



International Standard Tourism Complex in Sylhet

Final Feasibility Report

November 2016

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List of Abbreviations

BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka (local currency)
BIFFL	Bangladesh Infrastructure Finance Fund Limited
BPC	Bangladesh Parjatan Corporation
BTB	Bangladesh Tourism Board
CAGR	Compounded Annual Growth Rate
CAPEX	Capital Expenditure
CBO	Community Based Organization
CCEA	Cabinet Committee for Economic Affairs
D/B	Double Bedroom
DAS	Demand Assessment Survey
DOE	Department of Environment
DTA	Domestic Tourist Arrivals
DVA	Day Visitor Arrivals
ECC	Environmental Clearance Certificate
ECR	Environmental Conservation Rules
EMP	Environmental Management Plan
FAR	Floor Area Ratio
FATO	Flight Approach and Take Off
FSI	Floor Space Index
FTA	Foreign Tourist Arrivals
GoB	Government of Bangladesh
GDP	Gross Domestic Product
IDCOL	Infrastructure Development Company Limited
IEE	Initial Environment Examination
IFB	Invitation for Bid
IFC	International Finance Corporation
IFT	Invitation for Tender
KPI	Key Performance Indicator
KTG	Key Target Group
LM	Law Ministry
MoCAT	Ministry of Civil Aviation and Tourism
MoP	Ministry of Planning
MSL	Mean Sea Level
NBA	Non-Resident Bangladeshi Arrivals
NGO	Non-Government Organization
NOC	No Objection Certificate
O&M	Operation and Maintenance
OGC	Overnight Guest Capacity
OPEX	Operational Expenditure
OTD	Outbound Tourist Departures

PAP	Project Affected Person
POV	Purpose of Visit
PPP	Public Private Partnership
PPPA	Public Private Partnership Authority
RFP	Request for Proposal
R&R	Rehabilitation & Resettlement
S/B	Single Bed
SASEC	South Asia Sub regional Economic Cooperation
SCC	Sylhet City Corporation
SCOR	Strengths, Challenges, Opportunities and Risk Analysis
SHG	Self Help Group
SID	Statistics and Informatics Division
TSA	Tourism Satellite Accounts of Bangladesh
ULB	Urban Local Body
USD	United States Dollars (global currency)
VCO	Voluntary Community Organization
WTP	Willingness to Pay Survey
WTTC	World Travel and Tourism Council

Glossary of Local Terminologies

- Bandar:** Bandar or Bunder (Persian) is a word meaning "port" and "haven"
- Bazar:** Bazar (Urdu, Persian) is a market area, especially a street of small stalls
- Beel:** A Beel (Bengali) is usually a depression or topographic low generally produced by erosion or other geographical process
- Haor:** A haor (Bengali) is a wetland ecosystem in the north eastern part of Bangladesh which physically is a bowl or saucer shaped shallow depression, also known as a back swamp
- Khal:** A Khal (Bengali) means a canal
- Mazaar:** A mazār (Arabic) is a mausoleum or shrine in someplace of the world, typically that of a saint or notable
- Minar:** Minar (Urdu) meaning a tower or turret found especially in Islamic countries
- Para:** Para (Bengali) means a neighbourhood or locality, usually characterised by a strong sense of community
- Parjatan:** Parjatan (Bengali) is corresponding meaning of tourism
- Pourashava:** Pourashava (Bengali) means municipality which is usually an urban administrative division having corporate status and powers of self-government or jurisdiction
- Shahid:** Shahid (Urdu) also Shaheed means a Muslim martyr
- Thakurbadi:** Thakurbadi (Bengali) is a Hindu temple means house of gods
- Upazila:** Upazila (Bengali) meaning sub-district, is a geographical region in Bangladesh used for administrative or other purposes. They function as sub-units of districts

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Executive Summary

This report pertains to the feasibility study for development of an international standard tourism complex at the existing motel compound of Bangladesh Parjatan Corporation (BPC) in Sylhet city.

Introduction – Background & Scope of Services

Sylhet city is the administrative headquarter of Sylhet district as well as the Sylhet division. Sylhet division is one of the eight administrative divisions of Bangladesh and is bordered by Meghalaya, Assam and Tripura states of India to the north, east and south respectively and by Dhaka and Chittagong divisions to the west. The city has transformed drastically over the years, with the construction industry growing significantly and large investments being made by expatriates. At present, the city doesn't have an international standard accommodation facility, with provisions for a wide variety of facilities such as multi-cuisine restaurants, banquet and conference facilities, entertainment and recreation, etc. However, Sylhet is home to some of the top tourist attractions in Bangladesh such as National Parks, Reserve Forests, Sufi Mazaars, Tea Estates, Waterfalls, Hill Stations, etc. Apart from these, it is also well-known for its handicrafts, the temple of Sri Chaitanya Dev and its ethnic population of Khasia and Manipuri tribes. As an important tourist destination in Bangladesh it is important that the city has an international standard tourism complex, which can cater to the tourists visiting the city and in turn can contribute to the growth of tourism in Sylhet.

Bangladesh Parjatan Corporation, in line with its objectives to promote and develop tourism and create and operate various tourism facilities, owns hospitality and commercial facilities at different places of tourist interest within the country. In Sylhet, BPC operates a 50-bed motel on the outskirts of the city, near the Osmani International Airport. In 2010, the Government of Bangladesh (GoB) decided to develop various hospitality assets and also divest existing assets, to counter stagnating investments in tourism infrastructure, alleviate poor service standards of tourism industry and minimize operational losses. In line with the above, BPC decided to develop an international standard tourism complex at its existing motel compound in Sylhet. It requested the help of PPP Authority to select a transaction advisor for assisting in the selection of a concessionaire for development and operations of the tourism complex over the concession period. The PPP Authority conducted a competitive bidding process and based on technical and financial criteria, KPMG Advisory Services Private Limited was selected as the transaction advisors to **conduct a feasibility study and assist in the bid process management for selection of a suitable concessionaire.**

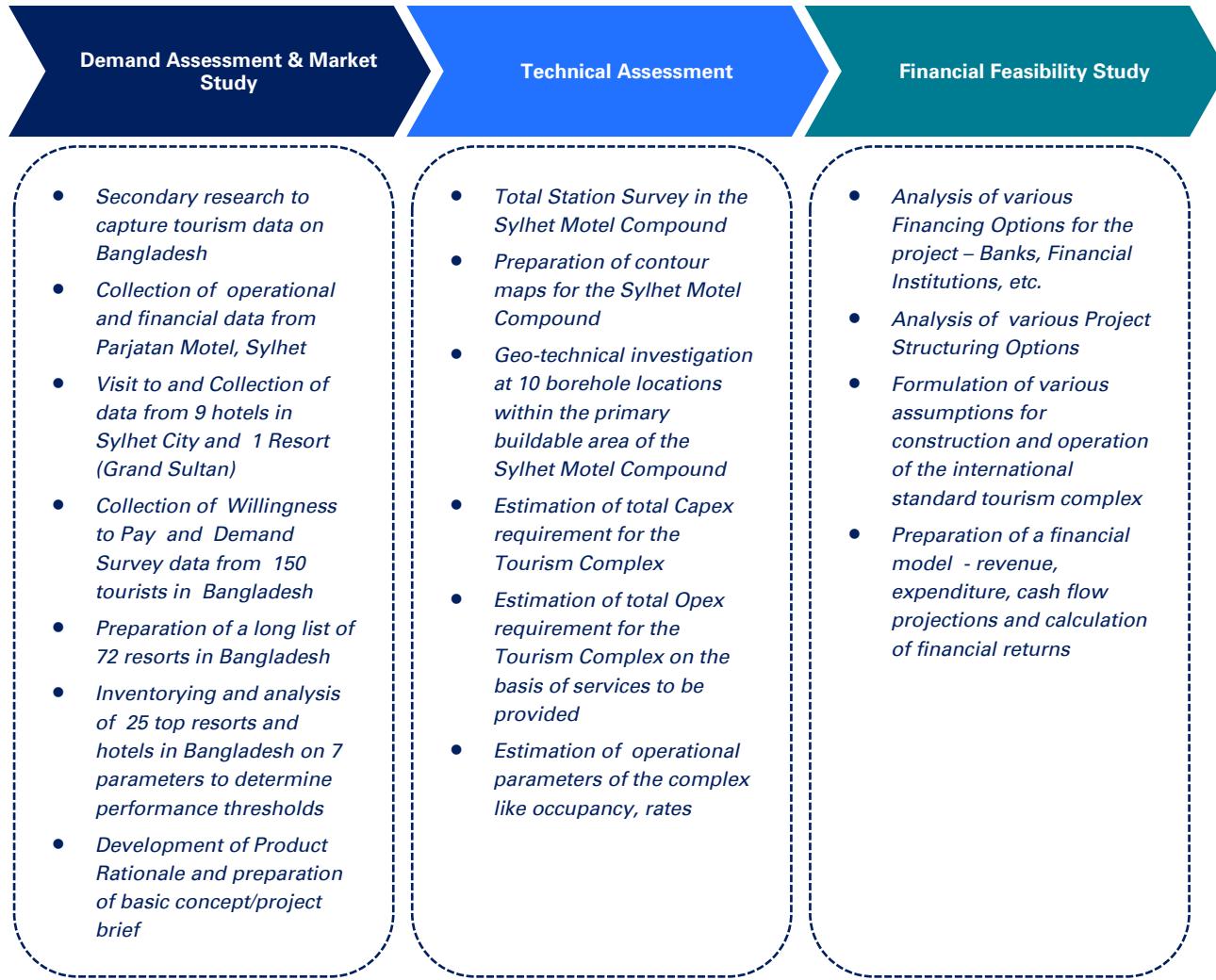
Approach & Methodology

The project team has adopted a participatory approach and have worked in unison with the representatives from BPC so as to incorporate their suggestions and inputs at various stages of the feasibility study.

The following methodology was employed by the project team for assessing the feasibility of the project.



Out of the above five steps, steps – 2, 3 and 4 have multiple activities associated with them. These three steps are detailed below:



Need Analysis

There is a strong need for a project of this type in Sylhet. From a strategic angle, the project is required because of the following:

- High Tourism Potential of Bangladesh in general and Sylhet district in particular
- Need for International Standard Tourist Complex in the district and the city
- Government's focus on promoting tourism
- Need to tap private sector Investment and expertise to develop tourism

Further, analysis of the tourist data shows that there is a need for developing an international standard tourism complex that would be a 'one stop destination' covering all aspects like – accommodation, convention, recreation, leisure, adventure, etc.

Linked Project Assessment

Apart from local roads, signages, electrical infrastructure and waste management, **the one key project that can aid in success of this project is improvement of road connectivity to nearby tourist attractions like Ratargul and Jaflong, which are currently in poor condition. This work needs to be taken up by Roads and Highways Department, Bangladesh.**

Site Appreciation

The site lies at slightly elevated grounds (**45.78 meters** above MSL) and coordinates of the location are **24.949868°E, 91.870793°N**. The site has a total area of **28.55 acres** out of which 0.95 acre has been leased to a bar. The location maps and photographs are provided below:





Concept Plan of the Tourism Complex

The product rationale framework created from analysis of tourist data was utilized for conceptualizing the product. This framework provided the following Minimum Product Planning Baselines:

- *Natural character of the site to be maintained*
- *Linkages to local tourist attractions to be strengthened and in-tariff tour and excursions to be provided*
- *Maximum number of offered activities for all target groups to increase their engagement levels and elongate their stay*
- *Substantially enhance day attractions within the site both for inbound tourists and day visitors*
- *Improve accommodation quality and level of services*
- *Include at least 5 categories of accommodation with different experience*
- *Minimum 40 room keys*
- *Optimal annual occupancy rate range from 35% to 40%*
- *More than 65% OGC as parking facilities*
- *Minimum 125% of OGC as seating capacity for food & beverage facilities*
- *Minimum 100% of OGC as seating capacity for convention & business facilities*
- *Minimum 200% of OGC as seating capacity for banquet & event facilities*
- *Minimum 3 entertainment facilities*
- *Minimum 4 outdoor activity/ sport facilities*
- *Mandatory swimming pool with wellness centre*

The resort is planned with a total built-up area of 13,922 sq. m. The built-up area will include residential facilities, food/ beverages, spa and wellness center, entertainment and recreational facilities among others.

The resort is proposed with a mix of rooms and cottages. In the demand-supply gap analysis, an additional daily requirement of high quality rooms daily was found in Sylhet. Accordingly, a resort with an overall capacity of 216 guests and a total 100 units with a mix of rooms and cottages was conceptualized. A wide variety of rooms and cottages has been proposed to cater to the needs of different categories of tourists – starting from nap rooms for day visitors to presidential suites for premium customers. The total number of rooms is 68 and the total area required for residential rooms is 2646 sq. m. Overall 32 cottages have been proposed and the total area required for the cottages is 2304 sq. m. Various types of restaurants have been proposed like – multi-cuisine restaurants, Bangladeshi speciality restaurants, continental restaurants, bar, coffee shop, etc. Recreation, entertainment and other activities like sports, games and adventure activities have been proposed as well keeping in view the strategic advantages of the site. A snapshot of the overall facilities in the resort is provided below:

An International Standard Tourism Complex with total built-up area of 13,822 sq. m.		
Residential Facilities (Single Building)	Residential Facilities (Cottages)	Food & Beverages
<ul style="list-style-type: none"> • Nap Rooms for Outbound Tourist – 5 Nos. • Economy Room – 5 Nos. • Standard Room D/B A/C – 10 Nos. • Executive Room D/B A/C – 20 Nos. • Deluxe Room D/B A/C – 16 Nos. • Premium Room D/B A/C – 10 Nos. • Presidential Suite D/B A/C – 2 Nos. 	<ul style="list-style-type: none"> • Village Cottage Non A/C – 8 Nos. • Deluxe Cottage D/B A/C – 8 Nos. • Cliff Side Premium Cottage D/B A/C – 8 Nos. • Tea Garden Chalet D/B A/C – 2 Nos. • Tree House D/B A/C – 4 Nos. • Outlook Villa Suites D/B A/C – 2 Nos. 	<ul style="list-style-type: none"> • Multi-Cuisine Restaurant – 1 No. • Bangladeshi Specialty Restaurant – 1 No. • Continental Restaurant – 1 No. • Bar & Cocktail Lounge – 1 No. • Coffee & Bakery Shop – 1 No. • Pool Deck Refreshment Kiosk – 1 No.
Other Facilities		
<ul style="list-style-type: none"> • SPA and Wellness Centre with Steam/Sauna, Masseur Parlour, Aerobics Studio, Kiddie Pool & Jacuzzi, Hydropool, Gymnasium, • Recreation and Entertainment Facilities - Boutique/Curio Shops with storage facility, A/V Theatre, Library, Karaoke Bar/ Discotheque • Convention and Banquet Facilities - Convention Hall, Ball Room with Banquet, Ceremonial Hall, Conference Rooms, Business Centre • Indoor Sports and Games – Table Tennis Room, Card/Carrom Room, Billiard Room, Board Game Room, Console Games, Bowling • Reception, Front Office & Administration – Lobby & Lounge, Reception/Front Office, Records/Store Room, Manager's Office, Secretary's Office, Accountant's Office, Sales and Reservation, Travel Desk • General Services Facilities – Linen Room, Laundry Room, Locker Rooms, Maintenance Shops, Furniture Shops, General Store, Boiler Room, Transformer Vault, Full Storage, Refrigeration Compression Room, Fan Room/Ventilation Equipment 		
Tended Open Area of 28,794 sq. m with courts for outdoor games, Event and Banquet Lawn, Parking and Landscaped areas		
Untended Open Area of 72832 sq. m with space for outdoor activities (hiking, zip lining, camping, etc.) and natural protected areas		

The proposed concept plan is in conformance to the requirement of tourists and is expected to create a positive impact on tourism scenario and the tourism industry in the Greater Sylhet region.

Technical Assessment and Due Diligence for the project

- Technical Feasibility had the following components:
 - Project Readiness Analysis (land, compliance with regulatory and policy frameworks, stakeholder willingness, etc.)
 - SCOR Analysis (Strength, Challenges, Opportunities, Risks)
- Based on the above analyses, the project was found to be technically feasible.
- Geo-technical Suitability – This was based on analysis of soil samples collected as part of geo-technical investigation in 10 borehole locations in the project site. The key conclusion arising out of the geo-technical investigation was that multi-storied construction would be allowable (maximum up to 5 floor high), whereas for construction of lightweight built structures on slopes would be possible only by piling and by construction of retaining wall sections
 - Disaster Risk Preparedness – Two major risks for the project are earthquakes and landslides since the project lies in Seismic Zone 1 and on a hilly terrain. These would be mitigated by earthquake resistant construction suitable for earthquake of moderate intensity and proper design with adequate slope stabilization and protection to prevent landslides respectively.

PPP Structuring and Financial Feasibility

It is found that for funding infrastructure projects in Bangladesh, a number of agencies are providing debt funding to private developers. A few among these agencies are as follows:

1. **Infrastructure Development Company Limited (IDCOL)**
2. **Bangladesh Infrastructure Finance Fund Limited (BIFFL)**
3. **International Finance Corporation(IFC)**
4. **CDC Group**
5. **European Investment Bank**
6. **Proparco**
7. **Asian Development Bank**
8. **Islamic Finance and Investment Limited**

In the Financial Feasibility assessment, the overall cost estimates were arrived at after factoring in the local input costs and the global benchmarks for construction of such a resort. It was assumed that the construction would begin from 1st July, 2017 and the construction would require three years. Operations of the resort was expected to commence from 1st July, 2020 onward. It has been assumed that the project would be awarded to the developer for a concession period of 45 years. Further it was considered that the project would be financed with a debt-equity ratio of 70:30 without any external assistance from the Government as Grant or through any soft loan. The rate of interest on the debt was considered as 12% with an overall repayment period of 10 years after the operations commence (2 years of moratorium after construction and 8 years for repayment). With these assumptions, the overall construction cost for the project came to BDT 1,004 million. This included interest during construction of BDT 118 million and also included the cost to be paid to the transaction advisors. The overall financing has been tabulated below:

#	Source of Fund	Ratio of Funding (%)	Value (BDT Million)
1.	Equity	30%	BDT 301 Million
2.	Debt	70%	BDT 703 Million
3.	Total	100%	BDT 1004 Million

The year on year operational expenses was split between five major categories – salary, maintenance, replenishable expenses, utility and social expenses. Utility and salary costs formed the majority of the operations and maintenance expenses, accounting for as high as 84% of the overall operational expenses.

Three project structuring options were considered based on the project requirements:

- **Option 1:** Fixed upfront fee and Revenue share to BPC – In this option, the developer would pay an upfront fee to BPC and would pay a fixed amount or a fixed percentage of the revenue year on year to BPC during the operations period with a fixed year on year growth rate.
- **Option 2:** Upfront fee to BPC – In this option, the developer would pay only an upfront fee to BPC, which would be the bidding parameter. This structure is more suitable to the Government or to the Granting Authority.
- **Option 3:** Revenue share to BPC - In this option the developer would make fixed payments or pay fixed revenue share to BPC during the operations period. This option increases risk substantially for BPC. As a result this option was discarded.

Between the other two options studied above, Option 1 (combination of upfront payment and annuity payments) seemed a better option because of the following:

- It reduces the upfront payment/ investment by the developer
- Benefits of upside from the project flows to the Government/ Authority
- More interest may be expected from the bidders because it is more attractive financially

The project returns in the base scenario, without any payment to the BPC, have been tabulated below:

#	Financial Return Parameter	Value
1.	Equity internal rate of return	22.72%
2.	Project internal rate of return	19.12%
3.	Payback period	12 years (9 years from start of operations)

The project and the equity return seemed adequate in the base scenario. Given that the concession period was considered as 45 years, the payback period of 12 years seemed reasonable as well. The project returns under the two project structuring options considered, are tabulated below:

Option 1

#	Upfront Fee	Revenue Share / Fixed payment	Equity internal rate of return	Project internal rate of return	Payback period
1.	No upfront payment	3%	22.02%	18.70%	13 years
2.	BDT 5 million	5%	21.46%	18.35%	14 years
3.	BDT 10 million	10%	20.27%	17.56%	15 years
4.	No upfront payment	Fixed – BDT 5 million	22.41%	18.95%	13 years
5.	BDT 5 million	Fixed – BDT 5 million	22.32%	18.89%	13 years
6.	BDT 5 million	Fixed – BDT 10 million	22.02%	18.72%	13 years
7.	BDT 10 million	Fixed – BDT 5 million	22.23%	18.83%	13 years
8.	BDT 10 million	Fixed – BDT 10 million	21.94%	18.66%	13 years
Option finalized by BPC on the basis of the Draft Feasibility Study					
9.	BDT 60 million	Fixed – BDT 20 million	20.67%	17.81%	14 years

Option 2

#	Upfront Fee	Equity internal rate of return	Project internal rate of return	Payback period
1.	No upfront payment	22.72%	19.12%	12 years
2.	BDT 5 million	22.63%	19.06%	12 years
3.	BDT 10 million	22.54%	19.01 %	12 years
4.	BDT 20 million	22.37%	18.89%	13 years

#	Upfront Fee	Equity internal rate of return	Project internal rate of return	Payback period
5.	BDT 30 million	22.19%	18.78%	13 years
6.	BDT 40 million	22.02%	18.67%	13 years

The following observations were made from the structuring options studied:

- The return on the project may be deemed adequate across various options. Both the Project and the Equity Internal Rate of Returns were above 17% across the options considered
- The payback period ranged from 12-14 years on an average across various options.
- Project structuring option 1 i.e. a combination of upfront fee and revenue contribution to BPC, seemed a better option as it provided reasonable comfort to the bidders and the government. It reduced overall financial burden on the bidder and also had a better expected implementation of the project as the bidder needed to make revenue contribution to BPC during the operations period.

Environmental and Social Assessment

Both environmental and social screening and environmental and social Assessment have been undertaken. Since the project does not lie within a forest area, the environmental impacts were envisaged to be limited as per the environmental screening. Similarly, the project did not involve any new land acquisition and the site was owned by BPC, there was no displacement of people involved and no significant social impact was identified during the social screening.

During the detailed exercise of environmental assessment (Initial Environment Examination) by Environmental Expert of the Transaction Advisor, it was concluded that the Tourism Complex project would have very little probability to cause environmental impacts and it could be classified as **Orange – B category**. The environmental impacts that were identified could be mitigated by the measures mentioned in the IEE and EMP. So the IEE document would be sufficient and acceptable to DOE as part of the ECC application and further study for impact assessment would not be necessary.

It was further recommended that Project Implementation Unit of the private developer should ensure that:

- All mitigation, compensation and enhancement measures proposed in the IEE report should be implemented in full, as described in the IEE document; and
- The EMP of the report should be updated during detailed design and also implemented in full during construction and operation period.

A copy of the EMP should be kept on-site during the construction and operation period at all times. The EMP should be made binding on the contractor operating on the site, and be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in the IEE document should constitute a failure in compliance

During the detailed exercise of social assessment by the Social Expert of the Transaction Advisor, it was concluded that construction of the international standard tourism complex would increase employment in the form of permanent, casual and temporary which would increase revenues, help in developing tourism in the region and country, which in turn would increase new investors in the country, improve standard of

living of the locality, including improvement in education, health and hygiene, food intake for the underprivileged population of the area, accessibility to the main road and essential services and considerable reduction in travel time. **No major social impacts/ risks are envisaged in the project.**

It was recommended that since no major impacts/ risks were envisaged after carrying out the Social Assessment, no further action would be needed.

Way Forward

The following activities are envisaged after submission of Final Feasibility Study:

- Submission of Invitation for Bid (IFB) and Contract Document with project description and commercial inputs
- Supporting BPC in running the Bid Process as outlined in the Scope of Services for Transaction Advisory

1 Introduction

1.1 Background

Bangladesh Parjatan Corporation (BPC) is an autonomous body under the Ministry of Civil Aviation and Tourism (MoCAT). It was constituted under a Presidential Order in November 1972. It is a pioneering organization with the following mandates:

- promotion and development of tourism industry in Bangladesh
- creation and operation of various tourism facilities within Bangladesh

As part of its mandates, the Corporation owns hospitality and commercial facilities at different places of tourist interest within the country. Among these are twenty five hotels and motels with approximately 600 keys at 19 tourist locations within the country including prominent locations like Sylhet, Cox's Bazar, Teknaf, Rangamati, Chittagong, etc. out of which 2 motels/ hotels are fully leased to private operators¹. **In Sylhet, the Bangladesh Parjatan Corporation operates a 50-bed motel on the outskirts of the city near the Osmani International Airport.**

However, in spite of owning tourism assets in vantage locations in major tourism districts/ destinations in Bangladesh, its national market share has significantly shrunk to 0.70%², attributed mainly to the growth of private entrepreneurs in travel and tourism industry.

In the year 2010, in a significant policy shift, Government of Bangladesh (GoB) decided to develop various hospitality assets and also divest existing assets in 13 prominent tourism districts of Bangladesh³. The reasons for the policy shift were to counter stagnating capital investments in tourism infrastructure, increase private entrepreneurship in tourism sector, devolve governance of state owned assets, alleviate poor service standards of tourism industry in Bangladesh and minimize operational losses for the state owned assets. In the year 2013, Bangladesh Parjatan Corporation (BPC), Bangladesh Tourism Board (BTB) and PPP Authority agreed in principle to coordinate the acceleration of PPP projects in tourism sector that subsequently resulted in approval⁴ of 5 projects in tourism sector for PPP. The proposed PPP projects were the following:

- development of an Integrated Tourism & Entertainment Village at Cox's Bazar;
- development of a Five Star Hotel in Chittagong;
- establishment of an International Standard Tourism Complex at Existing Motel Upal Compound of BPC at Cox's Bazar;
- establishment of 5 Star Hotel with other Facilities at Existing Parjatan Motel Sylhet Compound of BPC Sylhet;
- establishment of Sabrang Exclusive Tourism Zone.

In the year 2015, post declaration of year 2016 as 'Tourism Year' by the Honourable Prime Minister, the Honourable Finance Minister informed in budget proceedings⁵ that they were considering building a

1 Information on Leased Tourism Properties, BPC

2 KPMG Analysis

3 Press Report, The Daily Star, 04 May 2010

4 CCEA/LM approved projects under the Public Private Partnership Programme

5 Budget Proceedings of Bangladesh Parliament for Fiscal Year 2016-17

Tourist and Entertainment Village in Cox's Bazar and an international standard Tourism Complex and a Five-star hotel in Sylhet under Public-Private Partnership (PPP). Subsequent visit by Honourable Prime Minister in January 2016 to Sylhet and reaffirmation of re-developing Sylhet BPC Motel into an international standard tourism complex had conclusively ratified the will for developing this project. The proposed Project (international standard tourism complex at existing motel compound at Sylhet) had been provided in-principle approval by the Cabinet Committee for Economic Affairs (CCEA) on 22 August 2015. BPC had requested support from the PPP Authority for project development and transaction advisory services for the Sylhet project. PPP Authority, Bangladesh, which comes under the Prime Minister's Office, supports the line ministries and other government organizations in development of PPP project including appointment of Transaction Advisors for selection of private developers for such projects. The PPP Authority, Bangladesh then issued an RFP for selection of consultant for provision of PPP Transaction Advisory Services for the Sylhet project.

On the basis of its submission for the RFP issued, KPMG Advisory Services Private Limited has been appointed by the PPP Authority, Bangladesh to carry out a feasibility study for the International Standard Tourism Complex in existing motel compound in Sylhet and undertake the Bid Process Management for selection of the private developer.

1.2 Scope of Services

KPMG has been appointed by PPP Authority, Bangladesh to carry out Transaction Advisory for an International Standard Tourism Complex to be implemented on PPP basis, taking into account issues relating to technical, financial, commercial, social, economic, environmental and other relevant aspects including local and national issues, applicable laws, regulations, standards, specifications, etc. Under the scope, KPMG is going to carry out the feasibility study and also manage the Bid Process for on-boarding a private developer. The detailed activities to be undertaken by KPMG are listed below:

1. Needs Analysis

Discuss with BPC and identify:

- The strategic objectives of the Ministry and the BPC
- Assessment of the need for provision of service

2. Linked Project Assessment

- Identify key linked projects and the relevant government agencies who will have responsibilities for implementing the linked projects.
- Identify and highlight critical issues for implementing various linked projects

3. Technical Assessment and Survey Analysis

- Scoping and assessment of the technical suitability of the site selected for the Project
- Identify requirements for the project including the amount of land, critical inputs, utility services and access arrangements that will need to be secured including topography survey, soil condition survey, etc.
- Prepare broad/ indicative master plans for the Project
- Prepare estimates of capital and operating costs for the Project
- The detailed tasks that are expected to be carried out as part of the Technical Assessment, Preliminary Engineering and Survey Analysis have been given below:-

i. Studies, data collection and surveys

As part of the feasibility studies, the advisors, may need to collect data (both primary and secondary, as required), conduct surveys and studies to:

- (a) Establish a base-map as part of a graphic information system covering the project site
- (b) Study the availability and level of service of physical infrastructure in the neighbourhood of the site. These would include water supply, sewerage, power, drainage, telecom, etc.
- (c) Review previous studies and map planned and on-going projects surrounding the project site including communications network, other civil infrastructure projects, utility upgradation, etc.
- (d) Advice an overall development plan linking the projects including township and local market development
- (e) Study of market trends: This analysis can be subdivided into the following segments:
 - The Investor's perspective: A perception analysis of major developers to identify preferences on product mix, price, amenities, positioning, etc. from the perspective of potential investors
 - Commercial Survey: An opinion survey of commercial establishments in primary, secondary and tertiary catchment areas shall be carried out to assess the potential of the subject sites for such a kind of development

- The Users perspective: A primary survey shall be carried out to assess demand and analyse the positioning of the Projects with respect to the different product/service mix
- ii. **Determine Costs and Recommend Cost-based and Market-based Rates**
A survey of upcoming competitive activities in the surrounding areas needs to be assessed for understanding the future supply of competing developments. It would provide information on the following aspects:
- Nature of new developments coming up around the study site and in its neighbourhood
 - The prices at which the similar facilities are charged currently
 - Unique feature that such developments are offering
 - The quantum of additional supply under various categories
 - The absorption period of these developments
- iii. **Conduct Competitive Benchmarking and Pricing**
Competitive benchmarking (Local and international) should be conducted to study and benchmark competing developments in the sites area. The benchmarking will focus on profile of relevant investors, type of product, absorption rate, prevailing prices and amenities/facilities provided by the developers.
- A price band also needs to be determined that realistically captures the value proposition and optimizes the net returns from the Projects. Pricing (unit charges or as structured) to be determined.
- iv. **Broad Technical Assessment**
As part of the scope of services, the advisors need to conduct broad technical assessment of the project. The scope will include but may not be limited to the following assessment:
- Site Location and connectivity infrastructure
 - Site land profile and access to the land
 - Extent of land available and existing land tenure and use
 - Broad engineering design of the site
 - Appropriate zoning to accommodate various project components & to ensure compatibility
 - Identification of facilities and amenities in the project facility (e.g. utility management including power, water, gas, etc.)
 - Requirement and use of open space
 - Requirement and details of other facilities (e.g. shops, parking, playground, etc.)
 - Land/ built-up area after accounting for infrastructure to be made available
 - Commercial profiling of the area
 - Topography and preliminary estimates of land development issues
 - Soil type and hydrology details
 - Cyclone, earthquake, flooding considerations
 - Competition from other similar commercial projects and facilities

v. **Detailed Engineering Study**

After the broad technical assessment, the advisors need to conduct the engineering studies with reasonable depth as required for a PPP project of this nature. These details may be required primarily for site assessment, site layout design and master planning as provided below:

- (1) Sites Assessment: Inventory and conditions survey of the proposed sites including but not limited to the following:
 - (a) Water Source – quality & quantity
 - (b) Locally available construction materials – source & availability
 - (c) General soil profile and sub-soil characteristics
 - (d) Constraints from construction point of view like temporary drains, canals, lakes, etc.
 - (e) General cutting & filling area
 - (f) Boundary demarcation
 - (g) Infrastructure availability – road connection, drain, power distribution network, substation, etc.
- (2) Layout Design and Master Planning: Specific scope may include but may not be limited to the following:
 - (a) Prepare layout plan for the sites
 - (b) Develop a Master Plan
The following considerations shall be made for master planning:
 - Land use and zoning
 - Drawing and mapping of land use mix – Accommodation building, Commercial Retail, Infrastructure, Common facilities, Road, Green space, etc.
 - Building and construction guidelines
 - (c) Prepare Project Implementation schedules

4. **Project Scope**

- Formulate development concepts of the modality in which the private sector developer/sponsor will deliver the Project, the role of the public sector in relation to the Project and the on-going overview and review of private sector performance. Consider where applicable the following:
 - The broad output specification, the key performance indicators (KPIs)
 - Description of services to be delivered by the private partner/Contracting authority
 - The allocation of cost and review between the private partner/Contracting authority
- Identify Minimum Project Requirements/ services for the Project

5. **Environmental and Social Impact Assessment**

- Assessment of environmental and social impact in relation to the Project (Initial Environment Examination, Environmental Impact Assessment and Social Impact Assessment).
- Recommendations report for safeguarding environment impacts (Environmental Management Plan).
- In carrying out the assessment and setting out the recommendations, compliance with relevant Bangladesh environmental and social laws, regulations, policies, procedures and guidelines should be addressed.

6. **Demand Assessment and Market Study**

- Conduct market analysis to identify the sector structure, demand drivers and dynamics, expected growth and level of competition, assess the extent to which there is a supply gap

- Conduct the survey of willingness to pay and provide a commentary on the relevant market practice.
- Prepare pricing analysis based on a market survey to identify willingness and ability to pay
- Identify critical market risks, and possible mitigation strategies
- Development of risk matrix to identify and assess scale of potential project development and implementation risk and allocation of risk against stakeholders
- Review of local and international market capability {including developer, contractors, sub-contractors and financiers} to deliver the Projects
- Consultation with potential bidders to assess market interest in the Project
- Taking into account market feedback in relation to the project scope and preliminary design of the concession contract with the private sector
- Recommendations in relation to potential market interest and how to engage with the market to maximise competition
- Preparation of a consolidated list of approvals/consents/clearances required from government institutions

7. PPP Transaction Structure

- Options assessment of alternative ways of structuring the Projects to be delivered as a PPP
- Recommendations on the proposed structuring option for delivering the Projects as a PPP
- Detailing the capital and operational costs of delivering the Projects, including direct and indirect costs, that will be incurred over the whole life cycle of the project
- Detailing the revenue stream that will be delivered from operating the Project
- Development of various possible alternatives for revenue maximization and preparation of revenue model for the Project
- Development of a Financial Model {including all assumptions made} with functionality to carry out sensitivity analysis on variables such as occupancy level, tariff (room rent) levels etc.
- Listing of all assumptions made in relation to assessing the cost and revenue of the Project, including inflation rate, discount rate, depreciation, forecast demand etc.
- Assessing the commercial viability of the Projects if structured with or without any direct additional government support
- Propose alternative options for a payment mechanism
- Advising on any Fiscal or Special Incentives (permissible within Bangladesh PPP policy) that can be considered for the Project and assessing the financial implications of these incentives on the Project
- Assessing what additional options exist to make the commercial viability of the Project more attractive while taking into account the additional financial impact and burden that may fall to the public sector including any potential tax related issues
- Recommendation on the optimum structuring approach for delivering this Project as PPP

8. Heads of Terms for Concessions Agreement

- Set out the key commercial terms and conditions that will need to be reflected in the concession agreement
- Set out a proposed payment mechanism and any alternatives
- Set out the proposed key performance indicators and service credits that will be included

9. Procurement Support

- Development of an outline structure for the Project Information Memorandum and Invitation for Tender (IFT) documents
- Provide input in developing the Invitation for Tender (IFT) documents especially evaluation criteria and assigning weightage to each of them
- Provide input into the draft concession contracts in accordance with applicable Bangladeshi laws, taking in to account the PPP policies, guidelines and the draft PPP model concession agreements
- Support in project marketing activities to potential bidders
- Support in the bidding and evaluation process for selection of the investor

10. Training and Transfer of Knowledge

The Transaction Advisor shall arrange a short offshore Study Tour for up to 1 week for 5 (five) government officials (from line Ministry/ Implementing Agency/ PPP Authority) to showcase similar projects that have been delivered in other countries or regions.

The subsequent parts of this report cover the following:

- **Approach & Methodology**
- **Need Analysis**
- **Linked Project Assessment**
- **Site Appreciation**
- **Concept Plan for the Tourism Complex**
- **Technical Assessment and Due Diligence**
- **PPP Transaction Structuring and Financial Feasibility**
- **Environmental and Social Assessment**
- **Way Forward**

1.3 Approach and Methodology

The Approach for this assignment and the methodologies that have been proposed are structured in line with the Scope of Services envisaged by PPP Authority, Bangladesh and Bangladesh Parjatan Corporation (BPC). We have also been guided by our understanding of the entire process of providing Transaction Advisory services gained through numerous similar assignments across sectors. In addition, since we believe that Bangladesh Parjatan Corporation has in-depth knowledge about the tourism industry in Bangladesh, we have adopted a participatory approach and have worked in unison with the representatives from Bangladesh Parjatan Corporation so as to incorporate their suggestions and inputs at various stages of this assignment.

The methodology adopted by KPMG for the overall Transaction Advisory is shown below:

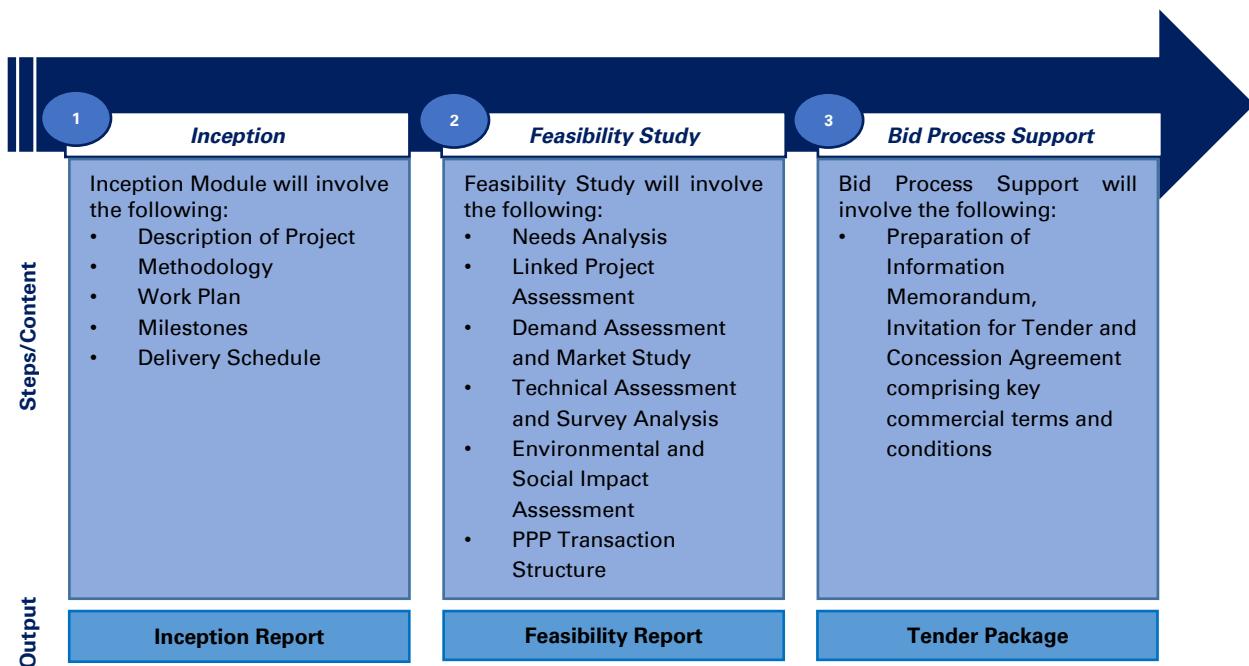


Figure 1: Overview of Methodology for Overall Transaction Advisory

The two major parts of the Transaction Advisory Services are the following:

- Feasibility Study
- Bid Process Support

This Report pertains to the part – **Feasibility Study** and the specific steps undertaken as part of Feasibility Study are shown below. These steps cover all the major content requirements of the feasibility study as per the Scope of Services.



Figure 2: Steps in Feasibility Study

Out of the above five steps, steps – 2, 3 and 4 have multiple activities associated with them. These activities are shown below.

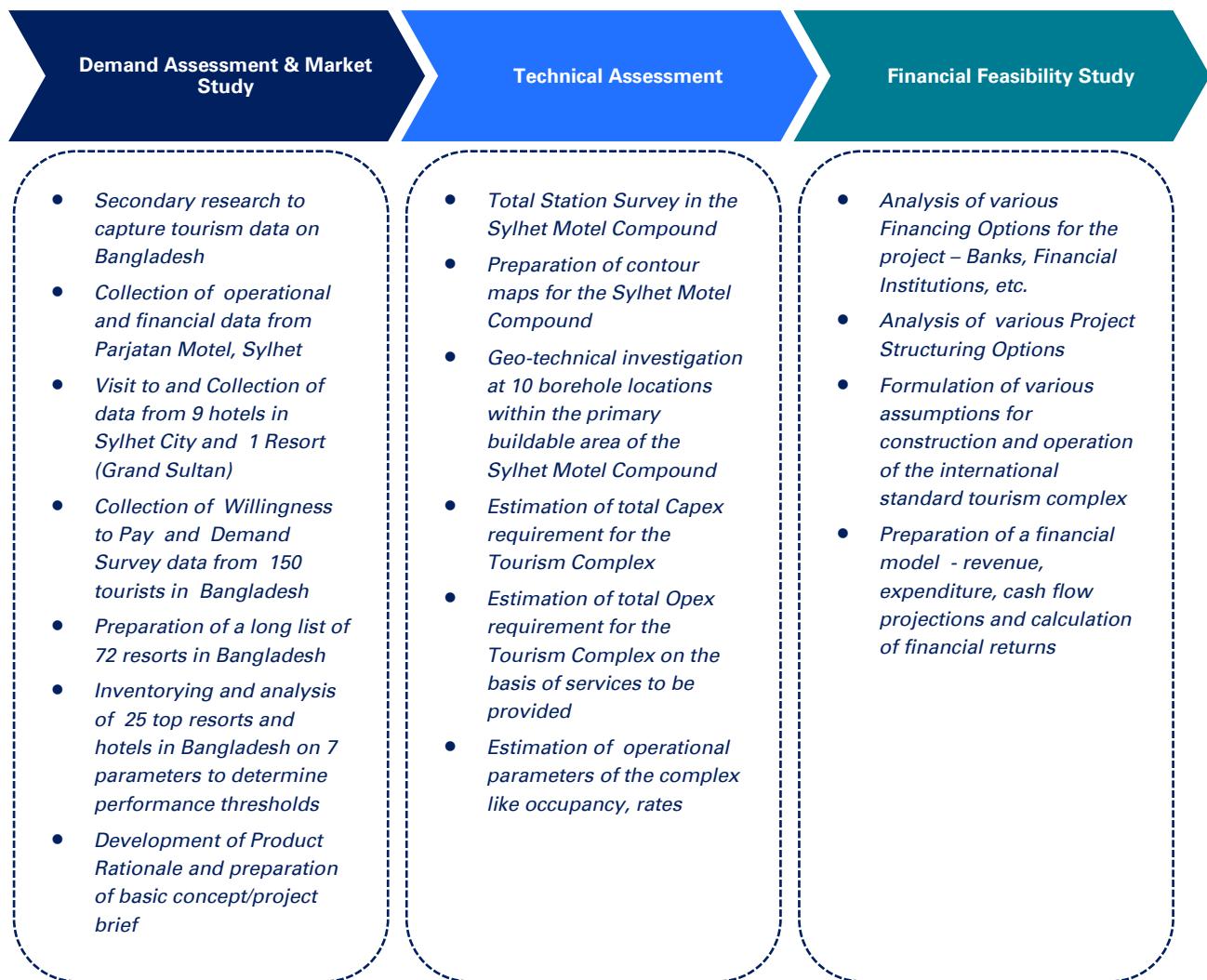


Figure 3: Major activities undertaken under various steps of the Feasibility Study

The detailed description of the steps and various activities are provided below:

1.3.1 Preliminary Site Visit and Assessment

The first step of the Feasibility Study was **Preliminary Site Visit and Assessment**, which acted as a precursor to subsequent steps. The project team from KPMG visited Parjatan Motel Sylhet in the period of 25 March to 30 March 2016. Initially, the team assessed the site of the motel including the structure of the motel building, its infrastructure and facilities, its approach road, its terrain and its surroundings. Further, the project team also interacted with the Manager and Staff of the motel to understand the history of the motel, the developments over time, profile of tourists visiting the motel, the nearby places of tourist interest, the peak tourist season in Sylhet, the tourism potential in Sylhet and the opportunities and challenges before the motel. These provided significant insights about Sylhet Tourism and the potential of the site.

Subsequently, a joint inspection of the motel as well as the surrounding land within the motel compound was carried out on 26 March 2016 in presence of CEO, PPP Authority. The CEO, PPP Authority, Bangladesh also outlined his vision for redevelopment of the property as an International Standard Tourism Complex.

1.3.2 Demand Assessment and Market Survey

Demand Assessment and Market Survey was the most vital step of the Feasibility Study. The main objectives of this step – **Demand Assessment and Market Survey** were the following:

- Assessment of Tourism in Bangladesh – current scenario and future potential
- Assessment of Tourism in Sylhet – current scenario and future potential
- Assessment of the Profile of Tourists in Bangladesh, especially Sylhet
- Assessment of the tourist attractions in and around Sylhet
- Assessment of Hotels/ Resorts in Sylhet with their capacity, guest profile, amenities and pricing
- Assessment of other tourism support infrastructure in Sylhet
- Assessment of the tourism product requirement of tourists visiting Bangladesh and the tourists' willingness to pay

The Demand Assessment and Market Survey comprised collection of data through a mix of both primary and secondary research, analysis of the collected information and conceptualization of the tourism product at the motel site. While the primary research consisted of mainly questionnaire based surveys and interviews, secondary research consisted of desktop research on web resources. There were multiple activities within the Demand Assessment and Market Survey. These activities, which were listed earlier are detailed below:

1.3.2.1 Secondary research to capture tourism data on Bangladesh

As part of this activity, the project team under the guidance of the Tourism Expert carried out extensive desktop research on the tourism scenario in Bangladesh with specific focus on Sylhet Tourism. The main sources of data on Bangladesh Tourism is Tourism Satellite Accounts of Bangladesh 2011-12 (Pilot) brought out by Bangladesh Bureau of Statistics in June 2014 and the data provided by Bangladesh Parjatan Corporation. This data was analysed to better understand the tourist scenario in Bangladesh, as follows:

Tourist Arrivals and Departures:

Tourist Arrivals in Bangladesh are defined in four categories: Domestic Tourist Arrivals (DTAs), Foreign Tourist Arrivals (FTAs), Non-resident Bangladeshi Arrivals (NBAs) and Day Visitor Arrivals (DVAs). Tourist Departures from Bangladesh to other destination countries are defined as Outbound Tourist Departures

(OTDs). The tourist arrivals and outbound departures data were collated for a decadal reference (from year 2006 to estimated year 2016) to get unbiased trends.

Base data for DTA, NBA and OTD was only available for year 2011-12⁶. Data on FTA from year 2006 to 2008 was available in BPC website and data on FTA from year 2009 to 2013 was extracted from the data on foreign national arrivals to Bangladesh provided by Immigration Department to BPC. The remaining FTA for year 2014 to 2016 was calculated on basis of Compound Annual Growth Rate (CAGR). Data on DTA and NBA from year 2009 to 2014 was calculated on growth rate of Domestic Expenditures⁷ and for years 2006 to 2008 and years 2015 to 2016 was calculated by CAGR of 2009-14. Data on OTD from year 2009 to 2014 was calculated on growth rate of Expenditure on Outbound Travel⁸ and for years 2006 to 2008 and years 2015 to 2016 was calculated by CAGR of 2009-14.

DTAs from Administrative Divisions⁹ of Bangladesh:

The base data for Domestic Tourist Arrivals from administrative divisions of Bangladesh was referenced for the year 2011 from Tourism Satellite Accounts (TSA) of Bangladesh 2011-12 (Pilot), Bangladesh Bureau of Statistics (BBS) and Statistics and Informatics Division (SID), Ministry of Planning (MoP). DTAs from administrative divisions of Bangladesh from year 2006 to 2010 and from year 2012 to 2016 were assumed by Decadal Population Growth Rate¹⁰.

DTAs, NBAs and FTAs to Administrative Divisions of Bangladesh:

For the purpose of estimating share (%age) of DTAs destined to different administrative divisions, number of DTAs to respective districts was calculated on the following assumptions and formula:

$$\text{DT DIS} = \{(HD/HN) + (TD/TN)\}/2 \times 100$$

Where,

DT DIS = %age of DTAs to the respective district

HD = Number of total hotels/ resorts in respective district

HN = Number of total hotels/ resorts in the country

TD = Number of total tourist attractions in respective district

TN = Number of total tourist attractions in the country

6 Tourism Satellite Accounts (TSA) of Bangladesh 2011-12 (Pilot), Bangladesh Bureau of Statistics (BBS), Statistics and Informatics Division (SID), Ministry of Planning

7 The economic contribution of Travel & Tourism: Growth, Travel & Tourism Economic impact 2015 Bangladesh, World Travel and Tourism Council (WTTC)

8 The economic contribution of Travel & Tourism: Growth, Travel & Tourism Economic impact 2015 Bangladesh, World Travel and Tourism Council (WTTC)

9 7 Administrative Divisions of Bangladesh as per Bangladesh Census are Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur and Sylhet

10 Population & Housing Census 2001 and 2011, Bangladesh Bureau of Statistics (BBS)

Assumption: %age of DTAs would be proportional to the linear demand of product and infrastructure i.e. Number of Tourist Attractions and Number of Accommodation Facilities available in the district.

Using the DTA number for each district, the number of DTAs to the administrative divisions was calculated.

For estimating share (%age) FTAs destined to different administrative divisions, 5 secondary sources of International Travel Guides¹¹ and aggregator ratings were used and a list of top 50 destinations amongst foreign tourists was outlined. Then Descending Weightages¹² were assigned to each destination. All destinations were sorted as per their respective districts and national score was obtained for each destination and further added to the respective districts. Further the following formula was used to generate approximate number of foreign tourists to different districts and consequently to their respective administrative divisions:

$$\text{FT DIS} = \frac{\{SD/SD \times 100\} + TD}{\{100 + \sum TD\}} \times 100$$

Where,

FT DIS = %age of FTAs to the respective district

SD = Particular Score of the District adding up all scores of destinations within it

SN = Summation of all scores of all district

TD = Number of total tourist attractions in respective district

ΣTD = Summation of number of total tourist attractions for each districts with destinations

Assumption: %age of FTAs would be proportional to the Destination chosen by the foreign tourist which implies that the foreign tourist footprint would only limit to the destinations for purpose of traveling such as leisure, pilgrimage, recreation, etc. Other purposes of foreign tourist visits such as business, work, etc. are considered non-determinant factors, hence excluded from the assumptions.

For estimating share (%age) NBAs destined to different administrative divisions, and in circumstances of no data availability, the following formula was used to generate approximate number of non-resident Bangladeshi tourists to different districts and consequently to their respective administrative divisions:

$$\text{NT DIS} = 0.50 \times (\text{DT DIS} + \text{FT DIS})/2 + 0.50 \times (\text{HD}/\text{HN})$$

Where,

NT DIS = %age of NBAs to the respective district

DT DIS = %age of DTAs to the respective district

11 Lonely Planet Bangladesh, World Travel Guide, Travel Zoo, etc.

12 Descending Weightage out of 50 ranked sample is assigned as per example: 1st rank 50, 2nd rank 49, 3rd rank 48, and so on....

FT DIS = %age of FTAs to the respective district

HD = Number of total hotels/ resorts in respective district

HN = Number of total hotels/ resorts in the country

Assumption: %age of NBAs would be 50% of average of Domestic and Foreign Tourists and other 50% would depend upon the linear demand for Accommodation Facilities available in the respective district.

Top Destinations for DTAs, NBAs and FTAs in Bangladesh:

For the purpose of ranking of top 50 destination amongst Domestic and Non-resident Bangladeshi Tourists, the districts were ranked based on receivable %ages of Domestic and Non-resident Bangladeshi Tourists and the most popular destinations in that district were chosen subsequently. For ranking of top 50 destination amongst Foreign Tourists, the method was explained in the preceding section.

Tourism Characteristics of Domestic, Foreign and Non Bangladeshi Tourists:

A few Tourism Characteristics for Domestic, Foreign and Non Bangladeshi Tourists, like Household Type, Occupation, Purpose of Visit, Preferred Mode of Transport, Preferred Place of Stay, Expenditure Patterns, etc. were referenced¹³ only for year 2011 as a gross indicator.

Other sources of information identified during desktop research are listed in **Annexure – 1**. The data from these sources were utilized to gain a qualitative understanding of tourism and tourism potential in Sylhet as well as understand the factors influencing movement of tourists across the country.

1.3.2.2 Collection of Operational and Financial data from Parjatan Motel, Sylhet

The project team spent one week at the motel site in Sylhet working with the Unit Manager of Parjatan Motel, Accounts Officer and staff to collect the operational and financial information on the motel.

The key operational information collected were as follows:

- No. of rooms, beds and tariff
- No. of domestic tourists (month-wise) in last 5 years
- No. of foreign tourists (month-wise) in last 5 years
- Countries of origin of foreign tourists
- Year-wise occupancy of last 5 years
- Average duration of stay for tourists(domestic/ foreign)
- Purpose of visits of tourists
- No. of day visitors
- No. of reservation inquiries
- No. of cancellation requests
- No. of banquets/ parties hosted by the facility
- No. of meetings/ conventions hosted by the facility

13 Tourism Satellite Accounts (TSA) of Bangladesh 2011-12 (Pilot), Bangladesh Bureau of Statistics (BBS), Statistics and Informatics Division (SID), Ministry of Planning

The key financial information collected were as follows:

- Major Revenue heads for Parjatan Motel, Sylhet
- Major Cost/ Expenditure heads for Parjatan Motel, Sylhet
- Total Revenues for last 5 years with breakdown by revenue heads
- Total Costs/ Expenditures for last 5 years with breakdown by cost heads

These information helped the project team in understanding the tourist profile in Parjatan Motel and operating characteristics of a hotel in that location in Sylhet, the general mix of revenue and cost for a facility like Parjatan Motel and the profitability of the facility operated by Bangladesh Parjatan Corporation.

1.3.2.3 Visit to and Collection of data from 9 hotels in Sylhet City and 1 Resort (Grand Sultan, Sreemangal)

Sylhet is a city with a relatively small urban sprawl but quite a large number of hotels and guest houses. Based on the information available in public domain and guest ratings, the project team carried out a survey of nine prominent hotels in the Sylhet city using a questionnaire designed by them (**Annexure – 2**). The nine hotels were as follows:

- **Rose View Hotel**
- **La Rose Centre**
- **Nirvana Inn**
- **Hotel Star Pacific**
- **Britannia Hotel**
- **Hotel Metro International**
- **Hotel Valley Garden**
- **Hotel Holy Gate**
- **Hiltown Hotel**

The details collected from the above hotels were as follows:

- Various categories of rooms and numbers
- Total number of beds
- Tariff for various categories of rooms
- Discounts on Rack rate
- Average Occupancy in a year
- Occupancy by foreign tourists
- Top 3 countries of origin of foreign tourists

The project team also visited **Grand Sultan Tea Resort and Golf, Sreemangal** in Moulvibazar district within the Sylhet Division. Situated in one of the major tea producing areas of Bangladesh, Grand Sultan is a highly reputable luxury resort with 135 rooms of various categories and offers a wide range of facilities/amenities to its guests. The project team collected tourist profile and other operational information like occupancy as well as information on room tariff and discounts offered. Since a luxury resort was one of the options being explored, visit to Grand Sultan provided very good guidance on the ambience and facilities to be made available in a resort.

The project team also interacted with tour operators, shop owners and staff and restaurant owners and staff to understand more about the tourist profile, peak tourist season, tourist preferences and local tourist attractions in Sylhet. Finally, the team interacted with the Secretary, Hotel & Guest House Owners Group to further understand the tourism related aspects in Sylhet and the opportunities and challenges of operating a hotel/ resort in Sylhet.

1.3.2.4 Collection of Willingness to Pay and Demand Survey data from 150 tourists in Bangladesh

To gauge the tourism infrastructure requirement and demand for various tourism products among the tourists visiting Bangladesh and their ability and willingness to pay, a Demand and Willingness to Pay Survey was conducted among 150 tourists residing in a few premium hotels/resorts in three locations in Bangladesh – Dhaka, Chittagong and Cox's Bazar. 67% foreign tourists, 23% domestic tourist and 10% non-resident Bangladeshi tourists were interviewed.

The hotels/ resorts covered in these three locations were as follows:

Table 1: Hotels/ Resorts included in Demand and Willingness to Pay Survey

#	City/Location	Hotels/ Resorts
1	Dhaka	Westin, Radisson Blu, Pan Pacific, Le Meridien, Purbani International
2	Chittagong	Radisson Blu, Peninsula, Meridian, Hotel Agrabad, Foy's Lake Resort
3	Cox's Bazar	Hotel Sea Palace, Sayeman Beach Resort

The inputs from this survey aided in understanding of the right kind of tourism product that might find acceptance in Sylhet given the tourist preferences. It also provided an overview of the pricing that might be applicable from such products. The questionnaire for the Demand and Willingness to Pay survey is provided in **Annexure – 3**.

1.3.2.5 Preparation of a long list of 72 resorts in Bangladesh

Through the Demand Survey it was broadly identified that the tourism product most acceptable in Sylhet would be a resort.

Thereafter, based on data available in public domain (especially web-based resources – booking websites, travel sites, travel guides like Lonely Planet), a long list of 72 resorts was prepared for Bangladesh along with the information on the number of room keys. This consisted of resorts across various districts of Bangladesh. The list comprised resorts of various types:

- Eco/ Nature Resort
- Garden Resort
- Amusement Resort
- Getaway Resort/ Retreat
- Boutique Villa
- Luxury Resort
- Beach Resort
- Urban Resort
- Heritage Resort

- Tea Garden Resort

The list of these resorts is provided in **Annexure – 4**.

Out of these 72 resorts, top 25 resorts were shortlisted. A resort was selected if it conformed to 3 of the 4 criteria – sizable number of room keys, general reputation of the resort among tourists, similar geographical setting and fairly large property size. The shortlist of 25 resorts, which includes the current motel at Sylhet is provided in **Annexure – 5**.

1.3.2.6 Inventorying and analysis of 25 top resorts and hotels in Bangladesh on 7 parameters to determine performance thresholds

The project team including the Tourism Expert analysed various hotels and resorts to prepare a framework for analysing these 25 resorts. The data collected through the demand survey also aided in formulation of this framework by highlighting the requirements of tourists in Bangladesh. As per the framework, each resort was analysed along 7 broad parameters. These 7 parameters are provided below:

- **Area Adequacy**
- **Connectivity**
- **Services**
- **Accommodation**
- **Sustainability**
- **Facilities**
- **Product Uniqueness**

Each of these above parameters had several sub-parameters under it and each of the 25 resorts was evaluated along each sub-parameter using a well-defined evaluation criteria. The evaluation criteria provided percentage ratings for each sub-parameter used for evaluation.

The sub-parameters under each broad parameter and the evaluation criteria are provided in **Annexure – 6**.

Further, each parameter and sub-parameter was assigned a score. This is shown below:

Table 2: Maximum Scores for Parameters and sub-parameters

SL.NO.	PARAMETER	MAXIMUM SCORE
1	Area Adequacy	2.00
a	Campus Area	2.00
2	Connectivity	8.00
a	Connectivity to Transport Heads	5.00
b	Connectivity to Other Towns/Cities	3.00
3	Services	5.00
a	Past Visitor Experience	2.00
b	Value for Money	3.00
4	Accommodation	35.00

SL.NO.	PARAMETER	MAXIMUM SCORE
a	No. of Keys	15.00
b	Keys to Bed Ratio	5.00
c	Category Availability	5.00
d	Affordability Index	5.00
e	Discount Range	5.00
5	Sustainability	5.00
a	Occupancy	2.00
b	Av. Annual Turnover	3.00
6	Facilities	35.00
a	Dining Facilities	10.00
b	Convention & Business Facilities	5.00
c	Banquet & Event Facilities	4.00
d	Recreational & Entertainment Facilities	3.00
e	Health Facilities	4.00
f	Outdoor Activities/Sports	2.00
g	Indoor Sports Facilities	2.00
h	Parking Adequacy	5.00
7	Product Uniqueness	10.00
a	Tourism Product Availability	4.00
b	Conducted Tours & Excursion	6.00
TOTAL		100.00

Information on each sub-parameter for each of the 25 resorts was collected from secondary sources (like resort website and other web-resources) and also through telephonic interviews. For each of these 25 resorts, weighted ratings were calculated for each parameter by multiplying the individual ratings with scores for sub-parameters.

The mean value of ratings for a parameter for the group of 25 resorts was considered performance threshold for that parameter. The composite score was also calculated for all 25 resorts (including Parjatan Motel, Sylhet) and performance threshold was similarly calculated for the composite score. This complete analysis provided the project team with a list of performance thresholds across various parameters of a resort, which helped in conceptualizing the facilities of the proposed tourism complex. The whole idea is to conceptualize a tourism product, which meets the requirements/ needs of the tourists in Bangladesh and is therefore, attractive to prospective investors/ private bidders.

1.3.2.7 Development of Product Rationale and preparation of basic concept/project brief

After identification of the tourist scenario in Bangladesh and Sylhet, determination of performance thresholds for each parameter of the resorts, analysis of the facilities being provided by tops hotels in Sylhet City and understanding of tourism product requirement through demand and Willingness to Pay (WTP) Survey, a product rationale was developed and a comprehensive concept for the proposed tourism complex was prepared. The inputs from the topographic survey like orientation, area and relief of the motel compound were also utilized for developing the concept.

The basic concept provided details on the total area of the proposed development including built-in area and tended and un-tended open area. Additionally, it provided details of the following:

- **Accommodation facilities – rooms and cottages**
- **Restaurants**
- **Recreational facilities – swimming pool, indoor and outdoor games, spa/ sauna, gymnasium**
- **Convention and Banquet facilities**
- **Support facilities – front office, lobby/ lounge, accounts office, refrigeration room, compressor room, fan room/ ventilation room**

The concept of the tourism product took into consideration relevant building/ construction rules and regulations in Bangladesh enshrined in **Bangladesh National Building Code, 2006** (e.g. FAR norms) and also conformed to height restrictions stipulated by **Civil Aviation Authority, Bangladesh (CAAB)** for the international airport in the vicinity of the site.

