	100.0	100.0

Supports needed to service providers

The study also depicted the critical supports needed in Mirsharai and Sitakunda, such as electricity, dustbin and quality restaurant, park for children, washroom facility, sitting bench, road improvement, and loan facility. The respondents espoused that electricity (21.9%) and sitting bench/chair (18.8%) were necessary as a support to the service providers in Mirsharai (Table 08). It was also found that maximum respondents opined the loan's essential (11.8%) and good road condition (11.8%) in Sitakunda.

Table 08. Supports needed to service providers in Mirsharai and Sitakunda of Chattogram

Support	Mirsharai (%)	Sitakunda (%)
Steel stick	0.0	2.4
Steel locker	0.0	3.5
Electricity	21.9	10.6
Good management	0.0	2.4
Security	0.0	7.1
Road improvement	0.0	11.8
Publicity	3.1	2.4
Loan	0.0	11.8
Transport	0.0	4.7
Guide training and identity	0.0	7.1
Fruit shop	3.1	0.0
Dustbin	15.6	0.0
Road access to waterfall/Trail	0.0	2.4
Drinking water facility	0.0	3.5
Good restaurant	9.4	3.5
Stair	0.0	1.2
Park for children	12.5	1.2
Washroom	12.5	5.9
Parking	3.1	4.7
Bench/chair	18.8	4.7
Fixed rate for tour guide	0.0	1.2
Camping materials for night staying	0.0	3.5
Solar light	0.0	1.2
Permission	0.0	3.5
Total	100.0	100.0

Suggestion to improve the tourist spot

The study suggests improving the adoption of entry fees, dustbin, informative banners, road development, washroom, pure drinking water, tourists' guidelines, and seating bench with an umbrella in tourist spots. In Mirsharai, maximum respondents suggested that dustbin (23.3%) and informative banners (14%) can improve the tourist spots and enhance the visitor numbers in the spots (Table 09). Maximum respondents suggested that washroom facilities (14.7%) can enhance visitors' numbers in the spots.

In most cases, private investors in all the tourist spots were invested in food items either in the permanent shop or as a hawker. According to the service providers and local leaders, night staying facility by camping materials might be an excellent option to explore. In their language, they barely knew from where they can buy camping materials. Besides, they wanted to provide some beach sitting bench, especially in Guliakhali Sea Beach. For washroom facilities in all the tourist spots, private investment may be attracted. Any start-up facility, including donating, sponsoring or loan, might be warmly welcomed there.

The study also revealed that tour operators were interested in arranging tours for local and foreign tourists in Sitakunda and Mirsharai. They were concerned with the security and washroom facility. Camping equipment and facility might be added extra weight in tourist spots of Sitakunda and Mirsharai. On the other hand local people were not interested in offering home-staying facilities due to religious and social acceptance. Only a camping facility might be a viable option. Such facilities might

be promoted and rented in three different options: by local renting providers, by tourist operators, and by an online platform like Air-bnb.

Table 09. Suggestions to improve the tourist spots in Mirsharai and Sitakunda of Chattogram

Suggestions to improve the tourist spots	Mirsharai (%)	Sitakunda (%)
Adopt entry fee	9.3	5.3
Tourist guideline	7.0	11.6
Dustbin	23.3	11.6
Informative banners	14.0	7.4
Commitment	7.0	3.2
Road development	9.3	9.5
Washroom	11.6	14.7
Pure drinking water	7.0	4.2
Security	2.3	6.3
Sitting bench with umbrella	2.3	11.6
Publicity	2.3	3.2
Camping materials	2.3	1.1
Watch tower	2.3	2.1
Parking	0.0	1.1
Night staying	0.0	3.2
Trail	0.0	2.1
Solar /electricity	0.0	1.1
Mosque	0.0	1.1
Total	100.0	100.0

IV. Conclusion

It concluded that easy means of the communication facility, diversity of natural environment, and population diversity had made Mirsharai and Sitakunda attractive places for domestic and foreign tourists. It can be ensured sustainable ecotourism in these areas with the help of the participating of local people. This way, it can be possible to improve local communities and meet the demands from the thrust of tourists and ensure the protection of the environment and the development and empowerment of the local people. However, it needs further refinement of its housing facilities, restaurant, electricity, accommodation facilities, security, amusement facilities, well-equipped transportation, extension of areas etc. Lack of literacy about the concept of ecotourism creates a hindrance to this sector. Practicing proper knowledge to the households who directly participate in this sector may increase this sector's revenue. It may be possible to improve the livelihood status of households who directly participate in this sector. Finally, it can be predicted that ecotourism industry may add value to the Bangladeshi economy if a proper integrated plan and strategy can be built in the project areas (Mirsharai and Sitakunda) and implemented.

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