

IMPROVEMENT OF URBAN TOURISM: ANALYZING THE FACTORS OF TRANSPORTATION NETWORK FOR VISITORS IN CHATTOGRAM, BANGLADESH

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ABSTRACT

Transportation has been recognized as part of the country's development through communication. But transportation facilities for tourists have been disregarded in most of the developing countries. Existing transportation system of Chattogram city in Bangladesh doesn't provide enough facilities and safety. Domestic and overseas visitors use Chattogram as a transit point to reach their recreational destination of four tourist cities; Rangamati, Khagrachari, Bandarban and Cox's Bazar. Since no public transport facilities are provided, it is creating an adverse effect on the tourists and the transport sector. As the number of tourists growing every year, urban tourism should be planned as per people's demand and tourist attraction. For this study literature review, field survey, disclosed existing condition, data collection, data analysis, questionnaire, findings and discussion, and recommendation have been done. By following these steps origin and destinations, terminal facilities, vehicle condition and fitness, highway capacity and conditions, tourist satisfaction data have been collected. This paper provides the improvement of urban tourism of Chattogram city through proper transport planning. It also overviews the present condition of urban tourism and tourist experience in this city. Proper planning in tourist transportation in Chattogram needs to be developed by providing geometric design, widening highways, construction of bypass road, tourist facilities and better sight distance.

Keywords: *Urban tourism, Transportation planning, Factors, Improvement, Visitors.*

1. INTRODUCTION

Transportation connects various destination with people. Tourism can be defined as travelling to various destinations. Transportation plays a vital role in tourism. With the growing development of transportation, tourism has expanded. Culpan (1987, p 546) defined transportation as important ingredients of the international tourism system acknowledging that land, air , sea modes are important with the availability of support service like fuel stations, repair centre and hotels for land travel. Transportation planning is defined as planning required in the operation, provision and management of facilities and services to provide safer, faster, economical, convenient movement of goods and people. Chattogram is the prime tourist destination of Bangladesh which connects hill districts and Bay of Bengal. But the transportation facilities for tourist in these routes are inadequate. These routes play vital role in tourism sector of Bangladesh. For a tourist area, an well planned transportation system is an essential infrastructural bridge between tourist origin and destination place. Chattogram is used as a transit point for visitors. People of different destinations interchange transportation modes here. But the transportation facilities are unwholesome for visitors. The fitness of buses are not good. Lacking of leg space, comfortable seats are evident. Terminals do not provide enough facilities like seating, public toilet for both male and female, locker room for baggage, prayer room, emergency medical facilities, vehicle repair and parking facilities. After analysing all factors this study was conducted. The purpose of this paper is to increase accessibility to tourist districts. Also analysing road network and development proposals, increasing terminal facilities, vehicle fitness improvement is suggested in this study. It will encourage visitors and enhances their comfort. Also tourism sector can be developed by implementing these suggestions.

2. METHODOLOGY

Methodology means the procedure in which the study is accomplished. It is the combination of some necessary steps to fulfill the study. A methodology has been selected for analyzing and improving the transportation network of the study area. Design strategies are based on these key features described below:

- Literature review
- Field survey
- Disclosed the existing situation
- Data collection
- Data analysis
- Questionnaire
- Findings and Discussion
- Recommendation

2.1 Literature Review

Literature review on improving and analysis transportation network have been collected from previous research works, articles and newspapers

2.2 Field Survey

Field surveys were conducted to collect information on 27 may, 9 June, 14 July, 8 September 2019 onwards. The surveys were conducted in Bahaddarhat bus terminal, Oxygen junction , Shah Amanat Karnaphuli Bridge area of Chattogram.

2.3 Disclosed the Existing Situation

On field survey disclosed the existing situation in the selected areas. Existing vulnerable conditions of transportation networks are noted.

2.4 Data Collection

Various data have been collected in regard to the study. Existing area plan from Chittagong Development Authority (CDA) and on field survey. Some secondary data are collected from research work, papers and projects.