Based on the concept plan proposed, an indicative layout diagram of the tourism complex/ resort was prepared in AutoCAD.

1.3.3 Technical Assessment

Technical Assessment mainly dealt with the broad assessment of the project from engineering/ technical angle. Detailed Engineering for the project shall be covered by the developer of the project before actual construction and was therefore, not performed as part of Technical Assessment. The Technical Assessment aided in finalizing the capital cost of the project and the operating expenses over its period of operation. The activities, which formed part of the Technical Assessment are as follows:

1.3.3.1 Total Station Survey in the Sylhet Motel Compound

During the technical assessment of the project, it was discovered that the digitized maps of the project site/ existing motel compound was not in possession of Bangladesh Parjatan Corporation. Since the entire motel compound is on a hillock with steep slopes, it was not possible to prepare the concept plan without a contour map of the motel compound.

Therefore, a detailed survey of the entire demarcated area of the motel compound was conducted by the project team. The survey work was carried out using a Total Station by M/s. Suchana Engineers, a reputable civil engineering firm based in Dhaka in line with the Survey Brief furnished by the project team. This Survey Brief is provided in **Annexure – 7**. Given the hilly nature of the motel compound and steep slopes, the survey was conducted with contour intervals of 0.5 m. Employees from Parjatan Motel, Sylhet helped the survey team in identification of the boundary of the motel compound and other inputs necessary for conduct of the survey.

1.3.3.2 Preparation of contour maps for the Sylhet Motel Compound

On the basis of the data collected during the Total Station Survey, a topographic survey map of the motel compound was prepared by the engineering team using the design and drafting software AutoCAD. Contours with 0.5 m interval were superimposed on this topographic map for better understanding of the

relief of the motel compound. This aided in better understanding of the buildable area in the motel compound.

1.3.3.3 Geo-technical investigation at 10 borehole locations within the primary buildable area of the Sylhet Motel Compound

The project site is on a hillock with steep slopes and ascertaining the quality of soil becomes necessary for the following two reasons:

- To broadly identify the areas within the project site suitable for civil construction as it has safety implications
- To broadly estimate whether certain civil structures can be constructed in any particular area and whether any reinforcement/ strengthening or special foundations are required as these have cost implications

Geo-technical investigation was therefore, included in the scope of the project. The Geo-technical investigation was conducted at 10 borehole locations within the buildable area demarcated for the project. M/s Suchana Engineers, Dhaka carried out the Geo-technical investigation using a brief prepared by the project team. The Brief for geo-technical investigation is provided in **Annexure – 8**.

As part of the geo-technical investigation, the civil engineering firm drilled boreholes up to a depth of 10 m at 10 locations as provided by the project team. Wash Boring method was utilized for advancing the bore hole. Out of the 10 boreholes, undisturbed sub-soil samples could be recovered from 8 boreholes.

During boring, Standard Penetration Test (SPT) was performed. On the soil samples collected from the boreholes, the following tests were administered:

- Grain Size (Sieve) Analysis Test
- Direct Shear Test
- Unconfined Compression Test
- Hydrometer Test
- Specific Gravity Test
- Atterberg Limit Test
- Natural Moisture Content & Density Test
- Dry Density Test

On the basis of the test results, broad recommendations on the type of foundation required for the project were provided by the civil engineering firm.

1.3.3.4 Estimation of total Capex requirement for the Tourism Complex

On the basis of the total built-up area of the proposed tourism product and the amenities proposed in the concept plan, the total capex requirement for the Tourism Complex was estimated. The following hard cost heads were considered for capex estimation:

- **Building and Structure Costs**
 - Site Clearance and Rehabilitation Works
 - Demolition and Dismantling of existing Build and Services
 - Civil Works in RCC (below and above plinth)
 - Other Specialized Engineering Works
- **Interior Finishing & Furnishing Costs**
 - Interior Finishing & Fittings

- Furniture & Moveable Equipment Procurement

■ Area Development Costs

- Landscaping Works
- Services Works (electrical, sewerage, plumbing, etc.)
- Bituminous Road Works

■ Plant & Machinery Costs

- Air Conditioning Plant (with Chiller)
- Package Sewage Treatment Plant
- Water Purification Plant (RO)
- Electrical Sub-Station (with DG Set)

■ IT Systems & Miscellaneous Assets Costs

- IT Networking
- IT Equipment

Apart from hard costs above, the following charges were capitalized for the project:

■ Community Development & Environmental Management

- Community Mobilization Charges/ Awareness Campaigns
- Labour Welfare Fund
- Implementation of Environmental Management Plan & Labour Camp
- Social Charges/CSR Expenditure

■ Consulting and Administration Charges

- PMC & DSC Charges: To be incurred during implementation
- Transaction Advisor Charges: To be paid to the Transaction Advisor responsible for PPP procurement
- Incremental Administration Charges

■ Taxes

- Value Added Tax (VAT) on Construction Material

■ Contingencies

- Physical Contingencies
- Price Contingencies

■ Finance Charges during Implementation

- Interest during Construction
- Commitment Charges

The constructed or built-up area of the various civil structures was estimated from their dimensions assumed in the concept plan. Based on the facilities/ amenities to be provided, the no. of plants and equipment was estimated. The item rates for the above cost heads were based on market trends (obtained from secondary sources like web-resources and through interactions/ interviews with experienced engineers, developers, hotel owners).

1.3.3.5 Estimation of total Opex requirement for the Tourism Complex on the basis of services to be provided

On the basis of the total area of the proposed tourism product and the amenities proposed in the concept plan, the total opex requirement for the Tourism Complex for the lifetime of the project was estimated. The major cost heads for operating expenditure were as follows:

- Human Resources Deployment Cost** – The employee costs for the hotel during its operation
- O&M Cost** – The operations and maintenance charges during its operation (excepting utility expenses)

- **Utility Expenses** – The expenses on account on electricity consumption, cooking gas (LPG) consumption, water charges, etc. during its operation
- **Replenishable Expenses** – This expense is for restocking of inventory in restaurants, for maintenance of inventory with house-keeping, operations of the banquet and ceremonial facility and upkeep of the shopping and recreational facilities
- **Social/ CSR Expenditure** – The community development charges to be incurred by the resort during its operation

The rates assumed for various cost heads in opex were based on market trends (obtained from secondary sources like web-resources and through interactions/ interviews with hotel owners and operators) and applied on the basis of the total built-in area, the facilities/ amenities to be provided and the total number of guests to be expected.

1.3.3.6 Estimation of operational parameters of the complex like occupancy, rates

For assessment of the feasibility of the project, operational parameters of the proposed development had to be assumed. The basic operational parameters included the following:

- **Room – category wise occupancy**
- **Restaurants – type wise utilization**
- **Occupancy growth rate**
- **Utilization growth rate**
- **Room category wise tariff**
- **Restaurant – type wise average tariff**
- **Inflation rate**
- **Rate of increase of utility expenses**
- **Rate of increase of O&M cost**
- **No. of employees in the proposed development**
- **Salary increment rate**

The operational parameters were based on market trends (obtained from secondary sources like web-resources and through interactions/ interviews with hotel owners and operators).

1.3.4 Financial Feasibility Study

The financial feasibility analysis could be done only when the entire project from construction to operation was modelled. This was done by means of a spreadsheet based financial model, which had inputs from the previous steps as well as some additional financial assumptions. Additionally, being a PPP with the involvement of a public authority – Bangladesh Parjatan Corporation and a private developer, the structuring options had to be properly evaluated including the risk and reward sharing mechanism and its financial impact on the project. The following activities were undertaken for the financial feasibility study:

1.3.4.1 Analysis of various Financing Options for the project – Banks, Financial Institutions, etc.

Infrastructure projects especially PPP projects are funded by a wide variety of organizations worldwide like commercial banks, infrastructure funding agencies and multilateral institutions. Both debt and equity funding is provided by some multilateral institutions.

Analysis of various financing options for similar projects in Bangladesh is required to understand whether such projects can be funded at competitive rates of interest. This increases the viability of the project during its lifetime. It also provides an indication of the financing avenues available to the private developer of this project. The project team was therefore, involved in the analysis of various financing options for PPP projects in Bangladesh and identifying case studies where loan funding had been provided.

1.3.4.2 Analysis of various Project Structuring Options

Various established structures exist for implementation of PPP projects as follows:

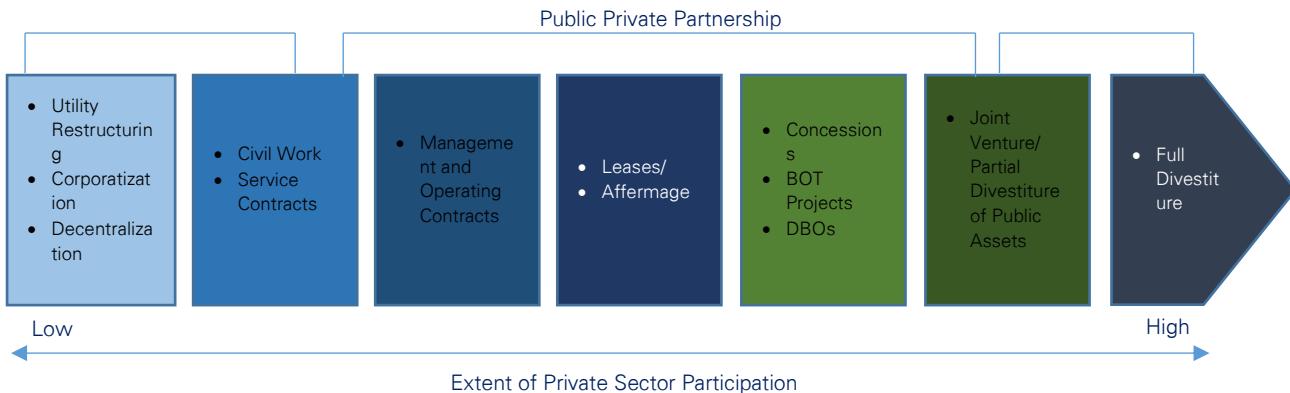


Figure 4: Types of PPP

Each of these structures represents a different risk-reward sharing mechanism. The success of a PPP project often involves identification of the structure suitable to the nature of the project and the risk appetite of the parties involved – the Government Authority and the Private Developer.

To ensure the success of this tourism complex project in Sylhet, analysis of the structuring options was a prerequisite. The project team carried out secondary research (from web-based resources) and also interacted with various stakeholders – developers, Government Authorities and consultants to identify the structures usually followed in Bangladesh and suitable to this type of hotel project. The term of involvement of the private party, the share of revenue/ profit, upfront payment, etc. were decided based on this analysis.

1.3.4.3 Formulation of various assumptions for construction and operation of the international standard tourism complex

A financial model has multiple assumptions regarding both construction and operation. The Capex and Opex assumptions had been carried out as part of Technical Assessment. Other assumptions necessary were finalized on the basis of discussions with various stakeholders and secondary research (web-resources). The following assumptions were finalized:

- **Concession Period**
 - **Construction Period**
 - **Principal Repayment Period**
 - **Principal Moratorium Period after construction**
 - **Interest Rate on Capex Loan**
 - **Working Capital Requirement**
 - **Interest Rate on Working Capital Loan**
 - **Type of Depreciation**
 - **Rates of depreciation on various assets**
 - **Income Tax Rate**

1.3.4.4 Preparation of a financial model - revenue, expenditure, cash flow projections and calculation of financial returns

Using the assumptions for the construction and operations phase and the project structuring assumptions, an MS Excel based financial model was prepared. The model was prepared with the following construction and operations assumption:

- Concession Period – 45 years
- Construction Period – 3 years

The major parts of the financial model were as follows:

- Assumptions
- P&L Statement
- Balance Sheet
- Cash Flow Statement

As output from the model, the Project IRR, Equity IRR and Payback Period were calculated. Using the finalised structuring options, a sensitivity analysis was undertaken for ascertaining the rates of returns for various values of upfront payment made and revenue shared by the private developer to/ with Bangladesh Parjatan Corporation.

1.3.5 Environmental & Social Assessment

The Environmental and Social Assessment of the project was carried out by the Environmental and Social Experts engaged by the Project Team. The Environmental Expert prepared an Initial Environment Examination Report. The expert would also process the application for Environmental Clearance Certificate to be submitted to Department of Environment, Government of Bangladesh. Similarly, the Social Expert undertook a social assessment of the project.

An Environmental and Social screening of the project was also carried out by the Tourism Expert as a precursor to the detailed exercise mentioned above. This was carried out using an E&S screening questionnaire (**Annexure – 9**). For the environmental and social screening of the project, the basis was observations during preliminary site assessment and inputs about the site collected from BPC motel manager and staff.

2 Needs Analysis

2.1 Strategic Need

The transaction advisor held multiple consultative sessions with stakeholders of the project that included BPC, PPP Authority, Sylhet Hotel & Guest House Owners Group, Tour Operators, Local Community representatives, etc. to understand their views on the project. A few strategic needs for this project, which were identified from these discussions are as follows:

2.1.1 Tourism Potential of Bangladesh

The People's Republic of Bangladesh is bordered by Myanmar and India on either sides, the shores of the Bay of Bengal in the south and is separated from Nepal and Bhutan by the Siliguri Corridor. Its proximity to large growing economies with a large population and high disposable income increases Bangladesh's potential to develop as an attractive tourist destination. A country with a diverse geography, Bangladesh comprises archaeological sites, Buddhist monasteries and Hindu temples in the northern part (Rajshahi Division), hilly areas and sand beaches in the south-eastern (Chittagong Division) and the largest mangrove forests-the Sundarbans in the south-western part (Khulna Division).

The total contribution of travel and tourism (direct, indirect and induced effects) was about 4.1% of the GDP for Bangladesh in 2014¹⁴. It was expected to rise by 6% in 2015 and thereafter by 6.5% per annum to a total contribution of BDT 1,252.8 bn by 2025. In the world rankings, Bangladesh ranks 12 in terms of the long term growth forecast for the country's travel and tourism industry.

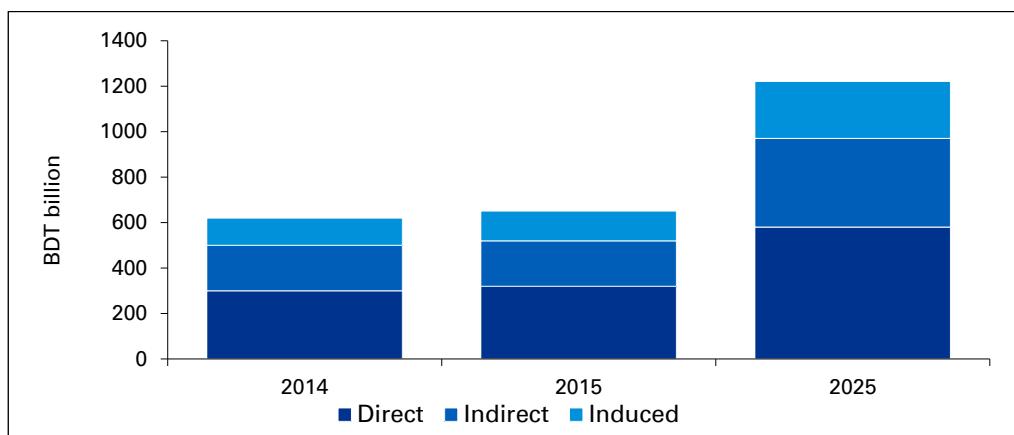


Figure 5: Total Contribution of Travel and Tourism to GDP

Travel and tourism generated 903,500 jobs directly in 2014. These include employment by hotels, travel agents, airlines and other passenger transportation services. Total direct employment from Travel and Tourism is projected to increase at 1.4% per annum to 1,062,000 jobs by 2025. The total contribution of travel and tourism, in terms of employment (direct, indirect and induced effects) in 2014, was 1,984,000 (3.6% of the total jobs). This was expected to rise by 2.2% in 2015 and thereafter by 2.1% per annum to 2,492,000 jobs by 2025.

14 Source: Travel & Tourism's contribution to GDP: Growth, Travel & Tourism Economic impact 2015 Bangladesh, World Travel and Tourism Council (WTTC)

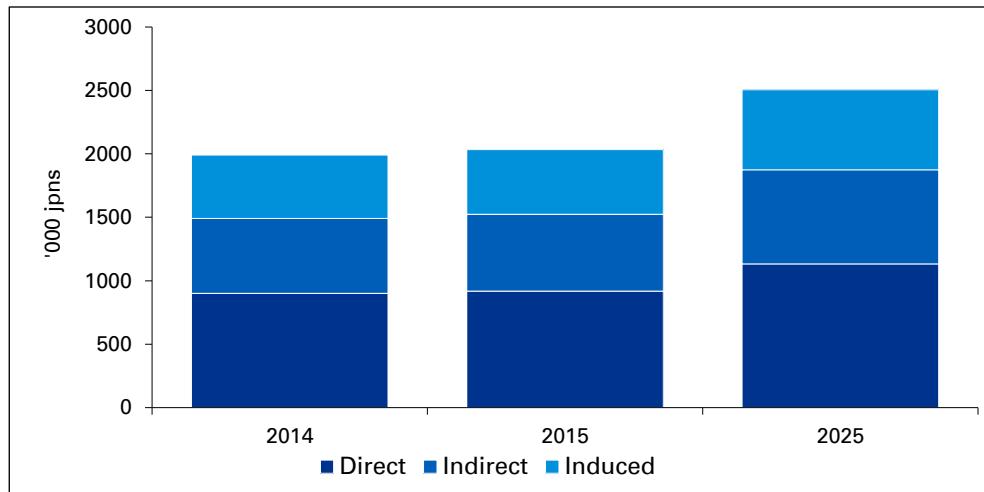


Figure 6: Total contribution of Travel and Tourism to Employment

Further, Inbound Tourist Flow in Bangladesh has been growing at a rate of 5% over the last 10 years. A snapshot of the Inbound Tourist Flow in Bangladesh over the last 10 years has been provided below:-

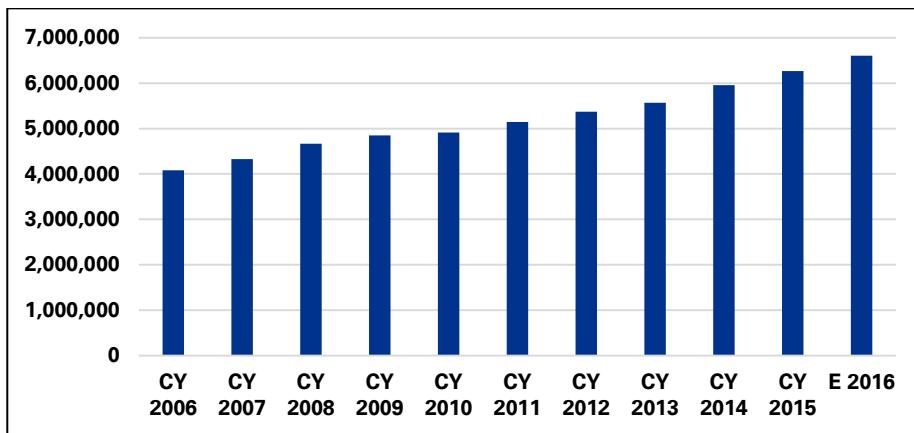


Figure 7: Inbound Tourist Flow in Bangladesh

2.1.2 Tourism Potential of Sylhet

Sylhet Division, in which the Sylhet district lies is bordered by Meghalaya, Assam and Tripura states of India to the north, east and south respectively and by Dhaka and Chittagong to the west. Although Sylhet is a small city in comparison to the capital Dhaka, it has transformed drastically over the years. The construction industry in Sylhet is growing, with many shopping centers and apartments being built to luxurious standards. It has been described as one of the wealthiest cities in the country. The skyline of the city is mainly dominated by large buildings of western-style shopping malls, which have been the largest investments made by the expatriates.



Figure 8: Sylhet Division and the city of Sylhet

Sylhet (both the city and the region) is an important tourist destination in Bangladesh. The region has 15 top tourist attractions and is expected to attract a major chunk of tourist inflows. Some major tourist attractions, include:

- Tropical Forests – Lawachara National Park Rajkandi Reserve Forest, Ratargul Swamp Forest, Khadimnagar National Park, Rema-Kalenga Wildlife Sanctuary, Golapganj Botanical Gardens among others
- Wetlands – Tanguar Haor, Baikka Bee and Hakaluki Haor
- Waterfalls – Madhabkunda Waterfall, Ateka Falls, Parikunda Waterfall, among others
- Rivers – Major ones (Surma, Kushiara, Manu) and minor ones (Sari, Piyain)
- Lakes – Madhabpur Lake
- Hill Station - Jaflong

Apart from its scenic tea plantations and the lush green tropical forests, the region is also well-known for a variety of other reasons:

Handicrafts: Sylhet is well-known for its wide variety of exquisite handicrafts. Cane products such as chair, table, tea trays, flower vases, bags and the exquisitely designed fine Sital Pati (a kind of mattress having natural cooling effect) are colourful souvenirs.

Temple of Sri Chaitanya Dev: About 500 years old famous temple of Sri Chaitanya Mahaprabhu is located at Dhaka Dakhin about 45 km south-east from Sylhet town. The place is revered for being the ancestral home of the famous Vaishnava saint.

Ethic Tribes: Khasia & Manipuri are two important ethnic tribes of Sylhet. Manipuri tribe is famous for its rich culture especially for dancing, singing and their traditional weaving (exquisitely woven woollens, shawls, etc.). Khasia tribe is famous for betel leaf cultivation.

The region has many tea gardens located on small hillocks. A few of the hills in the north-eastern parts of India also extend into Sylhet including the Khasi and Jaintia hills to its north and Tripura hills to its south. All of these geological features have together bestowed Sylhet with a natural beauty unparalleled in other

parts of Bangladesh. In addition, Sylhet is a prominent Islamic centre with a number of important Sufi shrines including the 14th century mausoleums of saints Shah Jalan and Shah Paran. Specifically, Lalakhal noted for its blue waters, serene tea gardens and hills located in Jaintia in Sylhet has great potential to develop as a tourist spot.¹⁵

Sylhet has significant potential for all types of tourism – Religious/ Heritage, Nature/ Eco and Adventure, which can contribute handsomely towards the economy in the years to come. Focus on developing tourism infrastructure, communication facilities and eco-friendly tourism can help develop Sylhet as one of the most popular tourist destinations in Bangladesh.

2.1.3 Need for International Standard Tourist Complex

As per the last economic census, in the past decade, the number of establishments, which is an important indicator of economic activity, has more than doubled in Sylhet from 186,327 in 2003 to 401,979 in 2013. Of these about 14,171 establishments have received investment from expatriates. However, hotels and restaurants form only 6% of the total establishments.

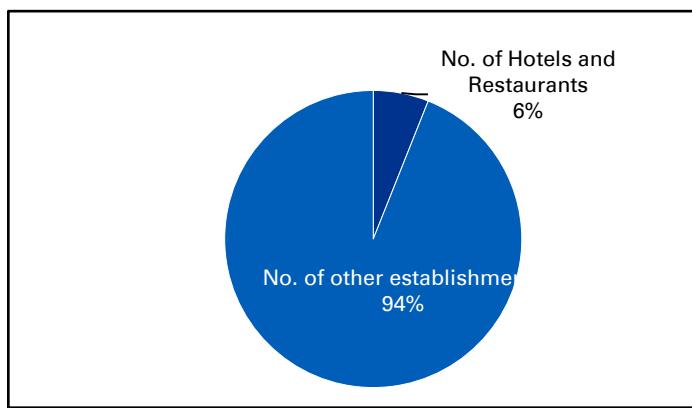


Figure 9: Number of hotels and restaurants in Sylhet

Among these, only a small percentage constitutes of international standard tourism complexes. Sylhet being an important tourist destination particularly due to its large expatriate base and presence of an international airport, thus faces a need to develop hotels/ resorts with amenities to attract international and high-end domestic tourists.

2.1.4 Government initiatives to promote tourism

The Government of Bangladesh is keen to promote tourism in the country. In line with this mission, some of the measures taken are mentioned below:-

- Tourism has been included as one of the “thrust sectors” in the National Industrial Policy 2010 by the Government of Bangladesh. The government has laid emphasis on skill development related to eco-tourism¹⁶.
- As a policy in Vision 2021, the Government plans to make travel and tourism contribute about 5% of the total GDP
- Focus on developing international airports to facilitate international travel and promote tourism

¹⁵ Research Paper titled “Scope of development of tourist spots in Sylhet” authored by Department of Business Administration, Shahjalal University of Science and Technology Sylhet dated March 2009

¹⁶ Report titled “Achieving Bangladesh’ Tourism Potential” published by the World Trade Organization dated 26th August, 2014

- Vision 2021 of Bangladesh mentions the need to take active steps to promote eco-friendly tourism in the country and make it an ecologically attractive place.¹⁷
- The lack of adequate infrastructure like – accommodation, airports, etc. create a major challenge for tourism in Bangladesh. The Government is now making a conscious effort to provide new and up-grade existing accommodation and other infrastructure facilities at major tourist destinations in Bangladesh

Bangladesh Tourism Corporation (BPC), under Ministry of Civil Aviation and Tourism (MoCAT) has a role in promoting and developing the tourism industry in Bangladesh. It is a pioneering organization with the following mandates:

- Promotion and Development of Tourism Industry in Bangladesh
- Creation and Operation of various tourism facilities within Bangladesh

In line with its role, and given the overall tourism potential of Sylhet, BPC intends to develop an international standard tourism complex in Sylhet City in its existing motel compound.

2.1.5 Private Sector driving Investment in Tourism

The Government of Bangladesh's capital expenditure investment in tourism sector for the last five fiscal years has been substantially low compared to other sectors. The need for private investments in enhancing tourism products (Public Goods¹⁸) and building supporting tourism infrastructure (Integral Tourism Products¹⁹) are heightened in the event of weak public investments;

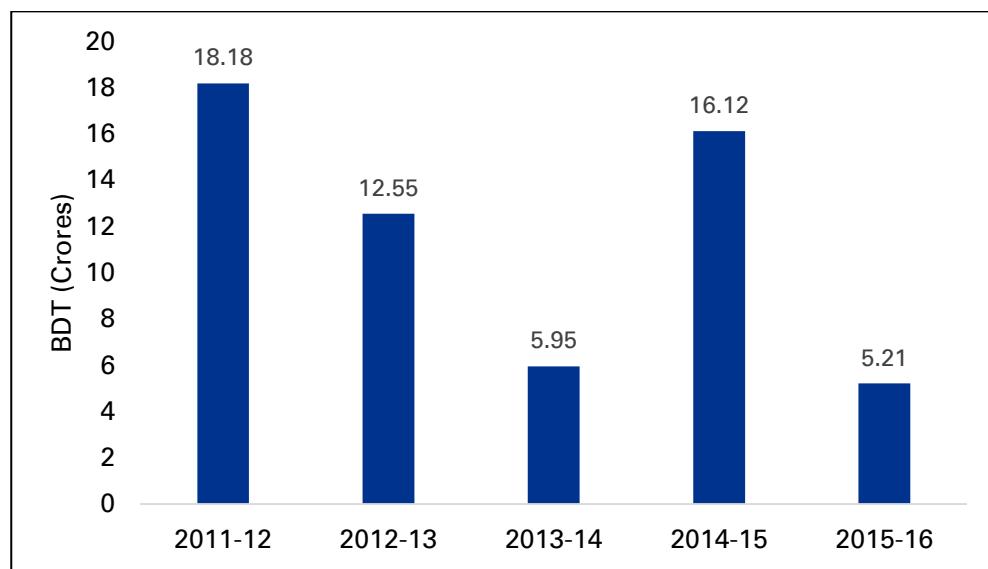


Figure 10: Government Investment in Tourism

17 Source: Report titled "Perspective Plan of Bangladesh 2010-2021" published by the Planning Commission, Government of Bangladesh dated April 2012

18 Note: Public Goods such as the climate and the scenery, that can be used or consumed by tourists free of charge (Scheuch, 1982:87; Leiper, 1990:147)

19 Note: Integral products that can be sold independently on the market (such as hotel accommodation, air transport, admission to visitor attractions etc.) (Koutoulas, 2001:394)

The required investment in tourism as a percentage of the GDP of Bangladesh is expected to increase over the years. At present, the travel and tourism's share of total national investment is 1.3% (approximately 0.78 Billion USD)²⁰ and is expected to grow at 7.8% p.a. for the next ten years (approximately 1.69 Billion USD). In the 7th Five Year plan, the overall expected investment as a percentage of GDP is projected to rise. It is estimated to rise by 2.7% in 2015 and by 7.8% per annum thereafter to BDT 132.1 Billion in 2025. It is expected that most of the investment needs will be met through private investments since public investments in the next 5 years will be about 5% to 8% of GDP. The projected GDP of Bangladesh is expected to grow at 13.7% from BDT 17,176 Billion in FY16 to BDT 28,739 Billion in FY20.

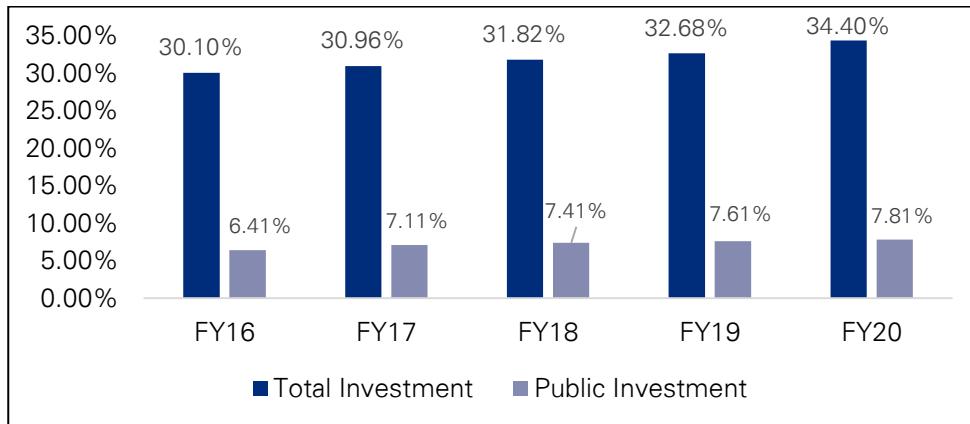


Figure 11: Expected Investment/ GDP %

Further, the strategy of the Government of Bangladesh to divest 13 of its 24 operational tourism properties has risen from the need for encouraging private investments and optimizing capital and operational risks in tourism projects. The PPP model, effectively, is the one of the most viable solutions which provides risk sharing mechanisms to incentivize investments.

20 Source: Visitor Exports and Investments: Growth, Travel & Tourism Economic impact 2015 Bangladesh, World Travel and Tourism Council (WTTC)

2.2 Need for provision of services

A region, division and city wide reconnaissance of Sylhet was conducted by the project team to outline the need for provision of services, which are as follows:

- Sylhet is home to the third largest international airport in Bangladesh after Dhaka and Chittagong. It operates 4 international flights and 4 domestic flights daily ferrying on an average 400²¹ inbound and outbound passengers daily. Most of the passengers travelling to and fro from the Sylhet airport are natives from the northern region of Bangladesh and/ or are international expats. The quality of tourist accommodation²² and services around the airport area is wanting and needs to be suitably upgraded to cater to the profile of transit visitors to the city;
- In the event of Jaflong-Tambil being designated as a Special Tourism Zone, the movement of tourists for overnight stay within the Sylhet city would increase substantially. Adequate tourism infrastructure is required to cater to this expected increase in tourist footfall within Sylhet urban area;
- Out of the 24 tourism accommodation facilities owned by BPC across Bangladesh, BPC Sylhet Motel Complex has the largest tract of picturesque property. This can be effectively utilised to cater to the needs of the eco-tourist arrivals in the region. Sylhet, has the second largest number of nature and culture based eco-tourist arrivals after Bandarban;
- The average annual total inbound tourists (domestic, foreign and non-resident Bangladeshi) arrivals in Sylhet is 400,000²³ and there is an emerging need for international standard accommodation within Sylhet city;
- Sylhet annually receives on an average 50,000²⁴ outbound tourist and non-resident Bangladeshi tourist from Bangladesh who use Sylhet as a port of exit, and hence the need for transit/ short stay facilities for OTDs;
- Jaflong, Ratargul Swamp, Jaintia Hills, Bichanakandi, Shah Jalal Mazaar are popular and some of the most visited tourist attractions within Sylhet district. There is a need to develop a packaged offering whereby the various tourist attractions can be combined with a comfortable accommodation to enhance the experience of the tourists;
- Need for developing an international standard tourism complex that would be a 'one stop destination' covering all aspects like – accommodation, convention, recreation, leisure, adventure, etc.; and
- There is a perceived need for providing impetus to tourism infrastructure investments in Sylhet that would trigger entrepreneurship in tourism sector

21 KPMG Analysis

22 Note: Excluding the under-construction Grand Sylhet Hotel

23 KPMG Analysis

24 KPMG Analysis

3 Linked Project Assessment

The success of a tourist destination depends on multiple factors. Some of the important factors are:

- Places of tourist interest in close vicinity – Places of natural beauty (Hills/ mountains, Sea beach, Forests), Religious/ Historical places
- Connectivity – Road, Railways and Air traffic connecting other cities (inside/ outside the country) to the destination
- Hotels & Restaurants – Hotels/ Resorts of good quality plus restaurants availability at reasonable price
- Infrastructure – Roads and other urban infrastructure within the destination as well as mobile and internet connectivity
- Conveyance – Availability of Buses, Car rentals within the tourist destination
- Shops and Markets – Shops, Markets and handicraft bazaars catering to tourists

Similarly, for the tourism product (proposed development) to succeed there are some critical linked projects, which need to be developed. These linked projects are outlined below:

1. **Improve road connectivity to the site** – The road leading to the BPC motel compound is not in good condition. There is a need to strengthen and upgrade the existing road outside the proposed site (that connects to the main road) and also improve the intersection geometry. Public Works Department (PWD) is the agency responsible for undertaking this task.
2. **Construct tourist information centre for Sylhet division** – Sylhet has many top tourist attractions and is expected to attract a major chunk of the tourist inflows in the foreseeable future. Hence, to promote Sylhet as a national brand a tourist information centre should be established at the facility site. Bangladesh Tourism Board (BTB) is the nodal agency in-charge of this task
3. **Provide directional signage in Sylhet** – Since Sylhet has an international airport, a major chunk of international tourists visiting Bangladesh visit the city. Hence for ease of tourist movement, directional signage should be installed in Sylhet. Bangladesh Parjatan Corporation (BPC) is the agency responsible for installing the directional signage.
4. **Carry out promotion and branding of Sylhet** – Promotion and branding of a city or region goes a long way in improving the tourist influx into the region. Hence, Bangladesh Tourism Board (BTB) should allocate separate budget for promotion and branding of tourist attractions in and around Sylhet including the facility.
5. **Improve road connectivity to nearby tourist attractions** – The roads connecting Bichanakandi, Ratargul and Jaflong to Sylhet City are in a poor condition. Improvement and upgrade of the road linkages to Bichanakandi, Ratargul and Jaflong will also help increase tourist inflow to Sylhet. Roads and Highways Department (RHD) will be the nodal agency implementing this task.
6. **Upgrade electrical Infrastructure** – For the proposed International Standard Tourism Complex, ground burial of electrical cables/ networks and installation of electrical substation of appropriate capacity at the facility site are needed. Bangladesh Power Development Board (BPDB) is the agency responsible for this work.

7. **Undertake proper management of generated waste** – For efficient functioning of the tourism complex, installation and provision of solid waste collection, segregation and disposal facility near the site is required. Sylhet City Corporation is the agency responsible for carrying out this work.

4 Site Appreciation

4.1 Site Significance

The city of Sylhet, located in the Surma Valley and nestled between two tributaries of Surma River, has been historically known as both Shilahatta and Jalalabad. The city is surrounded by the terraced tea estates of Malinicherra, Khadimnagar and Lalakhali; Haors such as Lali, Dalair, Hakaluki, Tangaur, Kandar, etc.; the river valleys of Shari, Bichanakandi, Gowainghat, Jaflong, Tamabil and Lalakhali; forests such as the Ratargul Swamp forest, Khadimnagar National Park and Tilagor; Madhabpur Lake and the sub-tropical hills and rain forests of Jaintiapur and Rathacherra Khasia Punjee. Revered as the spiritual capital of Bangladesh, Sylhet is well-known for its cultural heritage and hosts the 14th century mausoleums of Sufi Saints Shah Jalal, Shah Paran and ancestral residence of hindu monk Sri Chaitanya Mahaprabhu. The city is said to date back to ancient and early medieval period and has remained the prominent centre for trade through the classical, colonial²⁵ and post-colonial²⁶ periods. The Bandar Bazar area is considered to be the oldest part of Sylhet and has been a prominent economic inland port centre.

4.2 Location, Connectivity & Linkages

The BPC Motel Complex is located in the Sylhet Sadar Upazila of Sylhet district in Sylhet Division at an altitude of **45.78 meters** above MSL. The coordinates of the complex are **24.949868°E, 91.870793°N**. The complex is situated northwest to the city of Sylhet near the lower reaches of the Surma Valley ridge. It is situated on top of a hillock and provides a panoramic view of the Malinicherra tea estate in the south, Khadimnagar national park in the east, the Surma valley rivulets in the west and the Sylhet International Airport in the north. The Cadet College and the Ahmed housing area are situated to the south and north of the site respectively. Situated in one of the most picturesque locations in Sylhet, the site is one of the most popular natural recreational getaways for people in Bangladesh.

²⁵During the Colonial Period (British colony) from 18th century AD to 1947 AD, Sylhet remained with East Bengal of Indian Colony

²⁶ During the post-Colonial Period from 1947 to 1971 AD Sylhet remained part of East Pakistan and after the Liberation War it became an integral part of Bangladesh



Figure 12: Aerial View of the Project Site

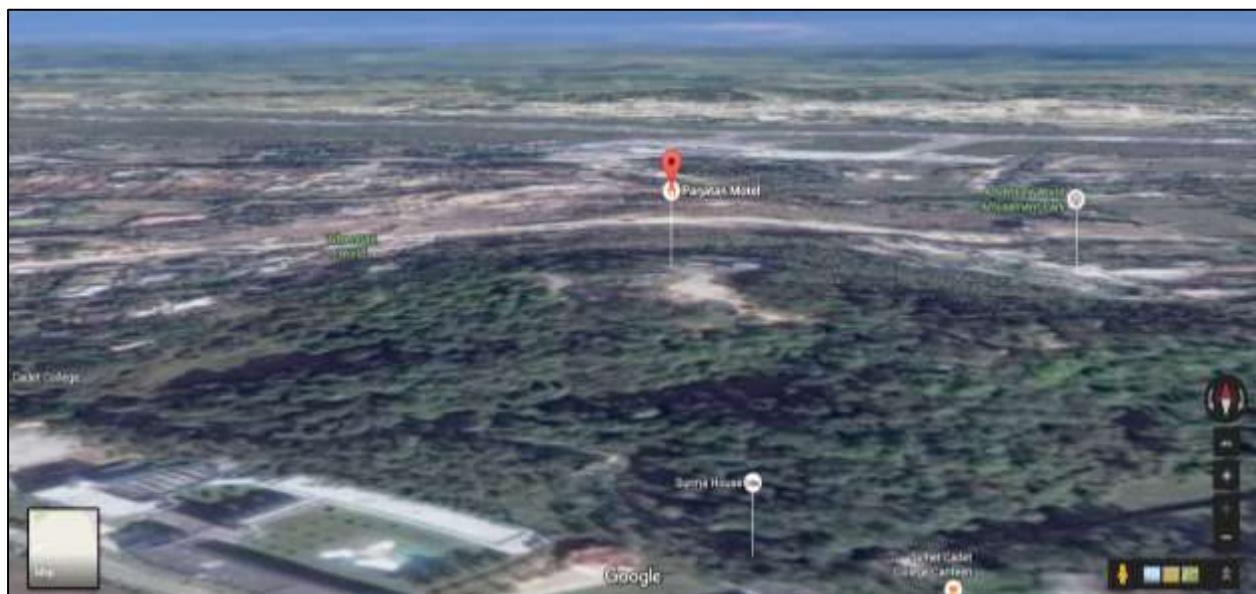


Figure 13: Tilted Aerial view of the project site



Figure 14: Snaps of the existing BPC Motel at Sylhet

The site is accessible from Sylhet city by the airport road originating from the junction of Amberkhana point (old city centre of Sylhet) with an approximate driving distance of 6 km and can be reached in approximately 15 mins. The motel complex can also be accessed by the airport bypass road. The Chowkidekhi town bus terminal and station, is also located nearby, about 4 km south on the airport road. The nearest airport is the Osmania (Sylhet) International Airport, situated 2 km to the north and the nearest railway station is the Sylhet railway station, at a distance of 9 km towards south. The last mile connectivity to the site is through a dedicated cement concrete access road of approximately 400 Meters from the airport road junction.

The nearest local towns accessible from the site by road are:

Table 3: Linkages to local towns from the site

#	Town	Distance from the site by road (km)
1.	Horipur	28
2.	Companiganj	23
3.	Jaintiapur	48
4.	Jaflong	63
5.	Chhatak	39
6.	Golapganj	28
7.	Sunamganj	66
8.	Maulvibazar	74
9.	Sreemangal	87
10.	Hobiganj	89
11.	Shaistaganj	97

The major cities of Bangladesh accessible by road from the site are:-

Table 4: Linkages to major cities in Bangladesh from the site

#	Major City	Distance from the site by road (km)
1.	Dhaka	244
2.	Chittagong	372
3.	Khulna	511
4.	Rajshahi	461
5.	Comilla	219

The international border towns accessible by road from the site are:-

Table 5: Linkages to International Towns from the site

#	International Towns	Distance from the site by road (km)
1.	Karimganj (Assam, India)	68
2.	Dawki (Meghalaya, India)	61
3.	Latiapur (Tripura, India)	95

4.3 Description of Existing Features, Infrastructure and Facilities

Area & Ownership:

The total site area under BPC's ownership is about 41.55 acres out of which 13.00 acres has been leased to a private operator for an Amusement Park for children; 0.96 Acres is leased for a Bar and the land earmarked for development under BPC Motel Complex is around 27.59 acres. The site for the proposed project is part fenced by barbed wire, part by a masonry wall and a considerable section is at present unfenced.

Access to the Site:

The site can be accessed from three different entry points. The primary entry point is a cement concrete paved vehicular access road (150 meters long and 3.5 meters wide), which runs from the junction with the

Airport road to the northwest corner of the site. The second entry point is a part bitumen paved and part kutcha vehicular access road (with an average width of 2.5 meters) which runs from the boundary gate of the Cadet College campus at the southeast corner of the site to junction of the airport bypass road on the northeast corner of the site. The third entry point is another part block paved and part kutcha pedestrian access from the Children Amusement Park. The main building inside the existing complex can be accessed by the vehicular road till the porch area.

General Geography, Geology & Topography:

The complex has a plain area only at the top of the plateau. The rest of the site has steep slopes to its south and north; and has a gentle slope in the east and west. The site has dense pine plantations on the western slopes, tea plantation and natural undergrowth to its northeast slopes, and dense rainforest vegetation to its east. Being placed on a ridge running from east to west, most of the slopes of the site are either south or north facing, receiving maximum sunlight during both summer and winter seasons. The soil crust is clayey in nature with a sub grade of boulders (metamorphic rocks) and most of its slopes are naturally stabilized except a few places in the east where erosion during heavy rains is a common phenomenon due to sparse vegetation. A khal is located on the southwestern boundary edge of the site. The Cadet College Area lies upstream to the khal.

Existing Zoning, Land use & Activity:

The Motel Complex is under the jurisdiction of the Sylhet City Corporation and is regulated by the National Building Code and Bangladesh Pourashava Act, 2009. The area is not notified under any special area/ zone or agro ecological zone and does not come under the purview of civil aviation laws of the country (except the height restrictions on buildings) since it is located away from the flight path of the Sylhet International Airport. The designated land use category for the site is for Tourism purposes. Activity wise, the site area of 41.54 Acres, is divided into five areas: bar area, services area, main motel complex area, eco-park area, and natural areas (left unused).

Built-up Facilities:

The existing motel complex was under Pakistan's Defence Establishment till 1971, probably being used for residential purposes. Following multiple renovations from 1984 till 1994, the complex had been made operational for tourism purposes.

At the main entrance of the site, a two storied bar (leased out) with stilted covered parking has been recently constructed. The area also has temporary built structures like staff quarters, water pumping station, etc. The main complex at the hill top is a double storied building which is divided into two parts: the accommodation part (houses 25 motel rooms with 50 bed capacity, reception area, administrative offices, storage, covered conference area with a maximum guest holding capacity of 60 people, prayer area and other service areas) and the other part (houses the kitchen, restaurant with a capacity of 60 people and auxiliary services area).

To the east of the motel building is the eco-park which can be accessed by day visitors and also by hotel guests. The entrance to the eco-park is through the forecourt of the motel which is part bitumen paved and part flat brick soling paved and is also sometimes used for open air functions/ events/ film shootings, having a guest holding capacity of 200 people. The eco-park entrance has a small ticketing facility and a temporary ice-cream parlor kiosk operated by BPC. The park is strictly a pedestrian zone with a block paved (composite with brick and concrete paving) trail path of approximately 120 meters long and the rest is unpaved dirt trails. Near the entrance of the eco-park is a small children play area with a covered toilet facility for the day visitors and an open view deck. The park also boasts of two covered observation weather shelters for viewing and appreciating the natural surroundings. There are some unfinished built structures

in the eco-park, built for the proposed ropeway piers, one of which is currently being used as a solid waste dumping area.

To the extreme north of the motel building lies a brick paved courtyard with a generator room, three mobile towers with their maintenance shops and a small abandoned toilet.

4.4 Existing Tourism Profile²⁷

The KPMG Team conducted a detailed assessment of the existing BPC Motel Complex from 2010 to 2015. The observations from the detailed assessment are discussed below:-

- The average annual FTAs to this facility is 50 with a negative growth rate of -22.74%;
- NBAs to this facility is 100 with a negative growth rate of -2.47%;
- DTAs to this facility is 10,000 with a negative growth rate of -2.44%;
- Total arrivals to the site is 10,150 with a negative growth rate of -2.58%.
- The average annual DVAs to this facility is 64,000 with an average growth rate of 4.53%.
- The average annual Foreign Exchange Earnings from this facility is 1800 USD with a negative growth rate of -24.84%.
- The average annual occupancy rate for this facility is 54.50% with a negative growth rate of -2.33%.
- The average length of stay of Foreign Tourist to this facility is 3 days, whereas for the Domestic tourist it is 2 days.
- Most received FTAs to this facility by country of origin are from India (18.49%) followed by Japan (15.75%) and China (8.90%).
- The most received DTAs to this facility by city/ district/ division are from Dhaka (38.46%) followed by Sylhet (30.77%) and Mymensingh (15.38%).
- The top three reasons amongst tourists for choosing to stay in this facility are its Unique Location (46.15%) followed by Level of Services (23.08%) and Accommodation Quality (15.38%).
- The top three local excursions preferred by the tourist to this facility are Mazaars (38.46%) followed by Ratargul Swamp Forest (30.77%) and Bichanakandi River Plains (15.38%).
- The Purposes of Visit (POVs) amongst FTAs to this facility are Tourism (82.23%) followed by Business (10.10%) and Service (7.67%).
- The POVs amongst DTAs to this facility are Tourism (62.45%) followed by Business (24.32%) and Service (13.22%).

4.5 Existing Financial Status²⁸

The existing facility receives revenues from Accommodation, Restaurant/ Room Service, Tickets to Eco-Park and Rent for Meeting/ Banquets/ Events. Further, some observations on the financial status of the Motel are discussed below:-

- The average annual revenue generated from this facility is BDT 12.25 Million with an annual growth rate of 2.83%.
- The expenditure heads for this facility are Human Resources/ Salaries, Maintenance/ Repair, Housekeeping, Replenish-able Goods, Utilities, Taxes and Others.

²⁷ Source: BPC Sylhet Motel and Visitor Survey from visitor book records

²⁸ Source: BPC Sylhet Motel and Visitor Survey from visitor book records

- The average annual expenditure incurred by this facility is BDT 9.65 Million with an annual growth rate of -3.23%.
- The average gross profit made by this facility is BDT 2.60 Million with an annual growth rate of approximately 230%.

4.6 Issues and Concerns

The project team accompanied by designated officials from BPC Sylhet Motel assessed the physical condition of the site and its surroundings and discussed the prevailing problem areas that need to be addressed. The issues and concerns identified are discussed below:-

- The site facility is perceived to be underbuilt compared to other competitive options in Sylhet where the average room keys range from 30 to 50 rooms with at least 60 to 100 bed capacity;
- The quality of accommodation and services at the existing facility is not commensurate with the standard expected by non-resident Bangladeshi and foreign tourists arriving in the country;
- The existing tariffs have been designed keeping in mind only the budget tourist segments and this has acted as a deterrent to position the facility to upmarket tourists, who are willing to pay more for premium services;
- The existing complex lacks facilities for recreation, leisure, etc. Hence most guests opt for better options within the city, thus resulting in diminishing footfalls of guests;
- Apart from revenue generated from accommodation and eco-park ticketing facilities, the motel has not been able to develop unique revenue rich tourism products to attract visitors;
- Sylhet being a prominent institutional, natural and cultural heritage destination, the existing facility lacks appropriate positioning in the tourist itinerary, hence failing to tap the tourist inflow;
- The BPC motel has not been able to tap the advantages of a distinct natural feature and characteristic, ready connectivity to transport heads, strategic positioning in the regional tourism scheme, etc.
- The access to the site from the junction of airport road lacks visibility due to unregulated development, which bottlenecks the entrance and the site loses out on incidental discovery by the tourists;
- There is an evident lack of clarity or logical segregation of movement and activities within the site thus resulting in overlapping of day visitors and guests activities;
- Ad hoc placement of mobile towers and lack of proper planning in routing overhead electrical and telephone wires have diminished the aesthetics of the place;
- The site as a whole is not appropriately secured within a boundary, leaving it open to trespassing, unwarranted thoroughfare, etc.;
- The tended and untended open places in the foreground have not been designed suitably/ aesthetically and allow juxtaposing of built and open environment;
- The approach road to the motel site has inadequate width for two way traffic;
- The overall appearance of the existing motel is outdated;
- The site does not have a sewage/ septage/ wastewater treatment facility and still depends on the conventional septic tanks thus contaminating the soil and water table below;
- The site does not have waste management facilities thus leading to unwanted dumping of waste on the slopes causing sanitary and pollution hazards;
- Presence of stray animal within the motel complex has a potential to threaten the safety of visitors; and
- Due to lack of retention and slope protection, a few locations in the site are prone to slippages.

4.7 Site Analysis

A detailed site analysis had been conducted by the project team for the purpose of ease of planning decisions and the following Site Analysis Maps are provided in the Annexures herein:

- A site relief analysis map grading the altitude differences, delineating natural and modified topographical features;
- A slope analysis map showing grades of different slopes within the site boundary;
- A hydrology, geology and vegetation map showing natural water flow, sheet flows, geological characteristics and vegetation type;
- A built, movement and circulation analysis map showing the existing built placement, pedestrian and vehicular movement patterns, etc.; and
- A zoning plan broadly delineating activity areas by their usage characteristics and typology

The Topographical Map of the Project Site is given below:-



Figure 15: Topographical Map of the Project Site

The Site Relief Analysis map is shown below:

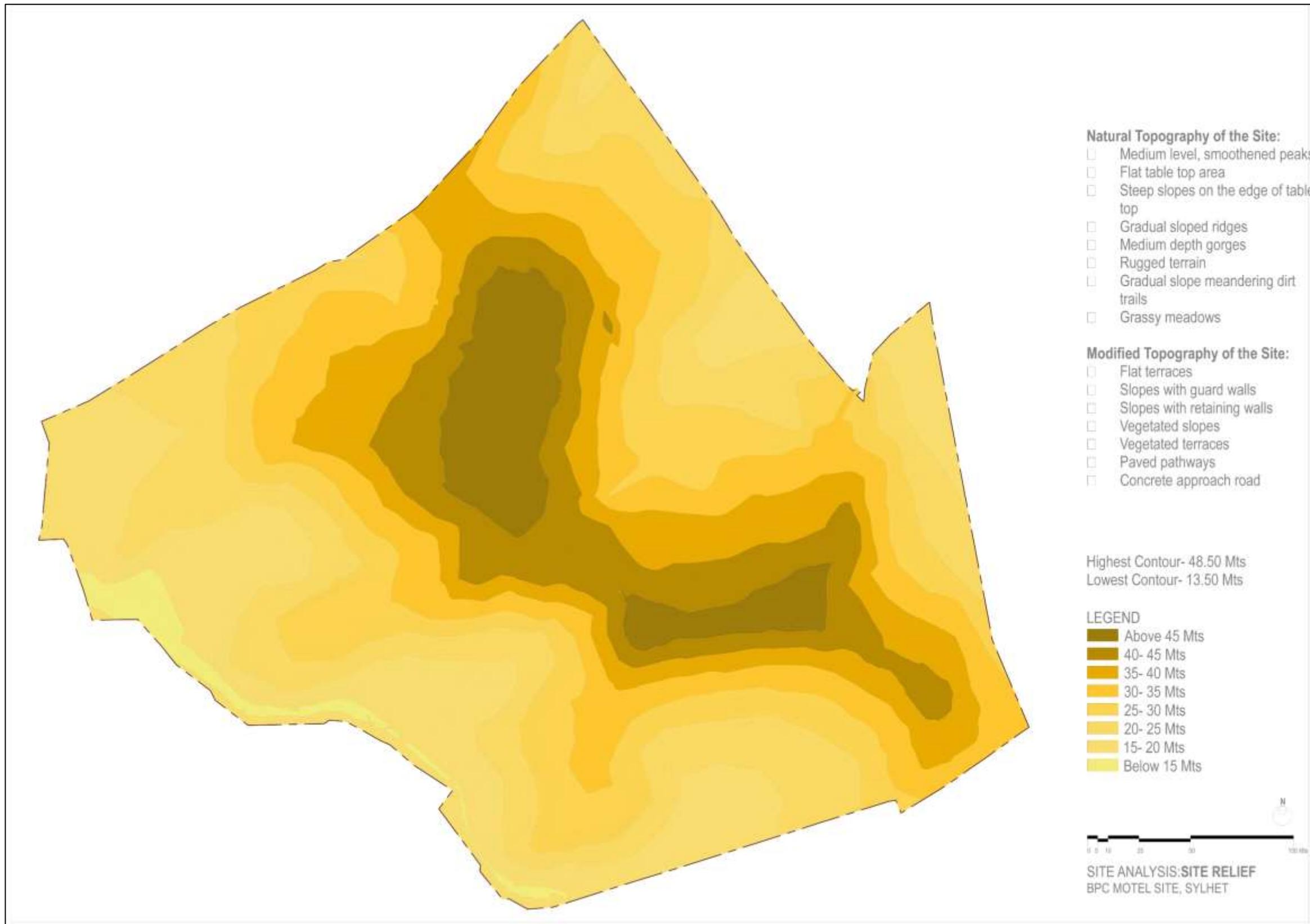


Figure 16: Site Relief Map of the Project Site

The Slope Analysis Map is shown below:



Figure 17: Slope Map of the Project Site

The Hydrology, Vegetation, Geology and Climate map is shown below:



Figure 18: Hydrology, Vegetation, Geology and Climate Map of the Project Site

The Built, Movement and View Map is shown below:

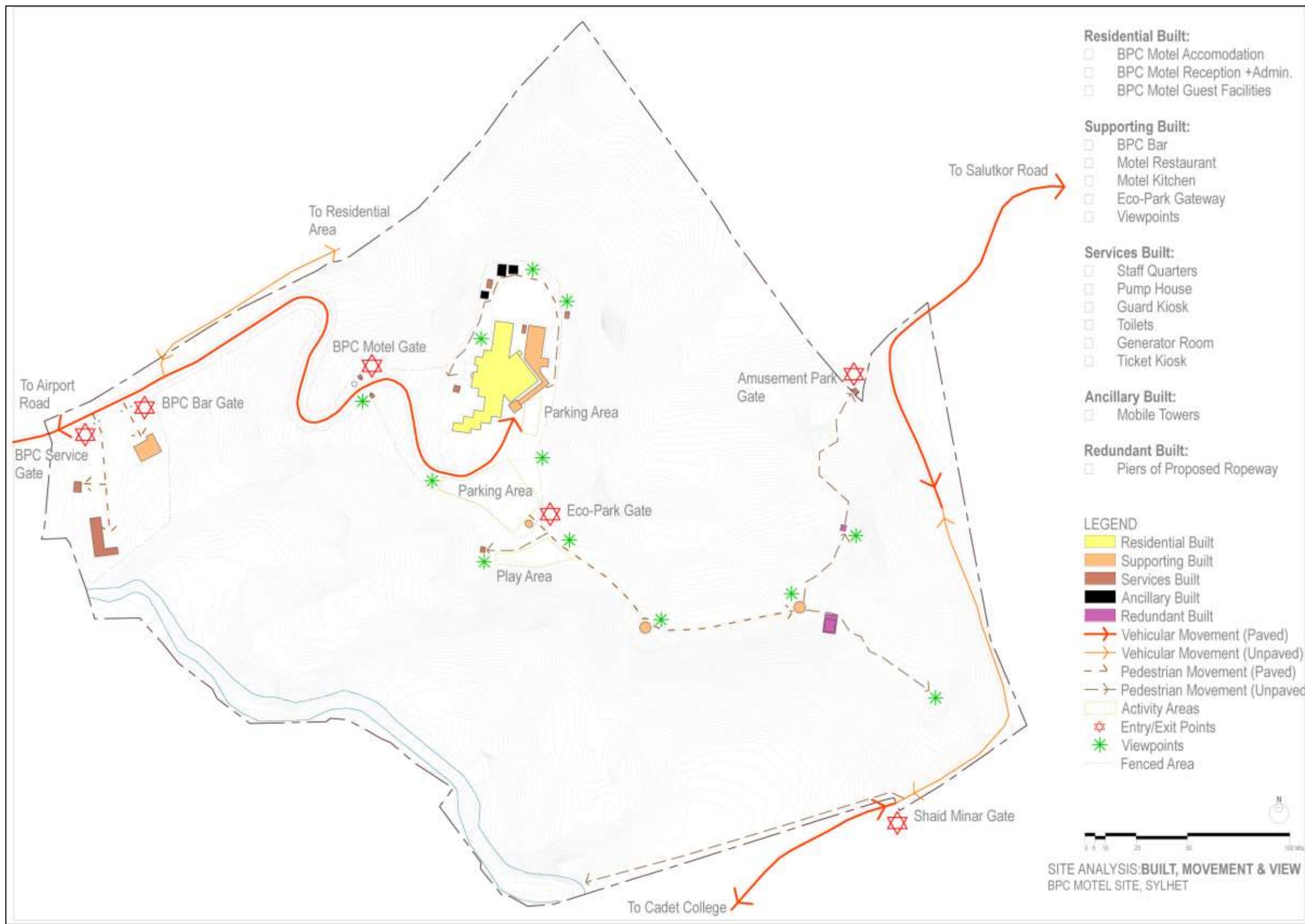


Figure 19: Built, Movement and View Map of the Project Site

5 Concept Plan of the Tourism Complex

5.1 Rationale for Proposed Development

The existing motel of BPC at Sylhet is inadequate to cater to the growing tourists flow in Sylhet. Further, it is important that Sylhet has a hotel or resort which meets international standards and houses a range of facilities, as Sylhet already has the third largest international airport in Bangladesh and a strong flow of expats, nationals and tourists.

An international standard resort has been proposed after analysing the existing tourist data, assessing the demand – supply gap for average number of rooms required in Sylhet, the accommodation preference among tourists, strategic advantages of the project site and the facilities offered by other similar hotels and resorts in Bangladesh.

5.1.1 Decision Framework from existing tourist data

Demand among tourists visiting the receptor

The assessment is based on the analysis of demand amongst tourists visiting the receptor i.e. the existing facility. Though the extract of such findings might not be ideally representative of the needs of entire cross section of tourists, it still may be considered to be a good indicator of the tourist profile but has possibilities of indicating the profile and the required supply specifics. The findings of this assessment are as follows:

- The trends show that the existing facility is most popular amongst the domestic tourists; domestic tourists have a dominating average annual share of 98% of arrivals with approximately 10,000 visitations annually;
- The Day Visitors to the existing facility are integral to product decision as their average annual share to the total number of footfalls to the site is 86%; this adds to 64,000 DVAs p.a. i.e. nearly 175 day visitations;
- The average annual occupancy rate at this facility is 55%, substantially higher than the industry trends in Bangladesh probably due to the limited quantity of accommodation in Sylhet;
- The FTAs by country of origin to the receptor indicate that it is most popular amongst Indian tourists followed by Japanese and Chinese and their primary POV is weekend holidays from their work. The FTAs are primarily expatriates working in the infrastructure industry in and around Sylhet;
- The place of origin of DTAs visiting the receptor indicate its popularity amongst domestic tourists from Dhaka, followed by the resident Sylheti from different districts of Sylhet division and Mymensingh, all of whose POV are mainly weekend breaks, scheduled holidays and vacations to nature based tourism attractions;
- The three main points of attraction, which draw tourists to this facility are pilgrimage to Mazaars of Shah Jalal and Shah Paran followed by Ratargul Swamp Forest and Bichanakandi River Plains;
- The total footfall to the receptor indicates that the peak season for arrivals is roughly 7 months – February to April and September to December;
- The key reasons for choice of the receptor for stay amongst all tourists is because of its unique location; and
- The most preferred transport mode amongst all tourists to the receptor is by private and rented cars; 30.77% of arrivals.

Table 6: Receptor Based Decision Matrix

Key Target Group Mix	Origin Characteristics Mix	Product Characteristics Mix	Peak Seasonality Characteristics Mix	Minimum Product Planning Baseline
Domestic Tourist	Dhaka Sylhet Mymensingh	Weekend Holidays	February to April and September to December (7 months)	<ul style="list-style-type: none"> ■ Maintain the natural character of the site ■ Strengthen linkages to Mazaars, Ratargul and Bichanakandi ■ Substantially enhance day attractions ■ Car parking – 30% of Room Keys ■ Tariff Range 1900 BDT to 2500 BDT ■ Optimal occupancy levels at 50%
Day Visitor		Day Attractions		
Foreign Tourist	India Japan China			

Demand amongst Competitive Options

The assessment is based on analysis of the demand amongst tourists visiting the competitive options within the Sylhet catchment area. For this purpose top 9 hotels/ resorts within Sylhet city were shortlisted and their key infrastructure and facilities inventoried. Direct demands was not assessed and the analysis was based on the assumption of supply driven demands. Key findings of the same are presented below:

- There are around 210 hotels/ resorts in Sylhet district, mostly concentrated in Sylhet city area with an average range of 30 room keys i.e. approximately 6300 room keys and 12000 bed total capacity;
- Almost all of these competitive options have conference and small convention facilities;
- The analysis of the top 10 hotels in Sylhet shows that the DTAs have the largest share (60%) followed by NBAs (25%) and FTAs (15%);
- The FTAs by country of origin to these competitive options indicate that foreign tourists from UK top the list followed by USA, Saudi Arabia, India and their primary POV is weekend holidays. The FTAs are primarily expatriates working in the infrastructure industry in and around Sylhet or are on a pilgrimage to the Mazaars;
- The origin of DTAs and NBAs arriving at these competitive options indicates that domestic and non-resident Bangladeshi tourists from Dhaka top the list followed by Sylhet and Chittagong and their primary POV is weekend holidays from their work and business purposes. A substantial number of non-resident Bangladeshis are qualified OTDs from different parts of Bangladesh especially from the northern region for whom Sylhet is a port of exit to countries like UK, Saudi Arabia, Qatar, etc.;
- The three main points of attraction, which draw the tourist to these competitive options are pilgrimage to Mazaars of Shah Jalal and Shah Paran followed by Jaflong-Tamabil and Bichanakandi River Plains; and
- On an average parking facilities for 10 cars are available across all the options.

Table 7: Competitive Options based Decision Matrix

Key Target Group Mix	Origin Characteristics Mix	Product Characteristics Mix	Peak Seasonality Characteristics Mix	Minimum Product Planning Baseline
Domestic Tourist	Dhaka Chittagong	Weekend Holidays	February to April and September to December (7 months)	<ul style="list-style-type: none"> ■ Improve accommodation quality and level of services; ■ Strengthen linkages to Mazaars, Jaflong and Bichanakandi; ■ Car parking requirement 10% of Room Keys ■ Maximum traffic during weekend clubbed with festive holidays ■ Tariff Range 2500 BDT to 10000 BDT ■ Optimal occupancy levels at 35%
Non-resident Bangladeshi Tourist	Mymensingh			
Foreign Tourist	UK USA Saudi Arabia	Business Port of Exit		

Demand from Countrywide Tourism Trends

The overall demand for tourism in Sylhet was extracted from the country wide key indicators of tourism scenario in Bangladesh; the key findings are as follows:

- Sylhet division receives approximately 6, 00,000 Domestic Tourists p.a., which is 14% of the total and is ranked 3rd after Dhaka and Chittagong. Out of this, the Sylhet district/ city receives approximately 2,80,000 Domestic Tourists p.a.;
- Sylhet division receives approximately 40,000 Non-resident Bangladeshi Tourists p.a. which is 14% of the total and is ranked 3rd after Chittagong and Dhaka. Out of this, the Sylhet district/ city receives approximately 25,000 Non-resident Bangladeshi Tourists p.a.;
- Sylhet division receives approximately 1, 07,000 Foreign Tourists p.a., which is 18% share of the total and is ranked 1st followed by Chittagong, Dhaka and Rajshahi. Out of this, the Sylhet district/ city receives approximately 1,00,000 Foreign Tourists p.a.;
- In terms of Total Inbound Tourist arrivals, approximately 7, 40,000 tourists p.a. visit Sylhet division, which is 15% of the total arrivals and is ranked 3rd after Dhaka and Chittagong. Out of this, the Sylhet district/ city receives approximately 4,00,000 Total Inbound Tourists p.a.;
- Ratargul Swamp Forest, Sreemangal Tea Gardens and Lawacherra National Park are the most popular destinations in the Sylhet division amongst the Foreign Tourists. They are also amongst top 15 tourist attractions in Bangladesh, ranked 2nd, 3rd and 14th respectively;
- Jaflong-Tamabil and Lawacherra National Park are the most popular destinations in Sylhet division amongst the Domestic Tourists; amongst the top 15 destinations in Bangladesh they are ranked 4th and 9th respectively;
- Ratargul Swamp Forest and Sreemangal Tea Gardens are the most popular destinations in Sylhet division amongst the Non-resident Bangladeshi Tourists; amongst the top 15 destinations in Bangladesh, they are ranked 3rd and 5th respectively;
- Sylhet division generates approximately 2,00,000 Domestic Tourist, p.a. i.e. 5% of the total generated by 7 divisions of Bangladesh;
- National indicators suggest that the majority of domestic tourists by occupation are agrarian/ dependants (49%) followed by private sector employees (32 %) and self-employed (10%). The POV

of visit amongst domestic tourist are Business (17%), Leisure/ Holidays (16%), Health Treatment (14%) and Pilgrimage (10%). Approximately 56% of domestic tourists prefer to stay in Hotels/ Resorts. Domestic tourists in Bangladesh spend 40% of their tourism budget on Transportation, 20% on Accommodation and 20% on Food & Beverages;

- National indicators suggest that the POV of visit amongst non-resident Bangladeshi tourist are Pilgrimage (14%), Visiting Friends/ Relatives (13%) and Training/ Workshops (11%) and Leisure/ Holidays (8%). Approximately 35% of non-resident Bangladeshi tourist prefer to stay in Hotels/ Resorts. Non-resident Bangladeshi tourist in Bangladesh spend 31% of their tourism budget on Transportation, 26% on Food & Beverages and 25% on Accommodation;
- National indicators suggest that the FTAs by their country of origin are primarily from India (21%) followed by UK (18%) and China (5%). The fastest growth is seen amongst FTAs from China, Italy and Japan. The POV of visit amongst foreign tourist are visiting friends/ relatives (32%), Leisure/ Holidays (15%) and Business (13%). Approximately 49% of foreign tourists prefer to stay in Hotels/ Resorts. Foreign tourists in Bangladesh spend 41% of their tourism budget on Accommodation, 19% on Food & Beverages and 8% on Transportation; and
- Number of OTDs from Bangladesh is approximately 17, 00,000 annually.

Table 8: Country-wide Tourism Trend based Decision Matrix

Key Target Group Mix	Origin Characteristics Mix	Product Characteristics Mix	Peak Seasonality Characteristics Mix	Minimum Product Planning Baseline
Domestic Tourist		Leisure/ Holidays		
Non-resident Bangladeshi Tourist	Dhaka Chittagong Rajshahi	Visiting Friends/Relatives Training Workshop	All seasons (12 months)	<ul style="list-style-type: none"> ■ Strengthen linkages to Ratargul and Jaflong; ■ Maximum traffic during rainy season and weekend clubbed with festive holidays
Foreign Tourist	India UK China Italy Japan	Business Health Treatment		<ul style="list-style-type: none"> ■ Optimal occupancy levels at 30% ■ Facilities for outbound tourists
Outbound Tourist		Port of Exit		

Demand from Resorts in Bangladesh

The assessment is based on the demand in the top 24 resorts in Bangladesh. This assessment helps in outlining the performance thresholds across seven different aspects/ parameters and provides as indication of the supply trend amongst them which can be assumed to be a proxy for demand; the key findings of which are as follows:

- Best performing resorts have campus area ranging from 10 to 25 Acres;
- Best performing resorts have better last mile connectivity to transport heads and to other important cities/ towns;
- Best performing resorts have medium-high levels of services in terms of visitor rating and value for money;
- Best performing resorts except the big ones, have average 40 room keys;

- Best performing resorts have maximum 33% extra beds to its room keys;
- Best performing resorts have more than 5 categories of room keys available;
- Only 30% of the room keys of the best performing resorts are within affordable tariff limits;
- The average discount on rack rates offered by best performing resorts ranges between 5-15%;
- The average annual occupancy rate amongst the best performing resorts ranges between 40 to 49%;
- The average annual per capita visitor turnover for these best performing resorts approximately ranges between BDT 2 to 4 lakh;
- Best performing resorts have more than 125% of total guest holding capacity as seating capacity for food and dining facilities;
- Best performing resorts have more than 100% of total guest holding capacity as seating capacity for convention and business facilities;
- Best performing resorts have more than 200% of total guest holding capacity as seating capacity for banquet and event facilities;
- Best performing resorts have at least 3 recreational and entertainment facilities for the guests;
- Best performing resorts have swimming pool and wellness facilities for the guests;
- Best performing resorts have at least 4 outdoor activity/sports facilities for the guests;
- Best performing resorts have more than 150% of total guest holding capacity as parking capacity;
- Best performing resorts have more than 5 famous tourist attractions within their catchment areas;
- Best performing resorts conduct local tours and excursion based on the tourist demand;
- Sylhet division has 14 resorts averaging 20% share of total resorts in bangladesh. Sylhet division has 582 resort room keys averaging 28% share of total resort room keys in Bangladesh;
- The most preferred tourism product offered by resorts in Bangladesh are Eco/ Nature followed by Getaway/ Retreat and Beach based resort. The most preferred tourism product by resorts in Sylhet division are Luxury followed by Eco/ Nature and Getaway/ Retreat based resort.
- Most of the resorts have speciality and multi-cuisine restaurants;
- Most of the resorts have conference halls and meeting rooms as convention facility;
- Most of the resorts have banquet facilities with holding capacities ranging between 100 to 200 pax;
- Most of the resorts have library, amphitheatre/ OAT and others as guest recreational and entertainment facility;
- Most of the resorts have swimming pool with kiddie pool, spa, jacuzzi and gymnasium as guest health and wellness facility;
- Most of the resorts have outdoor activities/ picnic infrastructure, outdoor court games and indoor games as guest sports and leisure facility; and
- Most of the resorts are strategically located in proximity to sites of natural heritage, religious edifices and tangible cultural heritage.

Table 9: Resort-wise Tourism Based Decision Matrix

Key Target Group Mix	Origin Characteristics Mix	Product Characteristics Mix	Peak Seasonality Characteristics Mix	Minimum Product Planning Baseline
Domestic Tourist	-	Eco/Nature Getaway/Retreat	-	<ul style="list-style-type: none"> ■ Minimum 10 Acres required for a resort ■ Minimum 40 room keys required ■ Minimum 5 categories of rooms

Key Target Group Mix	Origin Characteristics Mix	Product Characteristics Mix	Peak Seasonality Characteristics Mix	Minimum Product Planning Baseline
Non-resident Bangladeshi Tourist		Luxury		<ul style="list-style-type: none"> ■ Expected occupancy rate range 40 to 50% ■ 125% of total overnight guest capacity as seating capacity for food & beverage facilities
Foreign Tourist				<ul style="list-style-type: none"> ■ 100% of total overnight guest capacity as seating capacity for convention & business facilities ■ 200% of total overnight guest capacity as seating capacity for banquet & event facilities ■ At least 3 entertainment facilities ■ Mandatory swimming pool with wellness centre ■ At least 4 outdoor activity/ sport facilities ■ 150% of total overnight guest capacity as parking facilities ■ Free local tours and excursions for overnight visitors
Outbound Tourist				

Demand from Analysis of DAS & WTP

Specific demand assessment and willingness to pay surveys were conducted by the TA Team to outline specific demands from the tourists; the outcomes of this assessment are the following:

- The most popular destinations amongst the respondent tourists are Sylhet followed by Cox's Bazar, Chittagong and the Sundarbans;
- The most preferred reasons for choosing a destination amongst respondent tourists are Tourism Infrastructure followed by Experience and Product Mix;
- The POV amongst respondent tourists are Vacations, Short Holidays/ Weekends, Recreation/ Leisure and Business;
- The number of tourism visitation amongst respondent tourists averages around 2 days;
- 29% of the respondent tourists prefer to stay at a budget hotel, 15% high end hotel, 12% boutique hotel, 8% gateway hotels, 7% high end resort and 7% in eco resort;
- 57% of the respondent tourists, have stayed in a resort in Bangladesh at least once earlier;
- The main reasons for staying in a resort amongst respondent tourists are the offered activities and natural environment;

- The preferred mode of travel amongst respondent tourists are hired vehicle, owned private vehicle and mixed modes;
- The preferred companionship to destinations amongst respondent tourists are with family, friends and spouse/ partner;
- The source of information for planning trips amongst respondent tourists are through advertisement, magazine and information centre;
- The general areas of improvement in tourism delivery system suggested by the respondent tourists are mostly for accommodation related issues followed by outreach & branding issues and amenities & infrastructure related issues. The specific areas of improvement in tourism delivery system suggested by the respondent tourists are related to accommodation hygiene and tariff, public amenities and facilities and accommodation appearance;
- 36% of the respondent tourists have major annual allocations of their budgets for travel and tourism;
- 90% of the respondent tourists agreed to increase their tourism budget annually;
- The preferred price bands for accommodation amongst respondent tourists in order of their choice are BDT 5000 to 7500, BDT 2000 to 5000, BDT 1000 to 2000 and BDT 7500 to 10000;
- 93% of the respondent tourists agreed to an increase in current accommodation prices;
- The most preferred increase in current accommodation pricing range amongst respondent tourists in order of their choice are 15-30%, 5-15% and 30-50%;
- The preferred owner and operator amongst respondent tourists are private/ promoter and government;
- 93% of the respondent tourists agreed to pay environmental & social distress recovery charges; and
- The measures to be taken for promotion of tourism in Sylhet, as suggested by respondent tourists in order of their choice are – increase in marketing and promotion initiatives, arrangement of tourism related exhibitions/ tradeshows and promotion of tourism investment amongst entrepreneurs.

Table 10: Survey based Decision Matrix

Key Target Group Mix	Origin Characteristics Mix	Product Characteristics Mix	Peak Seasonality Characteristics Mix	Minimum Product Planning Baseline
Domestic Tourist	Dhaka Rangpur Sylhet	Vacations Short Holidays/Weekends Recreation/Leisure	All seasons (12 months)	<ul style="list-style-type: none"> ■ The product shall be from or the mix of budget hotel, high end hotel, boutique hotel, gateway hotels, high end resort and eco resort ■ Offered activities and natural environment are two principal planning factors ■ Increase above current pricing trends for accommodation is acceptable ■ The price range for deciding majority of tariff range is 1000 to 10000 BDT ■ Cess charges for recovery of environmental and
Non-resident Bangladeshi Tourist	China Canada India France Australia	Business		
Foreign Tourist				

				social distress can be inbuilt in the tariffs
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The final product rationale framework based on the above decision matrices is outlined below:

Table 11: Product Rational Framework

Key Target Group (KTG)		PRODUCT RATIONALE FRAMEWORK					
Key Target Group (KTG)	KTG Origin	Approximately KTG Thresholds Annually to Sylhet City	KTG Peak Traffic Time	KTG Peak Seasonality Time	KTG Purpose of Visit	KTG Preference of Stay Characteristics	Minimum Product Planning Baselines
Domestic Tourists	Dhaka Sylhet Chittagong Mymensingh Rajshahi Rangpur	2,75,000	Long Weekends with public holidays	February to April and September to December (7 months)	Short Holidays/ Weekends Recreation/ Leisure Vacations	Budget High End Luxury	<ul style="list-style-type: none"> ■ Natural character of the site to be maintained ■ Linkages to local tourist attractions to be strengthened and in-tariff tour and excursions to be provided ■ Maximum number of offered activities for all target groups to increase their engagement levels and elongate their stay ■ Substantially enhance day attractions within the site both for inbound tourists and day visitors ■ Improve accommodation quality and level of services ■ Include at least 5 categories of accommodation with different experiences ■ Minimum 40 room keys ■ Optimal annual occupancy rate range from 35 to 40% ■ More than 65% OGC as parking facilities ■ Minimum 125% of OGC as seating capacity for food & beverage facilities ■ Minimum 100% of OGC as seating capacity for convention & business facilities ■ Minimum 200% of OGC as seating capacity for banquet & event facilities ■ Minimum 3 entertainment facilities ■ Minimum 4 outdoor activity/ sport facilities
Non-resident Bangladeshi Tourists	Sylhet Division	25,000	Weekends	February to April and September to December (7 months)	Day Attractions Business Training Workshop	Boutique Gateway	
Foreign Tourists	China India Japan UK France USA Saudi Arabia Canada Australia	1,00,000	Throughout	October to January (4 months)	Visiting Friends/ Relatives Pilgrimage Health Treatment	Business Eco/ Nature Getaway/ Retreat	
Outbound Tourists	Northern region of Bangladesh	50,000	Throughout	12 months	Port of Exit		

		PRODUCT RATIONALE FRAMEWORK					
Key Target Group (KTG)	KTG Origin	Approximately KTG Thresholds Annually to Sylhet City	KTG Peak Traffic Time	KTG Peak Seasonality Time	KTG Purpose of Visit	KTG Preference of Stay Characteristics	Minimum Product Planning Baselines
Day Visitors	Sylhet City	64,000	Throughout	12 months			<ul style="list-style-type: none"> ■ Mandatory swimming pool with wellness centre ■ Plan for facilities like transit boarding, flight check-in, etc. for outbound tourists ■ Plan majority of tariff between 1000 to 10000 BDT range covering all economic capacities of tourists ■ Inbuilt cess charges for recovery of environmental & social distress in tariffs

5.1.2 Demand – Supply Gap

At present, Sylhet district/ city, gets daily arrivals of around 750 domestic tourists, 70 non-resident Bangladeshi tourists, 270 foreign tourists and 130 outbound tourists to port of exits. Assuming 40% of the domestic tourists, 50% of the non-resident Bangladeshi tourists, 100% of foreign tourists and 50% of outbound tourists prefer to stay at international standard accommodation facility, the total average room demand of such facilities is approximately 670. Analysis of the local competitive options amongst 10 top hotels reveals that only 3 hotels/ resorts in Sylhet city – Nazimgarh Resorts, Rose View and Star Pacific have rooms of international standards – 230 in number. Considering a maximum bed capacity of 2, the average daily demand of international standard rooms is 335 whereas only 230 room keys of international standards are available within Sylhet city indicating a daily supply shortage of 105 rooms. The above computation has been tabulated below:

Table 12: Computation of Demand - Supply Gap

#	Tourist Type	Average No. of Tourists/day	Percentage staying in hotels resorts	No. of tourists staying in high-end hotels/resorts
1	Foreign Tourist	270	100%	270
2	Domestic Tourist	750	40%	300
3	Non-Resident Bangladeshi	70	50%	35
4	Outbound tourists	130	50%	65
Average Daily Tourists in Sylhet				670
Average Occupants per rooms				2
Average No. of Rooms required				335
Existing supply of international standard rooms				230
Demand – Supply Gap				105

5.1.3 Accommodation preference among tourists

The transaction advisor conducted a questionnaire based demand assessment survey based on standard market and sectoral practices with 150 tourists, from Sylhet, Dhaka, Chittagong and Cox's Bazar tourist destinations. The sample size comprised of 67% foreign tourists, 23% domestic tourist and 10% non-resident Bangladeshi tourists. From the survey, it emerged that around 75% of the respondents preferred staying in hotels and resorts. Of the 75%, around 29% prefer budget hotels and around 19% prefer resort type facilities. A chart detailing the overall preference of accommodation among the respondents is provided subsequently.

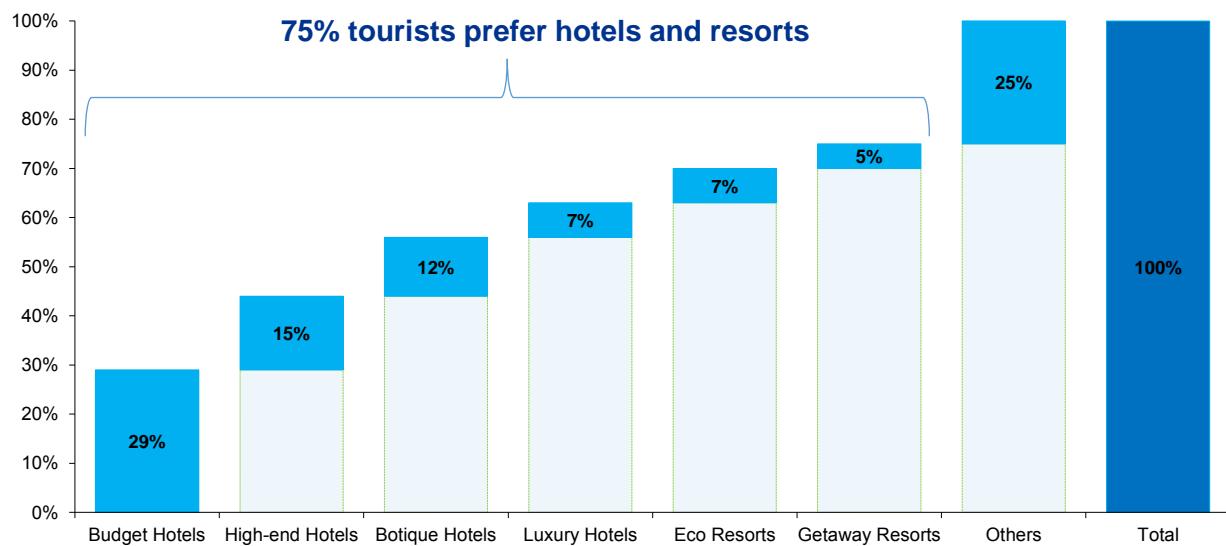


Figure 20: Tourist preference for accommodation

5.1.4 Strategic advantages of the site

The project site is located strategically and it is imperative that the proposed product should utilise the location to its advantage. Some of the key advantages of the location, which the proposed product needs to incorporate are mentioned below:

- Large natural expanse located at serene location on the periphery of the city
- Good connectivity and accessibility to the site
- Strategically located in proximity to the International Airport at Sylhet
- Close to International Border with India
- Near the Malinicherra Tea Estate (oldest in Bangladesh)
- The site is slightly elevated and provides good view of the airport and mountains at a distance
- Trees and natural undergrowth with a micro eco-system
- Popular spot with an high footfalls from day visitors

Further the demand survey shows tourist preference of a natural environment and range of activities in a resort. The other hotels and resorts in Sylhet do not have all the advantages mentioned earlier, which the project site has.

5.1.5 Benchmarking of other resorts/ hotels in Bangladesh

To recommend the facilities at the proposed resort at the existing motel compound of BPC, it is important to benchmark it against other international level resorts in Bangladesh. For determining the performance threshold of competitive options and prevailing benchmarks of resorts in Bangladesh, a long list of 72 operational resorts²⁹ in Bangladesh was prepared, out of which 25 resorts (including the Sylhet Motel) were shortlisted based on conformance to at least 3 out of 4 following criteria: sizable room keys; good reputation & rating amongst tourists³⁰; similar geographical setting and/ or envisaged product; and fairly large property size. The shortlist accommodated diverse geographical samples and included various types of offered tourism products in Bangladesh.

29 Note: List of 72 resorts appended in the Annexure

30 Source: From ratings by different Tour and Travel Aggregators & Portals

A detailed evaluation criteria³¹ was prepared by TA Team based on benchmarked practices for hospitality industry that were broadly divided into 7 heads: Area Adequacy; Last Mile Connectivity; Level of Services Offered; Level of Accommodation Facilities Available; Sustainability Factors; Other Facilities Offered; and Tourism Product Uniqueness.

A detailed inventory³² of all 25 shortlisted resorts was prepared by TA Team, employing various primary and secondary surveys that included first-hand information from administrators of properties; visit to their respective websites; telephonic queries, etc. Ratings and scoring³³ were calculated on the 25 shortlisted resorts and the Performance Threshold was calculated by evaluating 24 resorts (excluding Sylhet Motel). The mean value of each parameter for the resorts was taken as performance threshold for that parameter.

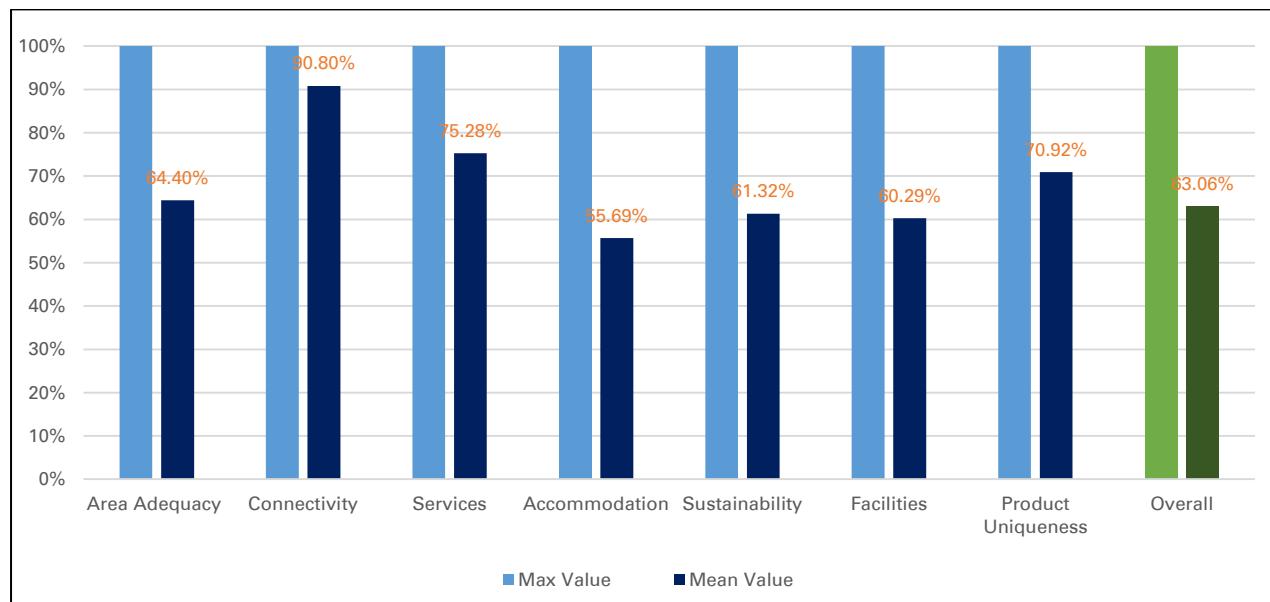


Figure 21: Key parameters with threshold levels

Some other considerations of the project rationale are provided below:

5.1.6 Overall tourism infrastructure development of Sylhet

- Demand for an international standard tourism complex in Sylhet which should have a palette of provisions and services like accommodation, dining, leisure, business, entertainment, wellness, sports and adventure that cater to both inbound guests and day visitors simultaneously without any conflict in activities
- Impetus to increase the market share of rooms of the existing motel of BPC to the district/ city total. Currently there are 210 operational hotels in Sylhet district/ city with an average of 30 room keys, which total to approximately 6300 rooms of which BPC motel has only 26 room keys (0.40% share).
- Demand for a product that is inclusive and capable of catering to all possible profile of tourists (varied economic, social, cultural strata). Very few of the hospitality infrastructure in Bangladesh cater to this theme of inclusive diversity;
- Need for a tourism proponent that would exemplify best practices and benchmarked services levels and would drive and develop the hospitality industry in Sylhet region;

31 Note: Detailed Evaluation Criteria is provided in the Annexure

32 Note: Detailed Inventory is provided in the Annexure

33 Note: Composite Score is provided in the Annexure

- The need for exploring opportunities of integrating the said product to the itinerary of the tourists who are bound to north of Sylhet city to various tourist attractions like Jaflong, Tamabil, Ratargul, Jaintiapur, Bichanakandi, Tangaur Haor, Lalakhali, Gowainghat, Shari etc.

5.1.7 Local requirement

- Demand for city level recreational and event based activity attraction where optimal infrastructure is developed keeping in mind the local needs such as mini conference and convention facility, exclusive banquet facility and sporting and wellness facilities for health conscious locals
- Meeting the city's high demand for fine dining facilities, which would cater to both the local population and inbound & outbound tourists. At present there are approximately 1600 restaurants and eateries in Sylhet district/ city, out of which only 5 have accessible large fine dine-in facility
- Need for rejuvenating the existing nature and culture based tourism product by means of new recreational, leisure and adventure values and experiences that would be unique and would attract tourists from various regions;
- Need for creating economic opportunities, newer livelihood options, community led tourism activities, wide-range participation of tourism actors, etc. that would provide fillip to the local and regional level tourism; and
- Need for increasing the level of private entrepreneurship and enabling & encouraging the participating and role of private players in the creation and management of tourism assets.

5.2 Product Mix

A broad tourism product mix is proposed delineating the interactivity between the various product aspects as illustrated below:

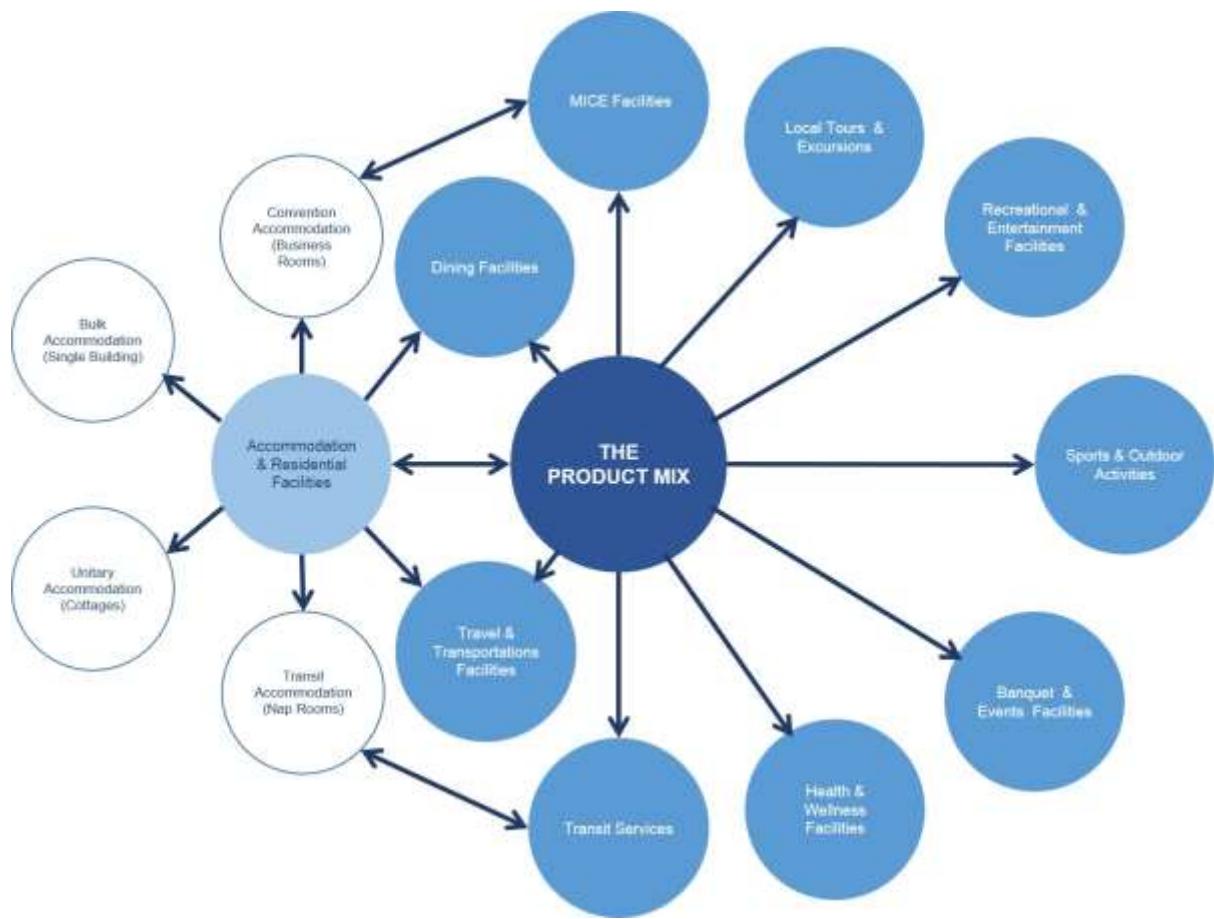


Figure 22: Interrelationships impacting the tourism product mix

5.3 Details of the Concept Plan

5.3.1 Planning Principles

The broad planning principles adopted for this proposed project are as follows:

- Minimal construction in eco-sensitive areas;
- Preferring pedestrian environment with minimum vehicular movement in core functional areas;
- Smart planning and placement of infrastructure that minimizes conflicts/ overlaps between users but is universally accessible;
- Planning hierachal movements so as to segregate core activities from service activities;
- Planning approaches that promote conservation and adaptive use of natural resources;
- Perspective planning that is coherent to the future needs and is sustainable;
- Low key sensitized development that is vernacular to its context;
- Compact spatial development that optimizes the use of land resources;
- Low impact development approaches for minimizing impacts on environment, social and cultural fabric;

- Minimal carbon footprint by promoting the use of eco-friendly building material, green technology, clean energy and efficient/ smart interfaces during construction and operation of the facility;
- Passive green planning approaches for open – built juxtaposition;
- 3R (reduce, reuse and recycle) planning principles for end-products generated by the project;
- Access to and use of non-conventional renewable energy resources;
- Self-sustainable and low maintenance facilities;
- Planning sensitive to social, community and cultural needs;
- Barrier free environment for the physically challenged;
- Value for money experience in product mix;
- Disaster resilient facilities that can withhold moderate natural disasters and has planning preparedness; and
- Optimal planning and mitigation of activities, facilities and amenities with potential to cause pollution;

5.3.2 Concept Plan

The main features of the concept plan (as illustrated in the concept plan drawing) are as follows:

- Consolidation of the property boundary by excluding 0.96 acres land leased for the existing BPC bar, which means effectively 27.59 acres is earmarked for concession;
- Construction/ reconstruction of the boundary wall with masonry/ chain-link fencing all around the concession boundary including construction/ reconstruction/ relocation of 3 gates (main gate adjacent to the BPC bar, secondary gate at the Shahid Minar entrance and gate to the amusement park);
- Upgradation/ reconstruction in cement concrete rigid pavement of the existing approach road of 3.5 mts average formation width to 4.5 mts including geometrical & super elevation improvement, necessary breast and retaining wall construction, reconstruction of side drains and culverts, provision of road appurtenances, etc.;
- Demolition and dismantling of all built structures within the concession boundary and making the site good for construction;
- Construction of branch roads with rigid pavement for proposed banquet facility (formation width 3.5 mts), proposed services block (formation width 3.00 mts) and upgradation of the existing kutcha road to the residential area to a rigid pavement (formation width 3.15 mts) including construction and provision of all necessary retaining sections, side drains, culverts, road appurtenances, etc. as indicated in the drawing;
- Provision of guard and security room at the main entrance gate;
- Provision for a compacted gravel filled parking for at least 30 cars and 5 battery operated vehicles/ carts;
- Provision of water pumping and electric substation including laying of necessary burial networks, construction of sub-grade storage tanks and maintenance yard;
- Provision of a sport and recreation complex comprising of facilities for outdoor hard-court sport and indoor sport/ games including all necessary equipment, strategically located for easy access to day visitors and overnight guests;
- Provision of covered banquet and ceremonial facility for minimum 120 person capacity and an open to air banquet lawn for minimum 200 person capacity accessible to local population as well as overnight guests;
- Provision of convention facility including conference halls, training rooms, board rooms, buffet lobbies, auditorium and all necessary auxiliary services for minimum aggregated capacity of 400 person accessible to both local population and overnight guests;
- Provision of compacted gravel filled convention parking for at least 10 cars;
- Provision of a maximum three storeyed building block housing 68 guest rooms, food and beverage facilities with minimum aggregated seating capacity of 335 person , reception, administration, ball

room of minimum holding capacity of 80 person and retail and entertainment facilities of minimum holding capacity of 490 person complete with all auxiliary circulations including lifts, staircases, fire exits, etc. and services. Circulation within this building is planned in a manner to provide exclusive access for overnight guest to facilities that are shared as well as to preserve privacy;

- Provision of a maximum three storeyed building block housing 20 guest rooms for convention facilities and spa and wellness centre with aggregated holding capacity of 40 person, complete with all auxiliary circulations including lifts, staircases, fire exits, etc. and services. Circulation within this building is planned in a manner to interconnect the spa and wellness facilities to the guest areas and also connect the 20 guest rooms to the convention and food and beverage facilities;
- Provision of compacted gravel filled valet parking for at least 10 cars;
- Provision of a swimming pool of adequate shape, size and depth including changing rooms, shower cubicles, filtration plant, pool decking etc. accessible to both overnight guests and visitors to spa and wellness centre;
- Provision of cottage accommodation across categories detailed in the brief with minimum 32 rooms complete with all facilities and auxiliary services. The placement of the cottages are according to vantage positioning vis-à-vis their tariff structure;
- Provision of single storeyed services block housing auxiliary services, staff accommodation and dormitory;
- Provision of an nature hugged open air theatre with minimum holding capacity of 100 to 150 person;
- Provision of at least 2 bird watching towers;
- Provision of separate zip lining facilities for overnight guests and day visitors including launch boards and dis-embankment towers;
- Provision of at least 4 outlook/ viewing decks appropriately placed in guest and common areas;
- Provision of at least 2 level transporting decks appropriately placed in guest areas including lifts for barrier free access and services to guest areas;
- Provision of an appropriate length of dirt trail of minimum width of 1.50 mts for hiking and biking purposes along the natural features connecting important parts of the project;
- Provision of paved pathways/sidewalks connecting all features of the project with adequate and appropriately designed ramps, steps and railings;
- Widening, desilting and dredging of the existing Khal (stream) with appropriate pitching, embankments, and gabion protection;
- Upstream treatment of Khal water by provision of water treatment facility including treatment plant room, retention tank, desilting tank, scumming tank, bio-mediation tank, release tank and sluice gates;
- Provision of boating jetty with adequate boats, kayaks, canoes and equipment for water sport activities;
- Provision of waterfront terrace with landscape features;
- Provision of angling facility with fish breeding/ culture tanks;
- Provision of 3 reed lagoons with bio-digestion tanks of adequate capacities to treat sewage/ septage waste water from the project;
- Provision of a butterfly garden with appropriate green undergrowth and shrubberies and with small incubation facility;
- Provision of picnic spot for day visitors and overnight guests separately with appropriate garden furniture and semi covered weather shelters;
- Provision of separate camping ground and tentage facility for visitors and overnight guests appropriately placed in the project area;
- Development of tea gardens and rubber plantation areas within the project site;
- Provision for pedestrian bridges, decking and cross overs wherever necessary within the site;
- Training of perennial streams within the site;
- Plantation of trees within the tended and untended green areas of the site;

- Plantation and turfing of tended green areas with lawns, shrubs, herbs, plants, undergrowth, ground covers, flower beds, creepers, etc.
- Provision for street/ garden furniture at appropriate locations within the site; and
- Provision of any other deemed to be necessary services and facilities within the project area.

5.3.3 Description of the Building and Physical Infrastructure

BUILT UP/ COVERED AREA

The complex is proposed to have a total built-up area of 13,922 sq. m. The covered/ built up area will include the residential facilities, food/ beverages, spa and wellness, entertainment and recreational facilities, among others. A detailed description of this area is given below:-

Residential Facilities

The International Standard Resort is proposed with a mix of rooms and cottages. A detailed description of the rooms and cottages along with their capacity, area and number of rooms are given in the tables below:-

Single Building

Table 13: Residential Facilities (Single Building)

Sl. No	Type of Room	Guest Capacity (No. of person)	Number of Rooms	Area (sq. m)
1.	Nap Rooms for Outbound Tourist S/B A/C	1	5	12.00
2.	Economy Room D/B Non A/C	2	5	16.00
3.	Standard Room D/B A/C	2	10	20.00
4.	Executive Room D/B A/C	2	20	28.00
5.	Deluxe Room D/B A/C	2	16	30.00
6.	Premium D/B A/C	2	10	35.00
7.	Presidential Suite D/B A/C	2	2	80.00
8.	Auxiliary Space			40%

Nap Rooms for Outbound Tourists will include only a bath and a closet. All other types of rooms will include bath, closet and vestibule. Auxiliary space includes spaces for walls, partitions and corridors. The total number of rooms will be **68** and the total area required for residential rooms will be **2,646 sq. m.**

Cottages

Table 14: Residential Facilities (Cottages)

Sl. No	Type of Room	Guest Capacity (No. of person)	Number of		Area (sq. m)
			Rooms		
1.	Village Cottage Non A/C	2	8		45.00
2.	Deluxe Cottage D/B A/C	2	8		50.00
3.	Cliff Side Premium Cottage	2	8		55.00
4.	Tea Garden Chalet D/B A/C	4	2		80.00
5.	Tree House D/B A/C	4	4		90.00
6.	Outlook Villa Suites D/B A/C	4	2		100.00
7.	Auxiliary Space (Includes walls, partitions etc.)				20%

All the different types of cottages will include a bath, closet, vestibule and a veranda. Auxiliary Space includes spaces for walls and partitions. The total number of cottages available will be **32** and the total area required for the cottages will be **2,304 sq. m**. Hence, the total area required for all the residential buildings will be 4,950 sq. m

The Reception, administrative area and restaurants are planned just next to the Main Accommodation Block. The Main Accommodation Block consists of the different types of residential rooms.

The Village Cottages will be located beside a green lawn. The Deluxe Cottages and Cliff Side Premium Cottages will be located opposite each other. The Tea Garden Chalets will overlook the tea gardens. The Tree House Cottages will be located at one corner of the Motel Compound and overlook the gardens. The Outlook Villa Suites will be situated on the ridges and have a beautiful view of the surrounding hillock.

5.3.4 Description of the services to be provided

Apart from the residential buildings and restaurants, the International Standard Tourism Complex will offer tourists and guests several services to make their stay more enjoyable and memorable. A brief description of the various services envisaged to be offered by the Resort have been given in the tables below:-

Food and Beverages

The International Standard Tourism Resort is proposed with restaurants offering different cuisines, lounge, take away shops and varied refreshment kiosks. A detailed description of the different dining facilities offered at the resort have been given in the table below:-

Table 15: Food and Beverages

Sl. No	Food Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Multi-cuisine Restaurant	120	1	180.00
2.	Bangladeshi Specialty Restaurant	80	1	120.00
3.	Continental Restaurant	40	1	60.00
4.	Bar & Cocktail Lounge	40	1	120.00
5.	Coffee & Bakery Shop	30	1	120.00
6.	Pool Deck Refreshment Kiosk	25	1	50.00
7.	Central Kitchen & Cellar	1	1	225.00
8.	Auxiliary Space			30%

All the restaurants, lounge, shop and refreshment kiosk will provide service to the visitors. The Central Kitchen and Cellar will include different facilities, pantry and storage. Auxiliary Space will include spaces for walls, partitions and corridors. The total area required for Food and Beverages will be **1,059.5 sq. m.**

Spa and Wellness Centre

The Resort will offer the guests various Spa and Wellness facilities such as parlour, sauna, swimming pool, saloon, gymnasium among others. A detailed description of the Spa and Wellness Facilities is given below:-

Table 16: Spa and Wellness Centre

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Men's Toilet for Guests	10	1	30.00
2.	Women's Toilet for Guests	10	1	30.00
3.	Masseur Parlor	2	2	9.00
4.	Aerobics & Movement Studio	10	1	100.00
5.	Steam + Sauna Room for Men	1	2	6.00
6.	Steam + Sauna Room for Women	1	2	6.00
7.	Hydro Pool	10	1	50.00
8.	Fully Equipped Gymnasium	10	1	80.00
9.	Meeting Room	10	2	40.00
10.	Unisex Saloon	4	1	10.00
11.	Swimming Pool with Kiddie Pool & Jacuzzi	20	1	200.00

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
12.	Changing Cubicles	1	6	2.00
13.	Shower Cubicles	1	6	2.00
14.	Auxiliary Space			30%

The Spa and Wellness Centre is planned to be located near the Main Accommodation Block and beside the Reception area. The Swimming Pool is envisaged to be developed as an Infinity Pool and will be located beside the Main Accommodation Block. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the Spa and Wellness Facilities will be around **839.8 sq. m.**

Recreation and Entertainment

The tourist complex is envisaged to offer many recreation and entertainment facilities to the guests including boutique/ curio shops, theatre, library, discotheque among others. A detailed description of the Recreation and Entertainment Facilities is given below:-

Table 17: Recreation & Entertainment

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Boutique/ Curio Shops with storage facility	10	4	50.00
2.	A/V Theatre	40	1	80.00
3.	Library	20	1	100.00
4.	Hobby Centre	10	1	60.00
5.	Karaoke Bar/ Discotheque	50	1	150.00
6.	Auxiliary Space			30%

The Recreational Facility is planned to be located near the Spa and Wellness Centre and beside the valet parking zone. The A/V Theatre will be located on one side of the Motel compound. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the Recreation and Entertainment Facilities will be around **767 sq. m.**

Convention and Banquet Facility

Convention and Banquet Facilities including auditoriums, Ball Rooms, Banquet Halls, Conference Rooms, and Board Rooms etc. are planned to cater to the business visitors to the International Tourism Complex at Sylhet. A detailed description of the Convention and Banquet Facilities is given below:-

Table 18: Convention & Banquet Facility

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Convention Auditorium	100	1	500.00
2.	Ball Room with Banquet	80	1	320.00

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
3.	Banquet & Ceremonial Hall	120	1	600.00
4.	Conference Rooms	40	2	120.00
5.	Board Rooms	20	2	60.00
6.	Training Rooms (Classroom Style)	15	2	45.00
7.	Business Executive Guest Room T/S A/C (including bath, closet, vestibule)	2	20	22.00
8.	Convention Reception & Lounge	30	1	150.00
9.	Business Centre	10	1	50.00
10.	Kitchen/ Pantry/ Service Area	0	1	115.00
11.	Event Management Centre & Warehouse	0	1	125.00
12.	Toilets	10	2	30.00
13.	Auxiliary Space			30%

There will be two Convention Facilities (one located near the Recreational Facility and the other beside the guest parking) and Banquet Facilities is planned beside the Banquet Lawn. The Business Executive Guest Room will include a bath, closet and vestibule. Auxiliary Space will include areas for walls, partitions and corridors. The total area required for the Convention and Banquet Facilities will be around **3,653 sq. m.**

Indoor Sports and Games

Several sports facilities such as Table Tennis, Carrom and Billiard Rooms, Bowling alleys and kindergarten games for kids have also been envisaged in the Motel Compound. A detailed description of the Indoor Sports and Games Facilities is given below:-

Table 19: Indoor Sports & Games

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Table Tennis Room	4	1	40.00
2.	Card/ Carrom Room	12	1	60.00
3.	Billiard Room	2	1	36.00
4.	Board Game Room	8	1	15.00
5.	Virtual Studio/Console Games	20	1	120.00
6.	Bowling Alley	10	1	200.00
7.	Kindergarten Games	10	1	120.00
8.	Reception & Ticketing	2	1	20.00
9.	Toilets	4	2	15.00

10. Auxiliary Space	20%
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The Indoor Sports and Games Facilities are planned to be located in the Recreational Facility located beside the Spa and Wellness Centre. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the Indoor Sports Games will be around **769.20** sq. m.

Reception, Front Office and Administration

To efficiently carry out the regular administrative and official work, the reception, front office and administration areas have been planned. A detailed description of the Administrative Facilities is given below:-

Table 20: Reception, Front Office & Administration

Sl. No	Type of Facility	Number	Area (sq. m)
1.	Lobby & Lounge/ Reception Area	1	200.00
2.	Reception/ Front Office	1	75.00
3.	Records Store Room	1	50.00
4.	Manager's Office	4	30.00
5.	Secretary's Office	2	9.00
6.	Accounting Office	2	15.00
7.	Sales and Reservation	1	15.00
8.	Travel Desk	1	6.00
9.	Toilets	2	15.00
10.	Auxiliary Space	30%	

The Reception, administrative area and restaurants are planned just next to the Main Accommodation Block. The Main Accommodation Block consists of the different types of residential rooms. Auxiliary Space will include areas for walls, partitions and corridors. The total area required for the Reception and Administrative Area will be around **707.20** sq. m.

General Service Facilities

General Service Facilities such as laundry, maintenance, and storage facilities etc. offer guests a seamless and comfortable stay at a luxurious resort and are also planned. A detailed description of the General Service Facilities is given below:-

Table 21: General Service Facilities

Sl. No	Type of Facility	Number	Area (sq. m)
1.	Linen Room	1	90.00
2.	Laundry Room	1	165.00
3.	Men's Toilet and Locker room	1	70.00
4.	Women's Toilet and Locker Room	1	70.00

Sl. No	Type of Facility	Number	Area (sq. m)
5.	Maintenance Shops	1	80.00
6.	Furniture Storage	1	50.00
7.	General Store Room	1	40.00
8.	Boiler Room	1	110.00
9.	Water Heater Tank Space	1	60.00
10.	Full Storage	1	80.00
11.	Transformer Vault	1	20.00
12.	Refrigeration Compression Room	1	80.00
13.	Fan Rooms/Ventilation Equipment	1	80.00
14.	Add for Ground Floor Stairways and Elevators	6	15.00
15.	Auxiliary Space		30%

The area for the service facilities is planned to be located at one end of the Motel Compound to separate the service area from the main accommodation blocks. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the General Service Facilities will be around **1,176.50 sq. m.**

TENDED/ TREATED OPEN AREAS

A tended open area of 28,794 sq. m with courts for outdoor games, Event and Banquet Lawn, Parking and Landscaped areas is also envisaged. The tended open area will comprise the areas for outdoor sports and games, banquet lawn, parking and services. A detailed description of this area is given below.

Outdoor Sports and Games

The Tourist Complex will have provisions for some of the most popular outdoors games and sports such as Tennis, Badminton, Volleyball and Basketball. A detailed description of the Outdoor Games Facilities is given below:-

Table 22: Outdoor Sports and Games

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area
				(sq. m)
1.	Tennis Hard-court	4	1	250.00
2.	Badminton Court	4	1	150.00
3.	Volleyball Court	4	1	200.00
4.	Basketball Court	8	1	450.00
5.	Children Play Area	10	1	100.00

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
6.	Auxiliary Space			15%

The Badminton, Tennis and Basketball courts will be located on one side of the motel compound near the banquet lawns. Auxiliary Space includes areas for fencing, spectator area etc. The total area required for Outdoor Sports and Games will be around 1,322.50 sq. m.

Outdoor Event and Banquet Lawn

The motel will also have an Event Courtyard and Banquet Lawn for hosting business meetings and other events. A detailed description of the Outdoor Event and Banquet Lawn area is given below:-

Table 23: Outdoor Event and Banquet Lawn

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Event Courtyard	100	1	500.00
2.	Banquet Lawn	200	1	1000.00
3.	Auxiliary Space			15%

The Event/ Banquet Lawn area is planned on one side of the motel compound beside the areas for the outdoor games. Auxiliary Space will include areas for fencing, spectator area etc. The total area required for the Outdoor Event and Banquet Lawn will be around 1,641.13 sq. m.

Parking

The property will also offer guests the facilities of guest parking, valet parking and convention parking. A detailed description of the Parking Facilities is given below:-

Table 24: Parking

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Guest Car Parking	50	2	1250.00
2.	Valet Car Parking	10	1	250.00
3.	Guest Coach Parking	2	1	100.00
4.	Staff Parking	0	1	250.00
5.	Auxiliary Space			5%

The guest parking area will be near the gate whereas the valet parking and convention parking areas will be located near the Main Accommodation Block beside the Convention and Recreational Facility. Auxiliary Space will include areas for fencing, circulation, etc. The total area required for Parking will be around 3,255 sq. m.

It is further envisaged that an area of 0.97 acres (3,925 sq. m.) is available next to the part bitumen paved and part kutcha vehicular access road, which runs from the boundary gate of the Cadet College

campus at the southeast corner of the site to junction of the airport bypass road on the northeast corner of the site. This area can also be utilised as a vehicular parking lot for 55 cars.

Landscaping and Services

Being an International Standard Tourism Complex, the property will need prim, proper, landscaped and tended lawns in the compound to boost the eco-tourism quotient. A detailed description of the Landscaping and services is given below:-

Table 25: Landscaping and Services

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Landscaping- Ground Cover, Lawn, Shrubs, Plantation, Street Furniture, etc.	20	1	6000.00
2.	Landscaping- Tea Garden, Rubber Plantation & Khal Treatment	10	1	4500.00
3.	Landscaping- Eco Park Area	50	1	7000.00
4.	Outdoor Circulation	0	1	4000.00
5.	Auxiliary Space			5%

Outdoor Circulation will include roads, SWM, STP, WWT Plants etc. The Tended Lawns are planned to be located near the Recreational Facilities. Auxiliary Space includes areas for fencing, circulation etc. The total area required for the Landscaping and services will be around **22,575 sq. m.**

UNTENDED/ NATURAL OPEN AREAS

An untended open area of **72,832 sq. m** with space for outdoor activities such as hiking, zip lining, camping, etc. and natural protected areas is planned. The natural Open Area comprises Outdoor Nature Activities and Natural Protected Areas. A detailed description of this area is given below.

Outdoor Nature Activities

The Resort has provisions for nature lovers by offering them a plethora of experiences such as outdoor nature activities including hiking, biking, bird watching, camping and natural protected areas. A detailed description of the Outdoor Nature Activities is given below:-

Table 26: Outdoor Nature Activities

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
1.	Hiking/ Nature Trail	10	1	1500.00
2.	Biking	10	1	900.00
3.	Angling	5	1	3000.00
4.	Zipping	5	1	200.00
5.	Canopy Walk	10	1	150.00

Sl. No	Type of Facility	Guest Capacity (No. of person)	Number	Area (sq. m)
6.	Bird Watching	5	1	120.00
7.	Butterfly Garden	10	1	600.00
8.	Bon Fire	10	1	90.00
9.	Camping/Picnic	10	1	180.00
10.	Auxiliary Space			5%

Auxiliary Space will include areas for fencing, circulation etc. The total area required for the Outdoor Nature Activities will be around **6,789.50 sq. m.**

Untended Natural Protected Areas

The total area reserved for Untended Natural Protected Areas in the Motel Compound will be **66,042 sq. m.**

Indicative Layout of the Resort

A representative layout of the proposed resort is depicted in the map below:



Figure 23: Indicative Layout of the Proposed Resort

5.3.5 Envisaged Impacts & Outcomes

The proposed project will have a cumulative positive impact on the tourism scenario and the tourism industry in the greater Sylhet region. The envisaged impacts and outcomes of this project are as follows:

- With the national tourism industry expected to grow at approximately 6% p.a., the tourist inflow to Sylhet is also expected to increase substantially. This project would not only bring in the much needed investment to the stagnant hospitality industry of Sylhet but also enhance the current tourism product and experience thus triggering many down and upstream interventions like improvement of last mile connectivity, accommodation infrastructure, interpretation and awareness and participation levels;
- The proposed project would help increase tourism activities in Sylhet thus appreciating the price of tourism services, value of tourism assets, household level incomes, price of tourism commodities, etc. bringing in direct economic gains;
- The proposed project is estimated to bring in approximately BDT 1,000 Million of capital investment into the cash strapped hospitality industry of Sylhet;
- The proposed project will create long term job opportunities for approximately 100 people from Sylhet and also create indirect employment opportunities for 50 people through its ancillary services;
- The proposed project would result in a three-fold increase in the market share of BPC Motel from its current share of 0.47% to 1.10%;
- The proposed project is estimated to generate more than BDT 200 Million worth of revenues, part of which is expected to trickle down to the local tourism industry in Sylhet;
- The proposed project would contribute in the vocational training of tourism industry operators to international level service standards;
- Implementation of the proposed project on PPP mode would reduce the capital investment burden and operational risks of BPC;
- This proposed project would indirectly stimulate new and expand community facilities and infrastructure initiatives, such as the improvement of transport services, linked home-stay accommodation and other tourism related retail facilities;
- The proposed project would strengthen the capacity of concerned sector agencies and local communities for planning, development, management, and marketing of tourist destinations and attractions; and
- The proposed project would promote private sector participation in tourism business.

6 Technical Assessment and Due Diligence

6.1 Technical Feasibility

For the purpose of assessing the technical feasibility of the proposed project, a two pronged approach was adopted in the form of Project Readiness Analysis and Strengths, Challenges, Opportunities and Risk (SCOR) Analysis. The outcomes are presented in the following tables:

Project Readiness Analysis	
Land Availability:	The land available for the proposed project is delineated and earmarked by BPC. The said land proposed for concession activity is fully owned by BPC on behalf of the Ministry of Civil Aviation and Tourism, Government of Bangladesh. The ownership title of the land is clear and has no pending or on-going litigations. The total land available for the concession activity is 27.59 acres and no other land acquisition is required for the proposed activity. The earmarked land area already excludes the land leased for the existing BPC bar. The Government of Bangladesh has no objection in handing over the land and the existing infrastructure for a stipulated tenancy for the concession activity.
Compliance with Regulatory and Policy Frameworks:	The proposed project falls within the jurisdiction of Sylhet City Corporation (SCC) an Urban Local Body (ULB) validated under the Bangladesh Pourashava Act, 2009. Though there are no municipal bye-laws framed for SCC and the general provisions from the Building Construction Act 1952 and Bangladesh National Building Code 2006 are adopted. The proposed project in its conception stage has fully complied with the building bye-laws specific requirements such as FAR, FSI, mandatory setbacks and height restrictions. The Master Plan of Sylhet City Corporation published in Master Plan for Sylhet Divisional Town (2010-2030) on 17 November, 2011 clearly demarcates the proposed concession site as Tourism Land use. Civil Aviation regulations for development control are perforce considered due to the proximity of the said site to the Sylhet International Airport. Given the FATO direction, it is observed that no part of the site falls within the flight path/ funnel. The said site does not fall under any notified national special area/ zone and/ or agro-ecological zone of Bangladesh.
Stakeholder Willingness:	The Government of Bangladesh, Finance Ministry, Ministry of Civil Aviation and Tourism of Bangladesh, Bangladesh Tourism Board (BTB), BPC and PPPA are the upstream primary stakeholders for the proposed project and have expressed their full willingness in principle for the project implementation. The District Administration of Sylhet, BPC Sylhet Motel, SCC and other Line Government Departments are the secondary stakeholders and primary consultations are under process for their consent and no objections to the proposed project. The Sylhet Hotel & Guest House Owners Group, Local Citizens of Sylhet and Local Communities including the NGOs, CBOs, SHGs, and VCOs are the tertiary stakeholders to this project and a consultation workshop is scheduled to agree upon the final plan for the project.
Assurances:	The District Administration of Sylhet, SCC and Ministry of Civil Aviation and Tourism have tentatively assured BPC for in principle approval of the project based on conditional NOCs.

Project Readiness Analysis

Envisaged R&R and Environmental Impacts:

Since there is no land acquisition intended for this proposed project and there are no tenements within the concession boundary hence there are no R&R or PAP impacts envisaged at this stage. Preliminary environmental screenings have revealed that approximately 125 trees would be required to be felled, which is proposed to be mitigated by plantation of approximately 400 additional trees within the project site. Suitable measures are intended for conservation of natural resources, conservation of endangered flora and fauna if any, and demarcation of no development zones within the site. Environmental hazards caused by the operation of the proposed facilities are proposed to be minimized by acceptable treatment and discharge of the by/end-product into the natural system. Overall the proposed project has low to medium impact on environment which can be mitigated by specific measures and EMP drafted into the concession agreement for the developer.

Technical Suitability:

The original and current use of the site is for tourist accommodation and the proposed international standard tourism complex would only enhance the experiential value of the existing product and would not alter the primary product offered there. The proposed interventions are mostly coherent to the nature of tourism and would upgrade the service levels and strengthen the state of hospitality industry at large.

SCOR Analysis

STRENGTHS

- The project site's strategic location of proximity to the Sylhet International Airport.
- The project site's excellent last mile connectivity from different transport heads.
- The project site's critical intermittent positioning between Sylhet city and regional tourism attractions.
- The project site characteristics to showcase itself as an edifice of natural heritage.
- The project site's large size and expanse, suitable for housing comprehensive and diverse tourism activities.
- The project site's potential for emerging as a significant destination amongst the tourism itinerary of Sylhet.
- The project's tourism potential to cater to cross sectional of tourist/ visitors by their preferences and affording capacities.
- The project's ability to stimulate tourism growth in Sylhet region through its proposed product mix.
- The project's potential of improving the existing service standards of the hospitality industry in Sylhet region.
- The project's potential of showcasing and benchmarking sustainable and responsible tourism practices.

CHALLENGES

- Sylhet has more of a pilgrimage destination identity rather than a nature based tourism destination and hence unified branding and marketing of the current product might be challenge as both sectors have different goals and demands.
- Focus on developing Jaflong, Tamabil as a special tourism zone/ destination may pose challenges to the relevance and existence of the product as the demand for infrastructure might be met at the Jaflong destination and thus substantially decrease the footfall at Sylhet city.
- The lack of motivation amongst the hospitality industry in Sylhet due to low occupancy levels is a challenge to the product.
- Lack of promotional/ marketing and outreach strategy for the sub-region's nature and culture based products.
- Lack of institutional development and capacity development of the custodian agencies which do not have augmented vision for Sylhet's tourism potential.
- The project being the first government owned tourism asset to be developed on PPP basis in Sylhet might pose challenges like disbursing public good and benefits to the host population.

SCOR Analysis	
<ul style="list-style-type: none"> ■ The project's prospect of encompassing direct, indirect and induced benefit to stakeholders and communities. ■ The project site's past record of attracting large number of day visitors and domestic tourists. ■ The project's potential of assured and safe returns to capital investment triggering private participation in tourism projects. ■ The proposed tourism product's saleability and buying-in qualities. ■ The proposed tourism product's focus on specific needs and preferences of Foreign and Non-Residential Bangladeshi Tourists. 	
<p style="text-align: center;">OPPORTUNITIES</p> <ul style="list-style-type: none"> ■ The saturation of classic destinations in Bangladesh like Cox's Bazar Beaches, Bandarban Hill Tracts and Sundarbans Mangrove amongst domestic and foreign tourists might present opportunities for Sylhet to develop the alternative experience. ■ The tourism trend in Bangladesh indicates a major shift in interest from leisure based activities to nature based adventure activities. Sylhet region's abundance of natural resources can be tapped for maximizing gains from the shift. ■ Sylhet region being the hub of intelligentsia and creativity and known for its liberal values has the opportunity of developing the authentic themes of Art, Architecture and Archaeology (3A) and Culture, Cuisine and Community (3C) as tourism branding for which the project would be an appropriate proponent. ■ The increased cooperation amongst SASEC countries in the tourism sector might result in a long term policy of borderless tourism travel. This policy in force would designate Sylhet as a gateway to Bangladesh's tourism due to its bordering areas and access from three Indian North-eastern states. ■ Opportunities like transit accommodation, duty free retail and check-in facilities for outbound tourists can be explored for the project due to its proximity to the airport. ■ Presence of adequate skills, entrepreneurship and infrastructure in handling tourism product is already existing thus bringing in the asset management aspects. 	<p style="text-align: center;">RISKS</p> <ul style="list-style-type: none"> ■ Decrease in or shift of interest of tourists/ visitor and local/ host communities in cultural and natural patrimony would weaken the project idea. ■ The growth of competitiveness of tourism products between Sylhet and other established destinations in Bangladesh might result in detrimental tourism thus endangering the image and cultural identity of the place. ■ The possibility of lack of ability to address issues comprehensively and rather focusing on individualistic perspective of tourism development without addressing the planning, protection, management and residual aspects can adversely affect the perception of quality of services. ■ Over 210 hotels are already operating in Sylhet district and a hotel of approximately 120-150 rooms is under construction/ nearing completion in close proximity to the project site might risk the success of the planned project.