2.5 Data Analysis

After collecting all data and information analysing of data is conducted. Existing conditions were judged, problems were identified. Comparing the existing data proposals are given.

2.6 Questionnaire

To conduct the study a questionnaire is prepared in a systematic way. It helps to collect information and suggestion from occupied people in this area.

2.7 Findings and Discussion

This study conducts some discussion on the problems of the transportation network. They are:

- Origin and Destinations
- Vehicle condition and fitness
- Terminal facilities
- Highway capacity and conditions
- Tourist satisfaction

2.8 Proposal

Proposals are given after judging the existing transportation condition.

3. STUDY AREA

In Study area A, Boddarhat Bus Terminal is the biggest bus terminal of Chattogram. This bus terminal connects Cox's Bazar and Bandarban hill districts. It also includes buses of South Chattogram

In Study area B, Oxygen Bus station which is the prime route for two hill districts Khagrachari and Rangamati.

In study area C, Shah Amanat Bridge bus station (locally known as notun bridge bus terminal), which is the connection bus station of Boddarhat bus terminal. Includes buses of Cox's Bazar, Bandarban and South Chattogram.



Figure 1: Study area A, B, C (From left to right) (Source: Google Map, 2019)

4. FINDINGS AND DISCUSSIONS

4.1 Origin and Destination

Route 1 (Chattogram to Cox's Bazar):

Cox's Bazar having the largest sea beach in the world is the prime tourist attraction around Bangladesh. Direct bus services available here are Marsa transport, Soudia Paribahan, S.alam. Also some local bus services are also available in this route. This journey takes three to four hour. Some buses provide hotel break in mid time. These are direct closed door service having ac and non ac facilities every hour. Also there are some other local transport companies in this route.

Route 2 (Chattogram to Bandarban) :

There are only two major bus companies that are servicing; Purbani and Pubali. Also some local bus services are available but inadequate in number. It takes almost three and half an hour to reach there. The buses don't provide any hotel breaks.

Route 3 (Chattogram to Rangamati) :

One bus operator is providing service in this route; Paharika super service. Others are some local bus operators. It takes around two and half an hour to reach. The buses don't provide any hotel break.

Route 4 (Chattogram to Khagrachari) :

Shanti paribahan is servicing in this hill route. They have bus trips every hour. They provide twenty minutes hotel break in this three to four hours journey.

Table 1: Bus Service Information (Source: On field Survey, July 2019)

Route	Bus Operator	Counter Location	Bus Type	Hotel Break Location	Number of Buses
1	Marsa	Bahaddarhat, Notun Bridge	Direct/ Non ac	No break	90+
	Soudia	Cinema palace, Dampara, Bahaddarhat, Notun Bridge	Direct/ Non ac	Chakaria	70+
	S.alam	Cinema palace, Dampara, Bahaddarhat, Notun Bridge	Direct/ Non ac	No break	50+
	Relax Transport	Bahaddarhat, Notun Bridge	Direct/ Non ac/ Ac	Chakaria	20+
2	Purbani	Bahaddarhat, Notun Bridge	Direct/ Non ac	No Break	20+
	Pubali	Bahaddarhat, Notun Bridge	Direct/ Non ac	No Break	15+
	BRTC	Bahaddarhat	Direct/ Ac	No Break	10+
3	Paharika	Oxygen	Direct/ Non ac	No break	20+
4	Shanti Paribahan	Oxygen	Direct/Non ac	Matiranga	30+

4.2 Terminal Facilities

Bus terminal facilities are included in the following table.