6.2 Geo-Technical Suitability

The summarized findings of the geotechnical investigations (Report attached as **Annexure – 13**) that have a direct bearing on design and planning of the project are as follows:

- Due to the project site's location atop a hillock, the geological crust composition reveals presence of clayey non-cohesive soil after a nominal depth of 3 metre soil cover; hence construction of any sub base structure i.e. basement is not feasible;
- The soil cohesiveness in the plane and/ or table areas of the project site is high and in sloped areas it is low and clayey in nature. Therefore, the loading factor and bearing capacity in the plane areas is high and hence multi-storied construction is allowable (up to 5 floors high), whereas construction of only lightweight built structures on the slopes would be possible (by piling and by construction of retaining wall sections);
- Due to high rainfall received at the project site, the moisture content in the soil is substantially high. This can increase instances of erosion, slippage and land slide probabilities at the steep slopes; hence, breasting and protection works would be required at appropriate locations; and
- The project site is located in seismic zone 1 and has high vulnerability to earthquakes; hence all engineering designs shall have to be earthquake resilient.

6.3 Disaster Risk Preparedness

A rapid multi-hazard risk assessment of the project site was conducted on the basis of historical data, secondary data analysis, interviews with stakeholders and meteorological records of Bangladesh and the four major risks to the project site outlined are:

- Geophysical hazards like Earthquake
- Geophysical hazards like Landslide/ Slippage
- Manmade hazards like Fire
- Meteorological/ Hydrological hazards like Storm Surge
- Climatological hazards like Cloud Burst
- Safety hazards like Accidents

Transposing these possible hazards to the concept project proposal, the project's preparedness and resilience were evaluated and its outcomes are as follows:

- The concept project proposal has low rise development and is designed to be resilient to moderate earthquakes;
- The concept proposal is sensitive to the terrain and topographical features and adequate protection and slope stabilization measures are proposed therein to counter landslide and slippage;
- There are multiple entry and emergency exit points from the covered built areas proposed in the concept plan thus facilitating immediate evacuation. The proposed project is fully equipped with firefighting capabilities and the approach road sections are appropriate for firefighting activities. Hence the project proposal has adequate preparedness and prevention measures against fire hazards.
- The siting of the built-up sections in the concept proposal is proposed far away from the slopes and areas prone to disaster risk of mudslides, soil subsistence and differential settlement probabilities caused from cloud burst and storm surge; and
- The personal safety hazards within the site like accidents are minimized by safety measures adopted such as appropriate location of railings, guards, fencing, crash barriers, enclosure walls, protection walls, etc. However, a detailed safety assessment is required to be carried out for all proposed adventure sports facilities within the project.

7 PPP Transaction Structuring and Financial Feasibility

7.1 PPP Financing in Bangladesh

There are multiple agencies financing PPP projects in Bangladesh. The brief profiles of some of these agencies are provided below:

1. Infrastructure Development Company Limited (IDCOL):

Infrastructure Development Company Limited (IDCOL) was established on 14 May 1997 by the Government of Bangladesh to take care of the growing needs in infrastructure and energy projects financing. IDCOL, licensed by the Bangladesh Bank as a non-bank financial institution (NBFI) on 5 January 1998, has emerged as the market leader in the space of infrastructure and private sector energy financing in Bangladesh. Since its inception IDCOL has justified its vision by promoting and optimizing private sector participation in numerous infrastructure and renewable energy projects through multiple public-private-partnership (PPP) initiatives. The projects financed by IDCOL cover a wide spectrum ranging from power to ports and Environmental Services.

2. Bangladesh Infrastructure Finance Fund Limited (BIFFL):

Bangladesh Infrastructure Finance Fund Limited (BIFFL) was established in 2011 by a resolution of the cabinet of the Government of Bangladesh and is owned by the Ministry of Finance. BIFFL is a non-bank financial institution (NBFI) taking care of the need for investment in infrastructure sector of Bangladesh. BIFFL envisages attracting private investment from both local and foreign investors and in turn invests in various infrastructure projects in Bangladesh. BIFFL has been successful in promoting Bangladesh's economic growth by encouraging private sector investment in numerous infrastructure projects. BIFFL has extended its helping hand to infrastructure projects ranging from power to telecommunication systems, by extending financial facilities in the form of debt or equity and securing both domestic and foreign investment within the context of a robustly designed and well-governed investment vehicle.

3. International Finance Corporation(IFC):

IFC is a member of the World Bank Group and the largest global development institution with exclusive focus on the private sector in developing countries. IFC boasts of having catered to private sector players across the globe with special focus on infrastructure related projects in a variety of sectors ranging from transportation to water systems. Through the last six decades, IFC has been supporting World Bank Group's global goals of ending extreme poverty and boosting shared prosperity by raising global standards of living. IFC's advice in public-private partnerships (PPPs) is aiding national and municipal governments in developing countries partner with the private sector to improve access to various infrastructure related services.

4. CDC Group:

CDC is UKs Development Finance Institution (DFI) and was founded in 1948 to support the building of businesses in Africa and South Asia. CDC, the world's oldest DFI, aims to provide scarce capital to private sector in the developing countries and thereby helping these nations to eradicate poverty. CDC invests in a range of sectors such as manufacturing, infrastructure, etc. with a focus on job creation. It aims to demonstrate that it is possible to invest in a challenging environment and intends to support growth of all sizes of business. The investment instruments of CDC include equity and debt instruments.

5. European Investment Bank:

The European Investment Bank is the European Union's bank establishment to finance sustainable investment projects which contribute to furthering EU policies. Since 1993, the EIB has been authorized to lend in Asia. Since then it has been supporting a variety of projects in sectors such as renewable energy, water, etc. EIB possesses expertise in project loans and equity and funds investments in a broad spectrum of sectors that contribute to employment, growth and environmental sustainability of the region.

6. Proparco:

Proparco is a subsidiary of Agence Française de Développement (AFD) and was established four decades ago to support sustainable development by focusing on private sector funding. It operates across 80 countries and aids financing of corporate private sector projects. Infrastructure sector is one of the key focus sectors for Proparco as it realizes that efficient infrastructure plays a key role in improving the living conditions of the population in developing countries. Hence, it focusses on sectors such as energy, transport, telecommunication network, among others. With the full range of financial instruments from equity to senior loans, Proparco efficiently meets the financing needs of the private sector.

7. Asian Development Bank:

The Asian Development Bank (ADB) was established in 1960s as a financial institution to foster economic growth and cooperation in the Asia Pacific region. Besides Public Sector Financing, ADB also provides Private Sector (Non-Sovereign) Financing. Acting as a catalyst for private investments, ADB provides financial assistance to developmental projects provided the projects demonstrate clear developmental impact. The ADB's Private Sector Operations Department (PSOD) structures and finances investments for private sector companies across a wide spectrum of industry sectors ranging from infrastructure to urban development.

8. Islamic Finance and Investment Limited:

Islamic Finance and Investment Limited (IFIL), incorporated in Bangladesh in 2001, is a full-fledged financial institution and is licensed by the Bangladesh Bank. IIFL extends investments to industrial sectors and effectively caters to the client's needs, thereby promoting the socio-economic development of the country. The company operates under the Bangladesh Bank and provides Project Finance for specific projects of any size.

In addition to the above, commercial banks in the country provide financing for infrastructure projects.

Details on debt funding provided to private players in select Infrastructure projects are provided below:

Table 27: Debt Funding provided to private sector players in select infrastructure projects

S. No.	Lender Name	Borrower Name	Project Name	Type of funding	Total Value of Project	Sector	Loan Provided
1	IDCOL	Panama Sonamasjid Port Link Limited (PSPLP)	Development of Sonamasjid land port	Debt	BDT 130 Million	Ports	BDT 80 Million
2	ADB	Sylvan Agriculture Limited	PRAN Agribusiness Project	Debt	USD 35.8 Million	Agro-industry	USD 25.10 Million
3	BIFFL	Regent Energy and Power Limited	108 MW Gas based Power Plant of Regent	Debt	USD 81.58 Million	Power	USD 12.2 Million

S. No.	Lender Name	Borrower Name	Project Name	Type of funding	Total Value of Project	Sector	Loan Provided
	IFC		Energy and Power Limited				Interest Rate: 15%
							USD 20.6 Million
	IDCOL						USD 30 Million
4	BIFFL	First Dhaka Elevated Expressway Ltd.(FDEEL)	Construction of Dhaka Elevated Expressway	Debt	BDT 89,400 Million	Transport	BDT 4,000 Million

7.2 Financial Feasibility Assessment

It is important to check the financial feasibility of a project of this nature as it involves significant capital outlay on the part of the developer and a financially feasible project is more attractive to the investors. The major assumptions made in the financial model have been explained in the subsequent sections. The overall concession period for the project has been assumed as forty-five years. We have assumed that the developer shall commence construction from 1st July, 2017 onwards and complete the same over a period of three years. Operations of the proposed resort shall commence from 1st July 2020.

7.2.1 Details of capital and operational expenditure

An international standard resort has been proposed at the existing motel compound of BPC in Sylhet. A financial model was developed to assess the feasibility of the proposed resort. The major cost assumptions made in developing the model have been explained below. The cost assumptions include assumptions for capital expenditure and for operational expenditure.

Capital Expenditure

Capital expenditure denotes expense towards construction of the proposed resort. Major cost heads for calculating the capital expenditure have been detailed below. A debt equity ratio of 70:30 has been considered for financing the project. The consultancy fee for engaging the transaction advisor has been included in the overall project cost. The interest during construction period has been capitalised and included in the project cost as well.

The major cost assumptions have been tabulated subsequently for reference:

Table 28: Break-up of capital expenditure

#	Item Description	Unit	Rate (BDT)	Quantity	Amount (Yr 2016) in BDT Million	Escalation (%)	Amount (Yr 2019) in BDT Million
Building / Structure Costs							
1.	Site Clearance and Rehabilitation Works	Sq.m	60.00	107,755	6.47	6.66%	6.90
2.	Demolition and Dismantling of existing Built and Services	Sq.m	900.00	8,471	7.62	6.66%	8.13
3.	Civil Works in RCC (below and above plinth)	Sq.m	15,000.00	13,922	208.83	6.66%	237.87
4.	Other Specialized Engineering Works	Sq.m	20,000.00	6,961	139.22	6.66%	156.54
Interior Finishing & Furnishing Costs							
5.	Interior Finishing & Fittings	Sq.m	3,600.00	13,922	50.12	6.66%	58.94
6.	Furniture & Moveable Equipment Procurements	Sq.m	3,700.00	13,922	51.51	6.66%	61.72
Area Development Costs							

#	Item Description	Unit	Rate (BDT)	Quantity	Amount (Yr 2016) in BDT Million	Escalation (%)	Amount (Yr 2019) in BDT Million
7.	Landscaping Works	Sq.m	1,800.00	20883	37.59	6.66%	43.79
8.	Services Works (electrical, sewage, plumbing, etc.)	Sq.m	1,600.00	3386	5.42	6.66%	6.31
9.	Bituminous Road Works	Sq.m	29,250.00	1995	58.37	6.66%	63.97
Plant and Machinery Costs							
10.	Air Conditioning Plant Heavy Load	Each	1,050,000.00	1	1.05	6.66%	1.27
11.	Package Septage Treatment Plant Heavy Load	Each	680,000.00	1	0.68	6.66%	0.83
12.	Water Purification Plant (RO) Heavy Load	Each	215,000.00	2	0.43	6.66%	0.49
13.	Electrical Sub-Station (with DG Set) Heavy Load	Each	2,250,000.00	2	4.50	6.66%	5.13
IT Systems and Miscellaneous Assets Cost							
14.	IT Networking	Sq.m	550.00	6961	3.83	6.66%	4.50

#	Item Description	Unit	Rate (BDT)	Quantity	Amount (Yr 2016) in BDT Million	Escalation (%)	Amount (Yr 2019) in BDT Million
15.	IT Equipment	Sq.m	3,800.00	2088	7.94	6.66%	9.33
16.	Security Systems	Each	105,000.00	2	0.21	6.66%	0.25
Community Development & Environmental Management							
17.	Community Mobilization	Each Session	40,000.00	6	0.24	0.00%	0.24
18.	Labour Welfare Fund	%	0.25%	583,785,292	1.46	0.00%	1.46
19.	Environmental Management Plan	%	0.75%	583,785,292	4.38	0.00%	4.38
20.	Social Charges	LS	1.00	15,000,000	15.00	0.00%	15.00
Consulting and Administration Charges							
21.	PMC & DSC Charges	%	6.00%	604,863,145	36.29	6.66%	41.61
22.	Transaction Advisor Charges	LS	30,000,000	1	21.89	0.00%	30.00
23.	Administration Charges	%	3.00%	604,863,145	18.15	6.66%	20.54

#	Item Description	Unit	Rate (BDT)	Quantity	Amount (Yr 2016) in BDT Million	Escalation (%)	Amount (Yr 2019) in BDT Million
24.	VAT on Construction Material	%	15.00%	142,424,058	21.26	0.00%	21.36
Contingencies							
25.	Physical	%	7.66%	710,664,437	54.44	0.00%	54.44
26.	Price	%	4.20%	710,664,437	29.85	0.00%	29.85
27.	Commitment Charges	%	0.15%	710,664,437	1.07	0.00%	1.07
	Total Cost Exclusive of interest during construction						886
28.	Interest During Construction Period						118
	Total Expected Project Cost						1004

An overall snapshot of the capital expenditure is provided below:

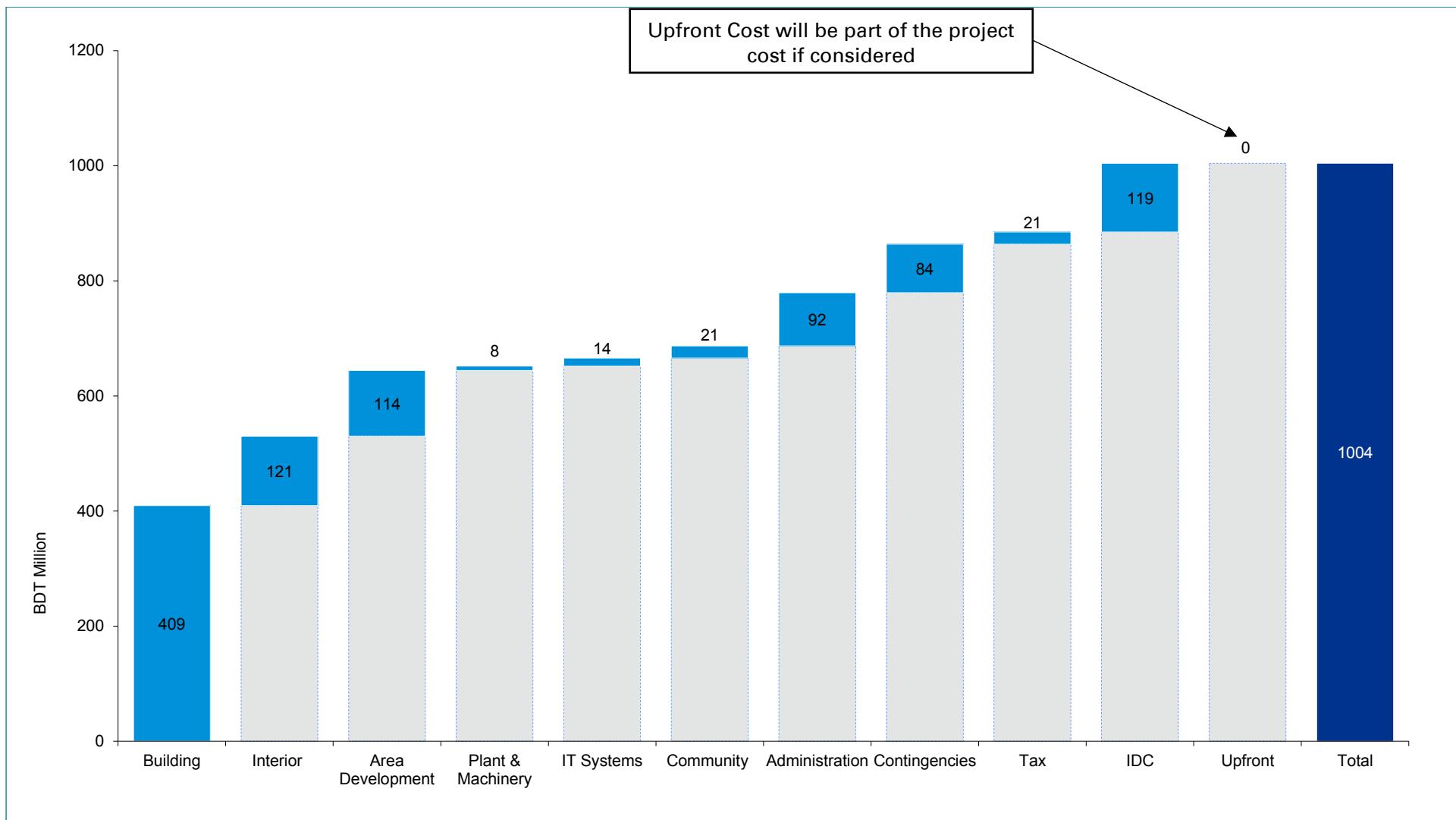


Figure 24: Snapshot of Capital Expenditure

Operational Expenditure

The overall operational expenditure denotes the expense towards year on year operations and maintenance of the resort. The major cost heads assumed for computation of overall expenditure is provided below:

- Salary: A total employee strength of 150 staff have been assumed across various categories for the upkeep of the resort. The various staff assumed have been tabulated below:

Table 29: Categories of employees

Position	Salary (BDT per month for the year 2017)	Number of personnel
General Manager	180,000	1
Resident/ Estate Manager	120,000	1
Director General	40,000	1
Director & Engineer O&M	40,000	1
Chief Chef	40,000	1
Front Office Officer	40,000	2
Telecommunication Operator	40,000	1
Cooks	40,000	20
House Keeping Assistants	40,000	20
Room Service Assistants	40,000	25
Kitchen & Bar Assistants	40,000	10
Sales Counter Assistants	40,000	1
Banquet Assistants	40,000	12
Facility Assistants	20,000	18

Position	Salary (BDT per month for the year 2017)	Number of personnel
Waiter	20,000	20
Plumber/Electrician	20,000	2
Parking Attendant	20,000	2
Cleaner	20,000	2
Gardner	20,000	2
Guard	10,000	8
Total Staff		150

It has been assumed that salary will grow at the average³⁴ inflation rate of 6.6%. The above salary figures are for the base year 2017 and will be revised accordingly year on year.

- Maintenance: The overall maintenance and operational charges have been considered as 0.15% and 0.25% of the total project cost respectively.
- Replenish-able Expenses: This expense is for restocking of inventory in restaurants, for maintenance of inventory with house-keeping, operations of the banquet and ceremonial facility and upkeep of the shopping and recreational facilities. The main categories of replenish-able expenses have been tabulated below:

Table 30: Assumptions for Replenish-able expenses

Category	Rate (in %)
Restaurant, Coffee Shop & Bar	20%
House-keeping in Accommodation	5%
Banquet and Ceremonial Facility	15%
Shopping and Recreational facilities	50%

34 Note: Average of last four years of inflation rate of Bangladesh

For restaurants, coffee shop and bar, the expenses have been considered factoring in the overall occupancy and revenues from food and beverage facilities proposed in the resort. For house-keeping, expenses have been considered taking into account the overall occupancy and the revenue from the rooms and cottages proposed in the resort. Expense assessment for banquet includes revenues and occupancy from such facilities proposed in the resort. Similarly, overall expenses for shopping and recreational facilities have been arrived at. The rates through which the expenses have been arrived at for various heads of Replenishable expenses are provided alongside in the above table.

- Social Expenses: Social expenses will be undertaken for CSR and community building works in the vicinity of the project site.
- Utility Expenses: Utility expenses have been categorised mainly into electricity, water and LPG consumption. The above expenses have further been classified into utility expenses for open commercial area in the proposed resort and covered commercial area in the proposed resort. The rates and quantity considered for the above items have been tabulated subsequently:

Table 31: Assumptions for Utility Expenses

Category	Unit	Rate (BDT)	Per unit consumption
Electric Consumption (Occupied Commercial Covered Area)	Unit/Sq.m/Year	11	180
Electric Consumption (Commercial Open Area)	Unit/Sq.m/Year	11	30
Water Consumption (Occupied Commercial Covered Area)	Cu.m/Capita/Year	10	49.275
Water Consumption (Commercial Open Areas)	Cu.m/Sq.m/Year	10	0.5475
LPG Consumption (Occupied Commercial Operations)	Cu.m/Capita/Year	12	48.3625

An overall snapshot of the operating expenditure is provided below:

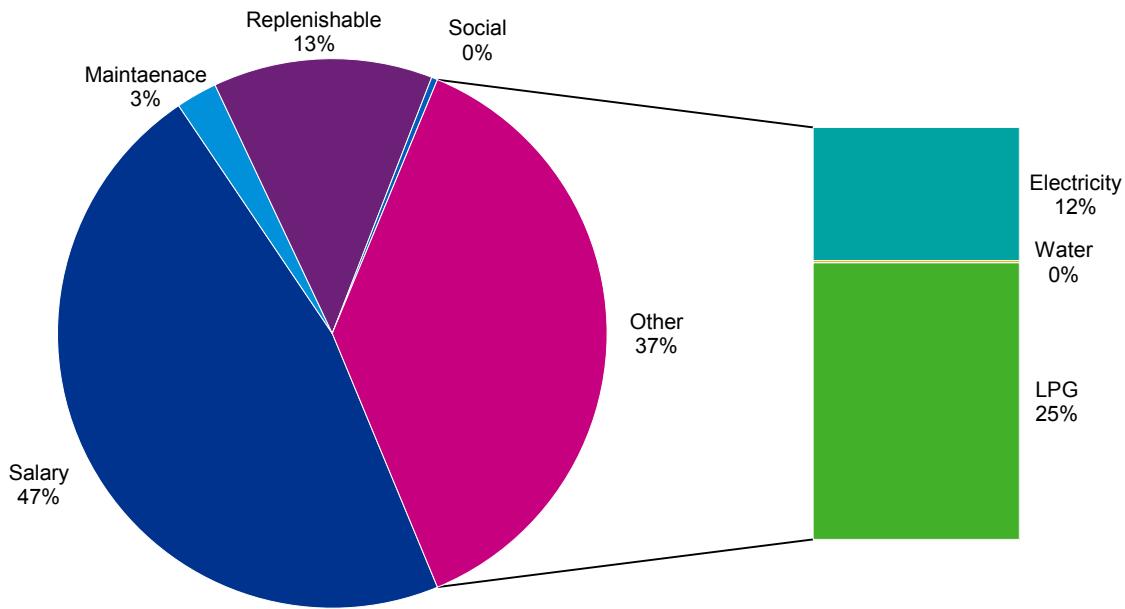


Figure 25: Snapshot of Operating Expenditure

7.2.2 Details of financing assumptions

A project of this nature requires significant investment and the overall gestation period is high as well. As a result, the overall financing assumptions become an integral part of the financial model and play a decisive role in the feasibility of the project. For the proposed resort (based on other projects of similar nature), we have considered that the project shall be financed using equity brought in by the developer and debt raised by the developer. **No financial support from the Government or any of its department has been considered.** The major financing assumptions are tabulated below:

Table 32: Funding Assumptions

#	Source of Fund	Ratio of Funding (%)	Value (BDT Million)
1.	Equity	30%	BDT 301 Million
2.	Debt	70%	BDT 703 Million
3.	Total	100%	BDT 1004 Million

It has been assumed that the project will be financed with a Debt-Equity ratio of 70:30, as is the case in many other such projects. It has further been assumed that the developer will get a moratorium period of two years post the construction period of three years and repay the loan in eight years post the moratorium period. An interest rate of 12% has been considered for the debt taken. **For the purpose of our analysis, no soft loan (loan at concessional rate) has been considered.**

We have further considered that the developer shall always maintain a cash reserve of BDT 1 Million to meet the year on year expenses. This is to assure liquidity with the developer over the project period to

meet current liabilities. In case there is a shortfall, a working capital loan has been assumed. The interest rate on this will be 13% and it shall be payable in the immediate next year.

7.2.3 Details of revenue assumptions

The proposed resort is expected to cater to the needs of a wide variety of tourist requirements and the specifications of the resort have been proposed accordingly. A mix of rooms and cottages has been proposed for the resort, along with other facilities like restaurants, spa and wellness centre and recreation facilities among others.

A wide variety of residential rooms and cottages has been considered. The rates of the various rooms and cottages have been tabulated below:

Table 33: Room / Cottage rates and occupancy

Categories of Rooms and Cottages	Day guest capacity	Tariff/ Rental/ Per Capita Spending per night (BDT)	Occupancy (%) in the first year of operations
Nap Rooms for Outbound Tourist S/B A/C	10	2500	35%
Economy Room D/B Non A/C	10	1250	35%
Standard Room D/B A/C	20	1750	35%
Executive Room D/B A/C	40	2000	35%
Deluxe Room D/B A/C	32	2750	35%
Premium Room D/B A/C	20	4000	35%
Presidential Suite D/B A/C	4	12500	35%
Village Cottage D/B A/C	16	3000	35%
Deluxe Cottage D/B A/C	16	3750	35%
Cliff Side Premium Cottage D/B A/C	16	5000	35%
Tea Garden Chalet D/B A/C	8	5500	35%
Tree House D/B A/C	16	6500	35%
Outlook Villa Suites D/B A/C	8	8500	35%

The occupancy for the proposed rooms and cottages has been specified above. We have assumed that the occupancy in the first year of operations will increase year on year at the average annual growth rate of total tourist arrivals in Bangladesh which is 4.93%. The maximum average occupancy over the years has been capped at 50% for the above rooms and cottages.

After studying the requirements from a resort in Sylhet and other similar facilities in the region a variety of other facilities have been proposed at the resort. The details of the various types of restaurants proposed have been tabulated below:

Table 34: Types of restaurants proposed

Type of Restaurant	Tariff/ Rental/ Per Capita Spending per night (BDT)	Occupancy (%) in the first year of operations	Maximum occupancy over the years (%)
Multi-Cuisine Restaurant	1000	10%	45%
Bangladeshi Speciality Restaurant	600	10%	45%
Continental Restaurant	1000	10%	45%
Bar & Cocktail Lounge	1000	10%	45%
Coffee & Bakery Shop	500	5%	33%
Pool Deck Refreshment Kiosk	600	5%	33%

The occupancy for the restaurants have been assumed to increase at the average of annual growth rate of total tourists arrivals in Bangladesh i.e. 4.93% and the annual growth rate of day visitor arrivals in Bangladesh i.e. 4.00%. The maximum average occupancy over the years has been capped at 45% for the above restaurants.

The details of other facilities like spa and wellness centre, recreation and entertainment facilities, convention and banquet facilities, indoor sports and games, outdoor events and outdoor activities have been tabulated below:

The occupancy for the above facilities have been assumed to increase at the average of annual growth rate of total tourists arrivals in Bangladesh i.e. 4.93% and the annual growth rate of day visitor arrivals in Bangladesh i.e. 4.00%. The maximum average occupancy over the years has been capped at 45% for the above facilities.

Table 35: Details of other facilities

Type of facility	Tariff/ Rental/ Per Capita Spending per night (BDT)	Occupancy (%) in the first year of operations
SPA and Wellness Centre		
Massage Parlour	1200	5%
Aerobics & Movement Studio	200	5%

Type of facility	Tariff/ Rental/ Per Capita Spending per night (BDT)	Occupancy (%) in the first year of operations
Steam + Sauna room for Men	150	5%
Steam + Sauna room for Women	150	5%
Hydro pool	300	5%
Fully Equipped Gymnasium	100	5%
Unisex Saloon	500	5%
Swimming Pool with Kids Pool & Jacuzzi	500	5%
Recreation and Entertainment		
Boutique/Curio Shops with storage facility	250	5%
A/V Theatre	125	5%
Library	50	5%
Hobby Centre	100	5%
Karaoke Bar/ Discotheque	300	5%
Convention and Banquet Facility		
Convention Auditorium	125	10%
Ball Room with Banquet	750	10%
Banquet & Ceremonial Hall	500	10%

Type of facility	Tariff/ Rental/ Per Capita Spending per night (BDT)	Occupancy (%) in the first year of operations
Conference Rooms	1000	10%
Board Rooms	800	10%
Training Rooms (Classroom Style)	500	10%
Business Executive Guest Room T/S A/C	1500	10%
Business Centre	200	10%
Indoor Sports and Games		
Table Tennis	75	15%
Card/ Carom	50	15%
Billiard	100	25%
Board Game	25	15%
Virtual Studio/Console Games	200	25%
Bowling Alley	300	25%
Kindergarten Games	25	15%
Outdoor Events and Banquet Lawn		
Event Courtyard	120	10%
Banquet Lawn	500	15%

Type of facility	Tariff/ Rental/ Per Capita Spending per night (BDT)	Occupancy (%) in the first year of operations
Outdoor Nature Activities		
Hiking/ Nature Trail	25	25%
Biking	25	25%
Angling	150	25%
Zipping	500	25%
Canopy Walk	125	25%
Bird Watching	25	25%
Butterfly Garden	30	25%
Bon Fire	150	25%
Camping/Picnic	750	25%

7.2.4 Other Assumptions for Financial Feasibility Assessment

Apart from the capital and operational costs, financing and revenue assumptions detailed earlier, the other major assumptions made in the financial model have been explained in this section.

Depreciation

The assets have broadly been classified into three categories and corresponding depreciation rates for the same have been taken based on the applicable company's law in Bangladesh. The depreciation rates for the three categories have been tabulated below:

Table 36: Depreciation Assumptions

#	Asset Category	Depreciation Rate (%) ³⁵
1.	Building/Structures	10%
2.	Plant & Machinery	20%

³⁵ Source: Bangladesh Tax Handbook 2015-16 by BDO International Limited

#	Asset Category	Depreciation Rate (%) ³⁵
3.	IT System	10%

Working Capital

Three major working capital components have been assumed for the financial modelling exercise – Receivables, Payables and Inventory. The assumptions for the same have been taken based on our experience for similar projects and the same is tabulated below:

Table 37: Working Capital Assumptions

#	Asset Category	As a % of the revenue
1.	Receivables	9%
2.	Payables	30%
3.	Inventory	4%

Growth Assumptions

The various growth rates used for projections has been tabulated below:

Table 38: Growth assumptions

#	Asset Category	As a % of the revenue
1.	Inflation ³⁶	6.6%
2.	Average Annual Increment in Salary ³⁷	6.6%
3.	Average annual increase in other expenditure ³⁸	2.93%
4.	Average Annual Growth Rate of DTAs at this Facility	4%
5.	Average Annual Growth Rate of NBAs at this Facility	4%
6.	Average Annual Growth Rate of FTAs at this Facility	15.62%
7.	Average Annual Growth Rate of TTAs at this Facility	4.93%
8.	Average Annual Growth Rate of DVAs at this Facility	4.53%

The tax rate has been considered as 35% which is applicable for non-publicly traded companies.

³⁶ Note: Inflation has been assumed as the average of the inflation rate in Bangladesh over the past four year ie.6.1%, 6.66%. 6.23% and 7.54%

³⁷ Note: This has been pegged with the average inflation rate computed

³⁸ Note: This has been considered as the increase in utility rates in Sylhet in the past year

7.3 Assessment of Structuring Options for the Project

Based on the requirements of the project and our past experience, three structuring options were studied for the project:

Option 1: Fixed upfront fee and Revenue share to BPC

In this option, the developer shall pay an upfront fee to BPC and shall pay a fixed amount or a fixed percentage of the revenue year on year to BPC during the operations period with a year on year growth rate.

This structure is more suitable to PPP projects in developing countries because of the following reasons:

- It does not increase the initial fund requirement and constrain the bidder, which makes it easier to achieve financial closure of the project. In this case, part of the price is paid as an upfront fee and part through year on year revenue contributions which reduces the burden on the bidder
- Such a structure often leads to competitive bids and successful implementation of PPP

Option 2: Upfront fee to BPC

In this option, the developer shall pay only an upfront fee to BPC. This structure is more suitable to the Government or to the Granting Authority. The main issues of this option are outlined below:

- It provides an upfront payment to the Authority and frees it from subsequent revenue collection and monitoring risk which may arise during the operations period
- This structure may lead to lack of bidder interest or subsequent failure of project during implementation as it reduces the overall control of the Granting Authority on the project
- It also increases the financial burden on the bidder as the entire amount needs to be paid upfront which adds on to the project cost

Option 3: Revenue share to BPC

In this option the developer shall make fixed payments or fixed percentage revenue share to BPC during the operations period. This option substantially increases the risk for BPC. As a result this option was discarded.

Between the other two options studied above, Option 1 (combination of upfront payment and annuity payments) is a better option because of the following:

- It reduces the upfront payment/investment by the developer
- Any extreme upside from the project is partially arrested and flows to the Government
- More interest may be expected from the bidders because it is more attractive financially

7.3.1 Assessment of Financial Returns from the project

Based on the above assumptions, the payback period, project and equity internal rate of return have been tabulated below. Payback period is the expected time required by the developer to recover/ break-even the capital invested in the project. Project internal rate of return is the total return available to the equity and the debt holders from the project. Equity internal rate of return is the return on the project available only to the equity investor/ developer.

Table 39: Returns from the project in base scenario

#	Financial Return Parameter	Value
1.	Equity internal rate of return	22.72%
2.	Project internal rate of return	19.12%
3.	Payback period	12 years (9 years from start of operations)

The returns from the project under the various structuring options mentioned earlier have been tabulated below:

Table 40: Returns from the project in Option 1 - Upfront fee and Revenue share to BPC

#	Upfront Fee	Revenue Share / Fixed payment	Equity internal rate of return	Project internal rate of return	Payback period
1.	No upfront payment	3%	22.02%	18.70%	13 years
2.	BDT 5 million	5%	21.46%	18.35%	14 years
3.	BDT 10 million	10%	20.27%	17.56%	15 years
4.	No upfront payment	Fixed – BDT 5 million	22.41%	18.95%	13 years
5.	BDT 5 million	Fixed – BDT 5 million	22.32%	18.89%	13 years
6.	BDT 5 million	Fixed – BDT 10 million	22.02%	18.72%	13 years
7.	BDT 10 million	Fixed – BDT 5 million	22.23%	18.83%	13 years
8.	BDT 10 million	Fixed – BDT 10 million	21.94%	18.66%	13 years
Option finalized by BPC on the basis of the Draft Feasibility Study					
9.	BDT 60 million	Fixed – BDT 20 million	20.67%	17.81%	14 years

Table 41: Returns from the project in Option 2 - Upfront fee to BPC

#	Upfront Fee	Equity internal rate of return	Project internal rate of return	Payback period
1.	No upfront payment	22.72%	19.12%	12 years
2.	BDT 5 million	22.63%	19.06%	12 years
3.	BDT 10 million	22.54%	19.01%	12 years
4.	BDT 20 million	22.37%	18.89%	13 years
5.	BDT 30 million	22.19%	18.78%	13 years
6.	BDT 40 million	22.02%	18.67%	13 years

7.3.2 Observations

Based on the feasibility study conducted, the following observations were made:

- The financial returns from the project may be deemed adequate across various options. Both the Project and the Equity Internal Rate of Return are above 17% across the options considered
- The payback period ranges from 12-14 years across various options.
- The equity IRR in the base scenario is 22.72% which is strong enough to attract investment
- The overall cost of construction comes to BDT 1004 Million exclusive of upfront payment to BPC and inclusive of the interest during construction which comes to BDT 118 Million and consultancy fee payable to the transaction advisor
- Project structuring option 1 i.e. a combination of upfront fee and revenue contribution to BPC, seems a better option as it provides reasonable comfort to the bidders and the government. It reduces overall financial burden on the bidder and also has a better expected implementation of the project as the bidder needs to make revenue contribution to BPC during the operations period

8 Environmental & Social Assessment

As part of the Feasibility Study for building an International Standard Tourism Complex at Sylhet, Environmental and Social Screening of the project was conducted by the project team. It was a precursor to a more involved exercise – Environmental and Social Assessment, which was carried out at a later stage. As explained in the Approach & Methodology section, the Environmental and Social Screening was carried out by the project team using standard questionnaires. The summary of Environmental and Social Screening for the project is provided below:

8.1 Summary of Environmental Screening for the Project

The key environmental issues identified were as follows:

- Trees and undergrowth at the site have some fauna including mammals such as jackals, monkeys and reptiles such as snakes, garden lizards, etc. and removal of these trees during construction may affect the fauna
- During construction and operation of the Tourism Complex, significant amount of solid and hazardous waste is expected to be generated. Efficient disposal of this waste needs to be taken up.
- During construction and operation of the Resort, there will be significant generation of wastewater and sewage. Proper disposal of these in accordance with environmental standards is necessary. This may be done through a Biological Treatment System.
- There are trees and undergrowth in the site at present and during the construction and operation of the resort, pruning of trees and cutting down of vegetation may be required.
- There may also be a slight increase in the levels of air pollution in the vicinity of the site during construction of the project.
- There might also be an increase in the levels of noise pollution and vibration in the site area during construction of the project due to the use of heavy engineering equipment.

8.2 Key Conclusion and Recommendation of Environmental Assessment for the Project

After the Environmental Screening, an Environmental Assessment was carried out by the Environmental Expert of the Transaction Advisor. The assessment, which is referred to as Initial Environment Examination, is attached as **Annexure – 14**.

The key conclusions and recommendations of the Initial Environment Examination are discussed below:

Conclusion

The potential adverse environmental impacts are related to the (i) construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices; and (ii) operation period, which can be managed by the mitigation measures and environmentally sound O&M practices.

In relation to Bangladeshi ECR 1997, the Tourism Complex project is considered to have very little potential for environmental impacts and can be classified as **Orange – B category**. The environmental impacts that have been identified can be mitigated by the measures mentioned in the IEE and EMP. The IEE document may be submitted to the DOE as part of the ECC application and further study for impact assessment may not be necessary.

Recommendation

The Project Implementation Unit of the private developer should ensure that:

- All mitigation, compensation and enhancement measures proposed in the IEE report are implemented in full, as described in the IEE document; and
- The EMP of the report is updated during detailed design and also implemented in full during construction and operation period.

A copy of the EMP shall be kept on-site during the construction and operation period at all times. The EMP shall be made binding on the contractor operating on the site, and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in the IEE document shall constitute a failure in compliance.

8.3 Summary of Social Screening for the Project

The ownership of the site for the proposed International Standard Tourism Complex at Sylhet rests with the Bangladesh Parjatan Corporation. Hence, no land acquisition will be required for the project and consequently no rehabilitation and resettlement issue is envisaged. Further, the following aspects of the project are also pertinent in this context:

- The proposed project is not expected to cause impact on the local community or private structures (such as residential and commercial), and common properties. Based on the field visits of the project team, no impact is expected on private land and private properties like housing, shops, commercial buildings, religious and community infrastructure.
- No social impacts during implementation can be perceived. The proposed project does not have any adverse impact on women and/or girls and does not widen gender inequality. The proposed project will not have any physical or economic displacement.
- There are no indigenous people or ethnic minority groups present in the project location

The key social issues identified were as follows-

- There are currently permanent workers working with Parjatan Motel in Sylhet. Post the construction of the Tourism Complex, there might be reassignment or transfer for some of the permanent workers.
- Parjatan Motel in Sylhet currently employs a few contract workers who may face a possible loss of livelihood once the International Standard Tourism Complex is constructed.
- In the vicinity of the site, there is a village road which connects to a metalled road, which is at some distance from the site. As per the demarcated land area, the village road comes within the land owned by BPC. If the boundary of the Tourist Complex are drawn inside the existing area, the village road will be unaffected. However, if the Tourist Complex boundary is built as per the present demarcation, then the village road might need to be realigned.

However, the proposed project for setting up an International Standard Tourism Complex is a tourism project. It is expected to increase tourist inflows into the city of Sylhet. Some social benefits from the projects that may accrue are as follows:-

- The proposed project can lead to creation of more employment opportunities (both direct and indirect) within the proposed Resort as well as in the vicinity of the site.
- The construction of the Tourism Complex will provide a fillip to the transportation service providers and local tour operators with an increase in the tourist inflow.
- The proposed project can also be expected to give a fillip to the local artisans and handicraft industry since tourists are generally keen on purchasing locally made handicrafts as souvenirs.

8.4 Key Conclusion and Recommendation of Social Assessment for the Project

After the Social Screening, a Social Assessment was carried out by the Social Expert of the Transaction Advisor. The assessment is attached as **Annexure – 15**.

The key conclusions and recommendations of the Social Assessment are discussed below:

Conclusion

Construction of the international standard tourism complex will increase employment in the form of permanent, casual and temporary jobs, which will increase revenues , help in developing tourism in the region and country, which in turn will increase new investors in the country, improve standard of living of the locality, including improvement in education, health and hygiene, food intake for the underprivileged population of the area, accessibility to the main road and essential services and considerable reduction in travel time. **No major social impacts/ risks are envisaged in the project.**

Recommendation

Because no major impacts/ risks are envisaged after carrying the Social Assessment, no further action is envisaged.

9 Way Forward

Subsequent to the submission of the Final Feasibility Study Report, the following steps are envisaged in this project.

Submission of Invitation for Bid (IFB) and Contract Document with project description and commercial inputs

Supporting BPC in running the Bid Process as outlined in the Scope of Services for Transaction Advisory

Annexures

Annexure – 1

Other Sources of Data Covered in Secondary Research

- The Tourism Product, Stephen L. J. Smith University of Waterloo, Canada published 1994
- Reinforcing Ties, enhancing Contributions from Bangladeshi Diaspora Member, ILO published 2015
- Economic Census 2013 part 1, Bangladesh Bureau of Statistics
- Economic Census 2013 part 2, Bangladesh Bureau of Statistics
- Travel & Tourism Economic impact 2015 Bangladesh, World Travel & Tourism Council
- The traditions as tourism product: analysis of the case of Dubai, Mauron, Alexandra published 2011
- Population Monograph of Bangladesh, International Migrants from Bangladesh, 2015
- Identifying Resource Efficiency Improvement Potential to Enhance Competitiveness of Sri Lanka's Hotel Industry, IFC published 2013
- Introduction to the tourism industry in Bangladesh, Majbritt Thomsen
- Problems and Prospects of Tourism Industry at Sylhet Region in Bangladesh Md. Amdadul Haque, Fakhrul Islam published 2015
- Bangladesh Census 2011
- Lonely Planet Travel Guide

Annexure – 2

PROJECT INFORMATION SHEET: TOURISM PRODUCT- COMPETITIVE COMPARISON (REGIONAL & NATIONAL)					FORM PI-03
List of existing, under construction or planned Similar Facility within the regional/ national area (Duplicate these sheets for numbers of facilities identified)					
COMPETITIVE FACILITY No. __					
Name of Facility:					
Address of Facility:					
Status of Operation:	Existing/ Operating <input type="checkbox"/>	Under Construction <input type="checkbox"/>	Future	Year of completion if UC/ FP	
Facility Type:	Lodge <input type="checkbox"/>	Dharmoshala <input type="checkbox"/>	Bread & Breakfast <input type="checkbox"/>	Hotel <input type="checkbox"/>	Service
	Apartment <input type="checkbox"/>	Resort <input type="checkbox"/>	Home Stay <input type="checkbox"/>	Motel <input type="checkbox"/>	Camp/ Tentage <input type="checkbox"/>
Ownership & Operations Type:	Ownership & Operation Type		Lease Tenure:	Operation Tenure:	
Facility Category Type:	Category	Total No. of Guest Rooms:		Total No. of Guest Beds including extra beds:	
Guest Rooms Details by Classification					
ROOM CLASSIFICATION NAME	NO. OF ROOMS	NO. OF BEDS	LEAN TARIFF (BDT)	PEAK TARIFF (BDT)	OCCUPANCY Y 2015 (%age)
No. of FTAs at this facility 2015		No. of DTAs at this facility 2015		No. of NBAs at this facility 2015	
Details of Facilities other than accommodation available and functional at this facility					

NAME/ TYPE OF FACILITIES	PAX. CAPACITY	MAXIMUM USAGE SEASON	PER PAX. USAGE TARIFF IN BDT (if applicable)	USAGE DETAILS

Annexure – 3

Survey Questionnaire

Market Demand and Willingness to Pay Survey No ____

1. Name of the respondent _____ Age _____ Family size _____ Sex: Male Female
2. Country of residence _____ City/ town of residence _____ Annual Income (BDT)

3. Employment type: Business Govt. Service Pvt. Service Self Employed Dependant/
Unemployed
4. Which destination in this country you rate highly for tourism_____
5. Reasons for rating: Connectivity Tourism Infrastructure Product Mix Experience Interpretation
6. What are your purposes of visit to such tourist destinations? Recreation/Leisure Short Holiday/
Weekends Vacations Sightseeing Part of Tour Package Visiting Friends & Relatives Business Others
7. How many tourism visitations do you generally undertake in a year_____ How many in last 5 years?

8. What accommodation type would you prefer considering affordability while being at tourism
destinations? High-end Hotel Budget Hotel Gateway Hotel Boutique Hotel Heritage Hotel
 High-end Resort Eco Resort Getaway Resort Motel Camp/Tents Dormitory
Homestay/ B&B Stay with Relatives/ Friends Dharmoshala Guest House Others
9. Have you ever stayed at Eco/ Getaway/ Leisure Resort before? Yes No Names:

10. What are main reasons for which you chose to stay in a resort? Offered Activities Open Planning
 Natural Environment Independent Living Others
11. What is your preferred travel mode to tourism destinations? Private Vehicle Road Transport
Rail Transport Hire Vehicle Tour Bus Airways Mixed
12. What is the type of companionship you prefer to travel with? Tour Group Family Friends
Spouse/ Partner Alone Others

13. Which sources do you generally rely on while planning your holiday trips? Brochure Magazine
 Newspaper Advertisement Travelogue Information Centre Travel Exhibitions Word of Mouth Recommendations
14. What are the concern of existing tourism delivery which you consider weak and recommend improvements? Accommodation Siting Accommodation Hygiene Accommodation Tariff
 Accommodation Appearance Travel Modes Travel Length Public Amenities & Facilities Retail & Recreational Activities Visitor Information & Interpretation Tourism Infrastructure Local Attitude & Behaviour Branding Awareness
15. What is your average annual budget for your family for holidaying/ recreation/ outing (BDT)?

16. Has your budget increased in last 5 years? Yes No
17. Which night price band do you prefer paying towards accommodation/ lodging/ boarding? <1000 BDT 1000-2000 BDT 2000-5000 BDT 5000-7500 BDT 7500-10000 BDT 10000-12000 BDT
 12000-15000 BDT >15000 BDT
18. Would you pay a medium increase in your current prices for accommodation/ lodging/ boarding? Yes
No
19. What is the maximum %age increase you would prefer paying? Below 5% 5- 15% 15- 30%
30- 50% 50- 75% 75- 100% Above 100%
20. What would you do if the accommodation price increase are unacceptable to you? Look for other options nearby Modify itinerary Cancel itinerary Squeeze expenses Negotiate for discounts
 Move out for cheaper options away from core Other
21. Whom do you prefer as an operator for the accommodation facility? Government Private
Community/ CBO/ VCO Society/ NGO Promoter Others
22. Are you in favour of user fee towards recovery of environment and social distresses? Yes No

Annexure – 4

Table 42: Long List of Resorts in Bangladesh

Sl. No.	Business Name	Tourism Product Type	Division	District	Room Keys
1	Amtali Nature Resort	Eco/ Nature	Sylhet	Habiganj	3
2	Ananda Park & Resort	Amusement	Dhaka	Gazipur	30
3	Angana Resort	Garden	Dhaka	Gazipur	17
4	Arshinagar Holiday Resort	Eco/ Nature	Dhaka	Gazipur	26
5	Arunima Countryside & Golf Resort	Eco/ Nature	Khulna	Narail	25
6	Babui Eco-Resort	Beach	Chittagong	Cox's Bazar	27
7	Barsa Resorts Ltd.	Eco/ Nature	Khulna	Satkhira	20
8	Blue Marine Resort	Beach	Chittagong	Cox's Bazar	42
9	Butterfly Park Resort	Eco/ Nature	Chittagong	Chittagong	20
10	C G Fishing Resort & Picnic Spot	Amusement	Dhaka	Gazipur	20
11	Central Resort Ltd.	Beach	Chittagong	Cox's Bazar	40
12	Chitra Resort	Eco/ Nature	Khulna	Narail	15
13	Coral Blue Resort	Beach	Chittagong	Cox's Bazar	20
14	Deepali Resort	Getaway/ Retreat	Dhaka	Gazipur	25

Sl. No.	Business Name	Tourism Product Type	Division	District	Room Keys
15	Dhaka Resort	Getaway/ Retreat	Dhaka	Gazipur	30
16	Diamond Resort	Eco/ Nature	Chittagong	Cox's Bazar	11
17	Dream Square Resort	Eco/ Nature	Dhaka	Gazipur	20
18	DuSai Resort & SPA	Boutique Villa	Sylhet	Maulvibazar	73
19	Elenga Resort Ltd.	Getaway/ Retreat	Dhaka	Tangail	40
20	Excelsior Sylhet Hotel & Resort	Getaway/ Retreat	Sylhet	Sylhet	47
21	Foy's Lake Resort	Getaway/ Retreat	Chittagong	Chittagong	45
22	Funcity Amusement Park Resort	Amusement	Rangpur	Dinajpur	32
23	Girichaya Garden Resort	Garden	Chittagong	Bandarban	30
24	Grand Sultan Tea Resort & Golf	Luxury	Sylhet	Maulvibazar	135
25	Green Peak Resorts	Getaway/ Retreat	Chittagong	Bandarban	20
26	Green Tech Resort & Convention Centre	Getaway/ Retreat	Dhaka	Gazipur	73
27	Holiday Inn Resort	Eco/ Nature	Chittagong	Bandarban	11
28	Jaintapur Resort	Getaway/ Retreat	Sylhet	Sylhet	40
29	Jamuna Resort	Getaway/ Retreat	Dhaka	Tangail	84
30	Laimi Hill Side Resort	Eco/ Nature	Chittagong	Bandarban	14

Sl. No.	Business Name	Tourism Product Type	Division	District	Room Keys
31	Lakeshore Resort Kaptai	Eco/ Nature	Chittagong	Rangamati	10
32	M. J. Holiday Resort	Garden	Dhaka	Munshiganj	20
33	Mawa Resort	Getaway/ Retreat	Dhaka	Munshiganj	15
34	Meditation Resort	Eco/ Nature	Chittagong	Bandarban	20
35	Megher Chaya Resort	Getaway/ Retreat	Dhaka	Tangail	18
36	Meghna Shorobor Resort & Golf Course Ltd.	Getaway/ Retreat	Chittagong	Chandpur	23
37	Meghna Village Holiday Resort	Amusement	Dhaka	Munshiganj	20
38	Mermaid Beach Resort	Beach	Chittagong	Cox's Bazar	20
39	Mermaid Eco Resort	Eco/ Nature	Chittagong	Cox's Bazar	12
40	Milonchori Hillside Resort	Eco/ Nature	Chittagong	Bandarban	12
41	Mozaffar Garden & Resort	Garden	Khulna	Satkhira	30
42	Nazimgarh Garden Resort	Garden	Sylhet	Sylhet	35
43	Nazimgarh Wilderness Resort	Eco/ Nature	Sylhet	Sylhet	38
44	Nijhum Resort	Eco/ Nature	Chittagong	Noakhali	11

Sl. No.	Business Name	Tourism Product Type	Division	District	Room Keys
45	Nil Digante Resort	Beach	Chittagong	Cox's Bazar	16
46	Nilgiri Resort	Eco/ Nature	Chittagong	Bandarban	15
47	Nishorgo Eco Resorts	Eco/ Nature	Sylhet	Maulvibazar	16
48	Nitol Bay Resort	Urban	Chittagong	Cox's Bazar	37
49	Nokkhottrobari Resort & Conference Centre	Eco/ Nature	Dhaka	Gazipur	28
50	Padma Resort	Eco/ Nature	Dhaka	Munshiganj	16
51	Pakshi Resort	Garden	Rajshahi	Pabna	20
52	Panigram Resort	Eco/ Nature	Khulna	Jessore	12
53	Pebble Stone Sea Resort Pvt. Ltd.	Beach	Chittagong	Cox's Bazar	26
54	Praasad Paradise Resort	Urban	Chittagong	Cox's Bazar	40
55	Rainforest Resort	Garden	Sylhet	Maulvibazar	12
56	Rainya Tugun Eco Resort	Eco/ Nature	Chittagong	Rangamati	12
57	Rangamati Water Front	Getaway/ Retreat	Dhaka	Gazipur	53
58	Resort Atlantis	Amusement	Dhaka	Dhaka	40
59	Royal Resort & Holidays Ltd.	Heritage	Dhaka	Tangail	25

Sl. No.	Business Name	Tourism Product Type	Division	District	Room Keys
60	Sakura Hill Resort	Eco/ Nature	Chittagong	Bandarban	16
61	Sampan Beach Resort	Beach	Chittagong	Cox's Bazar	15
62	Sampan Eco Resort	Eco/ Nature	Chittagong	Cox's Bazar	10
63	Shemana Pereye Resort	Beach	Chittagong	Cox's Bazar	12
64	Sonargaon Royal Resort	Urban	Dhaka	Narayanganj	72
65	Sukhtara Nature Retreat	Eco/ Nature	Sylhet	Sylhet	21
66	Sundarban Eco Resort	Eco/ Nature	Khulna	Khulna	15
67	Surmavally Residential Resort	Eco/ Nature	Sylhet	Sunamganj	10
68	Swiss Valley Resort	Eco/ Nature	Sylhet	Maulvibazar	9
69	Tea Resort	Tea Garden	Sylhet	Maulvibazar	9
70	The Palace Luxury Resort	Luxury	Sylhet	Habiganj	134
71	Third Terrace Resorts	Getaway/ Retreat	Dhaka	Gazipur	20
72	Venus Resort	Getaway/ Retreat	Chittagong	Bandarban	17

Annexure – 5

Table 43: Shortlist of 25 Resorts in Bangladesh

Sl. No.	Name of Resort	Sl. No.	Name of Resort
1	The Palace Luxury Resort	14	Nazimgarh Wilderness Resort
2	Rangamati Water Front	15	Panigram Resort
3	Jamuna Resort	16	Nazimgarh Garden Resort
4	Arunima Resort Golf Club	17	Nokkhottrobari Resort
5	Parjatan Motel Sylhet	18	Meghna Village Holiday Resort
6	DuSai Resort & SPA	19	Elenga Resort Ltd.
7	Grand Sultan Tea Resort & Golf	20	Mermaid Eco Resort
8	Excelsior Sylhet Hotel & Resort	21	Milonchori Hillside Resort
9	Green Tech Resort	22	Sonargaon Royal Resort
10	Royal Resort & Holidays Ltd.	23	Pebble Stone Sea Resort Pvt. Ltd.
11	Arshinagar Holiday Resort	24	Third Terrace Resorts
12	Sukhtara Nature Retreat	25	Padma Resort
13	Ananda Park & Resort		

Annexure – 6

Table 44: Detailed Evaluation Criteria for Resorts

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
1	Area Adequacy			
a	Campus Area			
i	CA <1 Acres	Non Complying	0%	
ii	CA \geq 1 Acres < 5 Acres	Below Average	25%	
iii	CA \geq 5 Acres < 10 Acres	Average	50%	
iv	CA \geq 10 Acres < 25 Acres	Above Average	75%	
v	CA \geq 25 Acres < 50 Acres	Very Good	90%	
vi	CA \geq 50 Acres	Excellent	100%	
2	Connectivity			
a	Connectivity to Transport Heads			
i	No transport head available	Non Complying	0%	>150 km or >4 hours travelling by private vehicle or non motorable
ii	To any 1 transport head	Below Average	25%	>120 to 150 km or >3 to 4 hours travelling/pickup range
iii	To any 1 transport head	Average	50%	Within 120 km or max. 3 hour travelling/ pickup range
iv	To any 2 transport heads	Above Average	75%	Within 120 km or max. 3 hour travelling/ pickup range
v	To any 3 transport heads	Very Good	90%	Within 120 km or max. 3 hour travelling/ pickup range
vi	To 4 transport heads (Airway, Railway, Roadway & Waterway)	Excellent	100%	Within 120 km or max. 3 hour travelling/ pickup range
b	Connectivity to Other Towns/Cities			
i	Road connectivity to any 1 from Major City, District HQ & Other Town	Non Complying	0%	Major City within 140 km, District HQ within 120 km, Other Town within 80 km
ii	Road connectivity to any 2 from Major City, District HQ & Other Town	Below Average	25%	Major City within 140 km, District HQ within 120 km, Other Town within 80 km
iii	Road connectivity to any 2 from Major City, District HQ & Other Town	Average	50%	Major City within 140 km, District HQ within 120 km, Other Town within 80 km
iv	Road connectivity to all 3 from Major City, District HQ & Other Town	Above Average	75%	Major City within 140 km, District HQ within 120 km, Other Town within 80 km
v	Road connectivity to =1 Major City, =1 District HQ, =1 Other Town	Very Good	90%	Major City within 120 km, District HQ within 80 km, Other Town within 40 km
vi	Road connectivity to >1 Major City, >1 District HQ, >1 Other Town	Excellent	100%	Major Cities within 120 km, District HQs within 80 km, Other Towns within 40 km

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
3	Services			
a	Past Visitor Experience			
i	<1.0 rating	Non Complying	0%	
ii	1.0 to 1.9 rating	Below Average	25%	
iii	2.0 to 2.9 rating	Average	50%	
iv	3.0 to 3.9 rating	Above Average	75%	
v	4.0 to 4.9 rating	Very Good	90%	
vi	5 point rating	Excellent	100%	
b	Value For Money			
i	Any 1	Non Complying	0%	Services from Valet Parking, Web Booking, 1 Complementary Meal, Free WiFi, 24 Hrs Room Service, Free Access to Basic Facilities
ii	Any 2	Below Average	25%	Services from Valet Parking, Web Booking, 1 Complementary Meal, Free WiFi, 24 Hrs Room Service, Free Access to Basic Facilities
iii	Any 3	Average	50%	Services from Valet Parking, Web Booking, 1 Complementary Meal, Free WiFi, 24 Hrs Room Service, Free Access to Basic Facilities
iv	Any 4	Above Average	75%	Services from Valet Parking, Web Booking, 1 Complementary Meal, Free WiFi, 24 Hrs Room Service, Free Access to Basic Facilities
v	Any 5	Very Good	90%	Services from Valet Parking, Web Booking, 1 Complementary Meal, Free WiFi, 24 Hrs Room Service, Free Access to Basic Facilities
vi	All 6	Excellent	100%	Services from Valet Parking, Web Booking, 1 Complementary Meal, Free WiFi, 24 Hrs Room Service, Free Access to Basic Facilities
4	Accommodation			
a	No. of Keys			
i	<10 Keys	Non Complying	0%	
ii	10 to 39 Keys	Below Average	25%	
iii	40 to 69 Keys	Average	50%	
iv	70 to 99 Keys	Above Average	75%	
v	100 to 120 Keys	Very Good	90%	
vi	>120 Keys	Excellent	100%	
b	Keys to Bed Ratio			
i	≤ 0.16	Non Complying	0%	Key Bed RATIO= No. of Keys to Max. Accommodation Rooms/ No. of Maximum Bed Capacity
ii	≥ 0.20	Below Average	25%	Key Bed RATIO= No. of Keys to Max. Accommodation Rooms/ No. of Maximum Bed Capacity
iii	≥ 0.25	Average	50%	Key Bed RATIO= No. of Keys to Max. Accommodation Rooms/ No. of Maximum Bed Capacity

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
iv	≥ 0.33	Above Average	75%	Key Bed RATIO= No. of Keys to Max. Accommodation Rooms / No. of Maximum Bed Capacity
v	≥ 0.50	Very Good	90%	Key Bed RATIO= No. of Keys to Max. Accommodation Rooms / No. of Maximum Bed Capacity
vi	Equals to 1.00	Excellent	100%	Key Bed RATIO= No. of Keys to Max. Accommodation Rooms / No. of Maximum Bed Capacity
c	Category Availability			
i	equals to 1 range available	Non Complying	0%	Range/ Band Availability is determined by number of categories of room available at different tariff (rack) rates
ii	equals to 2 ranges available	Below Average	25%	Range/ Band Availability is determined by number of categories of room available at different tariff (rack) rates
iii	equals to 3 ranges available	Average	50%	Range/ Band Availability is determined by number of categories of room available at different tariff (rack) rates
iv	equals to 4 ranges available	Above Average	75%	Range/ Band Availability is determined by number of categories of room available at different tariff (rack) rates
v	equals to 5 ranges available	Very Good	90%	Range/ Band Availability is determined by number of categories of room available at different tariff (rack) rates
vi	>5 ranges available	Excellent	100%	Range/ Band Availability is determined by number of categories of room available at different tariff (rack) rates
d	Affordability Index			
i	Between 0.00 to 0.09	Non Complying	0%	Affordability Index= Lowest Rack Tariff Available/ Average of Rack Tariff
ii	Between 0.10 to 0.29	Below Average	25%	Affordability Index= Lowest Rack Tariff Available/ Average of Rack Tariff
iii	Between 0.30 to 0.49	Average	50%	Affordability Index= Lowest Rack Tariff Available/ Average of Rack Tariff
iv	Between 0.50 to 0.69	Above Average	75%	Affordability Index= Lowest Rack Tariff Available/ Average of Rack Tariff
v	Between 0.70 to 0.89	Very Good	90%	Affordability Index= Lowest Rack Tariff Available/ Average of Rack Tariff
vi	Between 0.90 to 1.00	Excellent	100%	Affordability Index= Lowest Rack Tariff Available/ Average of Rack Tariff
e	Discount Range			
i	Equals to 0%	Non Complying	0%	Discount on Room Tariff= Average of Discount %age over all room categories
ii	Between 5-15%	Below Average	25%	Discount on Room Tariff= Average of Discount %age over all room categories
iii	Between 16-30%	Average	50%	Discount on Room Tariff= Average of Discount %age over all room categories
iv	Between 31-44%	Above Average	75%	Discount on Room Tariff= Average of Discount %age over all room categories
v	Between 45-50%	Very Good	90%	Discount on Room Tariff= Average of Discount %age over all room categories
vi	Above 50%	Excellent	100%	Discount on Room Tariff= Average of Discount %age over all room categories

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
5	Sustainability			
a	Occupancy			
i	Below 10%	Non Complying	0%	Average of occupancy %age across all categories of rooms
ii	Between 10-29%	Below Average	25%	Average of occupancy %age across all categories of rooms
iii	Between 30-39%	Average	50%	Average of occupancy %age across all categories of rooms
iv	Between 40-49%	Above Average	75%	Average of occupancy %age across all categories of rooms
v	Between 50-70%	Very Good	90%	Average of occupancy %age across all categories of rooms
vi	Above 70%	Excellent	100%	Average of occupancy %age across all categories of rooms
b	Av. Annual Turnover			
i	Less than 1 Lakh BDT	Non Complying	0%	Average Annual Per Capita Visitor Turnover=Average Annual Income by Rooms in Lakh BDT/ No. of Max. Beds
ii	>1 Lakh BDT <2 Lakh BDT	Below Average	25%	Average Annual Per Capita Visitor Turnover=Average Annual Income by Rooms in Lakh BDT/ No. of Max. Beds
iii	>2 Lakh BDT <4 Lakh BDT	Average	50%	Average Annual Per Capita Visitor Turnover=Average Annual Income by Rooms in Lakh BDT/ No. of Max. Beds
iv	>4 Lakh BDT <6 Lakh BDT	Above Average	75%	Average Annual Per Capita Visitor Turnover=Average Annual Income by Rooms in Lakh BDT/ No. of Max. Beds
v	>6 Lakh BDT <8 Lakh BDT	Very Good	90%	Average Annual Per Capita Visitor Turnover=Average Annual Income by Rooms in Lakh BDT/ No. of Max. Beds
vi	Above 8 Lakhs BDT	Excellent	100%	Average Annual Per Capita Visitor Turnover=Average Annual Income by Rooms in Lakh BDT/ No. of Max. Beds
6	Facilities			
a	Dining Facilities			
i	Having Aggregated Holding Capacity < Max. Overnight Guest Capacity	Non Complying	0%	Dining Facility Categories: Restaurants/ Dining Halls, Bars & Coffee Shops
ii	Having any 1 Category and Aggregated Holding Capacity >100% of Max. Overnight Guest Capacity	Below Average	25%	Dining Facility Categories: Restaurants/ Dining Halls, Bars & Coffee Shops
iii	Having any 1 Category and Aggregated Holding Capacity >125% of Max. Overnight Guest Capacity	Average	50%	Dining Facility Categories: Restaurants/ Dining Halls, Bars & Coffee Shops
iv	Having any 1 Category and Aggregated Holding Capacity >150% of Max. Overnight Guest Capacity	Above Average	75%	Dining Facility Categories: Restaurants/ Dining Halls, Bars & Coffee Shops
v	Having any 2 Categories and Aggregated Holding Capacity >125% of Max. Overnight Guest Capacity	Very Good	90%	Dining Facility Categories: Restaurants/ Dining Halls, Bars & Coffee Shops

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
vi	Having all 3 Categories and Aggregated Holding Capacity >125% of Max. Overnight Guest Capacity	Excellent	100%	Dining Facility Categories: Restaurants/ Dining Halls, Bars & Coffee Shops
b	Convention & Business Facilities			
i	Not having such facilities	Non Complying	0%	Convention Facility Categories: Business Centre, Conference Rooms, Board/ Meeting Rooms, Covered Auditorium & Separate Overnight Accommodation
ii	Having any 1 Category and Aggregated Holding Capacity <75% of Max. Overnight Guest Capacity	Below Average	25%	Convention Facility Categories: Business Centre, Conference Rooms, Board/ Meeting Rooms, Covered Auditorium & Separate Overnight Accommodation
iii	Having any 1 Category and Aggregated Holding Capacity >100% of Max. Overnight Guest Capacity	Average	50%	Convention Facility Categories: Business Centre, Conference Rooms, Board/ Meeting Rooms, Covered Auditorium & Separate Overnight Accommodation
iv	Having any 3 Categories and Aggregated Holding Capacity >150% of Max. Overnight Guest Capacity	Above Average	75%	Convention Facility Categories: Business Centre, Conference Rooms, Board/ Meeting Rooms, Covered Auditorium & Separate Overnight Accommodation
v	Having all 5 Categories and Aggregated Holding Capacity >125% of Max. Overnight Guest Capacity	Very Good	90%	Convention Facility Categories: Business Centre, Conference Rooms, Board/ Meeting Rooms, Covered Auditorium & Separate Overnight Accommodation
vi	Having all 5 Categories and Aggregated Holding Capacity >150% of Max. Overnight Guest Capacity	Excellent	100%	Convention Facility Categories: Business Centre, Conference Rooms, Board/ Meeting Rooms, Covered Auditorium & Separate Overnight Accommodation
c	Banquet & Event Facilities			
i	Not having such facilities	Non Complying	0%	
ii	Aggregated Holding Capacity <100% of Max. Overnight Guest Capacity	Below Average	25%	
iii	Aggregated Holding Capacity >100% of Max. Overnight Guest Capacity	Average	50%	
iv	Aggregated Holding Capacity >125% of Max. Overnight Guest Capacity	Above Average	75%	
v	Aggregated Holding Capacity >150% of Max. Overnight Guest Capacity	Very Good	90%	
vi	Aggregated Holding Capacity >200% of Max. Overnight Guest Capacity	Excellent	100%	
d	Recreational & Entertainment Facilities			
i	Not having such facilities	Non Complying	0%	Recreational & Entertainment Facility: Library, A/V/ Movie Theatre, Karaoke Bar/ Discotheque, Amphitheatre & any other Facility

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
ii	Having 1 facility	Below Average	25%	Recreational & Entertainment Facility: Library, A/V/ Movie Theatre, Karaoke Bar/ Discotheque, Amphitheatre & any other Facility
iii	Having 2 facilities	Average	50%	Recreational & Entertainment Facility: Library, A/V/ Movie Theatre, Karaoke Bar/ Discotheque, Amphitheatre & any other Facility
iv	Having 3 facilities	Above Average	75%	Recreational & Entertainment Facility: Library, A/V/ Movie Theatre, Karaoke Bar/ Discotheque, Amphitheatre & any other Facility
v	Having 4 facilities	Very Good	90%	Recreational & Entertainment Facility: Library, A/V/ Movie Theatre, Karaoke Bar/ Discotheque, Amphitheatre & any other Facility
vi	Having 5 or more facilities	Excellent	100%	Recreational & Entertainment Facility: Library, A/V/ Movie Theatre, Karaoke Bar/ Discotheque, Amphitheatre & any other Facility
e	Health Facilities			
i	Not having any such facilities	Non Complying	0%	Health & Wellness Facilities: Swimming with Kiddie Pool, Jacuzzi, SPA, Salon, Gymnasium & Wellness Facilities
ii	Only swimming pool facility or any one facility	Below Average	25%	Health & Wellness Facilities: Swimming with Kiddie Pool, Jacuzzi, SPA, Salon, Gymnasium & Wellness Facilities
iii	Having any 2 facilities with swimming pool mandatory	Average	50%	Health & Wellness Facilities: Swimming with Kiddie Pool, Jacuzzi, SPA, Salon, Gymnasium & Wellness Facilities
iv	Having any 3 facilities with swimming pool mandatory	Above Average	75%	Health & Wellness Facilities: Swimming with Kiddie Pool, Jacuzzi, SPA, Salon, Gymnasium & Wellness Facilities
v	Having any 4 facilities with swimming pool mandatory	Very Good	90%	Health & Wellness Facilities: Swimming with Kiddie Pool, Jacuzzi, SPA, Salon, Gymnasium & Wellness Facilities
vi	Having any 5 facilities with swimming pool mandatory	Excellent	100%	Health & Wellness Facilities: Swimming with Kiddie Pool, Jacuzzi, SPA, Salon, Gymnasium & Wellness Facilities
f	Outdoor Activities/Sports			
i	Having total 1 activity from any 4 categories or not having any activities	Non Complying	0%	Large Outdoor Sports: Golf, Cricket, Football. Outdoor Court Games: Tennis, Badminton, Basketball, Volleyball. Outdoor Activities: Biking, Hiking, Bonfire, Boating, Angling. Children Play Area
ii	Having total 2 activities from any 4 categories	Below Average	25%	Large Outdoor Sports: Golf, Cricket, Football. Outdoor Court Games: Tennis, Badminton, Basketball, Volleyball. Outdoor Activities: Biking, Hiking, Bonfire, Boating, Angling. Children Play Area
iii	Having total 3 activities from any 4 categories	Average	50%	Large Outdoor Sports: Golf, Cricket, Football. Outdoor Court Games: Tennis, Badminton, Basketball, Volleyball. Outdoor Activities: Biking, Hiking, Bonfire, Boating, Angling. Children Play Area
iv	Having total 4 activities from any 4 categories	Above Average	75%	Large Outdoor Sports: Golf, Cricket, Football. Outdoor Court Games: Tennis, Badminton, Basketball, Volleyball. Outdoor Activities: Biking, Hiking, Bonfire, Boating, Angling. Children Play Area

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
v	Having at least 1 each activities from 4 categories	Very Good	90%	Large Outdoor Sports: Golf, Cricket, Football. Outdoor Court Games: Tennis, Badminton, Basketball, Volleyball. Outdoor Activities: Biking, Hiking, Bonfire, Boating, Angling. Children Play Area
vi	Having >1 activities from 4 categories	Excellent	100%	Large Outdoor Sports: Golf, Cricket, Football. Outdoor Court Games: Tennis, Badminton, Basketball, Volleyball. Outdoor Activities: Biking, Hiking, Bonfire, Boating, Angling. Children Play Area
g	Indoor Sports/Games			
i	Not having any such facilities	Non Complying	0%	Indoor Sport/ Games Category: Pool/ Billiards, Cards, Table Tennis, Console Games, 3 D Games etc.
ii	Having 1 Indoor Games/Sports Facilities	Below Average	25%	Indoor Sport/ Games Category: Pool/ Billiards, Cards, Table Tennis, Console Games, 3 D Games etc.
iii	Having 2 Indoor Games/Sports Facilities	Average	50%	Indoor Sport/ Games Category: Pool/ Billiards, Cards, Table Tennis, Console Games, 3 D Games etc.
iv	Having 3 Indoor Games/Sports Facilities	Above Average	75%	Indoor Sport/ Games Category: Pool/ Billiards, Cards, Table Tennis, Console Games, 3 D Games etc.
v	Having 4 Indoor Games/Sports Facilities	Very Good	90%	Indoor Sport/ Games Category: Pool/ Billiards, Cards, Table Tennis, Console Games, 3 D Games etc.
vi	Having >4 Indoor Games/Sports Facilities	Excellent	100%	Indoor Sport/ Games Category: Pool/ Billiards, Cards, Table Tennis, Console Games, 3 D Games etc.
h	Parking Adequacy			
i	Not having any such facilities	Non Complying	0%	Parking Categories: Guest Parking, Convention/ Banquet Parking, Staff Parking
ii	Having Aggregated Parking <100% of room capacity	Below Average	25%	Parking Categories: Guest Parking, Convention/ Banquet Parking, Staff Parking
iii	Having Aggregated Parking >100% of room capacity	Average	50%	Parking Categories: Guest Parking, Convention/ Banquet Parking, Staff Parking
iv	Having Aggregated Parking >125% of room capacity	Above Average	75%	Parking Categories: Guest Parking, Convention/ Banquet Parking, Staff Parking
v	Having Aggregated Parking >150% of room capacity	Very Good	90%	Parking Categories: Guest Parking, Convention/ Banquet Parking, Staff Parking
vi	Having Aggregated Parking >200% of room capacity	Excellent	100%	Parking Categories: Guest Parking, Convention/ Banquet Parking, Staff Parking
7	Product Uniqueness			
a	Tourism Product Availability			
i	Not having any such tourism resources within the catchment area	Non Complying	0%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car

SL.NO.	DETAILED EVALUATION	BAND	RATING	REMARKS
ii	Having at least 2 tourism resources within the catchment area	Below Average	25%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
iii	Having at least 3 tourism resources within the catchment area	Average	50%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
iv	Having at least 4 tourism resources within the catchment area	Above Average	75%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
v	Having at least 5 tourism resources within the catchment area	Very Good	90%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
vi	Having more than 5 tourism resources within the catchment area	Excellent	100%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
b	Conducted Tours & Excursion			
i	Not having any such facilities at all	Non Complying	0%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
ii	Conducted Tours & Excursion by arranged by demand equal to 1/2 itinerary day payable by guest	Below Average	25%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
iii	Conducted Tours & Excursion by arranged by demand equal to 1 itinerary day payable by guest	Average	50%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
iv	Conducted Tours & Excursion by hotel/ resort for equal to 1/2 itinerary day included in room tariff	Above Average	75%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
v	Conducted Tours & Excursion by hotel/ resort for equal to 1 itinerary day included in room tariff	Very Good	90%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car
vi	Conducted Tours & Excursion by hotel/ resort for more than 1 itinerary day	Excellent	100%	Catchment Area= 80 km radius and/ or max. 2 hrs. of travel time by car

Annexure – 7

Description of Services:

The scope of services of the survey for this assignment is as follows:

Part I: Total Station/ Topographical Survey:

1. Standards to be employed:
 - i. Area Description in sq. meter and acre
 - ii. Direction: Magnetic North
 - iii. Contour Interval: 0.25m for flat land and 0.50m for slopes and hills
 - iv. Grid Interval: 5m X 5m
 - v. Spot Levels: Between 10 mts to 15 mts
 - vi. Leveling Requirements: The leveling work shall be carried out by any conventional method; the leveling work shall be connected with S.O.I. benchmark; and if S.O.I. benchmark is not available nearby then the leveling work shall be carried out by any using local benchmark.
 - vii. Inventory Label Requirements (for built structure and open plots only): Name of the feature; area statement; general size of the feature; municipal survey no. if any; built type (kutcha or pucca or semi pucca); general built use (commercial, residential, institutional etc.); demarcation of the main entrance to the built.
 - viii. Output Format: 1:1 scale digital copy of 2 dimensional ACAD 2000 format drawings complete with all information and attributes. All components and features to be recorded in separate layers and blocks nomenclature appropriately. Survey information to be submitted in Excel Sheet as per requirements.
2. Survey Features expected to be recorded but not limit to the following:
 - i. Building footprints
 - a. Historic buildings, monuments, protected and notified structures and ruins of significance
 - b. Religious and culturally significant structures like temples, mosques, Gurdwara, burial grounds, cremation grounds, etc.
 - c. Other built structures as per their property divisions (in case of commercial and mixed use each unit should be demarcated separately)
 - d. Compound walls of any built or vacant property
 - e. Encroachments, overhangs, extensions, etc.
 - f. Slums and squatter boundaries
 - g. Temporary shops and shacks
 - ii. Topographical features
 - a. Spot levels and spot elevations (in case of undulating surfaces and slopes the density of spot levels can be increased)
 - b. Terrain contours and their heights (from MSL)

- c. Any specific sharp & noticeable changes such as mounds, ditches, cuttings, excavations, major erosions, etc.
- iii. Natural features
 - a. Water bodies, ponds, natural tanks, marshy areas, etc.
 - b. Trees (only for girth size more than 200mm), plants, orchards, etc.- with their girth center, approximate canopy diameter and the local species name.
 - c. Large untended green, wooded areas forest covers, shrubs and bushes (only area demarcation)
 - d. Natural drains, springs, nallah, etc. (with direction of flow and datum line, HFL and MFL)
 - e. Aquifers, water recharge areas, etc. if any (general demarcations)
- iv. Services & amenities (with IL & CL)
 - a. Storm water drains, open drains, exit points, collection points, etc. (with general dimensions) for both above grade and buried.
 - b. Drainage systems, manholes, pumping stations, sewerage system, septic tanks, etc.
 - c. Water supply lines, water kundis (taps), operation valves, OHTs hand-pumps, boring wells, tube wells, wells, harvesting or recharging facilities chambers and pumping stations
 - d. Electric lines, poles, DPs and substations, high-tension lines, transformers, etc. with visible connections.
 - e. Telephone lines, poles, DPs, etc. with visible connections
 - f. Public toilets, urinals, drinking water fountains
- v. Infrastructure
 - a. Tar roads, metal roads, cart tracks, kutch road, highways, road divider, traffic island, etc. complete with levels, hard shoulder and material labeling.
 - b. Unpaved and paved pathways, terraces, etc.
 - c. Bunds, culvert, bridges, etc.
 - d. Authorized parking, sidewalks, footpaths, pedestrian trails
 - e. Road signage, directional signage, fixed information plaques, etc.
 - f. Tree guards, barriers, railings, fencing, etc.
 - g. Community dustbins, garbage collection units, dhalaos, etc.
- vi. Landscape features
 - a. Tended greens like lawns, parks, park fixtures, etc.
 - b. Gardens, traditional water channels, etc.
 - c. Immovable street furniture like benches, platforms, illumination units, and park lights, street lights, etc.
 - d. Manmade water bodies, moats, etc.
 - e. Urban sculptures, statues, pedestrian stops, etc.

Part II: Compilation of Total Station/Topographical Report for each sites (as per practice standards) which should entail but not limit to the following:

1. 3 colored copies of print of the total station survey in adequate paper size not less than A2 size.
2. 3 colored copies of print of the typical cross sections in adequate paper size not less than A3 size.
3. 3 copies of B/W printed survey schedule in A4 size paper.
4. Any other observation or special inputs made on site

Deliverables:

- a. Field data in soft copy for all survey;
- b. ACAD 2000 outputs of TSS in soft copies for each site on CD
- c. Survey Schedule in Excel format in soft copy
- d. Any other as/specifications mentioned above.

Annexure – 8

Description of Services:

The scopes of services envisaged for this assignment for all purpose of achieving or executing the services are as follows:

Part I: Geological Extant Report:

- a. Geology of the proposed site;
- b. General suitability to the proposed activity;
- c. General stability assessment; and
- d. OB study
- e. Any other relevant geological information.

Part II: Geo-technical Investigation (as per Standard & testing schedules):

- a. Exploratory Boreholes of 75/ 100 mm diameter at identified locations up to a depth of 8.00m or up to refusal ($N>50$) below existing ground level for fine grained strata;
- b. Open Excavation up to 3.0m depth
- c. Standard Penetration Test at suitable interval in depth or change of strata or at every change of strata, which is earlier;
- d. Collection of disturbed/ undisturbed soil samples for determining physical and or engineering properties from both borehole(s) **and** SPT
- e. All necessary laboratory investigations to determine physical properties such as CBR, Modulus of sub-grade reaction, grain size distribution, liquid limit, plasticity index etc. for disturbed/ undisturbed soil samples; and
- f. Recording the depth of ground water table in each borehole (if observed).

Part III: Compilation of Analytical Report (as per practice standards) which should contain but not limit to the following:

- a. Borehole sample analysis: Depth (mtr); Soil Classification; N-Value; Grain size (%); Density (gm/cc) wet; Density (gm/cc) dry; Shear parameter; etc.
- b. Soil tests: Unconfined compressive strength (kg/cm²); Maximum Moisture content (%); Natural Moisture content (%); Liquid Limit (%); Plastic Limit (%); Plastic Index; etc.

- c. Detailed Calculation Table of Safe Bearing Capacity of soil;
- d. Other necessary information as mandated by standard practices; and
- e. Conclusions and recommendations.

Deliverables:

- a. Field data in soft copy for all investigations;
- b. Laboratory test results in soft copy; and
- c. One hard and soft copy of report for the site.

Annexure – 9

SITE INFORMATION SHEET: ENVIRONMENTAL SCREENING 1				FORM SI-05 A
Is the project area adjacent to or within any of the following environmentally sensitive areas?	<input type="checkbox"/> Cultural Heritage Site <input type="checkbox"/> Archaeological Site <input type="checkbox"/> Legally Protected Area (Core zone or Buffer Zone) <input type="checkbox"/> Wetland <input type="checkbox"/> Mangrove <input type="checkbox"/> Estuarine <input type="checkbox"/> Special area for protecting biodiversity			
Short Remarks:				
Will the proposed project lead to impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical and cultural resources?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:		
Will the proposed project lead to disturbance to previous ecology (e.g. sensitive or protected areas)?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:		
Will the proposed project lead to alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:		
Will the proposed project lead to deterioration of surface water quality due to silt runoff and sanitary wastes from worker based camps and chemicals used in construction?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:		
Are there any anticipated chances of increased air pollution due to proposed project construction and operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:		
Are there any anticipated chances of noise and vibration due to project construction and operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:		

Are there risks of poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local population?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the proposed project lead to creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Are there risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological and radiological hazards during project construction and operation?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	

SITE INFORMATION SHEET: ENVIRONMENTAL SCREENING 2				FORM SI-05 B
Are there risks to community health and safety due to transport, storage, use and/ or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Are there community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible community?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Will there be generation of solid waste and/or hazardous waste during construction and/ or during operation of the project facility?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Will there be use of chemicals during construction and/ or during operation of the project facility?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Will the project facility lead to generation of wastewater/ septage/ sewage during construction or operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Are there any endangered/ rare habitats of flora and fauna within the project site which might be risked extinction due to the construction and/ or operation of this project facility?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Are there any anticipated risks of alteration in local flora and fauna and/ or local ecology during the initial conception of this project?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Will the project in its initial conception require lopping/ cutting/ pruning of trees/ vegetation during the construction and/ or operation of this project facility?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		
Will the project in its initial conception aggravate traffic and pedestrian conflicts and/ or risks?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Short Remarks:		

Does the proposed project include activities & outputs that support upstream planning processes that potentially pose impacts or are vulnerable to environmental change?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Does the proposed project include the implementation of downstream activities that potentially pose environmental impacts or are vulnerable to environmental change?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	

SITE INFORMATION SHEET: ENVIRONMENTAL SCREENING 3			FORM SI-05 C
Will the proposed project involve natural forest harvesting or plantation development without an independent forest certification system for sustainable forest management?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the proposed project involve the production and harvesting of fish populations or other aquatic species without an accepted system of independent certification to ensure sustainability?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Does the proposed project pose risks of degrading soils, changing traditional cultivation patterns and/ or alter fertility levels?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the proposed project result in significant greenhouse gas emissions?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	(e.g., increased extreme rainfall increases flooding, damaging proposed infrastructure)
Are there any demographic or socio-economic aspects of the project area that are already vulnerable?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	(e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)
Could the Project potentially increase the climate or disaster vulnerability of the surrounding area?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	(e.g., by paving vulnerable groundwater recharge areas, or using water from a vulnerable source that is relied upon by many user groups, or encouraging settlement in earthquake zones)
ENVIRONMENTAL SCREENING OUTCOME & CATEGORIZATION Select from the following:			
Category 1 <input type="checkbox"/>	No impacts major impacts/risks are envisaged at this stage. No further action is needed. Screening Outcomes are disclosed publicly.		

Category 2 <input type="checkbox"/>	There are possible environmental benefits, impacts, and/or risks associated with the project (or specific project component), but these are predominantly indirect or very long-term and so extremely difficult or impossible to directly identify and assess. Preparation of further Environmental Examinations with Risks and Mitigation Measures is mandated for next stage of project activity.
Category 3 <input type="checkbox"/>	Impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice, but require some minimal or targeted further review and assessment to identify and evaluate whether there is a need for a full environmental assessment. Preparation of Environmental Monitoring & Management Plan is mandated for next stage of project activity.
Category 4 <input type="checkbox"/>	Impacts and risks are significant, and so full environmental assessment is required. In these cases, a scoping exercise will need to be conducted to identify the level and approach of assessment that is most appropriate. A detailed Environmental Impact Assessment is mandated for the next stage of the project.

SITE INFORMATION SHEET: SOCIAL SCREENING 1-INVOLUNTARY RESETTLEMENT			FORM SI-06 A	
Will there be immediate and/ or downstream land acquisition for this project?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Is the site for land acquisition known?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Is the ownership status and current usage of land to be acquired known?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will easement be utilized within an existing Right of Way (ROW)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will there be loss of shelter and residential land due to land acquisition?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will there be loss of agricultural and other productive assets due to land acquisition?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will there be losses of crops, trees, and fixed assets due to land acquisition?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will there be loss of businesses or enterprises due to land acquisition?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will there be loss of income sources and means of livelihoods due to land acquisition?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will people lose access to natural resources, communal facilities and services due to the proposed project facility?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
If land use is changed, will it have an adverse impact on social and economic activities?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will access to land and resources owned communally or by the state be restricted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:		
Will this proposed project trigger displacement of people?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If Yes, nature	<input type="checkbox"/> Evacuation <input type="checkbox"/> Rehabilitation <input type="checkbox"/> Compensation <input type="checkbox"/> Others	<input type="checkbox"/> Resettlement <input type="checkbox"/> Right of Development
What are the estimated number of people affected?		Is it planned to monetarily compensate displacement?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Are any of them poor, female-heads of households, or vulnerable to poverty risks?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If Yes, brief description	
Are any displaced persons from indigenous or ethnic minority groups?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If Yes, brief description	

SITE INFORMATION SHEET: SOCIAL SCREENING 2- INDEGENOUS PEOPLE			FORM SI-06 B
Are there socio-cultural groups present in or use the project area who may be considered as "tribes", "minorities" (ethnic or national minorities), or "indigenous communities"?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Are there national or local laws or policies as well as anthropological researches/studies that consider these groups present in or using the project area as belonging to above?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Do such groups self-identify as being part of a distinct social and cultural group?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Do such groups maintain collective attachments to distinct habitats or ancestral territories and/ or to the natural resources in these habitats and territories?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society and culture?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Do such groups speak a distinct language or dialect?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Do such groups been historically, socially and economically marginalized, disempowered, excluded, and/ or discriminated against?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Are such groups represented as indigenous Peoples in any formal decision-making bodies at the national or local levels?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Will the project directly or indirectly benefit or target Indigenous Peoples?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Will the project directly or indirectly affect indigenous Peoples 'traditional socio-cultural and belief practices? (e.g. child-rearing, health, education, arts, and governance)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Will the project affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Will the project be an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/ or claimed as ancestral domain?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	
Will the project activities include commercial development of cultural resources and knowledge of Indigenous Peoples?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Short Remarks:	

Will the project activities include physical displacement from traditional or customary lands?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the project activities include commercial development of natural resources within customary lands under use that would impact the livelihoods or their identity?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the project activities include establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied, or claimed by indigenous peoples?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	

SITE INFORMATION SHEET: SOCIAL SCREENING 3- GENERAL			FORM SI-06 C
Does the proposed project include activities and outputs that support upstream planning processes that potentially pose social impacts or are vulnerable social change?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Does the proposed project include the implementation of downstream activities that potentially pose social impacts or are vulnerable to social change?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Is the proposed project likely to directly or indirectly increase social inequalities now or in the future?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the proposed project have variable impacts on women and men, different ethnic groups, social classes?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will there be challenges in engaging women and other certain key groups of stakeholders in the project design process?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will there be large population influx and/ or significant population density increase during construction and operation that causes increased burden on social infrastructure and services?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Is the project likely to significantly affect the cultural traditions of affected communities, including gender-based roles?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Will the proposed project result in physical interventions (during construction or implementation) that would affect areas that have known physical or cultural significance?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Is the proposed project likely to significantly affect land tenure arrangements and/or traditional cultural ownership patterns?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Is the proposed project likely to negatively affect the income levels or employment opportunities of vulnerable groups?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
Is the proposed project location subject to currently approved land use plans which could affect the social sustainability of the project?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:	
What are the number of estimated beneficiaries and affected people form this proposed project?			
SOCIAL SCREENING OUTCOME & CATEGORIZATION Select from the following:			
Category 1 <input type="checkbox"/>	No impacts major impacts/risks are envisaged at this stage. No further action is needed. Screening Outcomes are disclosed publicly.		

Category 2 <input type="checkbox"/>	There are possible environmental benefits, impacts, and/or risks associated with the project (or specific project component), but these are predominantly indirect or very long-term and so extremely difficult or impossible to directly identify and assess. Public Consultations and Preparation of further Resettlement Frameworks with Risks and Mitigation Measures is mandated for next stage of project activity.
Category 3 <input type="checkbox"/>	Impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice, but require some minimal or targeted further review and assessment to identify and evaluate whether there is a need for a full social assessment. Preparation of Resettlement Plan and Gender Action Plan is mandated for next stage of project activity.
Category 4 <input type="checkbox"/>	Impacts and risks are significant, and so full social assessment is required. In these cases, a scoping exercise will need to be conducted to identify the level and approach of assessment that is most appropriate. A detailed Social/Cultural Impact Assessment is mandated for the next stage of the project.

Annexure – 10

Table 45: Profit and loss statement in the base scenario

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period			1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Period			0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fiscal Year	Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062	
Income																			
Revenue from Residential Facilities	BDT million	-	-	-	128	143	160	179	200	224	251	370	511	704	970	1,338	1,844	2,543	
Revenue from Food & Beverages	BDT million	-	-	-	56	63	70	78	87	97	109	189	328	569	989	1,718	2,616	3,783	
Revenue from Spa & Wellness Centre	BDT million	-	-	-	4	4	5	5	6	7	8	13	23	39	69	119	207	359	
Revenue from Recreation & Entertainment	BDT million	-	-	-	4	4	5	5	6	6	7	13	22	38	66	114	199	345	
Revenue from Convention & Banquet Facility	BDT million	-	-	-	21	24	27	30	33	37	42	72	126	218	379	658	974	1,343	
Revenue from Indoor Sports & Games	BDT million	-	-	-	1	1	1	1	1	2	2	3	5	7	10	13	18	25	
Revenue from Outdoor Event and Banquet Lawn	BDT million	-	-	-	8	9	10	11	12	13	15	26	45	78	123	173	240	331	
Revenue from Outdoor Nature Activities	BDT million	-	-	-	4	4	5	5	6	6	7	12	18	25	35	48	66	91	
Service charge	BDT million	-	-	-	6	6	7	8	9	10	11	19	33	57	99	172	262	378	
Total Revenue	BDT million	-	-	-	231	258	288	322	361	403	451	717	1109	1735	2739	4,353	6,426	9,198	
Revenue Share to PPPA	BDT million	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net Revenue	BDT million	-	-	-	231	258	288	322	361	403	451	717	1109	1735	2739	4,353	6,426	9,198	
Employee Cost	BDT million	-	-	-	79	84	89	95	101	108	115	159	219	302	417	575	792	1,092	

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period			1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Period			0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fiscal Year		Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062
Maintenance, Repair & Operational Costs																			
Maintenance & Repairs	BDT million		-	-	-	2	2	2	2	2	2	2	3	4	5	7	8	11	14
Operational Charges	BDT million		-	-	-	3	3	3	4	4	4	4	5	7	9	11	14	18	23
Utility Expenses (recurring)																			
Electric Supply for covered area	BDT million		-	-	-	12	12	13	13	13	14	14	16	19	22	25	29	34	39
Electric Supply for open area	BDT million		-	-	-	8	9	9	9	9	10	10	11	13	15	18	20	24	27
Water Supply for covered area	BDT million		-	-	-	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Water Supply for open area	BDT million		-	-	-	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5
Waste Water/Sewage Disposal (Covered Area)	BDT million		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid Waste Generation (Covered Area)	BDT million		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPG Consumption (Operations)	BDT million		-	-	-	42	43	45	46	47	49	50	58	67	77	89	103	119	138
REPLENISHABLE EXPENSES																			
Restaurant, Coffee Shop & Bar	BDT million		-	-	-	13	13	13	14	14	15	15	17	20	23	27	31	36	41
House-keeping in Accommodation	BDT million		-	-	-	7	7	8	8	8	8	9	10	11	13	15	18	20	23
Banquet and Ceremonial Facility	BDT million		-	-	-	4	4	4	4	4	4	4	5	6	7	8	9	10	12
Shopping and Recreational facilities	BDT million		-	-	-	1	1	1	1	1	1	1	1	2	2	2	3	3	3
SOCIAL/CSR EXPENDITURE																			
Community Development Charges	BDT million		-	-	-	0.59	1	1	1	1	1	1	1	1	1	1	1	2	2
Total Operating Expenditure	BDT million		-	-	-	171	179	188	197	206	216	227	288	370	477	621	812	1,070	1,416

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period			1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
Operations Period			0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fiscal Year		Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062
EBITDA	BDT million		-	-	-	59	79	101	126	154	187	224	429	739	1258	2118	3,541	5,357	7,782
EBITDA %age	%		0%	0%	0%	26%	30%	35%	39%	43%	46%	50%	60%	67%	72%	77%	81%	83%	85%
Depreciation (Company Law)	BDT million		-	-	-	102	91	82	74	66	59	53	31	18	11	6	4	2	1
EBIT	BDT million		-	-	-	-42	-13	19	52	88	128	171	397	721	1247	2112	3,537	5,354	7,781
Interest to be paid	BDT million		-	-	-	84	84	86	81	70	52	37	-	-	-	-	-	-	
PBT	BDT million		-	-	-	-127	-97	-68	-29	18	75	134	397	721	1247	2112	3,537	5,354	7,781
Tax	BDT million		-	-	-	-	-	-	-	-	-	-	139	252	436	739	1,238	1,874	2,723
PAT	BDT million		-	-	-	(127)	(97)	(68)	(29)	18	75	134	258	469	811	1373	2,299	3,480	5,057

Annexure – 11

Table 46: Cash Flow Statement in the base scenario

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period		1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Operations Period		0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fiscal Year		Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062
Cash Flows from Operating activities																			
Net Profit After Taxation	BDT million	-	-	-	-127	-97	-68	-29	18	75	134	258	469	811	1,373	2,299	3,480	5,057	
Adjustment For																			
Depreciation and Amortization	BDT million	-	-	-	102	91	82	74	66	59	53	31	18	11	6	4	2	1	
Interest Expense	BDT million	-	-	-	84	84	86	81	70	52	37	0	0	0	0	0	0	0	
Operating Profit before working capital changes	BDT million	-	-	-	59	79	101	126	154	187	224	290	487	822	1,379	2,303	3,483	5,059	
Adjustment For																			
Sundry Debtors	BDT million	-	-	-	21	2	3	3	3	4	4	5	8	14	21	35	40	58	
Inventory	BDT million	-	-	-	9	1	1	1	2	2	2	2	4	6	10	16	18	26	
Current Liabilities	BDT million	-	-	-	69	8	9	10	11	13	14	18	28	45	72	117	132	192	
Cash Generated from Operations	BDT million	-	-	-	99	83	106	131	161	194	232	300	503	847	1,419	2,369	3,557	5,168	
Cash Flow from investing activities																			
Capex	BDT million	-297	-312	-395	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period			1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Period			0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fiscal Year		Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062
Cash flow from investing activities	BDT million		-297	-312	-395	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cash flows from financing activities																			
Share Capital	BDT million		89	94	118	-	-	-	-	-	-	-	-	-	-	-	-	-	
Capital Grant	BDT million		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Long term Debt	BDT million		208	219	276	-	-	-	-	-	-	-	-	-	-	-	-	-	
Soft loan	BDT million		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Repayment of principle			-	-	-	-	-	-88	-145	-182	-179	-125	-	-	-	-	-	-	
Interest Servicing	BDT million		-	-	-	-84	-84	-86	-81	-70	-52	-37	0	0	0	0	0	0	
Cash Flow from financing activities	BDT million		297	311	393	-86	-84	-174	-226	-252	-231	-162	0	0	0	0	0	0	
Summary of cash flows			-	-1	-2	13	-1	-69	-94	-91	-37	70	300	503	847	1,419	2,369	3,557	5,168
Net change in cash and cash equivalents	BDT million		-	-	-	13	-1	-69	-94	-91	-37	70	300	503	847	1,419	2,369	3,557	5,168
Cash and Cash Equivalents at the beginning of the period	BDT million		-	-	-	1	14	13	1	1	1	1	746	2,609	5,740	11,012	19,812	34,042	54,798
Cash and Cash Equivalents at the end of the period	BDT million		-	-	-	14	13	-56	-93	-90	-36	71	1,046	3,112	6,587	12,431	22,181	37,599	59,966

Annexure – 12

Table 47: Balance Sheet in the base scenario

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period			1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Period			0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fiscal Year		Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062
SOURCES OF FUNDS																			
Share Holders Funds																			
Share Capital	BDT million		89	183	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301
Reserves and Surplus	BDT million		-	-	-	-127	-224	-292	-321	-302	-227	-93	904	2,788	6,089	11,722	21,174	36,226	58,113
Loan Funds																			
Debt	BDT million		208	427	703	703	703	615	527	439	351	264	-	-	-	-	-	-	-
Soft Loan	BDT million		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Grants	BDT million		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WC loan	BDT million		1	1	2	-	-	57	94	91	37	-	-	-	-	-	0	0	
Total Sources of Funds	BDT million	298	610	1,005	877	780	681	602	529	462	471	1,205	3,089	6,390	12,023	21,475	36,526	58,414.	
APPLICATION OF FUNDS																			

Year Count		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45
Construction Period			1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Period			0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fiscal Year		Initial	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2032	2037	2042	2047	2052	2057	2062
Gross Block	BDT million		297	609	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004	1,004
Accumulated Depreciation	BDT million		-	-	-	102	193	275	348	414	474	527	723	838	906	946	970	984	992
Net Block	BDT million		297	609	1,004	903	811	729	656	590	530	477	281	166	98	58	34	20	12
Current Assets																			
Sundry Debtors	BDT million		-	-	-	21	23	26	29	32	36	41	65	100	156	246	392	578	828
Cash and Bank Balances	BDT million		1	1	1	14	13	1	1	1	1	71	1,046	3,112	6,587	12,431	22,181	37,599	59,966
Inventory	BDT million		-	-	-	9	10	12	13	14	16	18	29	44	69	110	174	257	368
Current Liabilities			-	-	-	69	77	87	97	108	121	135	215	333	521	822	1,306	1,928	2,759
Net Current Assets	BDT million		1	1	1	-25	-31	-48	-54	-60	-68	-6	924	2,924	6,292	11,966	21,441	36,507	58,403
Total Application of Funds	BDT million		298	610.	1,005	877	780	681	602	529	462	471	1,205	3,089	6,390	12,023	21,475	36,526	58,414

Annexure – 13

GEO-TECHNICAL INVESTIGATION REPORT

REPORT ON

GEOTECHNICAL INVESTIGATION FOR THE CONSTRUCTION OF PROPOSED BPC MOTEL COMPOUND AT SYLHET, BANGLADESH.



MAY – 2016

CLIENT:

KPMG Advisory Services Private Limited.

Unit No. 603 and 604

6th Floor, Tower 1, Godrej Waterside

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SUCHANA ENGINEERS LTD.

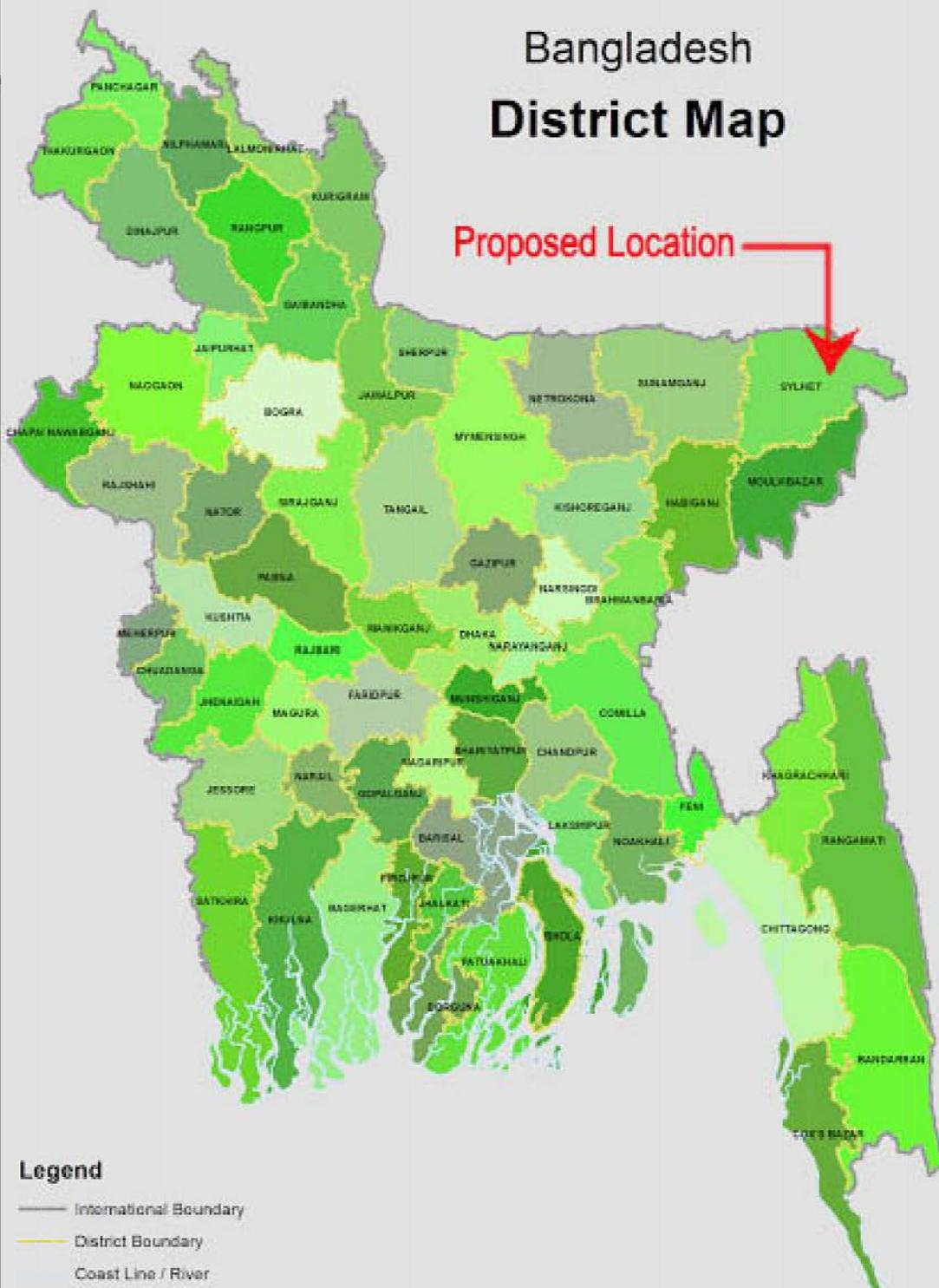
272/A WEST AGARGAON

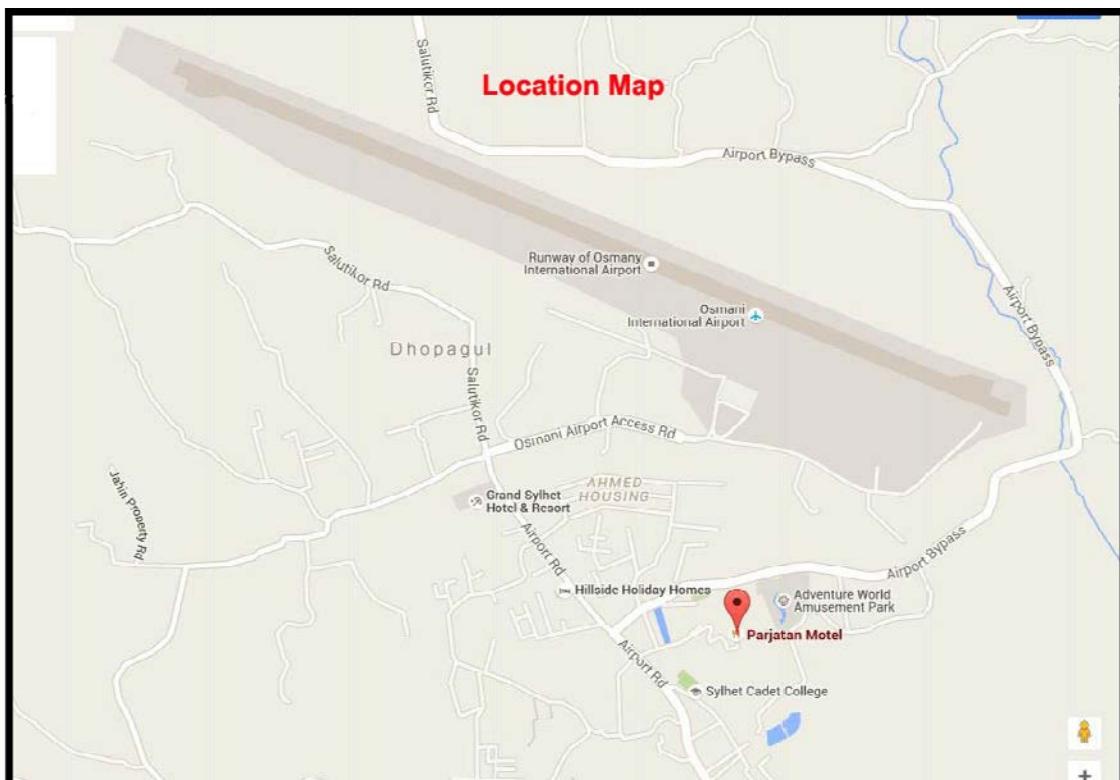
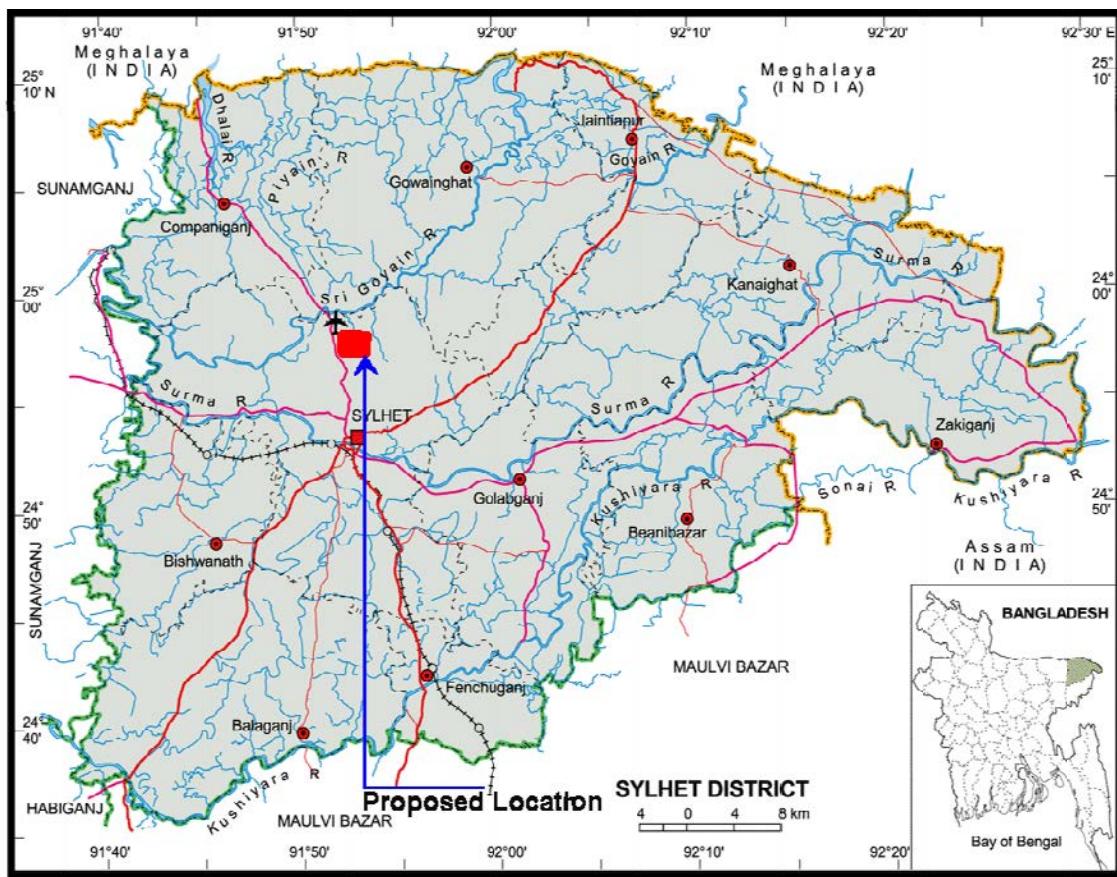
DHAKA 1207

Phone: 8181572

Bangladesh District Map

Proposed Location











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Chapter-1

1.1 GENERAL SCOPE

The sub-soil investigation at site is must to obtain information required in safe and economic design and construction of structures. It provides the designer required data regarding **mechanical, physical, geotechnical and engineering** properties of the sub-soil formation upon which the proposed structure/ structures will be built, the exploration is equally necessary for analyzing the safety, or cause of failure of existing work, for selecting construction materials and deciding upon construction method to be applied. A timely and intelligently planned site investigation is, the prerequisite to the **safe, efficient and economic** design and construction of structure. This report presents the specific and detailed information regarding the sub-soil profile encountered at the site for the construction of the **Proposed BPC Motel at Sylhet**.

1.2 INTRODUCTION

Sub-soil investigation work has been done in **May–2016 for the construction of proposed BPC Motel at Sylhet, District-Sylhet, Bangladesh**. Because for any civil engineering structure; reliable and accurate sub-soil investigation is essential. Safety of the superstructure as well as the cost of foundation depend much on the sub- soil investigation. This report presents details of the sub-soil investigation, and preliminary design/information regarding the type of foundation (proposed for building) etc. The sub-soil investigation work has been done by **Suchana Engineers Limited, 272/A West Agargaon, Dhaka -1207**.

1.3 DESCRIPTION OF THE SITE

As described earlier the site is at **Sylhet Sadar, Sylhet**. To keep record of the elevation of the soil surface/Road level (at Bore holes locations) all depends are measured from the existing soil surface. The existing soil surface is not at road/land level; here the **R.L** and **Coordinates is the REFERENCE LEVEL**. The location of the Bore Holes is shown in the sketch map.



1.4 SITE RECONNISSANCE

Sylhet is located at 24°53'30" N 91°53'00" E in the north eastern region of Bangladesh within the Sylhet Division, within the Sylhet District and Sylhet Sadar Upazila. The climate of Sylhet is humid subtropical with a predominantly hot and humid summer and a relatively cool winter. The city is within the monsoon climatic zone, with annual average highest temperatures of 23 °C (Aug-Oct) and average lowest temperature of 7 °C(Jan). Nearly 80% of the annual average rainfall of 3,334 mm occurs between May and September. Sylhet is a prime attraction for all tourists. Laying between the Khasia and the Jaintia hills on the north, and the Tripura hills on the south, Sylhet breaks the monotony of the flatness of this land by a multitude of terraced tea gardens, rolling country side and the exotic flora and fauna. The Sylhet valley is formed by a beautiful, winding pair of rivers named the Surma and the Kushiara both of which are fed by innumerable hill streams from the north and the south. The valley has good number of haors which are big natural depressions. During winter these haors are vast stretches of green land, but in the rainy season they turn into turbulent seas. These haors provide a sanctuary to the millions of migratory birds who fly from Siberia across the Himalayas to avoid the severe cold there. The Sylhet Division produces most of Bangladesh's tea yield, fertilizer and natural gas. It is also known for its cane, citrus, timber and agar wood. The city is served by the Osmani International Airport.

1.5 NUMBER OF BORING, SPT AND UNDISTURBED SAMPLING

As per requirement of the client and considering the fund available for the sub-soil investigation etc. the number and depth of the bore holes has been fix up. Description of the number of bore holes and depth, Number of samples etc. are the following.

Number of Bore- Holes ----- 10 Nos & Depth of each Boring----10.00m.

Undisturbed samples could be collected-----08 Nos.

1.6 EQUIPMENTS, METHOD OF BORING & SPT USING THE WORK

For the boring work own Boring/SPT set (with Tripod stand, Sampling Tube, Spoon, etc) of the firm has been used manually. Wash Boring method was used for advancing the Bore hole. A simple procedure for making relatively deep holes in soil deposits is wash boring. This is a most common method for advancing test hole.

SPT—The tests consist of driving a **SPILT SPOON SAMPLER** having **50.80 mm (2 in.)** outer diameter and **35 mm (1.375 in)** inner diameter. The spilt spoon is driven **450mm (18 in)** into the ground by means of a **63.5 kg (140 lbs)** hammer falling freely from a height of **750 mm (30 in)** into the drill rod. The number of hammer blows for **150 mm (6 in)** of penetration of the sampler is recorded. The total number of blows required to drive the sampler for the **2nd 15 cm (6 in) and 3rd 15 cm (6 in)** of penetration is called the **Standard Penetration Resistance**, which is represented by 'N'. The **1st 15 cm (6 in)** penetration of the sampler is discarded as seating drive.

Note: Thickness and Angle Shape of the edge etc are as per ASTM

The standard penetration tests were performed at **1.00 m (3.28 ft.)** Intervals in the all bores up to the final depth. The depth-wise SPT values have been presented in the from of curves in the respective Bore Logs.

1.7 LABORATORY TESTS REQUIRED AND THOSE ACTUALLY PERFORMED

For economic and safe foundation designs; we need reliable laboratory testing .Undisturbed samples should be of proper quality also. Less tests should be done but with reliability. During boring, the SPT have been done and recorded. Disturbed soil has been visually classified to identify its plasticity, soil type, etc.

The following laboratory tests have been performed:

- Grain size analysis test
- Direct shear test
- Unconfined compression test
- Hydrometer test (Combined)
- Specific gravity test
- Atterberg limit test
- Natural moisture content test
- Density test

1.8 SIZE OF DIFFERENT TYPES OF SOIL PARTICLE

A soil may contain various size of grains ranging from large boulder, gravel, sand and size of silt and clay. This is given below.

Boulder	Greater than 75 mm (3 inch)
Gravel	75 mm(3 inch) to greater than 4.75 mm.
Sand	4.75 mm to greater than 0.075 mm
Silt & clay	Less than 0.075 mm

1.9 PERCENTAGE OF DIFFERENT SIZE OF PARTICLES

The percentage of Gravel, Sand, and Fines (silt & clay) may be stated in the terms of indicating a range of percentage as follows.

Trace	1% to 10%
Some	10% to 25 %
Adjective (sandy, clayey)	25% to 35%
And	35% to 50%

2.0 CONSISTENCY OF COHESIVE SOIL

Standard penetration test (**SPT**) data or ‘N’ value is available for a particular soil layer, then consistency can be defined as the following.

Consistency	N - Value
Very-Soft	0 to 2
Soft	2 to 4
Medium Stiff	4 to 8
Stiff	8 to 16
Very Stiff	16 to 30
Hard	> 30

2.1 COMPACTNESS OF NON COHESIVE LAYERS

For non cohesive soil the compactness can be defined as the following if the n-values are available.

Compactness	N - Value
Very loose	0 to 4
Loose	4 to 10
Medium dense	10 to 30
Dense	30 to 50
Very Dense	Over 50

2.2 RECORDING OF GROUND WATER TABLE

The ground water table is determined by measuring to the stabilized water level in the bore hole after a suitable time lapse- often 24 to 48 hour later. In soils with high permeability, such as sands and gravel, 24 hour is adequate for the water level to stabilize unless the hole has been somewhat sealed with drilling mud. In soil with low permeability such as silt, fine silty sands and clays, it may take several days to several weeks for the GWT to stabilize.

2.3 DISCUSSION ON SCOUR-DEPTH DETERMINATION

For designing of a bridge/water-structure in alluvial stream; we need to know the Silt-Factor in order to calculate the Scour-Depth (there are several formulas). Silt-Factor $f = 1.76\sqrt{d_{50}}$. Here d_{50} is the mean diameter or diameter of particles corresponding to 50% finer in the grain-size analysis curve. If more less than 50% of a soil retained on the No. 200 (0.075 mm) sieve then it is possible

to determine d_{50} by sieve analysis. But if the stream is alluvial and more than 50% soil is passing the No. 200 sieve then hydrometer test may be performed for d_{50} or mean diameter determination in order to calculate the Silt Factor (for scour-depth determination). Alternatively the following values may be used also.

Soil Type		Mean Diameter (d_{50}) in mm	Silt-factor (f)
Silt	Very Fine	0.081	0.50
	Fine	0.120	0.60
	Medium	0.233	0.85
	Standard	0.323	1.00
Sand	Medium	0.505	1.25
	Coarse	0.725	1.50

2.4 CO-ORDINATES OF BORE HOLES

The field work executed of different locations of various co-ordinates. The list of co-ordinates of field work is as follows.

Bore Holes	Co-ordinates		Elevation (m)	Remarks
	Northing	Easting		
BH-1	24°56'57.97"	91°52'9.77"	16.349	TBM-1, R.L= 19.912m
BH- 2	24°56'55.98"	91°52'13.35"	16.830	
BH- 3	24°56'54.79"	91°52'18.89"	19.910	
BH- 4	24°56'56.11"	90°52'22.18"	42.450	
BH- 5	24°56'56.64"	91°52'18.91"	39.231	
BH- 6	24°56'58.68"	91°52'17.57"	37.978	
BH- 7	24°56'59.08"	91°52'14.96"	45.780	
BH- 8	24°57'2.34"	91°52'15.36"	45.496	
BH- 9	24°57'1.94"	91°52'18.61"	17.741	
BH- 10	24°57'3.97"	91°52'17.02"	27.662	

2.5 CORRECTION OF STANDARD PENITRATION TEST (SPT): (Ref. Foundation Engineering Hand Book by Robert W. Deen)

Factor that can affect the SPT: The measured N value can be influenced by the type of soil, such as the amount of fines and gravel size particles in the soil. Saturated sands that contains appreciable fine soil particles, such silty or clayey sands, could be abnormally high N values if they have a tendency in dilate or abnormally low N values if they have a tendency to contract during the undrained shear condition associated with driving the SPT sampler tip or barrel the driving resistance (hence increase N value) by becoming stuck in the SPT sampler tip or barrel.

A factor that could influence the measured N value is ground water. It is important to maintain a level of water in the borehole at the above the in situ ground water level. This is to prevent ground water from rushing into the bottom of the borehole, which could loosen the sand and result in low measured N values.

Besides soil and ground water conditions, there are different testing factors that can influence the accuracy of the SPT reading. For example, the hammer efficiency, borehole diameter and the rod length could influence the measured N value. The following equation is used to compensate for these testing factors by multiplying together four factors as follows (Skempton, 1986)

$$N_{60} = C_b C_r N(E_m / 60)$$

Where

N_{60} = standard penetration test N value corrected for field testing procedure

C_b = borehole diameter correction ($C_b = 1.00$ for borehole of 65 to 115mm,
1.05 for 150mm diameter and 1.15 for 200 mm diameter hole)

C_r = rod length correction ($C_r = 0.75$ for up to 4m of drill rods, 0.85 for 4 to 6m of
drill rods, 0.95 for 6 to 10 m of drill rods, and 1.00 for drill rods excess of 10m)

N = measured standard penetration test N value

E_m = diameter efficiency in percent

Chapter-2

3.1 EVALUATION OF BEARING CAPACITY EQUATIONS

A) Shallow Foundation:

i) Bearing Capacity by Terzaghi Equation

$$q_{ult} = C N_c S_c + q N_q + 0.5 \gamma B N \gamma S_\gamma$$

ii) Bearing Capacity by Meyerhof Equation

$$q_{ult} = C N_c S_c d_c + q N_q S_q d_q + 0.5 B_\gamma' N_\gamma S_\gamma d_\gamma$$

Bearing capacity is calculated using the Meyerhof equation, which ultimately becomes the following for $\phi = 0$, and vertical load,

$$q_{ult} = C N_c S_c d_c + q$$

Where, $N_c = 5.14$, $K_p = \tan^2(45 + \phi/2) = 1$, $S_c = 1 + 0.2\sqrt{K_p B/L}$, $d_c = 1 + 0.2\sqrt{K_p D/B}$

and $q = \text{Depth} * \text{Effective unit wt. of soil}$.

B) Deep Foundation

i) Bearing Capacity by Meyerhof Equation

Ultimate End Bearing (P_{PU})

$$P_{PU} = A_p \times 40 \times N \times \{L_b/B\} \leq A_p (400 \times N) \text{ in KN}$$

A_p = Area of pile tip

N = Av. of N – value of $8B$ above to $3B$ below of pile tip

L_b/B = Depth ratio of point into point bearing strata

Ultimate Skin Resistance

The skin resistant is calculated below. **Vizayvergiya & Focht (λ method)** is used for the calculation.

For non cohesive, $f_s = \lambda \times N$ (in Kpa)

(where $\lambda = 1.0$ for pile with small volume displacement)

For cohesive soil, $f_s = \lambda (q^- + 2s_u)$ in Kpa

(where value of λ from Fig. 16-16 (Ref. Book of Foundation Analysis & Design by Joseph E. Bowles)

[By Empirical equation, $C = S_u = q_u/2 = (0.25 * N/2 * 1000)$ (in Psf) in absence of elaborate data may be taken equal to $q_u/2$]

3.2 CALCULATION OF BEARING CAPACITY OF SHALLOW FOUNDATION

BEARING CAPACITY OF ISOLATED FOOTING:

Using Empirical Equation (from N-value and for 25mm settlement):

(Ref. book: Foundation Analysis & Design, Joseph E. Bowles, 4th Edition, page no 219-220)

Meyerhof (1956, 1974b) published equation for computing the allowable bearing capacity for a **25mm settlement**. These could be used to produce curve similar to those of **Terzaghi** and **Peek** and thus were also very conservative. Considering the accumulation of field observation and the stated opinions of the authors and others, this author adjusted the **Meyerhof equation for an approximate 50 percent increase in allowable bearing capacity to obtain the following:**

Design N-value is considered and again from this value is calculated for **0.5B to 2B** depth of the footing level.