Table 2: Terminal Facilities (Source: On field Survey, July 2019)

Facilities	Bohaddarhat	Oxygen	Notun Bridge
Loading and Unloading	Yes	No	No
Servicing and Repair	Yes	No	No
Parking	No	No	No
Toilet	Yes	No	Yes
Locker room	No	No	No
Medical Service	No	No	No
Cafeteria	No	No	No

4.3 Vehicle Condition and Fitness

The condition of buses of Cox's Bazar route is comparatively good. The bus operator replaces old buses almost every two years. Tourists get adequate comfort in the journey. The bus condition of Bandarban route is not that good. Inadequate leg spaces, fans and suspension don't provide better comfort to the tourist. The bus condition of Khagrachari routes is also same as Bandarban route. The buses running in the roads are minimum 5 to 7 years old. In Rangamati route the condition and fitness of buses are comparatively low. It creates a hectic situation for tourists.

4.4 Highway Condition

Table 3: Highway Condition (Source: On field Survey, August 2019)

Route	Length (K.M.)	Condition	Traffic Congestion
1	142	Good, Curves	High
2	71	Good	Average
3	71	Average	Low
4	115	Good, Hilly	Low

4.5 Highway Capacity

Using the formula,

$$C = \frac{1000 \times v}{s}$$

Where, C = Capacity of single lane vehicles per hour

v = speed (km/h)

S = Average centre to centre spacing of vehicles (meter), When they follow one behind the other on a queue or space headway (m)

Thus, Capacity depends upon speed and spacing.

Numercially, Spacing, S= Sg+L

Again, Sg = 0.278v.t

Where, Sg= Space gap(head to rear) between vehicles.

L= Average Length of vehicles

V= speed (km/h)

t= Total reaction time of driver equally assumed equal to 0.70 to 0.75

Assume, Vehicle speed for routes are,

Route 1, V= 80 km/h

Route 2, V = 70 km/h

Route 3, V= 75 km/h

Route 4, V= 65 km/h

After putting the values,Capacity per hour is found,

Route 1, C=3137

Route 2, C=2966

Route 3, C=3048

Route 4, C=2876

(Source : Khanna, S.K. & Justo, C.E.G. (1991). *Highway Engineering*)

4.6 Tourist Satisfaction

There are questionnaire data collected from survey sites from people of different ages. They were asked these questions on the aspects of bus terminals.

People age : 26 years – 45 years

Gender : Both male and female

Occupation : Service Holder, Businessman, Housewife, Student, Worker

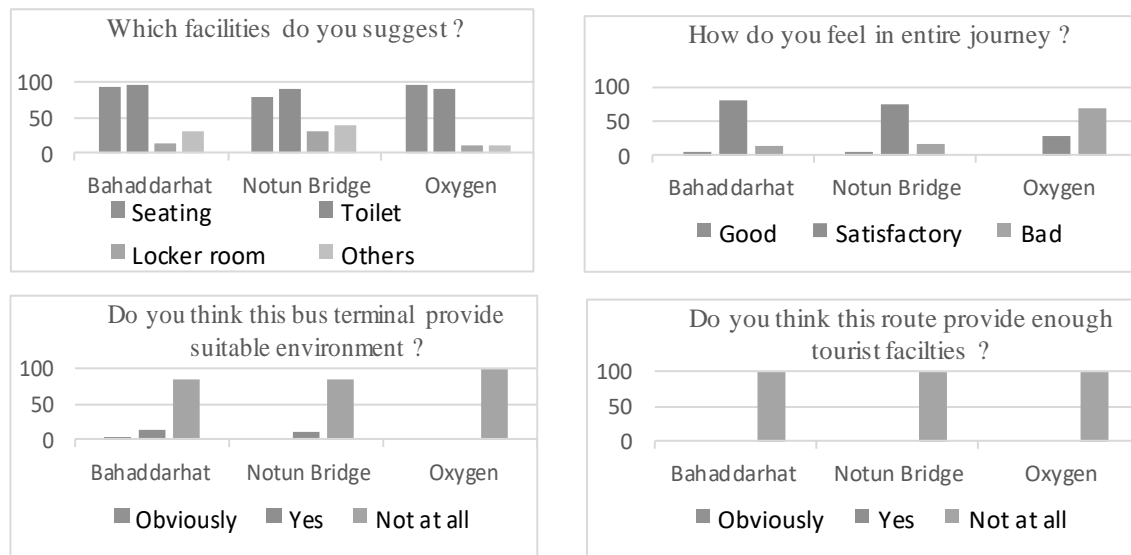


Figure 1: Different locations facilities and feelings

5. PROPOSALS

Some proposals are given in this study. The proposals are based on literature study and collected data from on field survey. These proposals will reduce existing problems by maintaining standard dimensions on road network. Also, terminal facilities are proposed as per tourist demand.