The equation for allowable bearing capacity (KPa) is :

$$Q_a (\text{KPa}) = N/F_1 \times K_d \quad \text{When } B \leq F_4 \quad \dots \quad (1)$$

$$Q_a (\text{KPa}) = N/F_2 \times \{(B+F_3)/B\}^2 \times K_d, \quad \text{When } B > F_4 \quad \dots \quad (2)$$

(In SI unit $F_1=0.04$, $F_2 = 0.06$, $F_3 = 0.3$ and $F_4 = 1.20$ and Q_a is KPa)

Here, $K_d = 1 + 0.33 D/B \leq 1.33$

Bearing Capacity by Empirical Equation using SPT

Footing Size (Isolated)	B.H no	Depth in m	Kd	N (Average 0.5 B to 2B)	Allowable bearing capacity in KPa
2.00mx 2.00m	1	1.00	1.17	14	340.99
2.50mx 2.50m	1	2.00	1.26	19	508.70
3.00mx 3.00m	1	3.00	1.33	30	828.61
2.00mx 2.00m	2	1.00	1.17	19	462.77
2.50mx 2.50m	2	2.00	1.26	19	495.49
3.00mx 3.00m	2	3.00	1.33	23	645.10
2.00mx 2.00m	3	1.00	1.17	10	243.56
2.50mx 2.50m	3	2.00	1.26	14	363.36
3.00mx 3.00m	3	3.00	1.33	28	784.13
2.00mx 2.00m	4	1.00	1.17	26	625.14
2.50mx 2.50m	4	2.00	1.26	29	766.35
3.00mx 3.00m	4	3.00	1.33	30	828.61
2.00mx 2.00m	5	1.00	1.17	13	324.75
2.50mx 2.50m	5	2.00	1.26	15	403.00
3.00mx 3.00m	5	3.00	1.33	22	606.17
2.00mx 2.00m	6	1.00	1.17	18	438.41
2.50mx 2.50m	6	2.00	1.26	23	594.59
3.00mx 3.00m	6	3.00	1.33	34	939.84
2.00mx 2.00m	7	1.00	1.17	21	503.36
2.50mx 2.50m	7	2.00	1.26	24	634.22
3.00mx 3.00m	7	3.00	1.33	33	906.47
2.00mx 2.00m	8	1.00	1.17	48	1169.10
2.50mx 2.50m	8	2.00	1.26	49	1281.66
3.00mx 3.00m	8	3.00	1.33	49	1356.93
2.00mx 2.00m	9	1.00	1.17	16	397.82
2.50mx 2.50m	9	2.00	1.26	22	574.77
3.00mx 3.00m	9	3.00	1.33	35	967.64
2.00mx 2.00m	10	1.00	1.17	16	389.70
2.50mx 2.50m	10	2.00	1.26	25	647.44
3.00mx 3.00m	10	3.00	1.33	38	1045.50

Using Mayerhof Equation

We have design value of c = given table from unconfined compression test.

we have calculate the allowable bearing capacity (with factor of safety of 3.00) for **2.00m by 2.00m**,

2.50m by 2.50m & 3.00m by 3.00m footing, **1.00m, 2.00m & 3.00m** depth and unit weight of the soil layer has been assumed as $\gamma=120$ lb/cft from the bore log. Assuming submerged condition the effective soil is

$\gamma' = 120 - 62.4 = 57.6$ pcf. Then using Mayerhof equation we can calculate the bearing capacity as the following

$$Q_{ult} = cN_cS_{cd} + q N_q S_d + 0.5B\gamma N_y S_d y$$

Bearing capacity is calculated using the Mayerhof equation, which ultimately becomes the following for $\phi=0$, and vertical load:

$$Q_{ult} = cN_cS_{cd} + q$$

Where, $N_c = 5.14$, $K_p = \tan^2(45 + \phi/2) = 1$, $S_c = 1 + 0.2\sqrt{K_p B/L}$, $S_d = 1 + 0.2\sqrt{K_p D/B}$

and q = Depth x effective unit weight of soil

Footing size	BH No	Depth in m	Friction angle in deg (φ)	c _u in Psf	Ultimate bearing capacity in Ksf	Allowable bearing capacity (F.S=3.00)	
						Tsf	Kpa
2.00mx 2.00m	1	1.00	28°	0.00	-	-	-
2.50mx 2.50m	1	2.00	30°		-	-	-
3.00mx 3.00m	1	3.00	27°		-	-	-
2.00mx 2.00m	2	1.00	0	1583	12.72	2.12	227.38
2.50mx 2.50m	2	2.00	0		12.18	2.03	217.67
3.00mx 3.00m	2	3.00	0		12.28	2.05	219.59
2.00mx 2.00m	3	1.00	0	769	6.28	1.05	112.20
2.50mx 2.50m	3	2.00	0		6.11	1.02	109.21
3.00mx 3.00m	3	3.00	0		6.26	1.04	111.89
2.00mx 2.00m	4	1.00	0	1701	13.65	2.28	244.08
2.50mx 2.50m	4	2.00	0		13.06	2.18	233.39
3.00mx 3.00m	4	3.00	0		13.16	2.19	235.21
2.00mx 2.00m	5	1.00	0	1279	10.31	1.72	184.36
2.50mx 2.50m	5	2.00	0		9.91	1.65	177.16
3.00mx 3.00m	5	3.00	0		10.03	1.67	179.37
2.00mx 2.00m	6	1.00	0	1073	8.68	1.45	155.21
2.50mx 2.50m	6	2.00	0		8.38	1.40	149.72
3.00mx 3.00m	6	3.00	0		8.51	1.42	152.11
2.00mx 2.00m	7	1.00	0	1667	13.38	2.23	239.27
2.50mx 2.50m	7	2.00	0		12.80	2.13	228.86
3.00mx 3.00m	7	3.00	0		12.91	2.15	230.71
2.00mx 2.00m	8	1.00	34°	0.00	-	-	-
2.50mx 2.50m	8	2.00	35°		-	-	-
3.00mx 3.00m	8	3.00	36°		-	-	-
2.00mx 2.00m	9	1.00	0	1511	12.15	2.02	217.19
2.50mx 2.50m	9	2.00	0		11.64	1.94	208.08
3.00mx 3.00m	9	3.00	0		11.75	1.96	210.07
2.00mx 2.00m	10	1.00	0	1463	11.77	1.96	210.40
2.50mx 2.50m	10	2.00	0		11.28	1.88	201.68
3.00mx 3.00m	10	3.00	0		11.40	1.90	203.71

Using Terzaghi Equation

We have design value of c & ϕ = given table from unconfined compression & Direct Shear test.
 we have calculate the allowable bearing capacity (with factor of safety of 3.00) for **2.00m by 2.00m, 2.50m by 2.50m & 3.00m by 3.00m** footing, **1.00m, 2.00m & 3.00m** depth and unit weight of the soil layer has been assumed as $\gamma=120$ lb/cft from the bore log. Assuming submerged condition the effective soil is from the bore log. Assuming submerged condition the effective soil is $\gamma' = 120 - 62.4 = 57.6$ pcf. Then using **Terzaghi** equation we can calculate the bearing capacity as the following

$$q_{ult} = cN_c S_c + qN_q + 0.5\gamma B N\gamma S_\gamma$$

Bearing Capacity by Terzaghi Equation

Footing size	BH No	Depth in m	Friction angle in deg (ϕ)	c_u in Psf	Ultimate bearing capacity in Ksf	Allowable bearing capacity (F.S=3.00)	
						Tsf	Kpa
2.00mx 2.00m	1	1.00	28°	0.00	3.58	0.60	64.04
2.50mx 2.50m	1	2.00	30°		8.67	1.45	155.05
3.00mx 3.00m	1	3.00	27°		9.58	1.60	171.32
2.00mx 2.00m	2	1.00	0	1583	11.92	1.99	213.07
2.50mx 2.50m	2	2.00	0		12.11	2.02	216.45
3.00mx 3.00m	2	3.00	0		12.30	2.05	219.83
2.00mx 2.00m	3	1.00	0	769	5.89	0.98	105.24
2.50mx 2.50m	3	2.00	0		6.08	1.01	108.62
3.00mx 3.00m	3	3.00	0		6.27	1.04	112.00
2.00mx 2.00m	4	1.00	0	1701	12.79	2.13	228.70
2.50mx 2.50m	4	2.00	0		12.98	2.16	232.08
3.00mx 3.00m	4	3.00	0		13.17	2.20	235.46
2.00mx 2.00m	5	1.00	0	1279	9.67	1.61	172.80
2.50mx 2.50m	5	2.00	0		9.86	1.64	176.18
3.00mx 3.00m	5	3.00	0		10.04	1.67	179.56
2.00mx 2.00m	6	1.00	0	1073	8.14	1.36	145.51
2.50mx 2.50m	6	2.00	0		8.33	1.39	148.89
3.00mx 3.00m	6	3.00	0		8.52	1.42	152.27
2.00mx 2.00m	7	1.00	0	1667	12.54	2.09	224.20
2.50mx 2.50m	7	2.00	0		12.73	2.12	227.58
3.00mx 3.00m	7	3.00	0		12.92	2.15	230.95
2.00mx 2.00m	8	1.00	34°	0.00	7.05	1.18	126.08
2.50mx 2.50m	8	2.00	35°		15.90	2.65	284.22
3.00mx 3.00m	8	3.00	36°		28.70	4.78	513.14
2.00mx 2.00m	9	1.00	0	1511	11.39	1.90	203.53
2.50mx 2.50m	9	2.00	0		11.57	1.93	206.91
3.00mx 3.00m	9	3.00	0		11.76	1.96	210.29
2.00mx 2.00m	10	1.00	0	1463	11.03	1.84	197.18
2.50mx 2.50m	10	2.00	0		11.22	1.87	200.55
3.00mx 3.00m	10	3.00	0		11.41	1.90	203.93

3.3 CONCLUSION

Through the observation of the overall field and laboratory test results from the tables and the bore logs and study the N-values etc. the following geotechnical parameters are explained as follows:

Soil surface is not level and ground water table are varies in all the bore holes. The cohesive layer **0.00 to 3.00 m** is over consolidated in nature, since water contents are closer to plastic limit. SPT, Cohesion, unit weight of soil indicate that this layers is very good for multi-storied building. Settlement in this layer will also be very low.

In general the soil is cohesive in nature at about top (Bh no. 1 & 8 are medium dense to dense and non cohesive) to bottom level. Up to 3.00 m from soil surface are usually stiff to very stiff and high cohesive layers. These layers possess medium bearing capacity and shearing strength. From 3.00 to 6.00 m are very stiff to hard and high cohesive layers (Bh no. 1 & 8 are dense and non cohesive) with high bearing capacity & shear strength. From 6.00 to 10.00 m are hard and cohesive (Bh no. 1 & 8 are dense and non cohesive) layers with higher shear strength and with very good load bearing capacity. Further underlying non cohesive/cohesive layer up to the final depth of all bore holes are resistant and hence safe & suitable for the foundation for the transfer of loads of the building.

3.4 RECOMMENDATION

According to our observation & regarding this soil condition, the Shallow foundation would be required for the proposed building. Hence experienced structural design engineer and geotechnical engineer are required to work component by component to select the appropriate foundation type needed for the proposed site for the **Construction of Proposed BPC Motel at Sylhet, District-Sylhet, Bangladesh**. Recommendation for a foundation type does not depend only on soil parameters rather some other factors like architectural layout, loading condition, importance factor, financial constrains, availability of construction materials in particular region & construction technique etc. also play important role.

However, Isolated footing is preferred. Allowable bearing capacity (detail) of such a footing of different size is provided at borehole wise in table (Chapter-2 & article-3.2). Isolated footing foundation, the type, size and depth of footing would be selected design engineer.

Capacity of a typical footing has been shown later. But though the bearing capacity are calculated and shown earlier , But the design engineer has to decided the **type, depth, and size** of foundation depending on the load and he has to recalculate the bearing capacity of the foundation (since it depends on **depth, size** and other **factors**). The structural designer may take preliminary value of bearing capacity (calculated herein) and fix up the final size and depth of the foundation. Hence the calculation shown earlier may help one in taking decision.

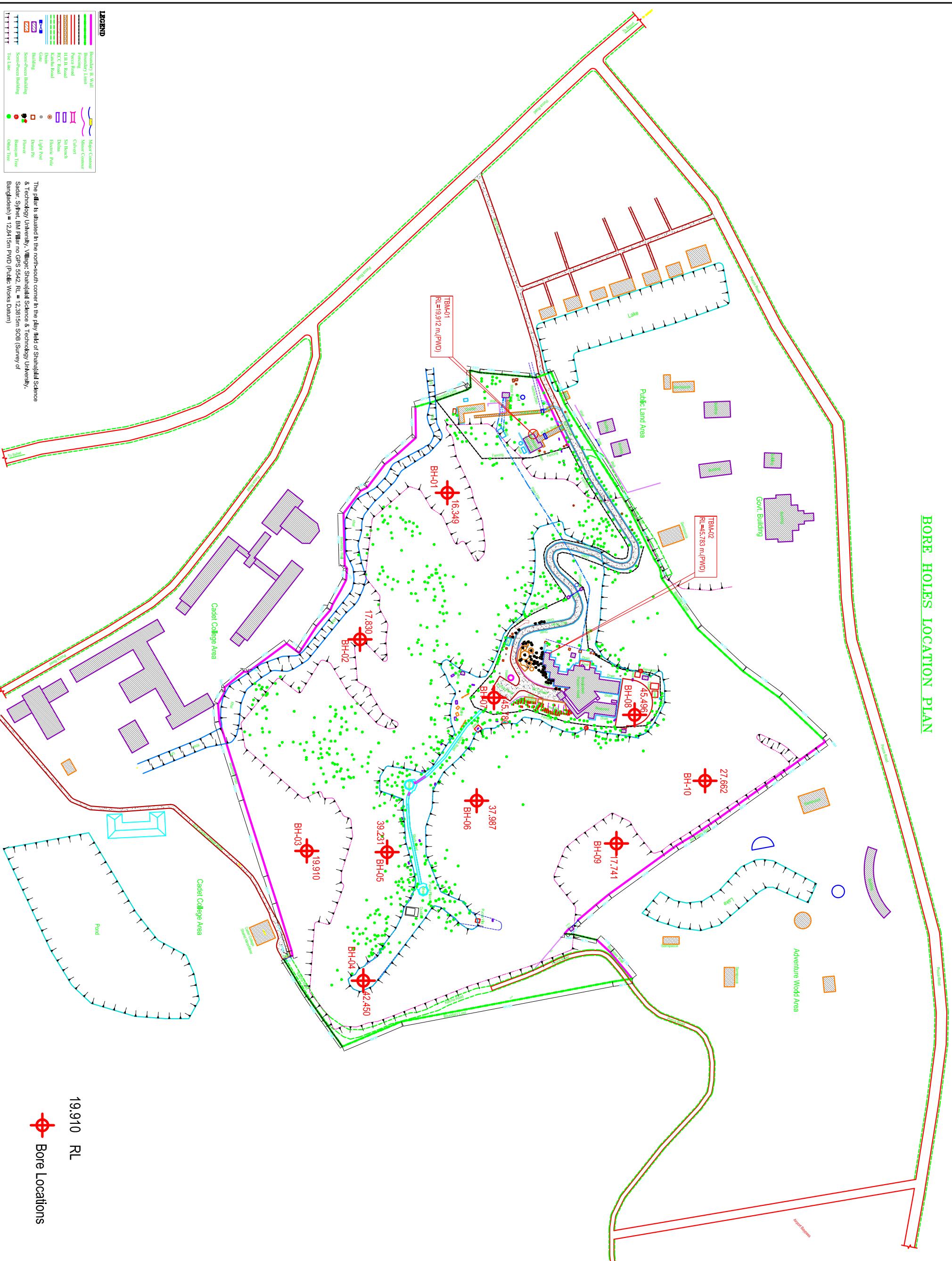
Precautionary Measure

- a) In case of any excavation, it should be designed properly taking care of existing structure, utility lines & available techniques.
- b) Earthquake forces must be considered in design (According to BNBC, Section 2.5.4.1 and seismic Zoning map of Bangladesh, (Page 6-52)
- c) Whenever any soil improvement measures are taken or pile is driven must be carried out to ensure that the bearing capacity settlement criterion commensurate to design value.

Necessary soil parameters those may be required for isolated footing or any other alternative foundation design are provided in different graphs, data, tables etc. of the sub-soil report.

Attachment

BORE HOLES LOCATION PLAN



KPMG Advisory Services Private Limited
Unit No. 603 and 604
6th Floor, Tower 1, Godrej Waterside
Block - DP, Salt Lake Sector V, Kolkata - 700091

DIGITAL TOPOGRAPHIC SURVEY (CONTOUR) OF PROPOSED BPC MOTEEL COMPOUND AT SYTHET, BANGLADESH.

The pillar is situated in the north-south corner in the play field of Shahjalal Science & Technology University, Village: Shahjalal Science & Technology University, Sadar, Syhet, B.M. pillar no GPS: 5502, R.L = 12.3815m S.D. (Survey of Bangladesh) = 12.8415m PWD (Public Works Datum)

TBM -01
N = 24° 56' 59.70"
E = 91° 52' 08.47"
Z = 19.912m. (PWD)

SUCHANA ENGINEERS LTD.
272/A WEST AGARGAON, DHAKA 1207
Phone: 8181572
suchanaeengr@yahoo.com

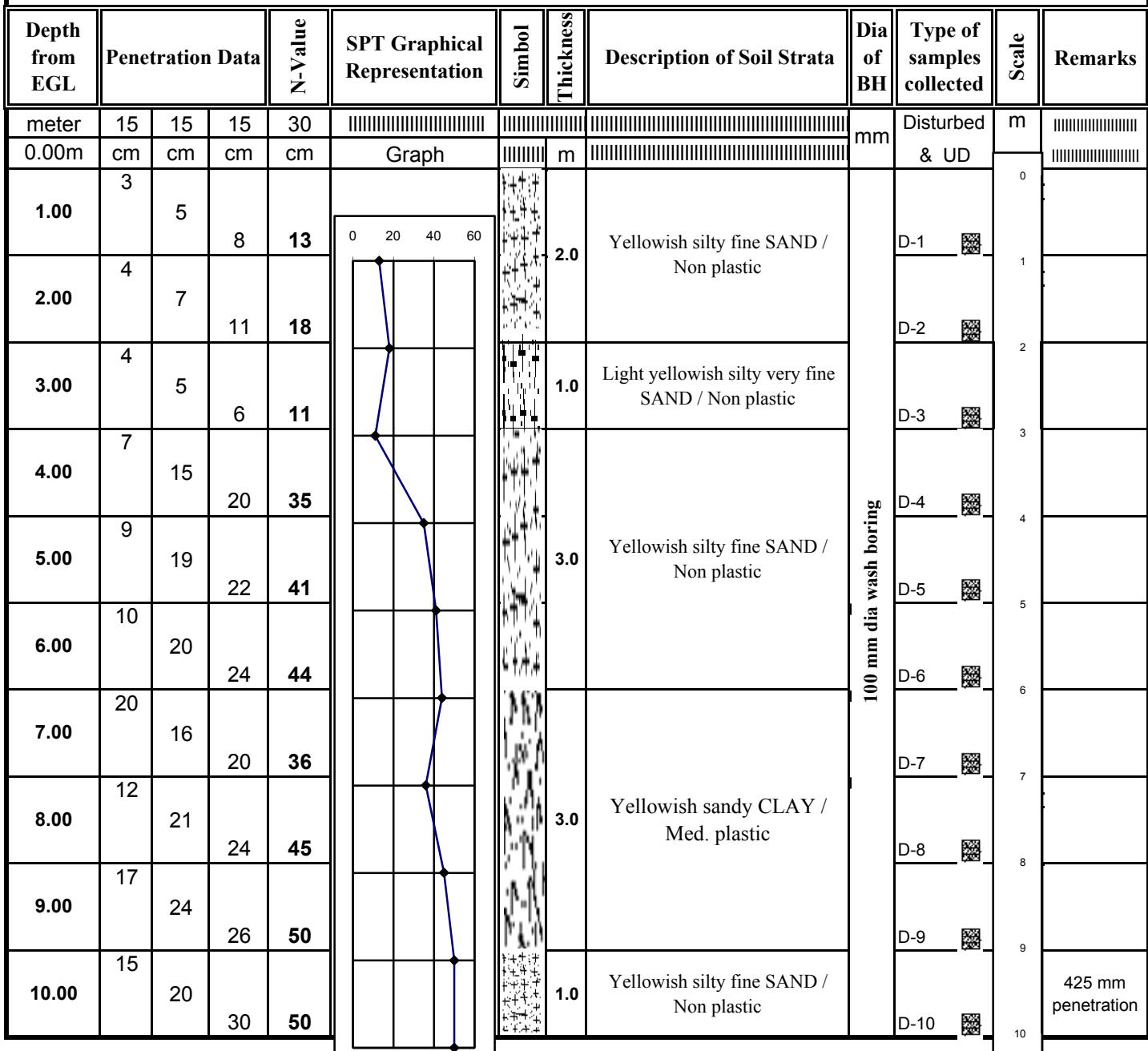
Not to Scale
= 115331.252 sqm.
= 28.547 Acres
April, 2016
01

BORE LOG (Bore Hole # -01)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 57.97" & E - 91° 52' 9.77"	B.H Depth : 10.000m GWT : 0.000m Started : 05-12-16 Completed : 05-12-16
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[Elevation of soil surface: 16.349m]

[TBM-1= 19.912m]

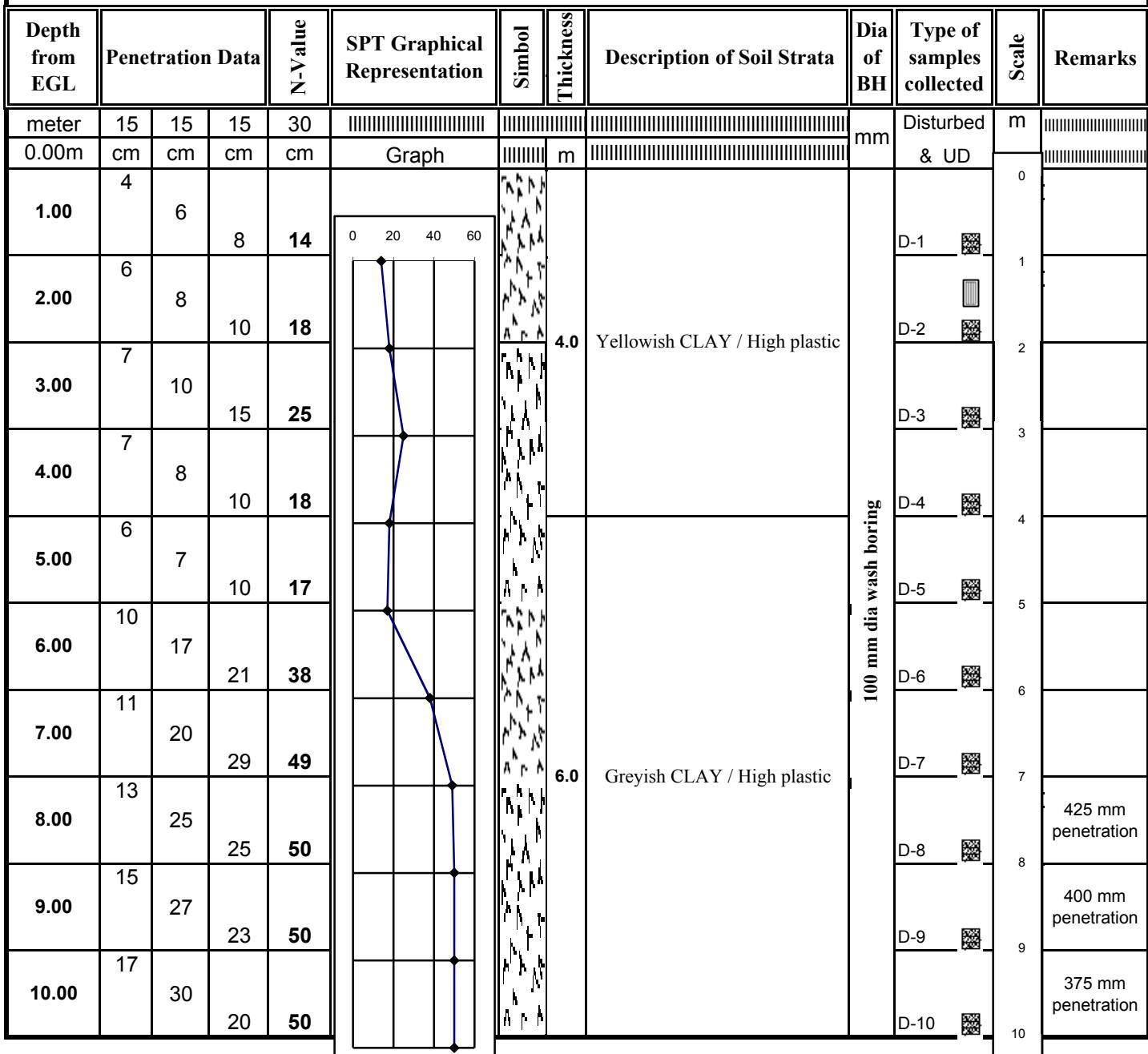


BORE LOG (Bore Hole # -02)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 65.98" & E - 91° 52' 13.35"	B.H Depth : 10.000m GWT : 0.900m Started : 05-12-16 Completed : 13/5/2016
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[Elevation of soil surface: 16.830m]

[TBM-1= 19.912m]



BORE LOG (Bore Hole # -03)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 54.79" & E - 91° 52' 18.89"	B.H Depth : 10.000m GWT : 0.000m Started : 13/5/2016 Completed : 13/5/2016
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[Elevation of soil surface: 19.910m]

[TBM-1= 19.912m]

Depth from EGL	Penetration Data			N-Value	SPT Graphical Representation	Symbol	Thickness	Description of Soil Strata	Dia of BH	Type of samples collected	Scale	Remarks
meter	15	15	15	30					mm	Disturbed & UD	m	
0.00m	cm	cm	cm	cm	Graph		m				0	
1.00	1	1	1	2						D-1	1	
2.00	3	4	5	9						D-2	2	
3.00	5	9	10	19						D-3	3	
4.00	8	11	14	25						D-4	4	
5.00	7	14	24	38						D-5	5	
6.00	11	24	26	50						D-6	6	
7.00	20	50		50						D-7	7	300 mm penetration
8.00	17	50		50						D-8	8	300 mm penetration
9.00	16	30	20	50						D-9	9	325 mm penetration
10.00	22	50		50						D-10	10	300 mm penetration

100 mm dia wash boring

Legend

Disturbed Sample



Undisturbed Sample



Gravel



Sand



Silt



Clay



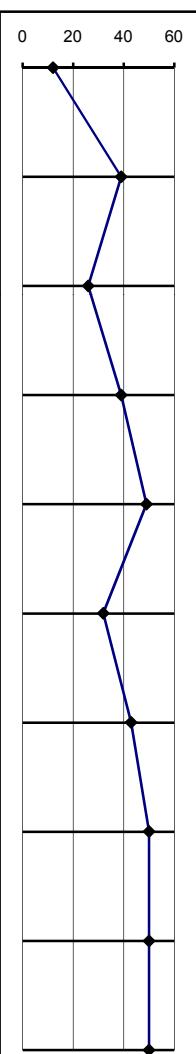
BORE LOG (Bore Hole # -04)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 56.11" & E - 90° 52' 22.18"	B.H Depth : 10.000m GWT : 0.400m Started : 14/5/2016 Completed : 14/5/2016
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[Elevation of soil surface: 42.450m]

[TBM-1= 19.912m]

Depth from EGL	Penetration Data			N-Value	SPT Graphical Representation	Symbol	Thickness	Description of Soil Strata	Dia of BH	Type of samples collected	Scale	Remarks
meter	15	15	15	30			mm	Disturbed & UD	m			
0.00m	cm	cm	cm	cm	Graph		m		mm		0	
1.00	2	4	8	12							1	
2.00	10	18	21	39							2	
3.00	6	11	15	26							3	
4.00	7	17	22	39							4	
5.00	10	21	28	49							5	
6.00	7	14	18	32							6	
7.00	10	19	24	43							7	
8.00	18	27	23	50						400 mm penetration	8	
9.00	20	30	20	50						400 mm penetration	9	
10.00	22	34	16	50						375 mm penetration	10	



BORE LOG (Bore Hole # -05)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 56.64" & E - 91° 52' 18.91"	B.H Depth : 10.000m GWT : 0.400m Started : 13/5/2016 Completed : 14/5/2016
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[Elevation of soil surface: 39.231m]

[TBM-1= 19.912m]

Depth from EGL	Penetration Data			N-Value	SPT Graphical Representation	Symbol	Thickness	Description of Soil Strata	Dia of BH	Type of samples collected	Scale	Remarks
meter	15	15	15	30					mm	Disturbed & UD	m	
0.00m	cm	cm	cm	cm	Graph		m				0	
1.00	3	5	6	11			1.0	Yellowish CLAY / High plastic		D-1	1	
2.00	3	6	6	12			3.0	Yellowish with grey spot CLAY / High plastic		D-2	2	
3.00	5	8	9	17			3.0	Yellowish CLAY / High plastic		D-3	3	
4.00	7	10	11	21			3.0	Yellowish CLAY / High plastic		D-4	4	
5.00	5	9	14	23			3.0	Yellowish CLAY / High plastic		D-5	5	
6.00	8	16	20	36			3.0	Blackish CLAY / High plastic		D-6	6	
7.00	8	18	22	40			1.0	Blackish CLAY / High plastic		D-7	7	
8.00	15	31	19	50			2.0	Greyish CLAY / High plastic		D-8	8	375 mm penetration
9.00	20	40	10	50			2.0	Greyish CLAY / High plastic		D-9	9	325 mm penetration
10.00	23	50		50			2.0	Greyish CLAY / High plastic		D-10	10	300 mm penetration

Legend

Disturbed Sample



Undisturbed Sample



Gravel



Sand



Silt



Clay

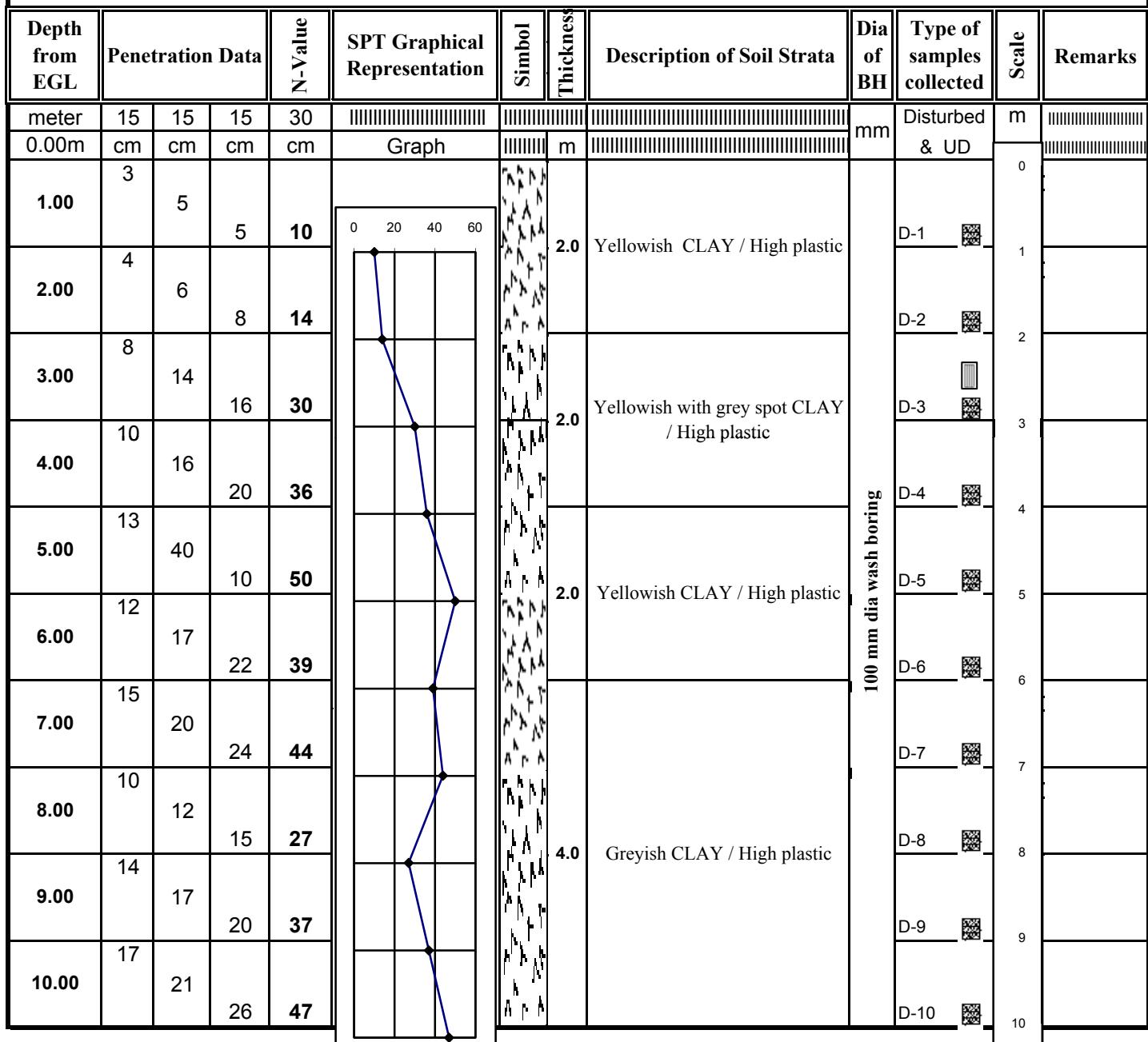


BORE LOG (Bore Hole # -06)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 58.68" & E - 91° 52' 17.57"	B.H Depth : 10.000m GWT : 1.800m Started : 14/5/2016 Completed : 15/5/2016
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[Elevation of soil surface: 37.987m]

[TBM-1= 19.912m]

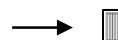


Legend

Disturbed Sample



Undisturbed Sample



Gravel



Sand



Silt



Clay

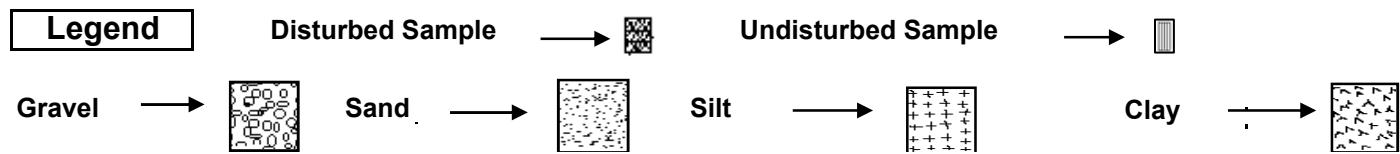
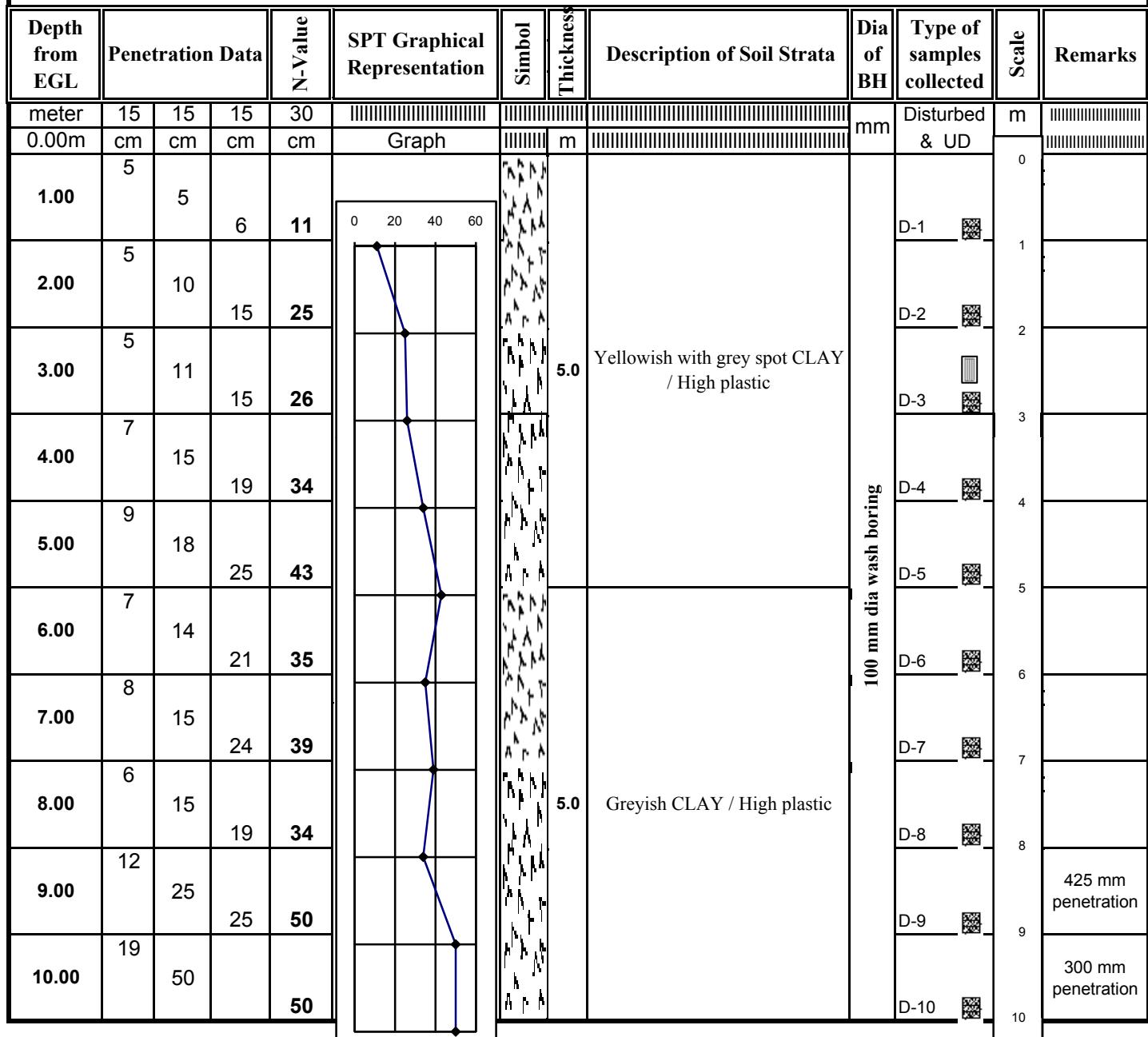


BORE LOG (Bore Hole # -07)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 59.08" & E - 91° 52' 14.96"	B.H Depth : 10.000m GWT : 1.500m Started : 05-10-16 Completed : 05-11-16
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[Elevation of soil surface: 45.780m]

[TBM-1= 19.912m]



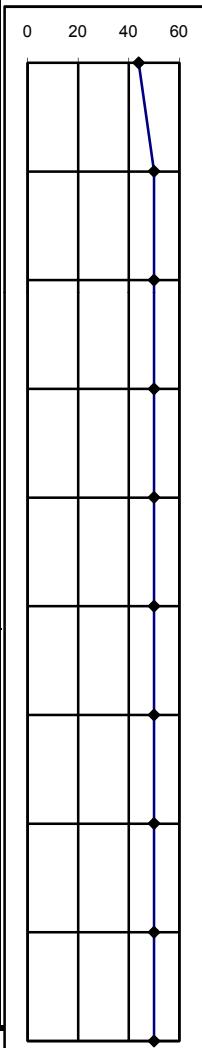
BORE LOG (Bore Hole # -08)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 56' 2.34" & E - 91° 52' 15.36"	B.H Depth : 10.000m GWT : 1.700m Started : 05-10-16 Completed : 05-10-16
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[Elevation of soil surface: 45.496m]

[TBM-1= 19.912m]

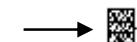
Depth from EGL	Penetration Data			N-Value	SPT Graphical Representation	Symbol	Thickness	Description of Soil Strata	Dia of BH	Type of samples collected	Scale	Remarks
meter	15	15	15	30					mm	Disturbed & UD	m	
0.00m	cm	cm	cm	cm	Graph		m				0	
1.00	9	19	25	44						D-1	1	
2.00	7	24	26	50			5.0			D-2	2	425 mm penetration
3.00	9	25	25	50				Yellowish silty very fine SAND / Non plastic		D-3	3	400 mm penetration
4.00	10	24	26	50						D-4	4	400 mm penetration
5.00	14	27	23	50						D-5	5	375 mm penetration
6.00	15	30	20	50						D-6	6	375 mm penetration
7.00	17	35	15	50						D-7	7	325 mm penetration
8.00	21	50		50			5.0	Light yellowish silty fine SAND / Non plastic		D-8	8	300 mm penetration
9.00	24	50		50						D-9	9	300 mm penetration
10.00	20	50		50						D-10	10	275 mm penetration



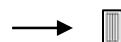
100 mm dia wash boring

Legend

Disturbed Sample



Undisturbed Sample



Gravel



Sand



Silt



Clay

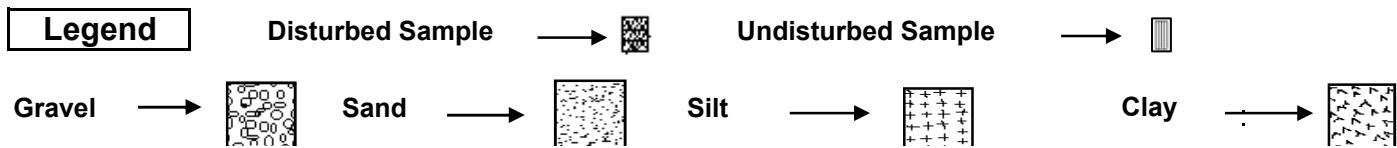
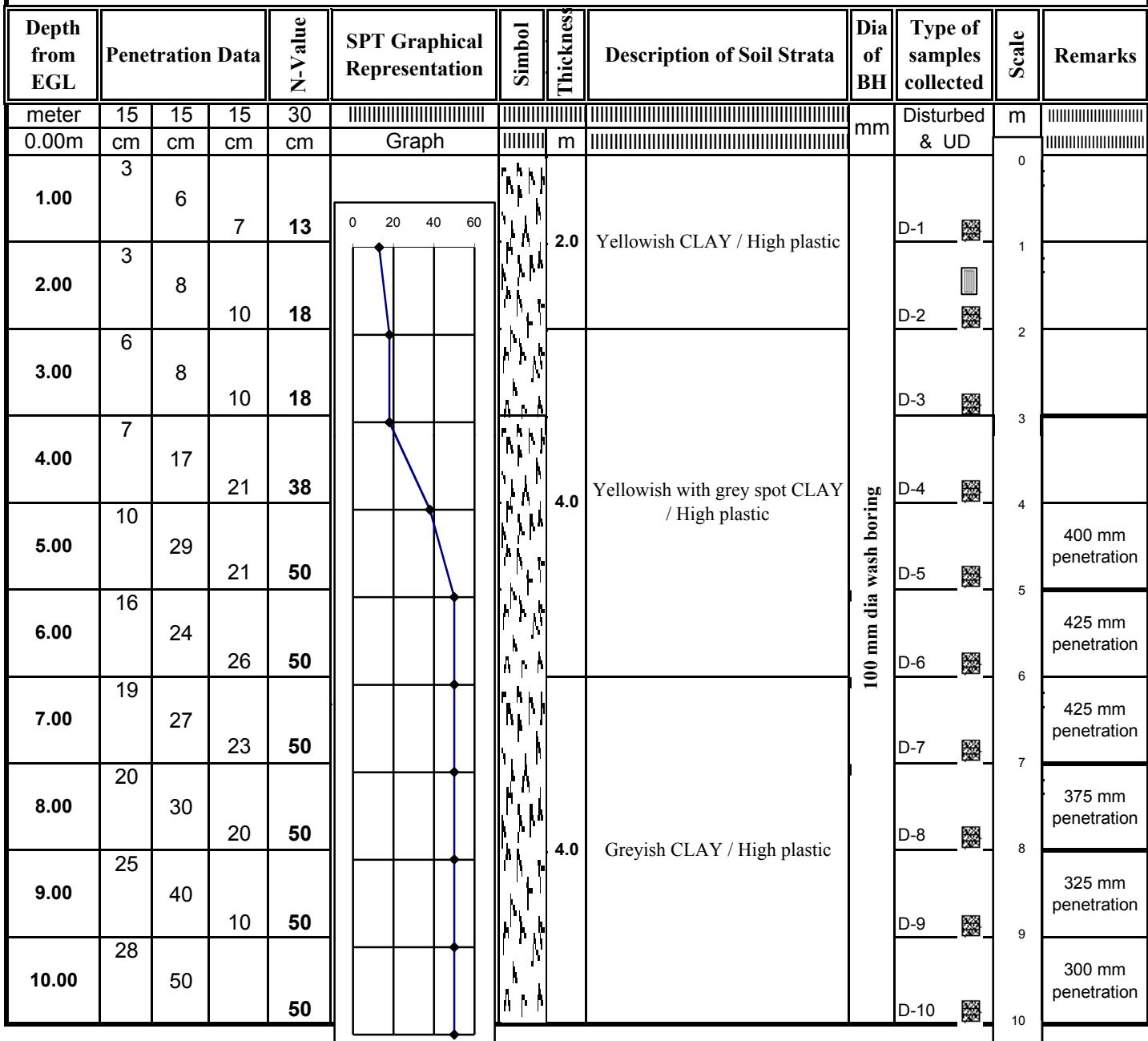


BORE LOG (Bore Hole # -09)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 57' 1.94" & E - 91° 52' 18.61"	B.H Depth : 10.000m GWT : 0.000m Started : 15/5/2016 Completed : 15/5/2016
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[Elevation of soil surface: 17.741m]

[TBM-1= 19.912m]

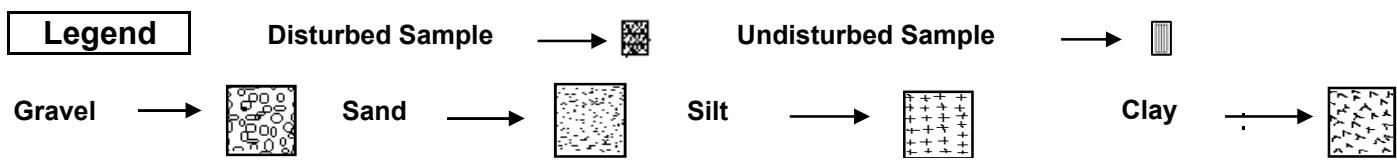
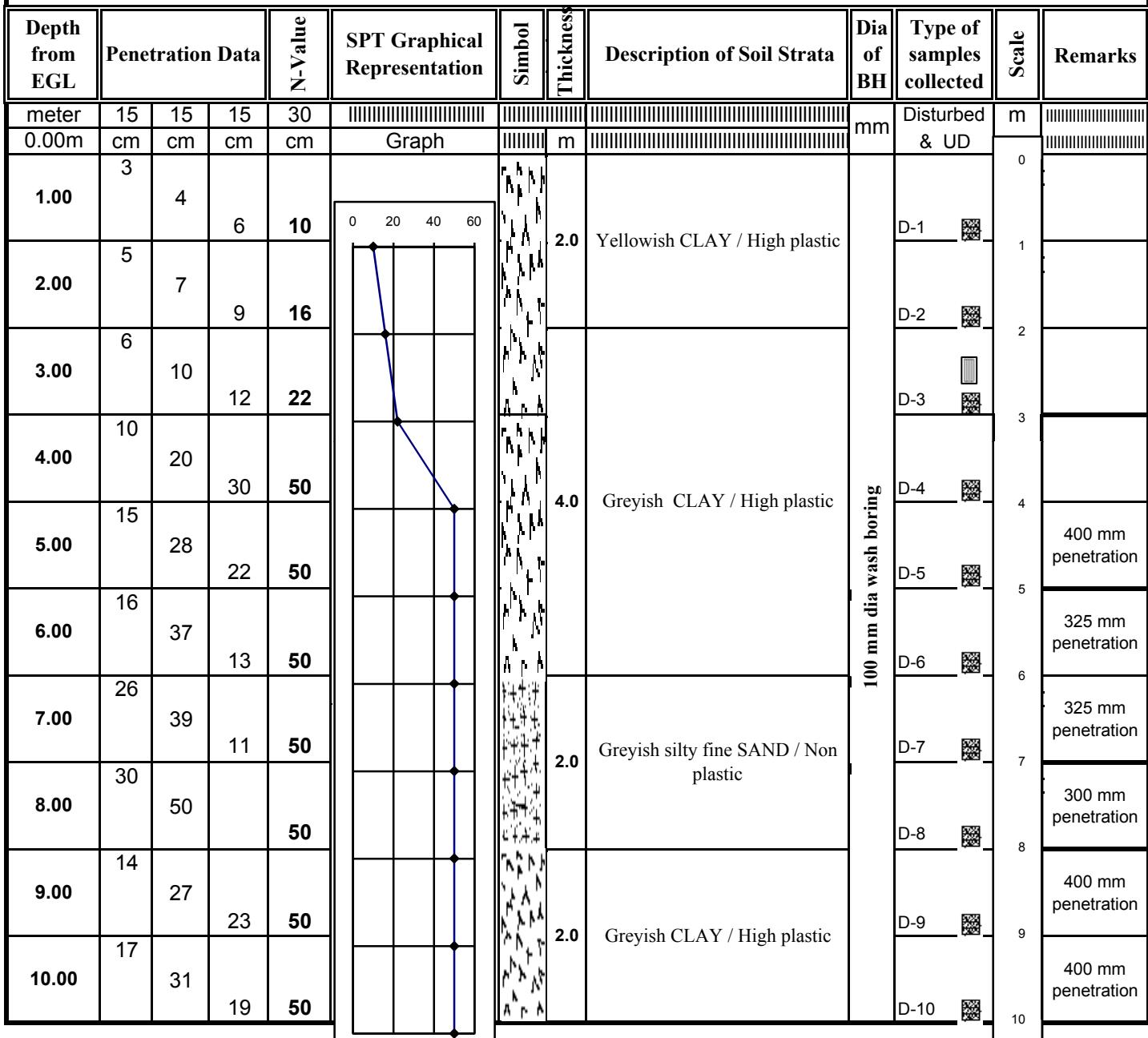


BORE LOG (Bore Hole # -10)

Suchana Engineers Ltd 272/A West Agargaon Modina Saluk Dhaka -1207	Scheme : Construction of proposed BPC Motel Client : KPMG Advisory Services Private Limited Location : BPC Motel Compound at Sylhet Coordinate : N- 24° 57' 3.97" & E - 91° 52' 17.02"	B.H Depth : 10.000m GWT : 0.400m Started : 16/5/2016 Completed : 16/5/2016
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[Elevation of soil surface: 27.662m]

[TBM-1= 19.912m]



SEL

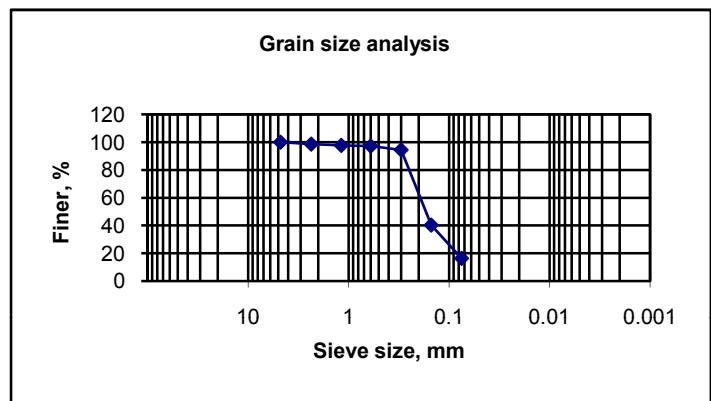
SUCHANA ENGINEERS LTD.
GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Sieve Analysis Test

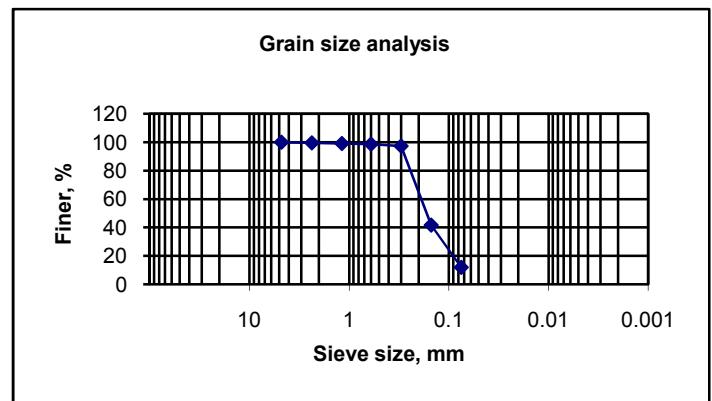
BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
1	1.00	D-1	0.72	17	

Sieve size, #	Sieve size in mm	Cu. retd. wt. gm	Cu. reained (%)	Percent finer
4 #	4.75	0	0	100
8#	2.36	1.4	1.4	99
16 #	1.18	2.2	2.2	98
30 #	0.600	2.8	2.8	97
50 #	0.300	5.5	5.5	95
100 #	0.150	59.7	59.7	40
200 #	0.075	83.5	83.5	17
Pan		99.2	99.2	
F.M : : 0.72				



BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
1	2.00	D-2	0.64	12	

Sieve size, #	Sieve size in mm	Cu. retd.wt, gm	Cu. reained (%)	Percent finer
4 #	4.75	0	0	100
8#	2.36	0.5	0.5	100
16 #	1.18	0.9	0.9	99
30 #	0.600	1.3	1.3	99
50 #	0.300	2.8	2.8	97
100 #	0.150	58.4	58.4	42
200 #	0.075	88.1	88.1	12
Pan		99.4	99.76	
F.M : 0.64				



SEL

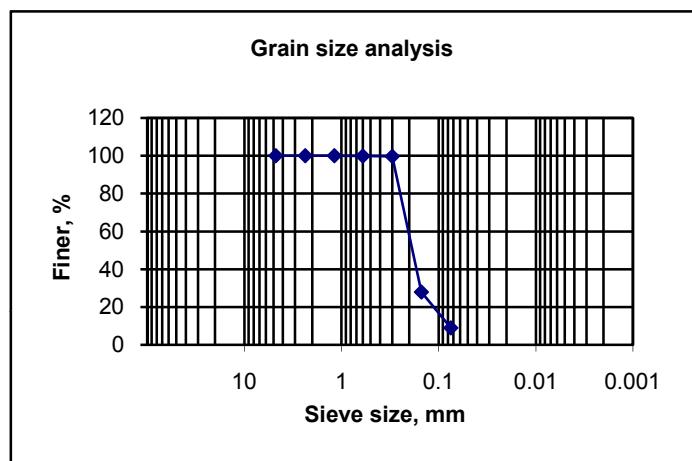
SUCHANA ENGINEERS LTD.
GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Sieve Analysis Test

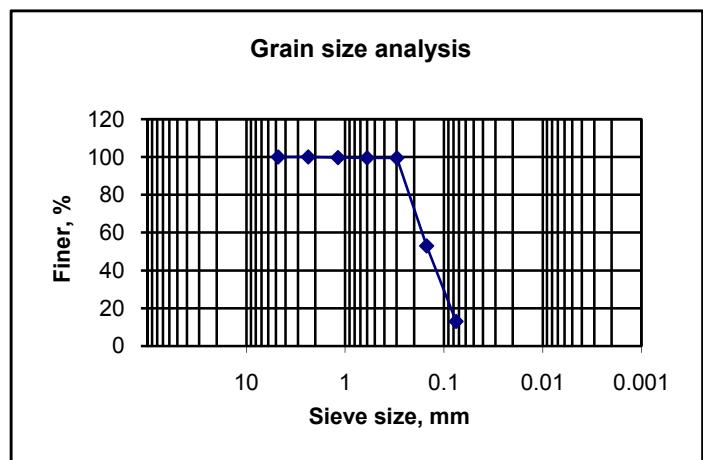
BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
1	10.00	D-10	0.72	9	

Sieve size	Sieve size in mm	Cu. retd. wt, gm	Cu. reained (%)	Percent finer
4 #	4.75	0.00	0.00	100
8#	2.36	0.00	0.00	100
16 #	1.18	0.00	0.00	100
30 #	0.600	0.10	0.10	100
50 #	0.300	0.30	0.31	100
100 #	0.150	69.10	71.98	28
200 #	0.075	87.30	90.94	9
Pan		95.80	95.8	
		F.M ::	0.72	



BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
8	2.00	D-2	0.48	13	

Sieve size	Sieve size in mm	Cu. retd. wt, gm	Cu. reained (%)	Percent finer
4 #	4.75	0.00	0.00	100
8#	2.36	0.00	0.00	100
16 #	1.18	0.30	0.30	100
30 #	0.600	0.40	0.40	100
50 #	0.300	0.50	0.50	100
100 #	0.150	47.00	47.00	53
200 #	0.075	86.90	86.90	13
Pan		99.6	99.6	
		F.M : 0.48		



SEL

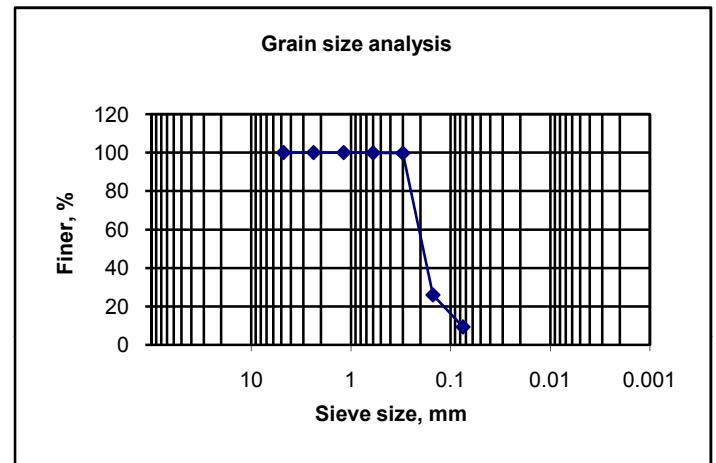
SUCHANA ENGINEERS LTD.
GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Sieve Analysis Test

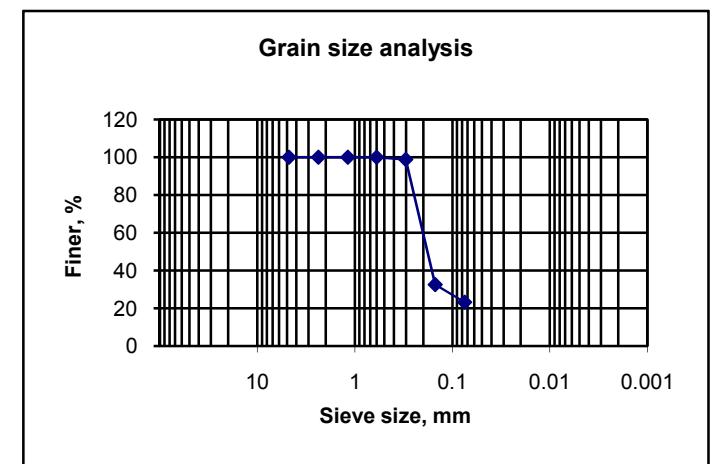
BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
8	3.00	D-3	0.74	9	

Sieve size	Sieve size in mm	Cu. retd. wt, gm	Cu. reained (%)	Percent finer
4 #	4.75	0	0	100
8#	2.36	0	0	100
16 #	1.18	0	0	100
30 #	0.600	0.1	0.1	100
50 #	0.300	0.2	0.2	100
100 #	0.150	74.0	74	26
200 #	0.075	90.6	90.6	9
Pan		99.3	99.3	
F.M : 0.74				



BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
8	6.00	D-6	0.69	23	

Sieve size	Sieve in mm	Cu. retd. wt, gm	Cu. reained (%)	Percent finer
4 #	4.75	0	0	100
8#	2.36	0	0	100
16 #	1.18	0	0	100
30 #	0.600	0.1	0.1	100
50 #	0.300	1.2	1.2	99
100 #	0.150	67.5	67.5	33
200 #	0.075	76.7	76.7	23
Pan		99.7	99.7	
F.M : 0.69				



SEL

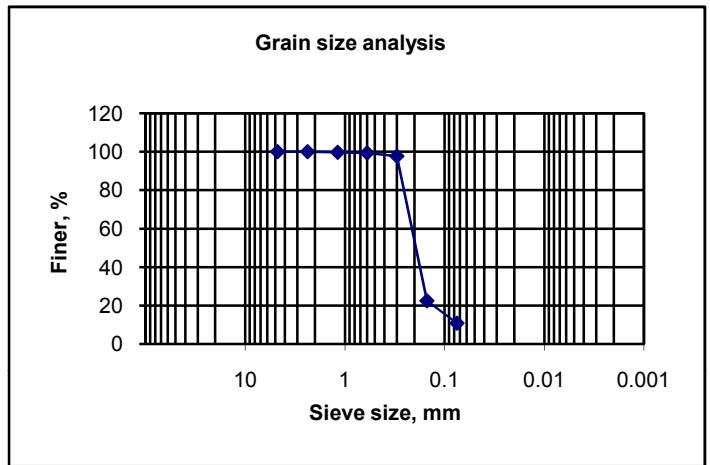
SUCHANA ENGINEERS LTD.
GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Sieve Analysis Test

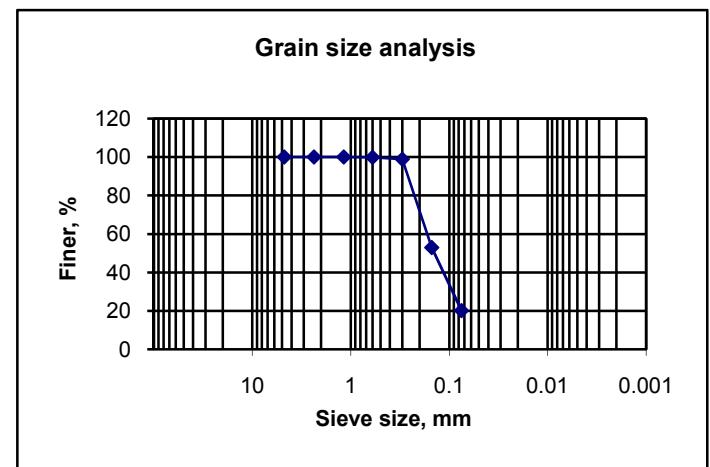
BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
8	7.00	D-7	0.81	11	

Sieve size	Sieve size in mm	Cu. retd. wt, gm	Cu. reained (%)	Percent finer
4 #	4.75	0.00	0	100
8#	2.36	0.00	0	100
16 #	1.18	0.20	0.22	100
30 #	0.600	0.50	0.56	99
50 #	0.300	2.00	2.25	98
100 #	0.150	69.00	77.53	22
200 #	0.075	79.40	89.21	11
Pan		88.80	88.80	
		F.M :	0.81	



BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
10	7.00	D-7	0.48	20	

Sieve size	Sieve size in mm	Cu. retd. wt. gm	Cu. reained (%)	Percent finer
4 #	4.75	0.00	0.00	100
8#	2.36	0.00	0.00	100
16 #	1.18	0.00	0.00	100
30 #	0.600	0.10	0.14	100
50 #	0.300	0.80	1.14	99
100 #	0.150	33.00	47.14	53
200 #	0.075	55.90	79.86	20
Pan		69.70	69.70	
		F.M :	0.48	



SEL

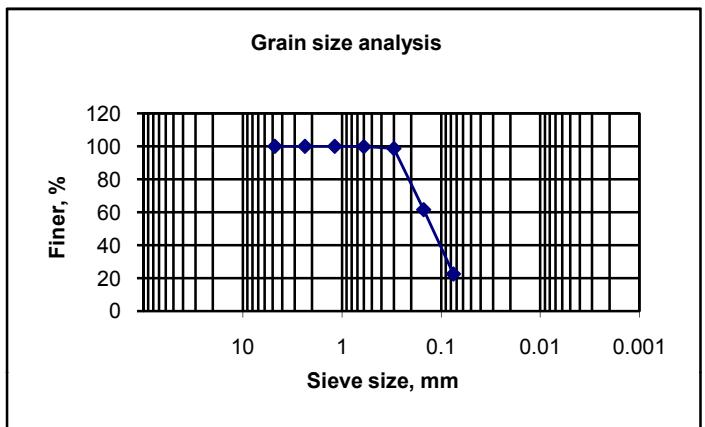
SUCHANA ENGINEERS LTD. GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

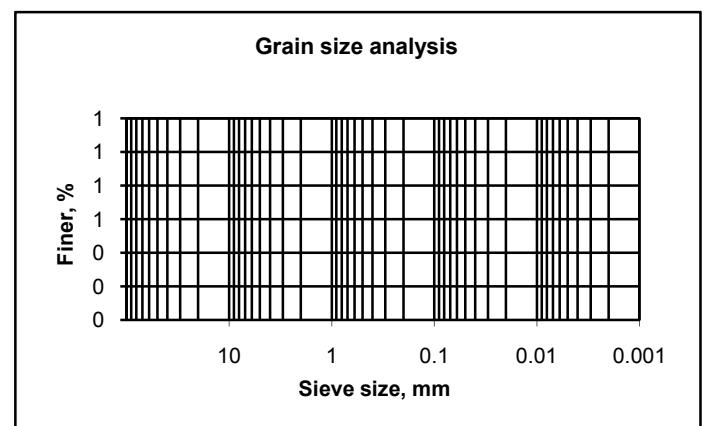
Sieve Analysis Test

BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks
10	8.00	D-8	0.40	23	

Sieve size	Sieve size in mm	Cu. retd. wt. gm	Cu. reained (%)	Percent finer
4 #	4.75	0.00	0.00	100
8#	2.36	0.00	0.00	100
16 #	1.18	0.00	0.00	100
30 #	0.600	0.10	0.12	100
50 #	0.300	1.20	1.43	99
100 #	0.150	32.20	38.33	62
200 #	0.075	65.10	77.50	23
Pan		83.8	83.8	
		F.M :	0.40	



BH No.	Depth in m	Sample No.	F.M	Fines, %	Remarks



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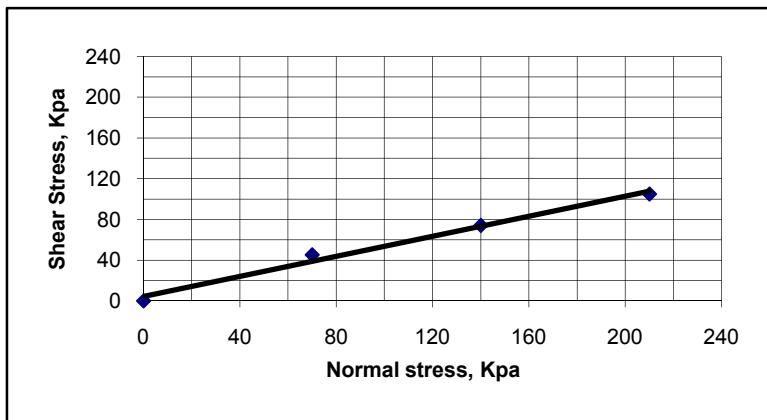
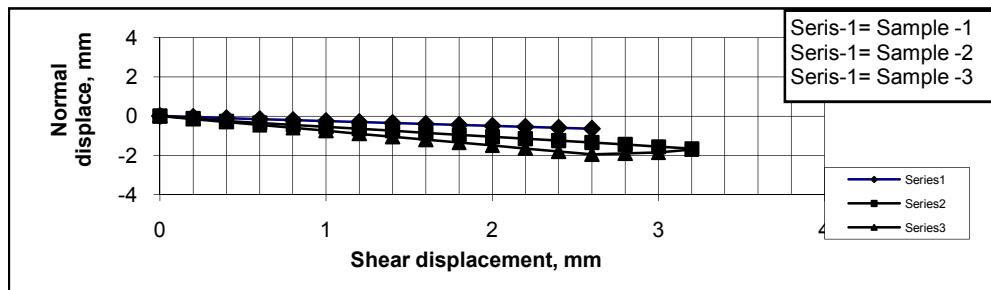
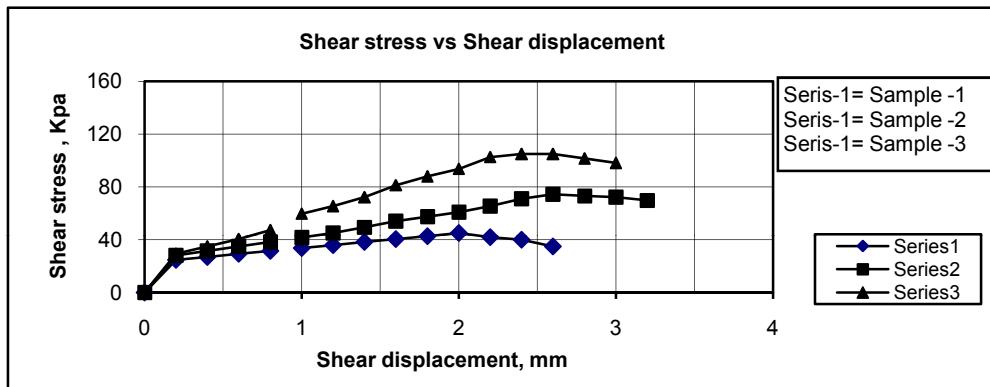
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Direct Shear Test

Bore hole no:BH-01
 Sample no: D-3
 Sample description: Silty fine sand

Depth: 3.00m
 Specimen Tested no: 01
 Type of Test: Moist soil

Specimen No	Normal Pressure Kpa	Shear Strength Kpa	Displacement at failure (0.01mm)	Dry density KN/cum	Moisture content at initial, %	Moisture content at Failure, %	Shear strength at failure	Dimension of sample mould	
								Height (cm)	Area (cm ²)
1	45	45	200				2.0	1.450	
2	140	74	260	14.2	16	13	2.6		29.787
3	210	105	280				2.8		Volume cm ³ 43.192



Results:

ϕ	26.6°
C	0.00 Kpa

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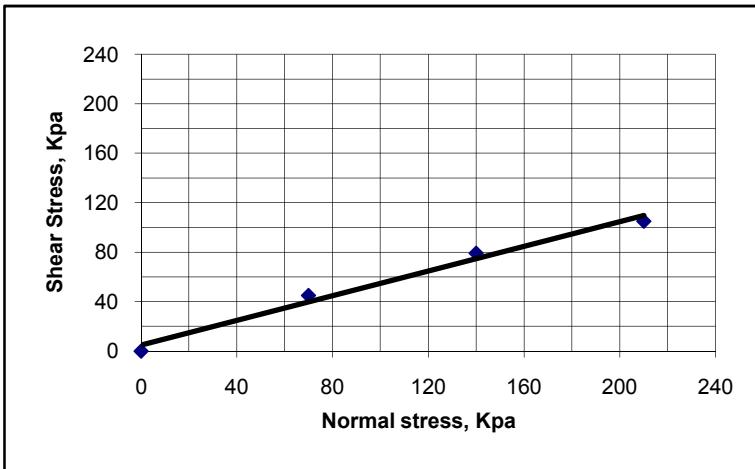
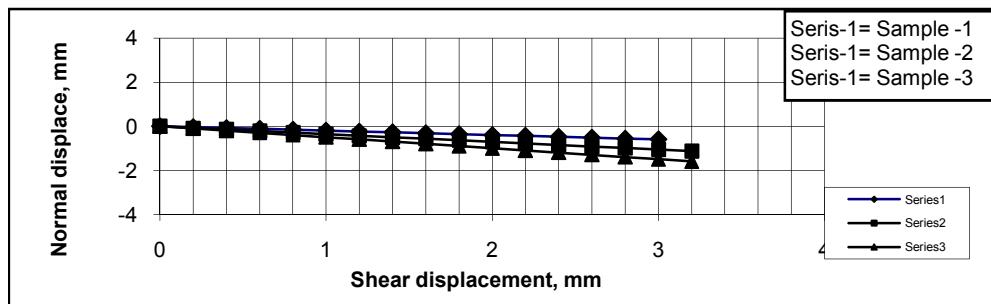
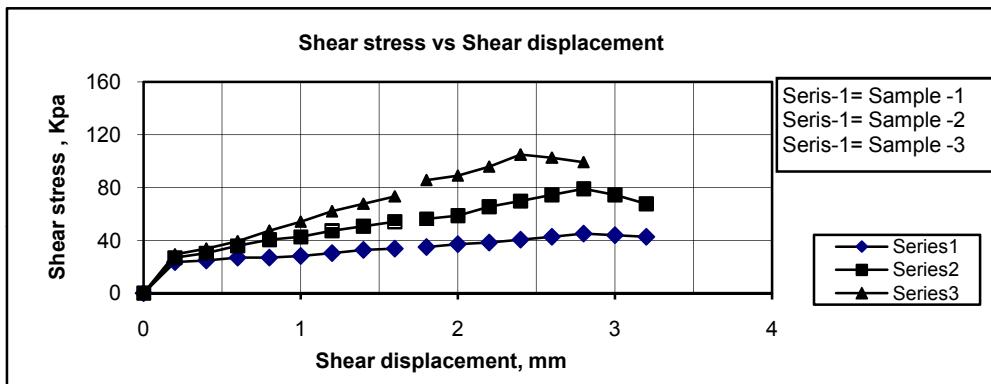
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Direct Shear Test

Bore hole no:BH-01
 Sample no: D-1
 Sample description: Silty fine sand

Depth: 1.00m
 Specimen Tested no: 01
 Type of Test: Moist soil

Specimen No	Normal Pressure Kpa	Shear Strength Kpa	Displacement at failure (0.01mm)	Dry density KN/cum	Moisture content at initial, %	Moisture content at Failure, %	Shear strength at failure	Dimension of sample mould
1	70	45	280	14.6	15	13	2.8	Height (cm) 1.45
2	140	79	280				2.8	Area (cm ²) 29.787
3	210	105	240				2.4	Volume cm ³ 43.192



Results:

ϕ	28.0°
C	0.00 Kpa

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GEOTCHNICAL LABORATORY

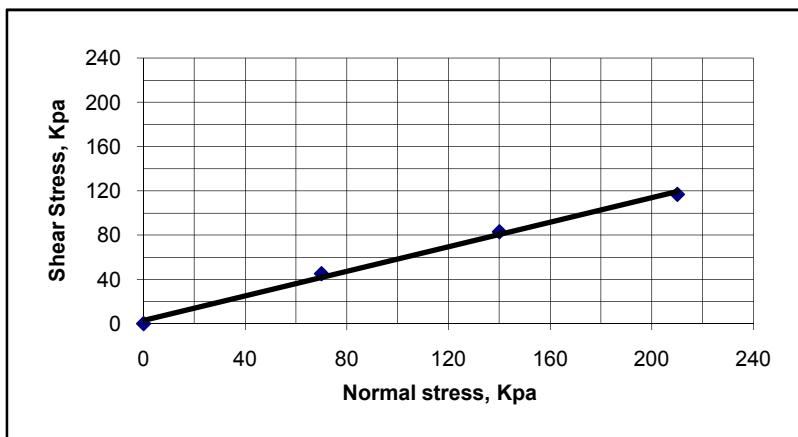
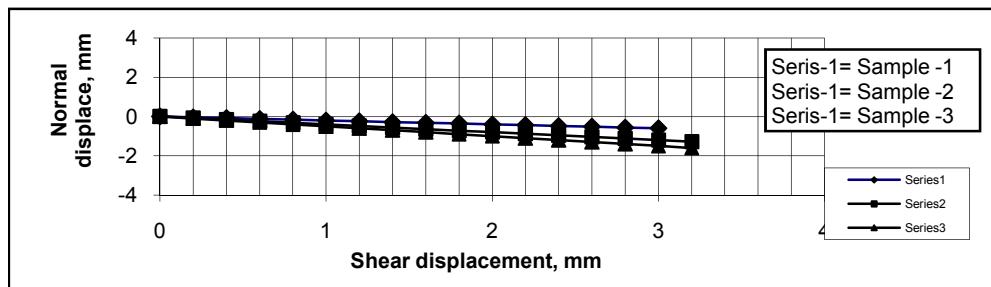
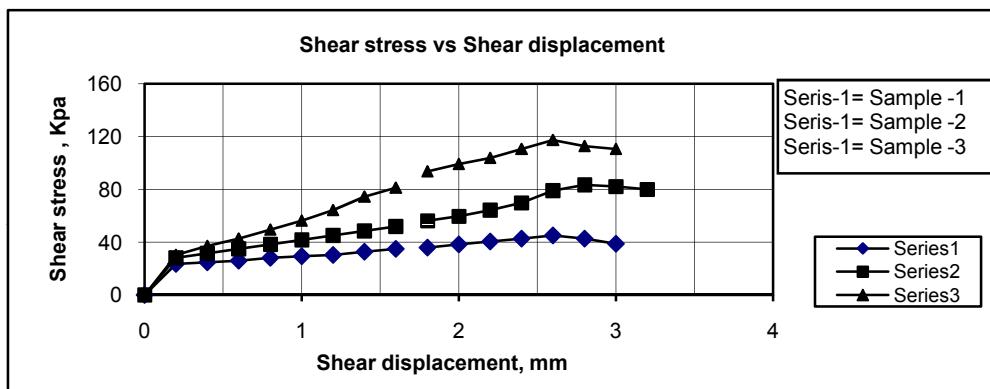
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Direct Shear Test

Bore hole no:BH-01
 Sample no: D-2
 Sample description: Silty fine sand

Depth: 2.00m
 Specimen Tested no: 01
 Type of Test: Moist soil

Specimen No	Normal Pressure Kpa	Shear Strength Kpa	Displacement at failure (0.01mm)	Dry density KN/cum	Moisture content at initial, %	Moisture content at Failure, %	Shear strength at failure	Dimension of sample mould
1	45	45	260	14.9	16	13	2.6	Height (cm)
2	90	83	280				2.8	Area (cm ²)
3	135	117	280				2.8	Volume cm ³



Results:

ϕ	29.7°
C	0.00 Kpa

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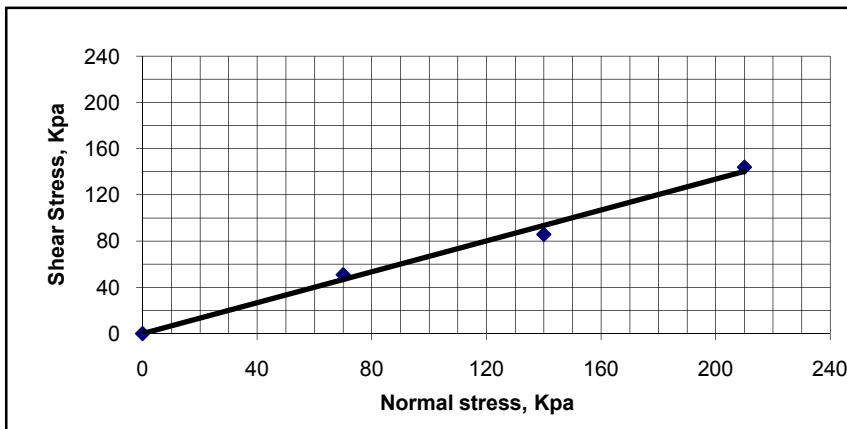
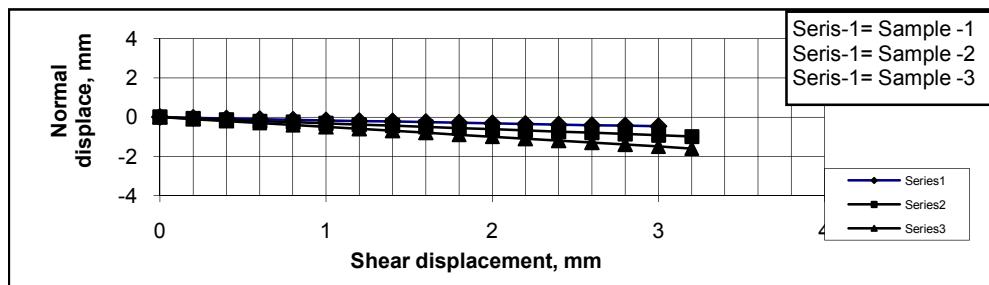
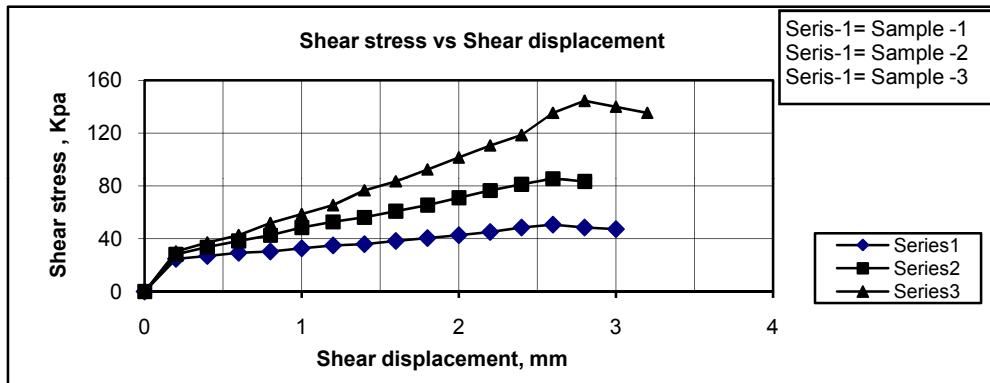
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Direct Shear Test

Bore hole no: BH-08
 Sample no: D-1
 Sample description: Silty fine sand

Depth: 1.00m
 Specimen Tested no: 01
 Type of Test: Moist soil

Specimen No	Normal Pressure Kpa	Shear Strength Kpa	Displacement at failure (0.01mm)	Dry density KN/cum	Moisture content at initial, %	Moisture content at Failure, %	Shear strength at failure	Dimension of sample mould
1	70	51	260	14.8	15	12	2.6	Height (cm) 1.450
2	140	86	260				2.6	Area (cm ²) 29.787
3	210	144	280				2.8	Volume cm ³ 43.192



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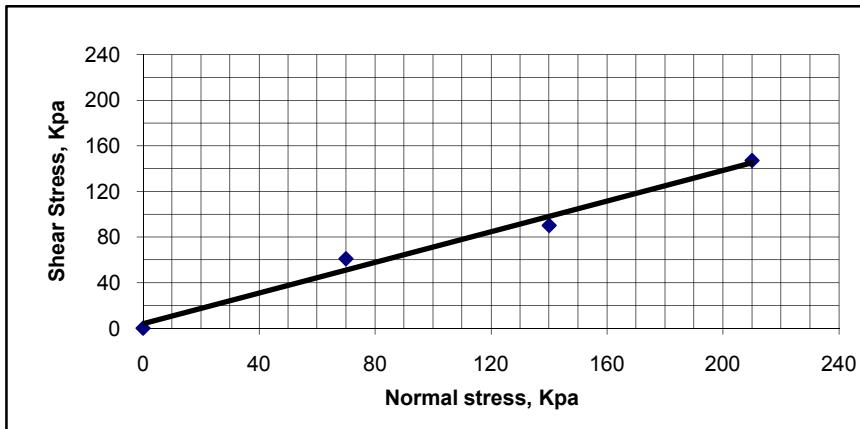
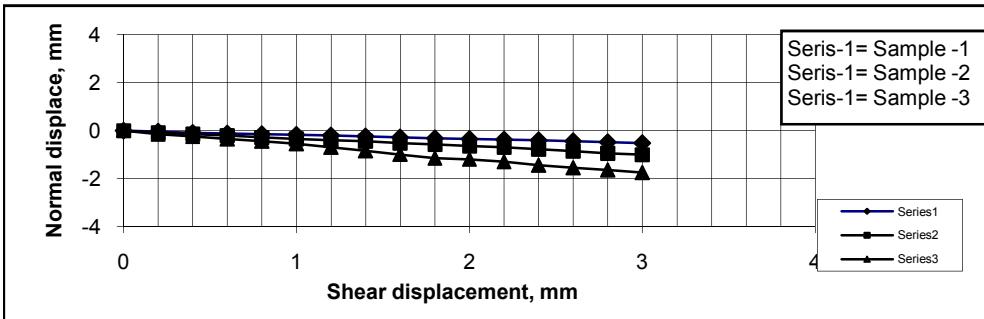
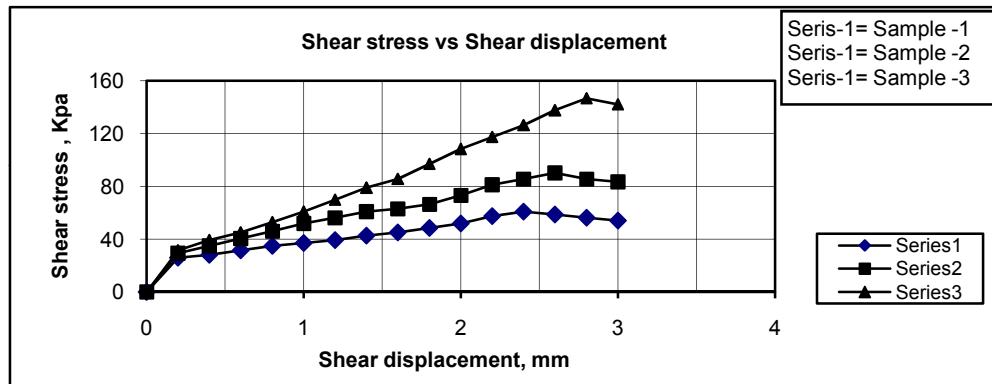
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Direct Shear Test

Bore hole no:BH-08
Sample no: D-2
Sample description: Silty fine sand

Depth: 2.00m
Specimen Tested no: 01
Type of Test: Moist soil

Specimen No	Normal Pressure Kpa	Shear Strength Kpa	Displacement at failure (0.01mm)	Dry density KN/cum	Moisture content at initial, %	Moisture content at Failure, %	Shear strength at failure	Dimension of sample mould
1	70	61	240	15.1	14	12	2.4	Height (cm)
2	140	90	260				2.6	Area (cm ²)
3	210	147	280				2.8	Volume cm ³



Results:

ϕ	35.20°
C	0 Kpa

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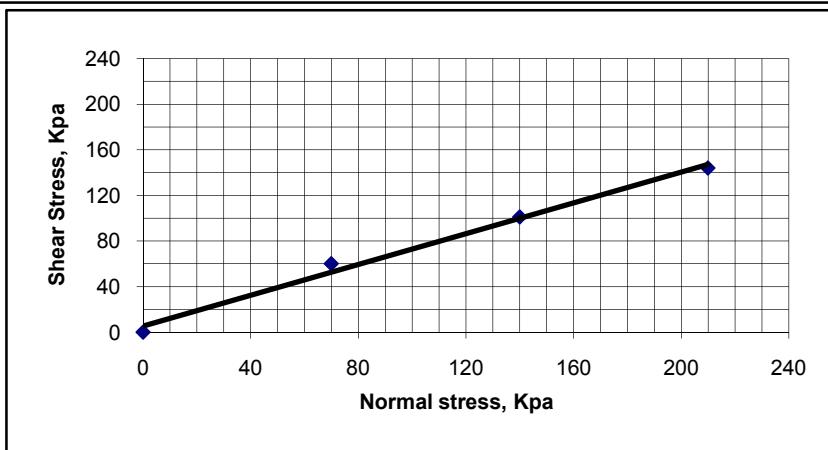
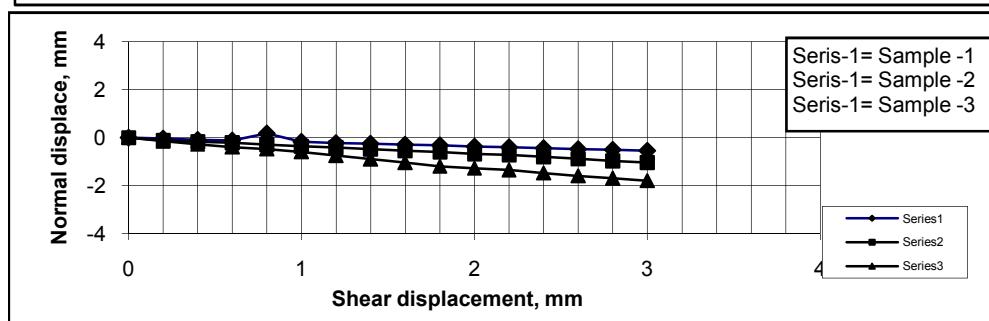
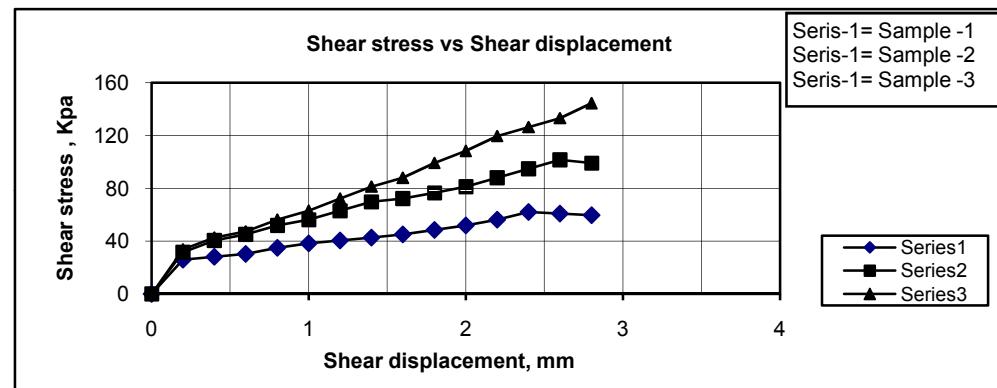
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Direct Shear Test

Bore hole no:BH-08
 Sample no: D-3
 Sample description: Silty fine sand

Depth: 3.00m
 Specimen Tested no: 01
 Type of Test: Moist soil

Specimen No	Normal Pressure Kpa	Shear Strength Kpa	Displacement at failure (0.01mm)	Dry density KN/cum	Moisture content at initial, %	Moisture content at Failure, %	Shear strength at failure	Dimension of sample mould	
1	70	60	240	15.2	14	11	2.4	Height (cm)	1.450
2	140	101	260				2.6	Area (cm ²)	29.787
3	210	144	280				2.8	Volume cm ³	43.192



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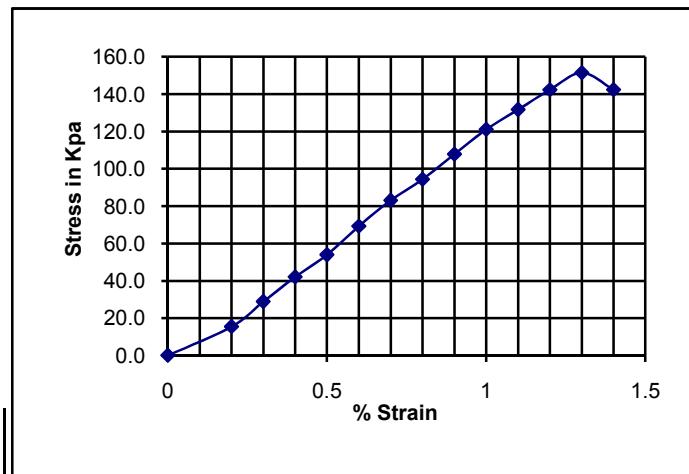
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-02
Sample no: UD-1
Sample description: Clay soil

Depth: 1.50-1.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading	Length (cm)	Strain (%)	Area (cm ²)	Dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	75	0.0620	15.4
300	0.3	0.02110	40.538	130	0.1170	28.9
400	0.4	0.02813	40.832	185	0.1720	42.1
500	0.5	0.03516	41.129	235	0.2220	54.0
600	0.6	0.04219	41.431	300	0.2870	69.3
700	0.7	0.04923	41.738	360	0.3470	83.1
800	0.8	0.05626	42.049	410	0.3970	94.4
900	0.9	0.06329	42.364	470	0.4570	107.9
1000	1.0	0.07032	42.685	530	0.5170	121.1
1100	1.1	0.07736	43.010	580	0.5670	131.8
1200	1.2	0.08439	43.340	630	0.6170	142.4
1300	1.3	0.09142	43.676	675	0.6620	151.6
1400	1.4	0.09845	44.017	640	0.6270	142.4



Weight of the sample, gm	1055.60
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.87
Wet density of the sample, KN/m ³	18.3

Results :

Cohesion, qu = 151.6 Kpa
Cohesion, c = 75.80 Kpa
Strain = 13 %

SEL

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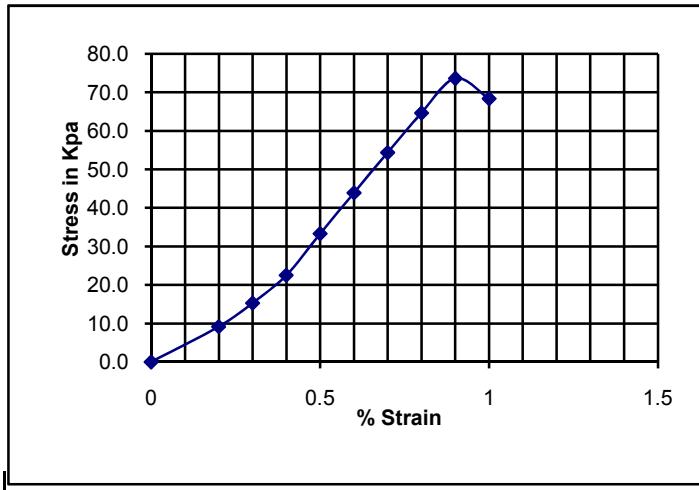
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-03
Sample no: UD-2
Sample description: Clay soil

Depth: 1.50-1.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	50	0.0370	9.2
300	0.3	0.02110	40.538	75	0.0620	15.3
400	0.4	0.02813	40.832	105	0.0920	22.5
500	0.5	0.03516	41.129	150	0.1370	33.3
600	0.6	0.04219	41.431	195	0.1820	43.9
700	0.7	0.04923	41.738	240	0.2270	54.4
800	0.8	0.05626	42.049	285	0.2720	64.7
900	0.9	0.06329	42.364	325	0.3120	73.6
1000	1.0	0.07032	42.685	305	0.2920	68.4



Weight of the sample, gm	1026.40
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.82
Wet density of the sample, KN/m ³	17.8

Results :

Cohesion, qu = 73.6 Kpa
Cohesion, c = 36.80 Kpa
Strain = 9 %

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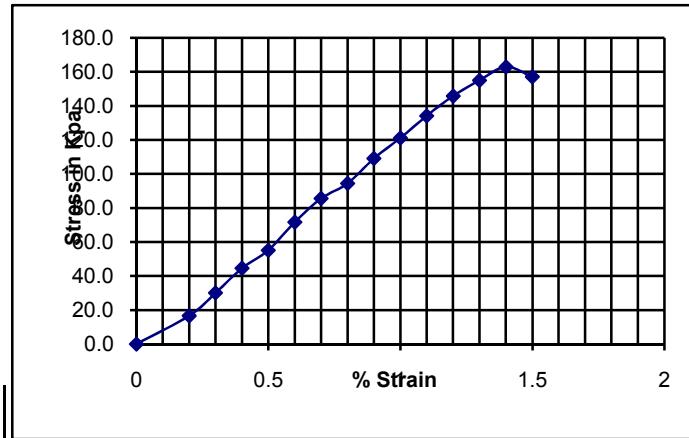
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-04
Sample no: UD-3
Sample description: Clay soil

Depth: 1.50-1.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading (cm)	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	80	0.0670	16.6
300	0.3	0.02110	40.538	135	0.1220	30.1
400	0.4	0.02813	40.832	195	0.1820	44.6
500	0.5	0.03516	41.129	240	0.2270	55.2
600	0.6	0.04219	41.431	310	0.2970	71.7
700	0.7	0.04923	41.738	370	0.3570	85.5
800	0.8	0.05626	42.049	410	0.3970	94.4
900	0.9	0.06329	42.364	475	0.4620	109.1
1000	1.0	0.07032	42.685	530	0.5170	121.1
1100	1.1	0.07736	43.010	590	0.5770	134.2
1200	1.2	0.08439	43.340	645	0.6320	145.8
1300	1.3	0.09142	43.676	690	0.6770	155.0
1400	1.4	0.09845	44.017	730	0.7170	162.9
1500	1.5	0.10549	44.363	710	0.6970	157.1



Weight of the sample, gm	1065.60
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.89
Wet density of the sample, KN/m ³	18.5

Results :

Cohesion, qu = 162.90 Kpa
Cohesion, c = 81.45 Kpa
Strain = 14 %

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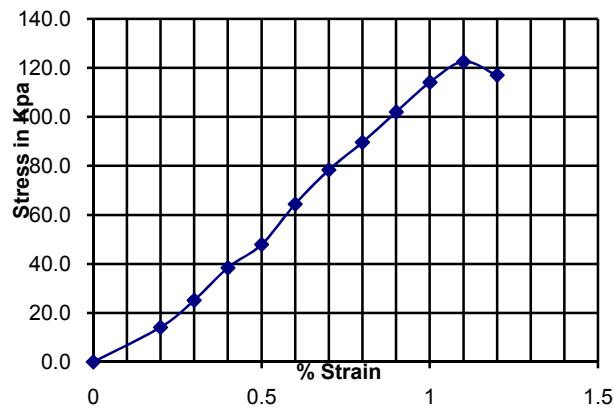
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-05
Sample no: UD-4
Sample description: Clay soil

Depth: 2.50-2.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	70	0.0570	14.2
300	0.3	0.02110	40.538	115	0.1020	25.2
400	0.4	0.02813	40.832	170	0.1570	38.5
500	0.5	0.03516	41.129	210	0.1970	47.9
600	0.6	0.04219	41.431	280	0.2670	64.4
700	0.7	0.04923	41.738	340	0.3270	78.3
800	0.8	0.05626	42.049	390	0.3770	89.7
900	0.9	0.06329	42.364	445	0.4320	102.0
1000	1.0	0.07032	42.685	500	0.4870	114.1
1100	1.1	0.07736	43.010	540	0.5270	122.5
1200	1.2	0.08439	43.340	520	0.5070	117.0



Weight of the sample, gm	1040.70
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.84
Wet density of the sample, KN/m ³	18.1

Results :

Cohesion, qu = 122.50 Kpa
Cohesion, c = 61.25 Kpa
Strain = 11 %

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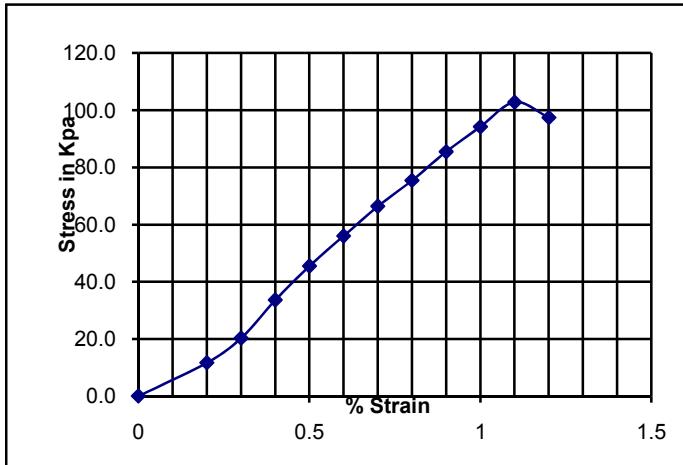
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-06
Sample no: UD-5
Sample description: Clay soil

Depth: 1.50-1.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	60	0.0470	11.7
300	0.3	0.02110	40.538	95	0.0820	20.2
400	0.4	0.02813	40.832	150	0.1370	33.6
500	0.5	0.03516	41.129	200	0.1870	45.5
600	0.6	0.04219	41.431	245	0.2320	56.0
700	0.7	0.04923	41.738	290	0.2770	66.4
800	0.8	0.05626	42.049	330	0.3170	75.4
900	0.9	0.06329	42.364	375	0.3620	85.4
1000	1.0	0.07032	42.685	415	0.4020	94.2
1100	1.1	0.07736	43.010	455	0.4420	102.8
1200	1.2	0.08439	43.340	435	0.4220	97.4



Weight of the sample, gm	1035.40
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.83
Wet density of the sample, KN/m ³	18.0

Results :

Cohesion, qu = 102.80 Kpa
Cohesion, c = 51.40 Kpa
Strain = 11 %

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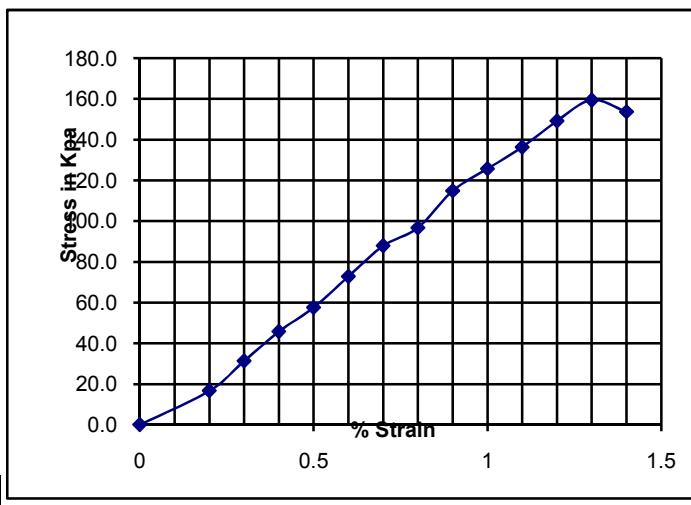
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-07
Sample no: UD-6
Sample description: Clay soil

Depth: 2.50-2.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	80	0.0670	16.6
300	0.3	0.02110	40.538	140	0.1270	31.3
400	0.4	0.02813	40.832	200	0.1870	45.8
500	0.5	0.03516	41.129	250	0.2370	57.6
600	0.6	0.04219	41.431	315	0.3020	72.9
700	0.7	0.04923	41.738	380	0.3670	87.9
800	0.8	0.05626	42.049	420	0.4070	96.8
900	0.9	0.06329	42.364	500	0.4870	115.0
1000	1.0	0.07032	42.685	550	0.5370	125.8
1100	1.1	0.07736	43.010	600	0.5870	136.5
1200	1.2	0.08439	43.340	660	0.6470	149.3
1300	1.3	0.09142	43.676	710	0.6970	159.6
1400	1.4	0.09845	44.017	690	0.6770	153.8



Weight of the sample, gm	1060.70
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.88
Wet density of the sample, KN/m ³	18.4

Results :

Cohesion, qu = 159.60 Kpa
Cohesion, c = 79.80 Kpa
Strain = 13 %

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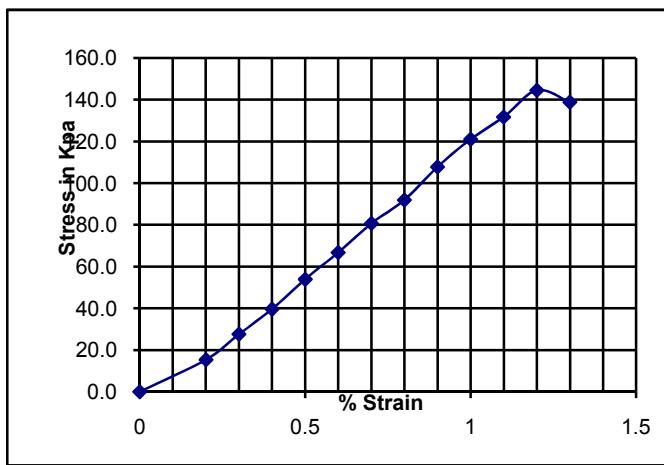
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-09
Sample no: UD-7
Sample description: Clay soil

Depth: 1.50-1.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading (cm)	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	75	0.0620	15.4
300	0.3	0.02110	40.538	125	0.1120	27.6
400	0.4	0.02813	40.832	175	0.1620	39.7
500	0.5	0.03516	41.129	235	0.2220	54.0
600	0.6	0.04219	41.431	290	0.2770	66.9
700	0.7	0.04923	41.738	350	0.3370	80.7
800	0.8	0.05626	42.049	400	0.3870	92.0
900	0.9	0.06329	42.364	470	0.4570	107.9
1000	1.0	0.07032	42.685	530	0.5170	121.1
1100	1.1	0.07736	43.010	580	0.5670	131.8
1200	1.2	0.08439	43.340	640	0.6270	144.7
1300	1.3	0.09142	43.676	620	0.6070	139.0



Weight of the sample, gm	1050.70
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.86
Wet density of the sample, KN/m ³	18.2

Results :

Cohesion, qu = 144.70 Kpa
Cohesion, C = 72.35 Kpa
Strain at C = 12 %

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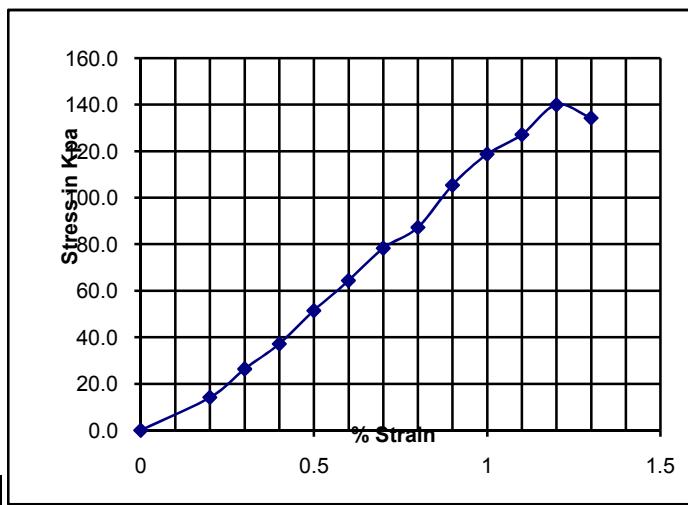
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Unconfined Compression Test

Bore hole no: BH-10
Sample no: UD-8
Sample description: Clay soil

Depth: 2.50-2.95m
Specimen Tested no-01
Type of Test: Undrained

Dial Reading	Length (cm)	Strain (%)	Area (cm ²)	dial Reading (div)	Load (KN)	Stress (Kpa)
0	0	0	0.00	0.00	0.00	0.0
200	0.2	0.01406	40.249	70	0.0570	14.2
300	0.3	0.02110	40.538	120	0.1070	26.4
400	0.4	0.02813	40.832	165	0.1520	37.2
500	0.5	0.03516	41.129	225	0.2120	51.5
600	0.6	0.04219	41.431	280	0.2670	64.4
700	0.7	0.04923	41.738	340	0.3270	78.3
800	0.8	0.05626	42.049	380	0.3670	87.3
900	0.9	0.06329	42.364	460	0.4470	105.5
1000	1.0	0.07032	42.685	520	0.5070	118.8
1100	1.1	0.07736	43.010	560	0.5470	127.2
1200	1.2	0.08439	43.340	620	0.6070	140.1
1300	1.3	0.09142	43.676	600	0.5870	134.4



Weight of the sample, gm	1045.60
Diameter of the sample, cm	7.11
Area of the sample, cm ²	39.683
Height of the sample, cm	14.22
Volume of the sample, cm ³	564.30
Wet density of the sample, gm/cc	1.85
Wet density of the sample, KN/m ³	18.2

Results :

Cohesion, qu = 140.10 Kpa
Cohesion, c = 70.05 Kpa
Strain = 12 %

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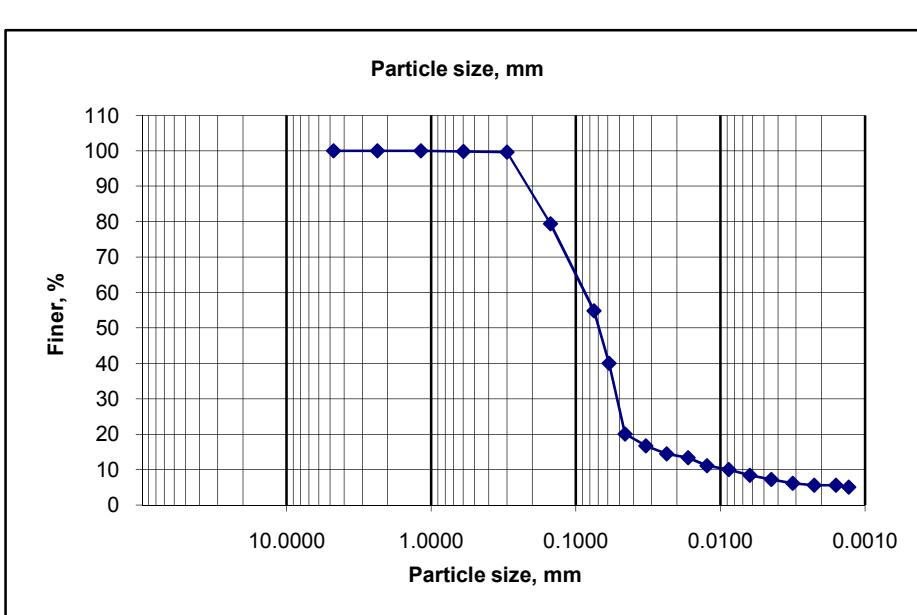
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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Hydrometer Test

Bore hole no: BH-01	Weight of sample: 50.00gm	Reagent: Sodium Hexametaphosphate
Depth: 7.00m, Sample no: D-7	Specific gravity of soil, Gs= 2.616	Amount: 4% in 125ml, Over night Soaked
Sample description: Sandy clay	Hydrometer type: 152-H, ASTM	Meniscus Correction, Cmin=1 Div.

Date	Time	Elapsed time t(min)	Room Temp. C	Hydrometer reading, Ro	Comp correction	Comp. corrected reading	Reading after meniscus correction	Effective depth, L (cm)	Value of constant, K from table	Particle size (mm)	Percent finer	Adjustment % fines for total Specime-n
20/5/16	8:30	0.5	29	35	3.0	32.0	36	11.1	0.01249	0.0588	73	40
	8:31	1	29	17	3.0	14.0	18	13.3	0.01249	0.0455	36	20
	8:32	2	29	14	3.0	11.0	15	13.8	0.01249	0.0328	30	17
	8:34	4	29	12	3.0	9.0	13	14.2	0.01249	0.0235	26	14
	8:38	8	29	11	3.0	8.0	12	14.3	0.01249	0.0167	24	13
	8:45	15	29	9	3.0	6.0	10	14.7	0.01249	0.0124	20	11
	9:00	30	29	8	3.0	5.0	9	14.8	0.01249	0.0088	18	10
	9:30	60	29	6.5	3.0	3.5	7.5	15	0.01249	0.0062	15	8
	10:30	120	29	5.5	3.0	2.5	6.5	15.2	0.01249	0.0044	13	7
	21/5/16	12:30	29	4.5	3.0	1.5	5.5	15.3	0.01249	0.0032	11	6
		4:30	29	4	3.0	1.0	5	15.5	0.01249	0.0022	10	6
		12:30	29	4	3.0	1.0	5	15.5	0.01249	0.0016	10	6
		8:30	29	3.5	3.0	0.5	4.5	15.5	0.01249	0.0013	9	5



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.1	0.2	100
0.3	0.2	0.4	100
0.15	10.3	20.6	79
0.075	22.6	45.2	55

Results:		
Description	Size, mm	Percent
Sand	4.75-0.075	45
Silt	0.075-0.005	47
Clay	0.005-0.001	8
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.47
Cz	3.09
Cu	10.00

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SUCHANA ENGINEERS LTD.
GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

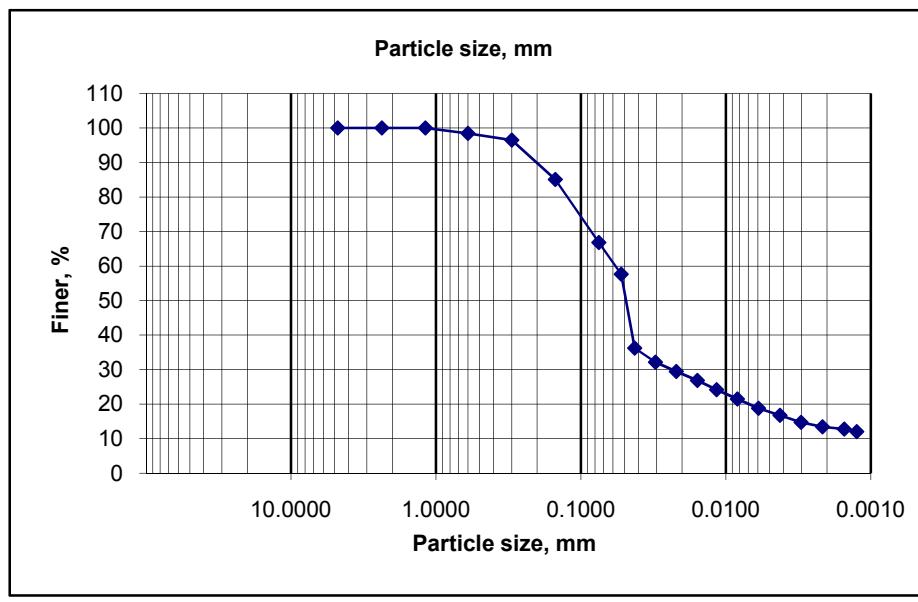
Hydrometer Test

Bore hole no: BH-02
Depth: 1.00m, Sample no: D-1
Sample description: Clay

Weight of sample: 50.00gm
Specific gravity of soil, Gs= 2.654
Hydrometer type: 152-H, ASTM

Reagent: Sodium Hexametaphosphate
Amount: 4% in 125ml, Over night Soaked
Meniscus Correction, Cmin=1 Div.

Date	Time	Elapsed time t(min)	Room Temp. C	Hydrometer reading, Ro	Comp correction	Comp. corrected reading	Reading after meniscus correction	Effective depth, L (cm)	Value of constant, K from table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
20/5/16	8:30	0.5	29.0	42	3.0	39.0	43	9.2	0.0123	0.0528	86	58
	8:31	1	29.0	26	3.0	23.0	27	11.9	0.0123	0.0424	54	36
	8:32	2	29.0	23	3.0	20.0	24	12.4	0.0123	0.0306	48	32
	8:34	4	29.0	21	3.0	18.0	22	12.7	0.0123	0.0219	44	29
	8:38	8	29.0	19	3.0	16.0	20	13	0.0123	0.0157	40	27
	8:45	15	29.0	17	3.0	14.0	18	13.3	0.0123	0.0116	36	24
	9:00	30	29.0	15	3.0	12.0	16	13.7	0.0123	0.0083	32	21
	9:30	60	29.0	13	3.0	10.0	14	14.0	0.0123	0.0059	28	19
	10:30	120	29.0	11.5	3.0	8.5	12.5	14.2	0.0123	0.0042	25	17
21/5/16	12:30	240	29.0	10	3.0	7.0	11	14.5	0.0123	0.0030	22	15
	4:30	480	29.0	9	3.0	6.0	10	14.7	0.0123	0.0022	20	13
	12:30	960	29.0	8.5	3.0	5.5	9.5	14.7	0.0123	0.0015	19	13
	8:30	1440	29.0	8	3.0	5.0	9	14.8	0.0123	0.0012	18	12



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.8	1.6	98
0.3	1.8	3.6	96
0.15	7.5	15	85
0.075	16.6	33.2	67

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	33
Silt	0.075-0.005	49
Clay	0.005-0.001	18
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.39
Cz	
Cu	

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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

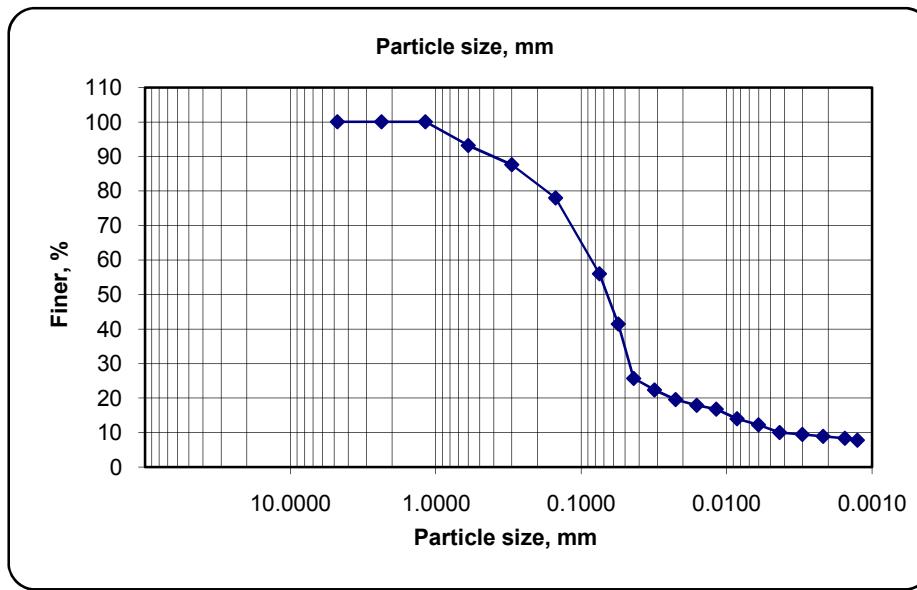
Hydrometer Test

Bore hole no: BH-03
 Depth: 2.00m, Sample no:D-2
 Sample description: Clay

Weight of sample: 50.00gm
 Specific gravity of soil, Gs=2.643
 Hydrometer type: 152-H, ASTM

Reagent: Sodium Hexametaphosphate
 Amount: 4% in 125ml, Soaking over night
 Meniscus correction, C min : 1 Div

Date	Time	Elapsed time t(min)	Room Temp. C	Hydrometer reading, Ro	Comp correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Value of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
20/5/16	8:30	0.5	29.0	36	3.0	33.0	37	10.2	0.0123	0.0556	74	41
	8:31	1	29.0	22	3.0	19.0	23	12.5	0.0123	0.0435	46	26
	8:32	2	29.0	19	3.0	16.0	20	13.0	0.0123	0.0314	40	22
	8:34	4	29.0	16.5	3.0	13.5	17.5	13.3	0.0123	0.0224	35	20
	8:38	8	29.0	15	3.0	12.0	16	13.7	0.0123	0.0161	32	18
	8:45	15	29.0	14	3.0	11.0	15	13.8	0.0123	0.0118	30	17
	9:00	30	29.0	11.5	3.0	8.5	12.5	14.2	0.0123	0.0085	25	14
	9:30	60	29.0	10	3.0	7.0	11	14.5	0.0123	0.0060	22	12
	10:30	120	29.0	8	3.0	5.0	9	14.8	0.0123	0.0043	18	10
21/5/16	12:30	240	29.0	7.5	3.0	4.5	8.5	14.5	0.0123	0.0030	17	10
	4:30	480	29.0	7	3.0	4.0	8	15	0.0123	0.0022	16	9
	12:30	960	29.0	6.5	3.0	3.5	7.5	15	0.0123	0.0015	15	8
	8:30	1440	29.0	6	3.0	3.0	7	15.2	0.0123	0.0013	14	8



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	3.4	6.8	93
0.3	6.2	12.4	88
0.15	11	22	78
0.075	22	44	56

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	44
Silt	0.075-0.005	45
Clay	0.005-0.001	11
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.47
Cz	6.94
Cu	22.50

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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

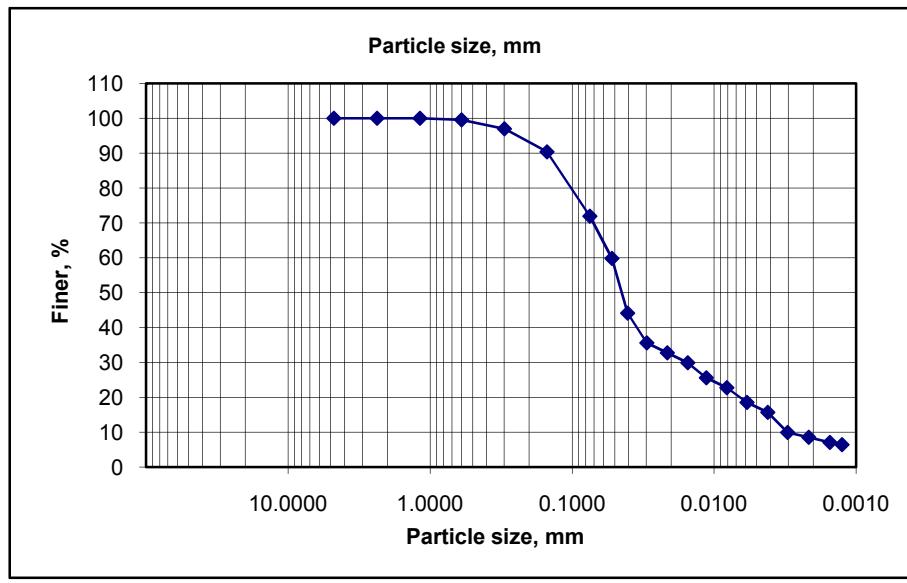
Hydrometer Test

Bore hole no: BH-04
Depth: 3.00m, Sample no:D-3
Sample description: Clay

Weight of sample: 50.00gm
Specific gravity of soil, Gs= 2.675
Hydrometer type: 152-H, ASTM

Reagent: Sodium Hexametaphosphate
Amount: 4% in 125ml, Soaking over night
Meniscus correction, C min : 1 Div

Date	Time	Elapsed time t(min)	Room Temp. C	Hydrom et-er reading, Ro	Comp correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Valu of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
20/5/16	8:30	0.5	29.0	41	3.0	38.0	42	9.4	0.01206	0.0523	83	60
	8:31	1	29.0	30	3.0	27.0	31	11.4	0.01206	0.0407	61	44
	8:32	2	29.0	24	3.0	21.0	25	12.2	0.01206	0.0298	50	36
	8:34	4	29.0	22	3.0	19.0	23	12.5	0.01206	0.0213	46	33
	8:38	8	29.0	20	3.0	17.0	21	12.9	0.01206	0.0153	42	30
	8:45	15	29.0	17	3.0	14.0	18	13.3	0.01206	0.0114	36	26
	9:00	30	29.0	15	3.0	12.0	16	13.7	0.01206	0.0081	32	23
	9:30	60	29.0	12	3.0	9.0	13	14.2	0.01206	0.0059	26	19
	10:30	120	29.0	10	3.0	7.0	11	14.5	0.01206	0.0042	22	16
21/5/16	12:30	240	29.0	6	3.0	3.0	7	15.2	0.01206	0.0030	14	10
	4:30	480	29.0	5	3.0	2.0	6	15.3	0.01206	0.0022	12	9
	12:30	960	29.0	4	3.0	1.0	5	15.5	0.01206	0.0015	10	7
	8:30	1440	29.0	3.5	3.0	0.5	4.5	15.6	0.01206	0.0013	9	6



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.2	0.4	100
0.3	1.5	3	97
0.15	4.8	9.6	90
0.075	14	28	72

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	28
Silt	0.075-0.005	54
Clay	0.005-0.001	18
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.37
Cz	1.42
Cu	18.33

SEL

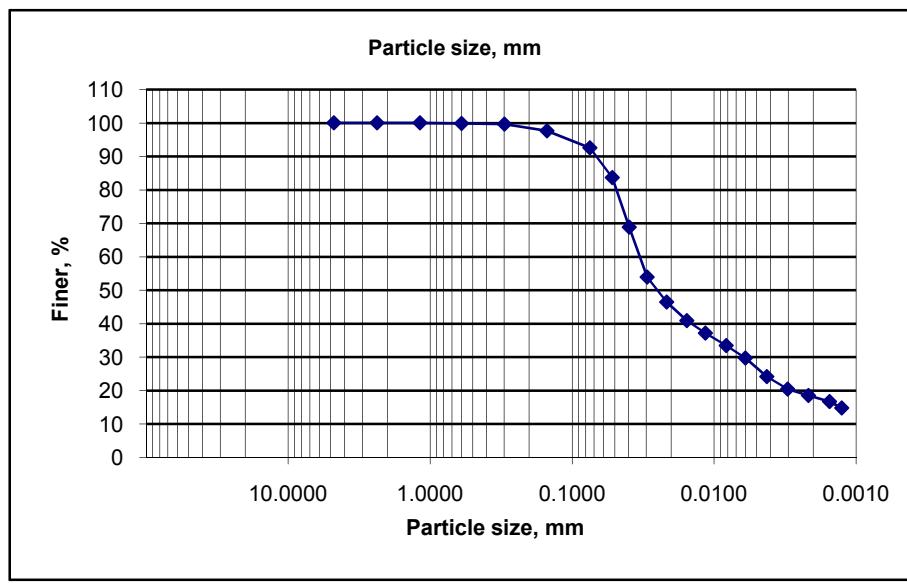
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GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Hydrometer Test

Bore hole no: BH-05 Depth:3.00m, Sample no:D-3 Sample description: Clay	Weight of sample: 50.00gm Specific gravity of soil, Gs=2.636 Hydrometer type: 152-H, ASTM	Reagent: Sodium Hexametaphosphate Amount: 4% in 125ml, Soaking over night Meniscus correction, C min : 1 Div
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Date	Time	Elapsed time t(min)	Room Temp. C	Hydrometer reading, Ro	Comp correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Value of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
20/5/16	8:30	0.5	29.0	44	3.0	41.0	45	8.9	0.01236	0.0521	90	84
	8:31	1	29.0	36	3.0	33.0	37	10.2	0.01236	0.0395	74	69
	8:32	2	29.0	28	3.0	25.0	29	11.5	0.01236	0.0296	58	54
	8:34	4	29.0	24	3.0	21.0	25	12.2	0.01236	0.0216	50	47
	8:38	8	29.0	21	3.0	18.0	22	12.7	0.01236	0.0156	44	41
	8:45	15	29.0	19	3.0	16.0	20	13	0.01236	0.0115	40	37
	9:00	30	29.0	17	3.0	14.0	18	13.3	0.01236	0.0082	36	33
	9:30	60	29.0	15	3.0	12.0	16	14.3	0.01236	0.0060	32	30
	10:30	120	29.0	12	3.0	9.0	13	14.2	0.01236	0.0043	26	24
21/5/16	12:30	240	29.0	10	3.0	7.0	11	14.5	0.01236	0.0030	22	20
	4:30	480	29.0	9	3.0	6.0	10	14.7	0.01236	0.0022	20	19
	12:30	960	29.0	8	3.0	5.0	9	14.8	0.01236	0.0015	18	17
	8:30	1440	29.0	7	3.0	4.0	8	15	0.01236	0.0013	16	15