USER SURVEY QUESTIONNAIRE ON TOURIST SATISFACTION

Name: _____ Age: _____ Sex: _____ Occupation: _____
 Terminal Name: _____

We are from Chittagong University of Engineering & Technology (CUET) . We are conducting a research based on tourist facilities for visitors of Chattogram. The purpose of this research is completely academic. Please complete this questionnaire with specific regard to the above enquiry, by placing a cross to above .

In the appropriate box.

1. Do you think this bus terminal provide enough suitable environment?
 Obviously Yes Not at all
2. How do you feel in entire journey?
 Good Satisfactory Bad
3. Do you think this route provide enough tourist facilities?
 Obviously Yes Not at all
4. Which facilities do you suggest ?
 Seating Toilet Locker room Others(Please mention).....

Figure 2: Questionnaire form

5.1 By Pass Road Construction

Construction of bypass road will reduce traffic congestion inside Chattogram city. Already constructed Potiya bypass has reduced congestion on Chattogram to Cox’s Bazar highway. Bypass for Rangamati and Khagrachari route should be constructed. Already proposed outer ring road from

Potenga to Shah Amanat Bridge for passing the buses of Cox's Bazar and Bandarban should be implemented as soon as possible.

5.2 Road Widening

Existing two lanes highway should be increased to four lane highway. With the increasing number of tourist and local people, the roads are getting congested by vehicles of inter district and long route vehicles. Width of roads should follow some standard dimensions as these roads pass by plain land and mountain terrain. A table is given below about standard roadway width.

Table 4: Road Width Dimension (Source: Khanna, S.K. & Justo, C.E.G. (1991). *Highway Engineering*)

Road Classification	Roadway width (meter)	
	Plain and Rolling terrain	Mountain and steep terrain
National and State Highway		
Single lane	12	6.25
Two lane	12	6.25

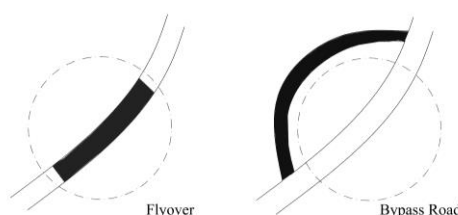


Figure 3: Road Widening Examples

5.3 Control of traffics

Vehicular traffics, reckless driving should be controlled. These four highways already consist of hill terrain with slope and curves. Every year road accidents occurred due to over speed and reckless driving. For hilly terrain permissible vehicle speed should be less than the standard.

5.4 Maintaining Sight Distance

Enough sight distance must be provided for drivers in each lane. The length of the carriageway should be visible to a driver both horizontal and vertical planes.

5.5 Improvement of Terminal Facilities

The three terminals should be improved with passenger and tourist facilities. Providing parking space, loading and unloading yard, different toilet and washroom for male and female, Locker room facilities. Moreover, the security system should be engaged in these terminals. These facilities will improve the urban tourism network.

5.6 Maintenance of Vehicle

Vehicles are the prime concern for comfort in transportation network. Old buses should be replaced. Available buses should be maintained properly. Also, the number of daily trips on these routes should be increased with more number of buses.

6. CONCLUSIONS

With these recommendations Chattogram can be a prime urban tourism destination in Bangladesh. So, its present public transportation system needs a well approached improvement to meet its need for daily passengers and the tourists. Necessary steps should be taken by the concerned authority to

implement the proposals. It will attract urban tourism and will improve the transportation network of these routes.

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