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.1	0.2	100
0.3	0.2	0.4	100
0.15	1.2	2.4	98
0.075	3.7	7.4	93

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	7
Silt	0.075-0.005	67
Clay	0.005-0.001	26
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.28
Cz	
Cu	

SEL

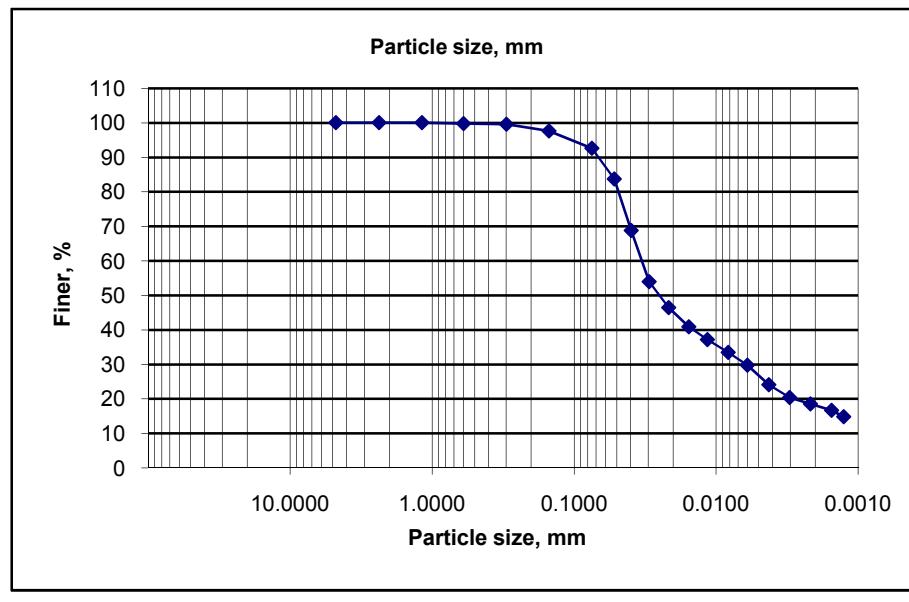
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GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Hydrometer Test

Bore hole no: BH-06 Depth:2.00m, Sample no:D-2 Sample description: Clay	Weight of sample: 50.00gm Specific gravity of soil, Gs=2.633 Hydrometer type: 152-H, ASTM	Reagent: Sodium Hexametaphosphate Amount: 4% in 125ml, Soaking over night Meniscus correction, C min : 1 Div
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Date	Time	Elapsed time t(min)	Room Temp. C	Hydrom et-er reading, Ro	Comp correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Valu of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
24/5/16	7:30	0.5	24.0	40	3.0	37.0	41	9.6	0.01238	0.0542	82	74
	7:31	1	24.0	30	3.0	27.0	31	11.2	0.01238	0.0414	62	56
	7:32	2	24.0	25	3.0	22.0	26	12.0	0.01238	0.0303	52	47
	7:34	4	24.0	18	3.0	15.0	19	13.2	0.01238	0.0225	38	35
	7:38	8	24.0	16	3.0	13.0	17	13.7	0.01238	0.0162	34	31
	7:45	15	24.0	15	3.0	12.0	16	13.7	0.01238	0.0118	32	29
	8:00	30	24.0	11	3.0	8.0	12	14.3	0.01238	0.0085	24	22
	8:30	60	24.0	10	3.0	7.0	11	14.5	0.01238	0.0061	22	20
	9:30	120	24.0	8	3.0	5.0	9	14.8	0.01238	0.0043	18	16
	11:30	240	24.0	7	3.0	4.0	8	15	0.01238	0.0031	16	15
25/5/16	3:30	480	24.0	6	3.0	3.0	7	15.2	0.01238	0.0022	14	13
	11:30	960	24.0	5.5	3.0	2.5	6.5	15.2	0.01238	0.0016	13	12
	7:30	1440	24.0	5	3.0	2.0	6	15.3	0.01238	0.0013	12	11



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.1	0.2	100
0.3	0.4	0.8	99
0.15	1.8	3.6	96
0.075	4.3	8.6	91

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	9
Silt	0.075-0.005	64
Clay	0.005-0.001	27
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.29
Cz	
Cu	

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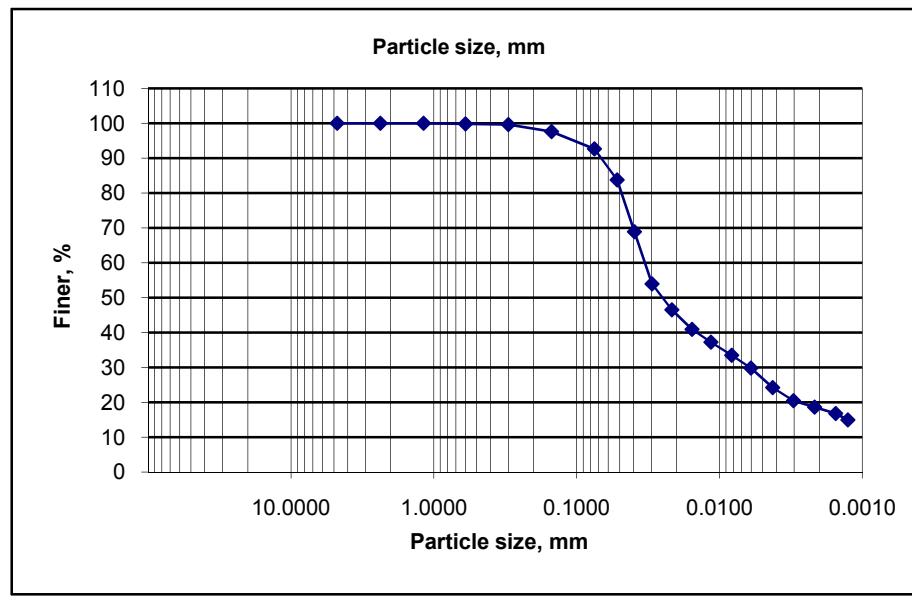
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GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Hydrometer Test

Bore hole no: BH-07 Depth:4.00m, Sample no:D-4 Sample description: Clay	Weight of sample: 50.00gm Specific gravity of soil, Gs=2.686 Hydrometer type: 152-H, ASTM	Reagent: Sodium Hexametaphosphate Amount: 4% in 125ml, Soaking over night Meniscus correction, C min : 1 Div
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Date	Time	Elapsed time t(min)	Room Temp. C	Hydrom et-er reading, Ro	Comp correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Valu of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
24/5/16	7:30	0.5	24.0	50	3.0	47.0	51	9.6	0.01218	0.0534	102	95
	7:31	1	24.0	45	3.0	42.0	46	11.2	0.01218	0.0408	92	85
	7:32	2	24.0	41	3.0	38.0	42	12.0	0.01218	0.0298	84	78
	7:34	4	24.0	37	3.0	34.0	38	13.2	0.01218	0.0221	76	71
	7:38	8	24.0	34	3.0	31.0	35	13.7	0.01218	0.0159	70	65
	7:45	15	24.0	32	3.0	29.0	33	13.7	0.01218	0.0116	66	61
	8:00	30	24.0	29	3.0	26.0	30	14.3	0.01218	0.0084	60	56
	8:30	60	24.0	25	3.0	22.0	26	14.5	0.01218	0.0060	52	48
	9:30	120	24.0	23	3.0	20.0	24	14.8	0.01218	0.0043	48	45
	11:30	240	24.0	20	3.0	17.0	21	15	0.01218	0.0030	42	39
25/5/16	3:30	480	24.0	17	3.0	14.0	18	15.2	0.01218	0.0022	36	33
	11:30	960	24.0	15	3.0	12.0	16	15.2	0.01218	0.0015	32	30
	7:30	1440	24.0	12	3.0	9.0	13	15.3	0.01218	0.0013	26	24



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.1	0.8	99
0.3	0.4	0.9	99
0.15	1.8	3.6	96
0.075	3.6	7.2	93

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	7
Silt	0.075-0.005	65
Clay	0.005-0.001	28
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.29
Cz	
Cu	

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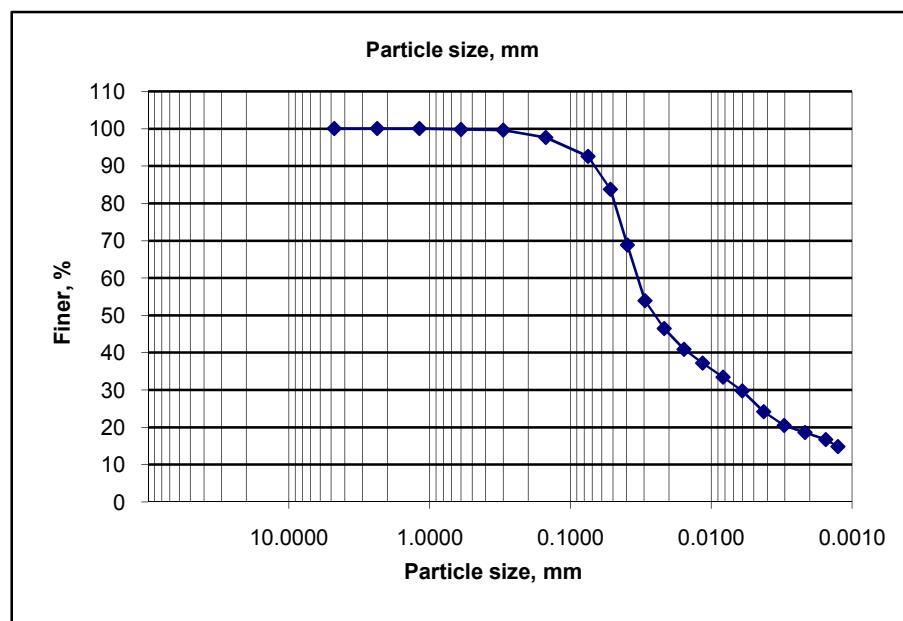
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GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Hydrometer Test

Bore hole no: BH-09 Depth:1.00m, Sample no:D-1 Sample description: Clay	Weight of sample: 50.00gm Specific gravity of soil, Gs=2.640 Hydrometer type: 152-H, ASTM	Reagent: Sodium Hexametaphosphate Amount: 4% in 125ml, Soaking over night Meniscus correction, C min : 1 Div
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Date	Time	Elapsed time t(min)	Room Temp. C	Hydrom et-er reading, Ro	Comp. correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Valu of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
24/5/16	7:30	0.5	24.0	42	3.0	39.0	43	9.2	0.01233	0.0529	86	71
	7:31	1	24.0	32	3.0	29.0	33	10.9	0.01233	0.0407	66	55
	7:32	2	24.0	28	3.0	25.0	29	11.5	0.01233	0.0296	58	48
	7:34	4	24.0	26	3.0	23.0	27	11.9	0.01233	0.0213	54	45
	7:38	8	24.0	24	3.0	21.0	25	12.2	0.01233	0.0152	50	42
	7:45	15	24.0	22	3.0	19.0	23	13.2	0.01233	0.0116	46	38
	8:00	30	24.0	20	3.0	17.0	21	12.9	0.01233	0.0081	42	35
	8:30	60	24.0	18	3.0	15.0	19	13.2	0.01233	0.0058	38	32
	9:30	120	24.0	16	3.0	13.0	17	13.5	0.01233	0.0041	34	28
	11:30	240	24.0	14	3.0	11.0	15	13.8	0.01233	0.0030	30	25
25/5/16	3:30	480	24.0	12	3.0	9.0	13	14.2	0.01233	0.0021	26	22
	11:30	960	24.0	11	3.0	8.0	12	14.3	0.01233	0.0015	24	20
	7:30	1440	24.0	10	3.0	7.0	11	14.5	0.01233	0.0012	22	18



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	2.5	0.8	99
0.3	2.7	0.9	99
0.15	4	8	92
0.075	8.4	16.8	83

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	17
Silt	0.075-0.005	56
Clay	0.005-0.001	27
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.29
Cz	
Cu	

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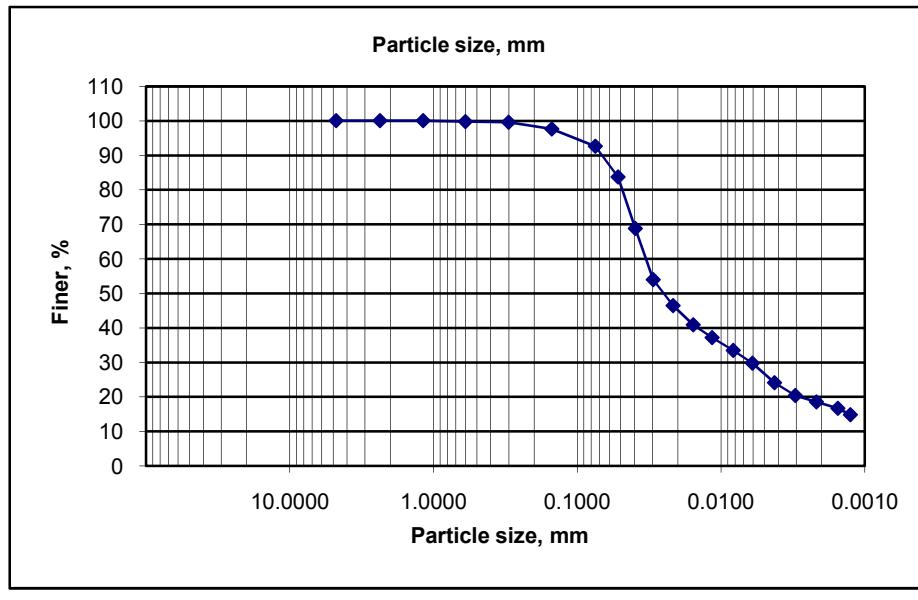
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GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Hydrometer Test

Bore hole no: BH-10 Depth:5.00m, Sample no:D-5 Sample description: Clay	Weight of sample: 50.00gm Specific gravity of soil, Gs=2.668 Hydrometer type: 152-H, ASTM	Reagent: Sodium Hexametaphosphate Amount: 4% in 125ml, Soaking over night Meniscus correction, C min : 1 Div
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Date	Time	Elapsed time t(min)	Room Temp. C	Hydrom et-er reading, Ro	Comp. correct ion	Comp. correcte d reading	Reading after meniscus correction	Effective depth, L (cm)	Valu of K table	Particle size (mm)	Percent finer	Adjustment % fines for total Specimen
24/5/16	7:30	0.5	24.0	31	3.0	28.0	32	11.1	0.01233	0.0581	64	61
	7:31	1	24.0	19	3.0	16.0	20	13	0.01233	0.0445	40	38
	7:32	2	24.0	15	3.0	12.0	16	13.7	0.01233	0.0323	32	31
	7:34	4	24.0	13	3.0	10.0	14	14	0.01233	0.0231	28	27
	7:38	8	24.0	11	3.0	8.0	12	14.3	0.01233	0.0165	24	23
	7:45	15	24.0	10	3.0	7.0	11	14.5	0.01233	0.0121	22	21
	8:00	30	24.0	9	3.0	6.0	10	14.7	0.01233	0.0086	20	19
	8:30	60	24.0	8	3.0	5.0	9	14.8	0.01233	0.0061	18	17
	9:30	120	24.0	6.5	3.0	3.5	7.5	15	0.01233	0.0044	15	14
	11:30	240	24.0	5.5	3.0	2.5	6.5	15.2	0.01233	0.0031	13	12
25/5/16	3:30	480	24.0	4.5	3.0	1.5	5.5	15.3	0.01233	0.0022	11	11
	11:30	960	24.0	4	3.0	1.0	5	15.5	0.01233	0.0016	10	10
	7:30	1440	24.0	3	3.0	0.0	4	15.6	0.01233	0.0013	8	8



Sieve (mm)	Cu.wt ret	% Cu. retd.	% Finer
0.6	0.2	0.8	99
0.3	0.3	0.9	99
0.15	0.4	0.8	99
0.075	2.2	4.4	96

Results:

Description	Size, mm	Percent
Sand	4.75-0.075	4
Silt	0.075-0.005	69
Clay	0.005-0.001	27
Colloids	< 0.001	0

Grain size parameters	
Silt factor, f	0.29
Cz	
Cu	

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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Specific Gravity Test

BH No	1	2	3	4	5	6
Depth in m	7.00	1.00	2.00	3.00	3.00	2.00
Pycnometer. no.	A	F	D	E	C	G
Observed temparature, Tx in oC	30	30	30	30	30	30
Weight of soil in oven dried, Ws gm	20.00	20.00	20.00	20.00	20.00	20.00
Weight of Pycnometer + water, W2 (at Tx) in gm	150.32	171.20	149.27	147.38	144.96	174.44
Wt. of Pycnometer + water + soil, W1 (at Tx) in gm	162.72	183.71	161.75	159.95	157.42	186.89
Specific Gravity, Gt (at Tx)= Ws/(Ws+W2)-W1	2.620	2.659	2.648	2.680	2.641	2.638
Density of water at Tx oC in gm/cc				0.9957		
Density of water at Tx 20 oC in gm/cc				0.9982		
Specific Gravity, G at Tx 20 oC in gm/cc	2.616	2.654	2.643	2.675	2.636	2.633

BH No	7	8	9	10		
Depth in m	4.00	5.00	1.00	5.00		
Pycnometer. no.	H	B	J	K		
Observed temparature, Tx in oC	30	30	30	30		
Weight of soil in oven dried, Ws gm	20.00	20.00	20.00	20.00		
Weight of Pycnometer + water, W2 (at Tx) in gm	175.91	149.25	173.89	173.71		
Wt. of Pycnometer + water + soil, W1 (at Tx) in gm	188.51	161.66	186.36	186.26		
Specific Gravity, Gt (at Tx)= Ws/(Ws+W2)-W1	2.691	2.624	2.645	2.673		
Density of water at Tx oC in gm/cc			0.9957			
Density of water at Tx 20 oC in gm/cc			0.9982			
Specific Gravity, G at Tx 20 oC in gm/cc	2.686	2.619	2.640	2.668		

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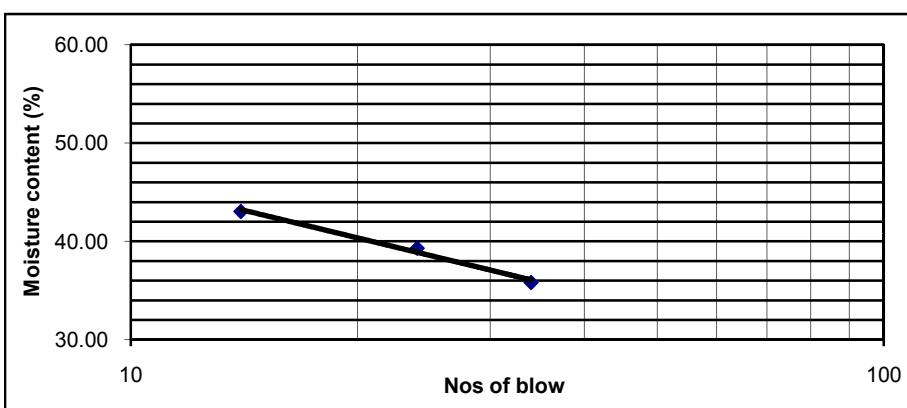
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Atterberg Limit Test

Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	146	127	133	89	83
Initial weight of sample+Can, gm	38.23	32.98	35.50	32.80	32.22
Final weight of samole + Can, gm	32.06	27.15	28.90	30.92	30.39
Weight of water, gm	6.17	5.83	6.60	1.88	1.83
Weight of can gm	14.83	12.32	13.57	20.99	20.77
Weight of Sample gm	17.23	14.83	15.33	9.93	9.62
% Moisture content	35.81	39.31	43.05	18.93	19.02
Nos of Blow	34	24	14	19	

B.H No.	2
Depth, m	2.00
Sample No.	D-2

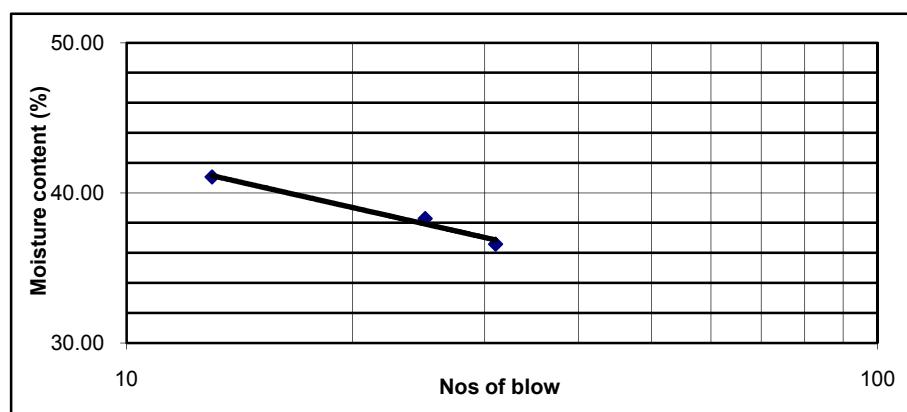
Results:	
LL, %	39
PL, %	19
PI, %	20



Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	139	151	141	95	99
Initial weight of sample+Can, gm	28.96	31.08	31.03	30.69	32.97
Final weight of samole + Can, gm	24.87	26.50	25.80	28.99	31.37
Weight of water, gm	4.09	4.58	5.23	1.70	1.60
Weight of can gm	13.69	14.54	13.06	20.08	22.88
Weight of Sample gm	11.18	11.96	12.74	8.91	8.49
% Moisture content	36.58	38.29	41.05	19.08	18.85
Nos of Blow	31	25	13	19	

B.H No.	3
Depth, m	1.00
Sample No.	D-1

Results:	
LL, %	38
PL, %	19
PI, %	19



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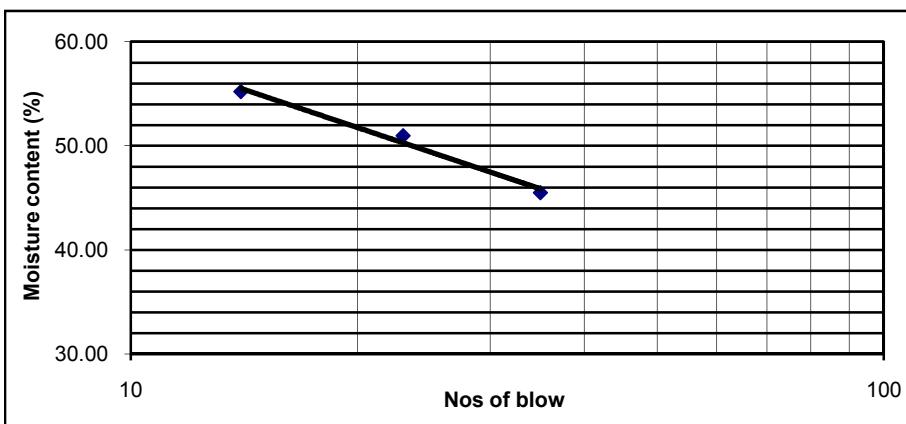
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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Atterberg Limit Test

Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	144	147	122	140	125
Initial weight of sample+Can, gm	31.59	35.49	40.59	32.72	30.88
Final weight of samole + Can, gm	26.12	28.25	30.52	29.73	28.14
Weight of water, gm	5.47	7.24	10.07	2.99	2.74
Weight of can gm	14.10	14.05	12.28	19.83	18.95
Weight of Sample gm	12.02	14.20	18.24	9.90	9.19
% Moisture content	45.51	50.99	55.21	30.20	29.82
Nos of Blow	35	23	14	30	

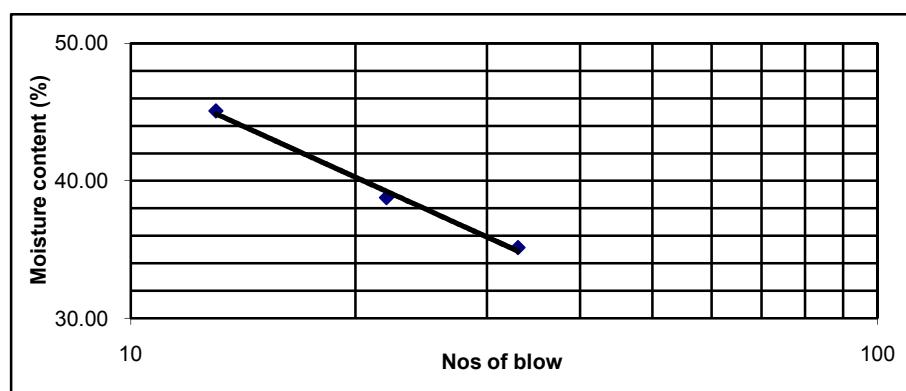
B.H No.	4
Depth, m	2.00
Sample No.	D-2



Results:	
LL, %	50
PL, %	30
PI, %	20

Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	133	127	146	83	89
Initial weight of sample+Can, gm	35.49	33.01	38.13	32.20	32.79
Final weight of samole + Can, gm	29.79	27.23	30.89	30.38	30.89
Weight of water, gm	5.70	5.78	7.24	1.82	1.90
Weight of can gm	13.57	12.32	14.83	20.77	20.99
Weight of Sample gm	16.22	14.91	16.06	9.61	9.90
% Moisture content	35.14	38.77	45.08	18.94	19.19
Nos of Blow	33	22	13	19	

B.H No.	5
Depth, m	2.00
Sample No.	D-2



Results:	
LL, %	38
PL, %	19
PI, %	19

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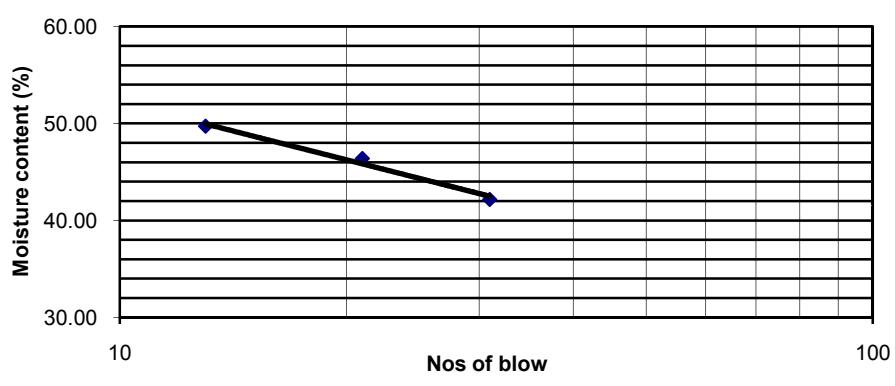
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Atterberg Limit Test

Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	128	124	119	98	96
Initial weight of sample+Can, gm	43.69	45.43	44.72	37.82	40.87
Final weight of samole + Can, gm	36.45	37.70	37.18	34.56	37.45
Weight of water, gm	7.24	7.73	7.54	3.26	3.42
Weight of can gm	19.28	21.04	22.01	21.77	23.77
Weight of Sample gm	17.17	16.66	15.17	12.79	13.68
% Moisture content	42.17	46.40	49.70	25.49	25.00
Nos of Blow	31	21	13	25	

B.H No.	6
Depth, m	1.00
Sample No.	D-1

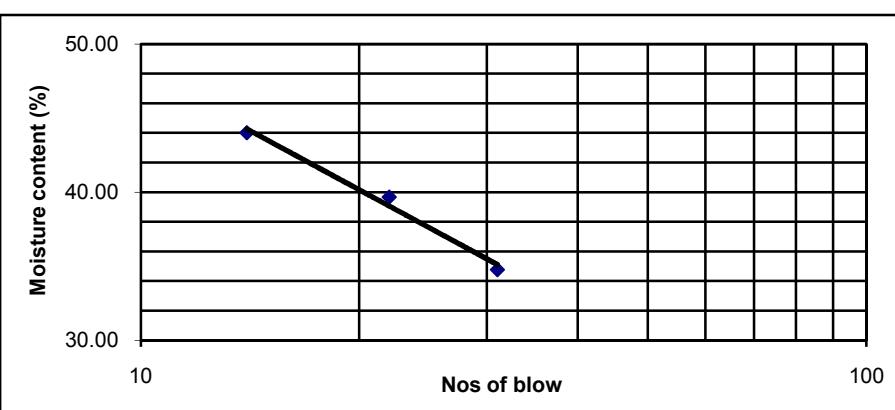
Results:	
LL, %	44
PL, %	25
PI, %	19



Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	139	151	141	95	99
Initial weight of sample+Can, gm	34.65	37.49	34.91	34.04	34.45
Final weight of samole + Can, gm	28.46	30.66	28.12	32.06	32.58
Weight of water, gm	6.19	6.83	6.79	1.98	1.87
Weight of can gm	10.66	13.44	12.69	21.93	23.03
Weight of Sample gm	17.80	17.22	15.43	10.13	9.55
% Moisture content	34.78	39.66	44.01	19.55	19.58
Nos of Blow	31	22	14	20	

B.H No.	7
Depth, m	1.00
Sample No.	D-1

Results:	
LL, %	38
PL, %	20
PI, %	18



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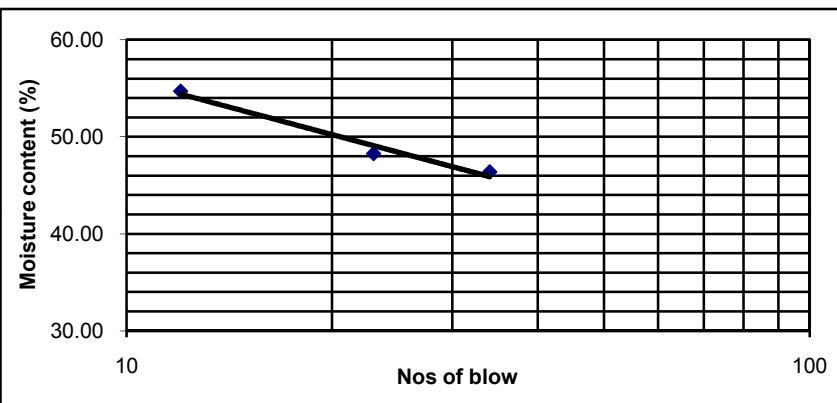
PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Atterberg Limit Test

Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	122	147	144	125	140
Initial weight of sample+Can, gm	41.63	35.48	31.55	30.85	32.75
Final weight of samole + Can, gm	32.33	28.60	25.38	28.41	30.08
Weight of water, gm	9.30	6.88	6.17	2.44	2.67
Weight of can gm	12.28	14.35	14.10	18.95	19.83
Weight of Sample gm	20.05	14.25	11.28	9.46	10.25
% Moisture content	46.38	48.28	54.70	25.79	26.05
Nos of Blow	34	23	12		26

B.H No.	9
Depth, m	2.00
Sample No.	D-2

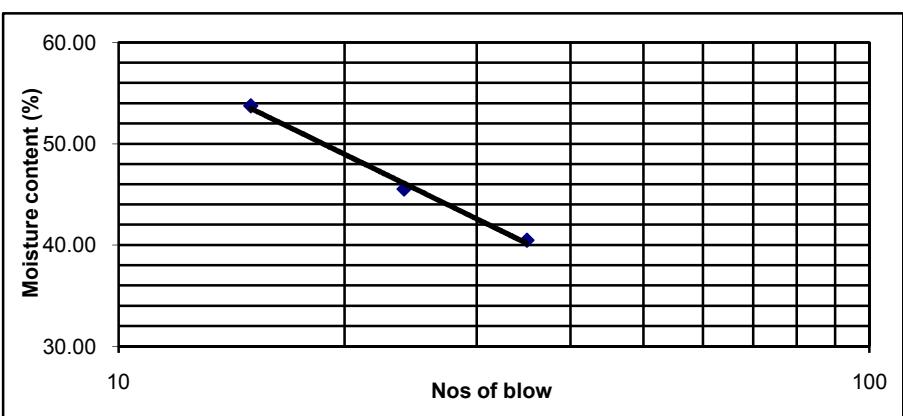
Results:	
LL, %	48
PL, %	26
PI, %	22



Name of test	LL	LL	LL	PL	PL
Trial no	1	2	3	1	2
Can #	126	130	136	138	228
Initial weight of sample+Can, gm	43.33	40.49	50.01	29.46	28.65
Final weight of samole + Can, gm	36.05	33.98	39.46	27.45	26.45
Weight of water, gm	7.28	6.51	10.55	2.01	2.20
Weight of can gm	18.06	19.68	19.83	19.23	17.70
Weight of Sample gm	17.99	14.30	19.63	8.22	8.75
% Moisture content	40.47	45.52	53.74	24.45	25.14
Nos of Blow	35	24	15		25

B.H No.	10
Depth, m	3.00
Sample No.	D-3

Results:	
LL, %	46
PL, %	25
PI, %	21



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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Natural Moisture Content & Density Test

Natural Moisture Content

BH No.	2	2
Depth in m	3.00	4.00
Can #	76	83
Initial weight of sample + Can gm	80.76	85.9
Final weight of samole + Can	70.21	74.03
Weight of water	10.55	11.85
Weight of can gm	20.32	20.77
Weight of Sample gm	49.89	53.26
Moisture content, %	21	22

Natural Moisture Content

BH No.	3	3
Depth in m	2.00	3.00
Can #	69	94
Initial weight of sample+Can gm	184.96	74.59
Final weight of samole + Can	158.16	65.07
Weight of water	26.80	9.52
Weight of can gm	30.61	22.89
Weight of Sample gm	127.55	42.18
Moisture content, %	21	23

Density (Unit Weight)

BH No.	2	2
Depth in m	3.00	4.00
Weight of the sample, gm	134.3	136.4
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	21.1	22.2
Wet density of the sample, gm/cc	1.90	1.86
Dry density of the sample, gm/cc	1.57	1.52
Dry density of the sample, Kg/cum	1570	1518
Dry density of the sample, KN/cum	15.39	14.88

Density (Unit Weight)

BH No.	3	3
Depth in m	2.00	3.00
Weight of the sample, gm	136.2	137.1
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	21.01	22.57
Wet density of the sample, gm/cc	1.93	1.87
Dry density of the sample, gm/cc	1.59	1.52
Dry density of the sample, Kg/cum	1594	1522
Dry density of the sample, KN/cum	15.62	14.91

Natural Moisture Content

BH No.	4	4
Depth in m	4.00	5.00
Can #	81	96
Initial weight of sample + Can gm	111.6	94.5
Final weight of samole + Can	97.6	83.2
Weight of water	13.9	11.3
Weight of can gm	20.9	23.8
Weight of Sample gm	76.7	59.4
Moisture content, %	18	19

Density (Unit Weight)

BH No.	4	4
Depth in m	4.00	5.00
Weight of the sample, gm	136.7	143.3
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	18.14	19.00
Wet density of the sample, gm/cc	1.94	1.95
Dry density of the sample, gm/cc	1.64	1.64
Dry density of the sample, Kg/cum	1639	1638
Dry density of the sample, KN/cum	16.06	16.05

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PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Natural Moisture Content & Density Test
Natural Moisture Content

BH No.	5	5
Depth in m	1.00	5.00
Can #	93	70
Initial weight of sample + Can gm	96.14	72.67
Final weight of samole + Can	82.39	63.23
Weight of water	13.75	9.44
Weight of can gm	21.68	24.79
Weight of Sample gm	60.71	38.44
Moisture content, %	23	25

Natural Moisture Content

BH No.	6	6
Depth in m	3.00	4.00
Can #	150	95
Initial weight of sample+Can gm	68.8	68.8
Final weight of samole + Can	61.2	61.8
Weight of water	7.6	7.0
Weight of can gm	21.1	21.9
Weight of Sample gm	40.1	39.9
Moisture content, %	19	18

Density (Unit Weight)

BH No.	5	5
Depth in m	1.00	5.00
Weight of the sample, gm	135.8	138.4
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	22.6	24.6
Wet density of the sample, gm/cc	1.92	1.88
Dry density of the sample, gm/cc	1.57	1.51
Dry density of the sample, Kg/cum	1568	1512
Dry density of the sample, KN/cum	15.37	14.81

Density (Unit Weight)

BH No.	6	6
Depth in m	3.00	4.00
Weight of the sample, gm	137.6	143.7
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	18.96	17.62
Wet density of the sample, gm/cc	1.95	1.95
Dry density of the sample, gm/cc	1.64	1.66
Dry density of the sample, Kg/cum	1638	1662
Dry density of the sample, KN/cum	16.06	16.29

Natural Moisture Content

BH No.	7	7
Depth in m	2.00	3.00
Can #	97	92
Initial weight of sample+Can gm	96.0	59.0
Final weight of samole + Can	86.3	53.4
Weight of water	9.6	5.7
Weight of can gm	26.9	20.1
Weight of Sample gm	59.5	33.3
Moisture content, %	16	17

Density (Unit Weight)

BH No.	7	7
Depth in m	2.00	3.00
Weight of the sample, gm	136.2	137.2
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	16.15	17.02
Wet density of the sample, gm/cc	1.93	1.87
Dry density of the sample, gm/cc	1.66	1.60
Dry density of the sample, Kg/cum	1661	1595
Dry density of the sample, KN/cum	16.28	15.63

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GEOTCHNICAL LABORATORY

PROJECT	CLIENT	LOCATION
Proposed BPC Motel	KPMG Advisory Services Ltd	BPC Motel Compound, Sylhet

Natural Moisture Content & Density Test

Natural Moisture Content

BH No.	9	9
Depth in m	3.00	4.00
Can #	91	99
Initial weight of sample + Can gm	77.86	68.95
Final weight of samole + Can	67.15	60.60
Weight of water	10.71	8.35
Weight of can gm	22.74	23.04
Weight of Sample gm	44.41	37.56
Moisture content, %	24	22

Natural Moisture Content

BH No.	10	10
Depth in m	1.00	2.00
Can #	71	89
Initial weight of sample+Can gm	86.92	60.72
Final weight of samole + Can	75.31	53.26
Weight of water	11.61	7.46
Weight of can gm	23.61	20.99
Weight of Sample gm	51.70	32.27
Moisture content, %	22	23

Density (Unit Weight)

BH No.	9	9
Depth in m	3.00	4.00
Weight of the sample, gm	137.2	142.1
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	24.1	22.2
Wet density of the sample, gm/cc	1.94	1.93
Dry density of the sample, gm/cc	1.57	1.58
Dry density of the sample, Kg/cum	1566	1582
Dry density of the sample, KN/cum	15.34	15.50

Density (Unit Weight)

BH No.	10	10
Depth in m	1.00	2.00
Weight of the sample, gm	136.7	142.7
Diameter of the sample, cm	3.556	3.625
Area of the sample, cm ²	9.926	10.315
Height of the sample, cm	7.112	7.126
Volume of the sample, cm ³	70.60	73.51
Moisture content, %	22.46	23.12
Wet density of the sample, gm/cc	1.94	1.94
Dry density of the sample, gm/cc	1.58	1.58
Dry density of the sample, Kg/cum	1581	1577
Dry density of the sample, KN/cum	15.50	15.45

Summary of Laboratory Test Results

Sl #	Name of Test	BH #	Depth in m	Results obtained	Remarks
1.a	Grain Size Analysis test	1	1.00	FM=0.72, Silt & clay= 17%	
1.b	do	1	2.00	FM=0.64, Silt & clay= 12%	
1.c	do	1	10.00	FM=0.72, Silt & clay=9%	
1.d	do	8	2.00	FM=0.48, Silt & clay= 13%	
1.e	do	8	3.00	FM=0.74, Silt & clay= 9%	
1.f	do	8	6.00	FM=0.69, Silt & clay= 23%	
1.g	do	8	7.00	FM=0.81, Silt & clay= 11%	
1.h	do	10	7.00	FM=0.48, Silt & clay= 20%	
1.i	do	10	8.00	FM=0.40, Silt & clay= 23%	
2.a	Direct Shear test	1	1.00	Shearing angle= 28.0°, Cohesion= 0 KPa	
2.b	do	1	2.00	Shearing angle= 29.7°, Cohesion= 0 KPa	
2.c	do	1	3.00	Shearing angle =26.6°, Cohesion= 0 KPa	
2.d	do	8	1.00	Shearing angle =33.7°, Cohesion= 0 KPa	
2.e	do	8	2.00	Shearing angle =35.2°, Cohesion= 0 KPa	
2.f	do	8	3.00	Shearing angle =36.0°, Cohesion= 0 KPa	
3.a	Hydrometer test (Combined)	1	7.00	Sand=45%, Silt=47% & Clay=8%	
3.b	do	2	1.00	Sand=33%, Silt=49% & clay=18%	
3.c	do	3	2.00	Sand=44%, Silt=45% & clay=11%	
3.d	do	4	3.00	Sand=28%, Silt=54% & Clay=18%	
3.e	do	5	3.00	Sand=7%, Silt=67% & Clay=26%	
3.f	do	6	2.00	Sand=9%, Silt=64% & clay=27%	
3.g	do	7	4.00	Sand=7%, Silt=65% & clay=28%	
3.h	do	9	1.00	Sand=17%, Silt=56% & Clay=27%	
3.i	do	10	5.00	Sand=4%, Silt=69% & Clay=27%	
4.a	Specific Gravity test	1	7.00	2.616	
4.b	do	2	1.00	2.654	
4.c	do	3	2.00	2.643	
4.d	do	4	3.00	2.675	
4.e	do	5	3.00	2.636	
4.f	do	6	2.00	2.633	
4.g	do	7	4.00	2.686	
4.h	do	8	5.00	2.619	
4.i	do	9	1.00	2.640	
5.j	do	10	5.00	2.668	

Sl #	Name of Test	BH #	Depth in m	Results obtained	Remarks
5.a	Unconfined comp. test	2	1.50-1.95	$c_u = 75.80 \text{ Kpa}$, strain=13%	
5.b	do	3	1.50-1.95	$c_u = 36.80 \text{ Kpa}$, strain=9%	
5.c	do	4	1.50-1.95	$c_u = 814.45 \text{ Kpa}$, strain=14%	
5.d	do	5	2.50-2.95	$c_u = 61.25 \text{ Kpa}$, strain=11%	
5.e	do	6	2.50-2.95	$c_u = 51.40 \text{ Kpa}$, strain=11%	
5.f	do	7	2.50-1.95	$c_u = 79.80 \text{ Kpa}$, strain=13%	
5.g	do	9	1.50-1.95	$c_u = 72.35 \text{ Kpa}$, strain=12%	
5.h	do	10	2.50-2.95	$c_u = 70.05 \text{ Kpa}$, strain=12%	
6.a	Atterberg Limit test	2	2.00	$L_L = 39\%$, $P_L = 19\%$ & $P_I = 20\%$	
6.b	do	3	1.00	$L_L = 38\%$, $P_L = 19\%$ & $P_I = 19\%$	
6.c	do	4	2.00	$L_L = 50\%$, $P_L = 30\%$ & $P_I = 20\%$	
6.d	do	5	2.00	$L_L = 38\%$, $P_L = 19\%$ & $P_I = 19\%$	
6.e	do	6	1.00	$L_L = 44\%$, $P_L = 25\%$ & $P_I = 19\%$	
6.f	do	7	1.00	$L_L = 38\%$, $P_L = 20\%$ & $P_I = 18\%$	
6.g	do	9	2.00	$L_L = 48\%$, $P_L = 26\%$ & $P_I = 22\%$	
6.h	do	10	3.00	$L_L = 46\%$, $P_L = 25\%$ & $P_I = 21\%$	
7.a	Natural Moisture Content test	2	2.00	21%	
7.b	do	2	3.00	22%	
7.c	do	3	2.00	21%	
7.d	do	3	3.00	23%	
7.e	do	4	4.00	18%	
7.f	do	4	5.00	19%	
7.g	do	5	1.00	23%	
7.h	do	5	5.00	25%	
7.i	do	6	3.00	19%	
7.j	do	6	4.00	18%	
7.k	do	7	2.00	16%	
7.l	do	7	3.00	17%	
7.m	do	9	3.00	24%	
7.n	do	9	4.00	22%	
7.o	do	10	1.00	22%	
7.p	do	10	2.00	23%	

Sl #	Name of Test	BH #	Depth in m	Results obtained	Remarks
8.a	Dry Density test	2	2.00	15.39KN/m ³	
8.b	do	2	3.00	14.85KN/m ³	
8.c	do	3	2.00	15.62KN/m ³	
8.d	do	3	3.00	14.91KN/m ³	
8.e	do	4	4.00	16.06KN/m ³	
8.f	do	4	5.00	16.05KN/m ³	
8.g	do	5	1.00	15.37KN/m ³	
8.h	do	5	5.00	14.81KN/m ³	
8.i	do	6	3.00	16.06KN/m ³	
8.j	do	6	4.00	16.29KN/m ³	
8.k	do	7	2.00	16.28KN/m ³	
8.l	do	7	3.00	15.63KN/m ³	
8.m	do	9	3.00	15.34KN/m ³	
8.n	do	9	4.00	15.50KN/m ³	
8.o	do	10	1.00	15.50KN/m ³	
8.p	do	10	2.00	15.45KN/m ³	

Annexure – 14

INITIAL ENVIRONMENT EXAMINATION REPORT

Initial Environment Examination

**For International Standard
Tourism Complex in Sylhet**

November 2016

List of Abbreviations

BAPA	Bangladesh Paribesh Andolon
BELA	Bangladesh Environmental Lawyers' Association
BNBC	Bangladesh National Building Code
BPC	Bangladesh Parjatan Corporation
BRTA	Bangladesh Road Transport Authority
BWDB	Bangladesh Water Development Board
CBO	Community Based Organization
CCEA	Cabinet Committee for Economic Affairs
DOE	Department of Environment
DSC	Design and Supervision Consultant
ECA	Environment Conservation Act, 1995
ECC	Environmental Clearance Certificate
ECR	Environmental Conservation Rules, 1997
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ES	Environment Specialist
FGD	Focused Group Discussion
IEC	Important Environmental Component
IEE	Initial Environmental Examination
IP	Indigenous People
MoCAT	Ministry of Civil Aviation and Tourism
NGO	Non-Government Organization
PDB	Power Development Board
PIU	Project Implementation Unit
PPP	Public-Private Partnership
RAJUK	Rajdhani Unnayan Kartripakkha
REB	Rural Electrification Board
SCC	Sylhet City Corporation
SDA	Sylhet Development Authority
ToR	Terms of Reference
WASA	Water and Sewerage Authority

Weights and Measures

ha	hectare
km	kilometre
m	Meter
mm	millimetre
km/h	kilometre per hour

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Introduction

1.1 Background of the Project

Bangladesh Parjatan Corporation (BPC) is an autonomous body under Ministry of Civil Aviation and Tourism (MoCAT) with the role to promote tourism sector in the country. BPC is also mandated to provide quality accommodation services as part of promoting tourism sector in the respective area.

As part of its mandate for promoting tourism in the country, BPC manages hospitality and commercial facilities at different tourism nodes in Bangladesh. BPC manages 15 hotels and motels with close to 500 keys at main tourist spots of the country including Sylhet, Cox's Bazar, Teknaf, Rangamati, Chittagong, etc.

Located in the picturesque Surma valley, covered with scenic Tea Gardens, lush green tropical forests and crisscrossed by numerous rivers, hill destination in Sylhet is special tourist attraction in Bangladesh. Laid between towering hills, the Khasia and Jainta to the north and the Tripura hills to the south, Sylhet breaks the monotony of the flat Gangetic plains and often termed as the Queen of hills. While terraced tea gardens, rolling landscapes, exotic flora and fauna sets the breath-taking scenery, thick tropical rain forest adds just the perfect backdrop to the Sylhet landscape. Besides, a large number of rivers, natural lakes and water bodies provide a sanctuary to millions of migratory birds.

BPC operates a 50-bed motel at Sylhet which is currently planning to re-develop into an international standard tourism complex on PPP basis. The developer will be responsible for the development of the complex at existing motel compound and operate and maintain the complex during the contract tenure in order to support Government's policy of promoting and enhancing tourism facilities in Bangladesh.

The proposed Project has been provided in-principle approval by the Cabinet Committee for Economic Affairs (CCEA) on 22 August 2015. BPC has requested support from the PPP Authority for project development and transaction advisory services for the Project.

1.2 Purpose of the Study

DOE, the Environmental authority of Bangladesh has a controlling mechanism over the development activities by the legislation of ECA'95 and ECR'97. This legislation mentions that environmental clearance from Department of Environment Bangladesh is mandatory for any kind of development activities. It also categorizes development activities into 4 different categories such as (i) Green (ii), Orange A, (iii) Orange B and (iv) Red, depending on the anticipated potential negative impacts from the project. According to ECR'97, it explicitly indicates that the proposed project is under **Orange B Category** and has some potential for minor adverse environmental impacts on wetlands, fisheries, ecology, biodiversity, etc. These impacts are site specific and mostly reversible with mitigation measures. However, depending on the extent of impact, the Project requires an Initial Environmental Examination (IEE). This assessment will identify the potential environmental impacts due to implementation of the project and will suggest appropriate mitigation measures relating to the location, design, construction and operation of all physical works proposed under this project. IEE report will clarify the situation of the project to the Department of Environment and fulfill the requirements for obtaining Location Clearance Certificate (LCC) and an Environmental Clearance Certificate (ECC) from DOE. IEE will also determine whether a detailed EIA will be required or not.

This Initial Environmental Examination (IEE) has been undertaken to (i) assess the extent and magnitude of impacts that the proposed Project for 'Establishment of International Standard Tourism Complex at Existing Motel Compound at Sylhet' have on the overall environment within and around the Project site; (ii) propose mitigation measures in respect of adverse impacts, enhancement of beneficial impacts; and (iii) formulate an Environment Management Plan (EMP).

1.3 Extent of IEE Study

Bangladeshi law requires that the environmental impacts of development projects are identified and assessed as part of the planning and design process, and that action is taken to reduce those impacts to acceptable levels. This is done through the environmental assessment process, which has become an integral part of project development and implementation worldwide.

The National Laws of Bangladesh classifies the project depending on the significance of its Environmental impacts, which are related to the type and location of the project, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures.

1.4 Methodology and approach of IEE Study

The project is under Orange B Category and IEE has to be conducted to fulfil the requirements of the Department of Environment. The following steps were followed for conducting IEE study:

- Review and analysis of the existing environment related rules and policies like, Environmental Conservation Act 1995, Environment Conservation Rules 1997, Wetland Policy 1998, Bangladesh National Building Code 2006, Bangladesh Natural Water Body Protection Act 2000, etc.
- Identification of environmental compliances requirement for the project
- Coordination with Government Agencies (SDA, BWDB, BRTA,WASA,DOE) and other NGOs (BELA, BAPA) for their concern about the project
- Review and analysis of environmental plans and programs of the Government, NGOs, Donors and other agencies around the project site
- Assessing available secondary data of relevant agencies (IEE/EIA reports, contract agreements, and minutes of inter-ministerial meeting of RAJUK, BRTA, and BWDB).
- Conduct of field visit and identification of important Environmental Components (IECs) for the project with respect to spatial and temporal boundary and analysis of impacts.
- Conduct of public consultation meetings with different groups and making a record of their concerns for the IEE reports.
- Conduct of Focus Group Discussions (FGDs) through structured and semi structured questionnaires and documenting their valuable suggestions.
- Undertaken photographs of the proposed site and surrounding areas for baseline description.
- Review 30 years of meteorological data and included climatic situation in graphical view in IEE report.
- Anticipate environmental impacts by the project reflecting location, design, construction and operation.

1.5 Environmental Compliance Requirements of Bangladesh

Environmental Assessment, Protection, and Pollution Control: The main provisions for environmental protection and pollution control in Bangladesh are contained in the Environmental Conservation Act of 1995 (ECA 1995) and the Environmental Conservation Rules of 1997 (ECR 1997). These legislations also provide the principal mechanism for assessing and mitigating the environmental impacts of projects, both existing and proposed. Projects are classified as green, orange or red depending on their location and environmental impacts and accordingly High-rise Building has fallen under Orange-B Category (Ref. Orange-B Category #8 hotels, Multistoried commercial and apartment buildings).

Bangladesh Environmental Conservation (Amendment) Act 2010 contains as follows: Amendment of Clause 6 of Rule 1 of ECA 1995 – the following clauses 6B, 6C, 6D and 6E will be added after 6A. 6B – Restrictions on cutting hills – cutting and/ or razing of hills and *Tila* (elevated land areas) owned or occupied by the Government, semi-government or autonomous body, or under private ownership will

not be allowed by any person or organization. But it may be allowed only in case of unavoidable national interest after obtaining clearance from DOE.

The ministry has given final approval for the rules for conservation of trees - 2011 but it has not been passed in the parliament. So cutting of trees beside the roads and highways as well in other open places continues without any serious obstruction from the authority. In general, there is consensus among conscientious people that trees should not be cut and if any tree is cut, it should be compensated by planting trees in nearby areas and the number of trees newly planted should be at least double the number of trees cut. Of course, permission of forest department is needed for cutting trees in reserved forests.

Rule 7 states that the proponent of such projects must obtain a Location Clearance Certificate and an Environmental Clearance Certificate (ECC) from the Department of Environment (DOE). For Orange-B category projects this requires submission to the relevant DOE Divisional Officer of the following:

- Completed application for Environmental Clearance Certificate, and the appropriate fees, shown in Schedule 13 of the Rules
- Report on the feasibility of the project
- Report on the IEE for the project, and its Process Flow Diagram, Layout Plan
- Report on the Environmental Management Plan
- No objection certificate from the local authority
- Emergency plan relating to adverse environmental impact and plan for mitigation of the effect of pollution; and
- Outline of the relocation and rehabilitation plan (where applicable).

1.6 Other Policies, Plans and Strategies

In addition to ECA and ECR, there are a number of other policies, plans and strategies, which are applicable to the Project. The National Building Code 2006 and National Labour Act 2006 have defined certain measures to ensure proper safety and work environment as well as the compensation measures to the labourers. By national law, in order to be compensated, Contractors must follow these safety provisions and compensation arrangements. The implementing agency must ensure that the appropriate occupational health and safety provisions have been included in the bidding documents and are being implemented by Contractor. As per the Safe Drinking Water Supply and Sanitation Policy 1998, provision for arsenic free drinking water and adequate sanitation will have to be ensured for the site workers. The water quality needs to be monitored to ensure that the supplied water is safe for drinking.

The summary of environmental regulations and mandatory requirements for the proposed project is shown in **Table 1**.

Table 1: Summary of Environmental Regulations and Mandatory Requirements

Acts/ Guidelines	Purpose	Applicability to the Project
Environmental Conservation Act, 1995 and Environmental Conservation Rules, 1997	<ul style="list-style-type: none"> - Main provisions for environmental protection and pollution control in Bangladesh - Provides the principal mechanism for assessing and mitigating the environmental impacts of projects, both existing and proposed - Projects are classified as green, orange or red depending on their location and environmental impacts 	<ul style="list-style-type: none"> "Orange B Category" as per Rule 7(2)(C) in Schedule 1 of ECR 1997 [item no 08: Hotel, multi-storied commercial and apartment building] -According to the Rule 7(C) of ECR 1997, this type of project requires an IEE and to determine whether a detailed EIA may be required or not. - Rule 7 states a Location Clearance Certificate and an Environmental Clearance Certificate (ECC) must be obtained from the Department of Environment (DOE).
Wetland Policy, 1988	<p>The Policy is relevant to the Project because it seeks to:</p> <ul style="list-style-type: none"> -Conserve wetlands to sustain their ecological and socio-economic functions and further sustainable development. -Establish key principles for wetland sustainability and unsustainable practices - Maintain existing levels of biodiversity -Maintain wetland functions and values and - Actively promote integration of wetland functions in resources management and economic development, decision taking. 	<p>According to the policy, Legal steps need to conserve the remaining wetland to sustain the ecological function.</p>
The Protection and Conservation of Fish Rules, 1985	<p>The Protection and Conservation of Fish Rules 1985 are a set of rules in line with the overall objectives of the East-Bengal Protection and Fish Conservation Act. The Rules require that "no person shall destroy or make any attempt to destroy any fish by explosives, gun, bow and arrow in inland waters or within coastal waters". Further, the Rules states "...no person shall destroy or make any attempt to destroy any fish by poisoning of water or the depletion of fisheries by pollution, by trade effluents or otherwise in inland waters".</p> <p>The Project will comply with these rules by enacting appropriate mitigation measures to reduce the potential for pollution of waterways,</p>	<p>No wastewater will be allowed to discharge into the nearby water sources.</p>

Acts/ Guidelines	Purpose	Applicability to the Project
Housing Policy, 1999	<p>depletion of fisheries or disturbance of fish populations within the Project area.</p> <p>Section 4.7; Initiate planning to produce more forest products used to build infrastructures and attention be given to Environmental Management</p> <p>Section 4.9; While implementing any new housing project, need to consider the local building modes, upholding and conservation of the cultural heritage.</p>	Buffer zones of greenery need to be established in the housing area/ any other buildings constructed.

1.7 Scope of the Study

This is the IEE for the Establishment of International Standard Tourism Complex at Existing Motel Compound at Sylhet. It discusses the environmental impacts and mitigation measures relating to the location, design, construction and operation of all physical works proposed under this Project. This IEE report will clarify the situation to the Department of Environment and fulfil the requirement for obtaining Location Clearance Certificate and an Environmental Clearance Certificate (ECC) from DOE. This report will identify the potential environmental impacts due to implementation of the Project and will suggest appropriate mitigation measures.

2 Description of the Project

2.1 Type, Category and Need

This is a Project in the field of development of tourism, and as explained above it has been classified as Category Orange-B because it is not expected to have major negative environmental impacts. Under DOE procedures such developments require an IEE to identify and mitigate the impacts, and to determine whether further study or a more detailed EIA may be required.

Improvement in tourism facilities in the existing motel is necessary because:

- The existing structure/ system is not adequate to meet the present and future demand, and
- There is great potential of development of tourism in the surrounding area.

Bangladesh Parjatan Corporation will implement this project as a model by adopting the PPP route, which may in future be replicated in other tourists' attraction spots elsewhere in Bangladesh.

2.2 Location, Size and Implementation Schedule

The BPC Motel Complex is located in the Sylhet Sadar Upazila of Sylhet district of Sylhet Division at an altitude of 45.78 meters above MSL. The coordinates of the complex are 24.949868°E, 91.870793°N. The Complex is situated northeast to the city of Sylhet near the lower reaches of the Surma Valley ridge. It is situated on top of a hillock and provides a panoramic view of the Malinicherra Tea estate (oldest in Bangladesh, established in 1854) in the south, Khadimnagar National Park in the east, the Surma valley rivulets in the west and the Sylhet international airport in the north. The Cadet College and the Ahmed housing area are situated to the south and north of the site respectively. Situated in one of the most picturesque locations in Sylhet, the site is one of the most popular natural recreational getaways for the natives.

The site is accessible from Sylhet city by the Airport Road originating from the junction of Amberkhana Point (old city centre of Sylhet) with an approximate driving distance of 6 Km and can be reached in around 15 minutes. The motel complex can also be accessed by the Airport Bypass Road. The Chowkidekhi Town Bus Terminal and Station, is also located nearby, about 4 Km south on the Airport road. The nearest airport is the Osmania (Sylhet) International Airport, situated 2 Km to the north and the nearest railway station is the Sylhet Railway Station, at a distance of 9 Km towards south. The last mile connectivity to the site is through a dedicated cement concrete access road of approximately 400 Meters from the Airport road junction.

The nearest local towns accessible from the site by road are: Horipur, Companiganj, Jaintapur, Jaflong, Chhatak, Golapganj, Sunamganj, Maulvibazar, Sreemangal, Hobiganj and Shaistaganj. The major cities of Bangladesh accessible by road from the site are: Dhaka, Chittagong, Khulna, Rajshahi and Comilla. The international border towns accessible by road from the site are: - Karimganj (Assam, India), Dawki (Meghalaya, India) and Latiapur (Tripura, India).

The total site area under BPC's ownership is about 41.54 acres out of which 13.00 acres has been leased to a private operator for an Amusement Park for children; 0.95 Acres is leased for a Bar and the land earmarked for development under BPC Motel Complex is around 27.59 acres. The site for the proposed project is partly fenced by barbed wire, partly by a masonry wall and a considerable section is presently unfenced.

The site can be accessed from three different entry points. The primary entry point is a cement concrete paved vehicular access road (150 meters long and 3.5 meters wide), which runs from the junction with the Airport road to the northwest corner of the site. The second entry point is a part bitumen paved and part kutcha vehicular access road (with an average width of 2.5 meters) which runs

from the boundary gate of the Cadet College campus at the southeast corner of the site to junction of the airport bypass road on the northeast corner of the site. The third entry point is another part block paved and part kutcha pedestrian access from the Children Amusement Park. The main building inside the existing complex can be accessed by the vehicular road till the porch area.

The complex has a plain area only at the top of the plateau table. The rest of the site has steep slopes to its south and north; and has a gentle slope in the east and west. The site has dense pine plantations on the western gradual slopes, tea plantation and natural undergrowth to its northeast slopes, and dense rainforest vegetation to its east. Being placed on a ridge running from east to west, most of the slopes of the site are either south or north facing, receiving maximum sunlight during both summer and winter seasons. The soil crust is clayey in nature with a sub grade of boulders (metamorphic rocks) and most of its slopes are naturally stabilized except a few places in the east where erosion during heavy rains is a common phenomenon due to sparse vegetation. A khal is located on the south-western boundary edge of the site. The Cadet College Area lies upstream to the khal.

The Motel Complex is under the jurisdiction of the Sylhet City Corporation and is regulated by the Bangladesh National Building Code and Bangladesh Pourashava Act, 2009. The area is not notified under any special area/zone or agro ecological zone and does not come under the purview of civil aviation laws of the country (except the height restrictions on buildings) since it is located away from the flight path of the Sylhet International Airport. The designated land use category for the site is for Tourism purposes. Activity wise, the site area of 41.54 Acres, is divided into five areas: bar area, services area, main motel complex area, eco-park area, and natural areas left unused.

The existing motel complex was under Pakistan's Defence Establishment till 1971, probably being used for residential purposes. Following multiple renovations from 1984 till 1994, the complex had been made operational for tourism purposes. At the main entrance of the site, a two storied bar (leased out) with stilted covered parking has been recently constructed. The area also has temporary built structures like staff quarters, water pumping station, etc. The main complex at the hill top is a double storied building which is divided into two parts: the accommodation part (houses 25 motel rooms with 50 bed capacity, reception area, administrative offices, storage, covered conference area with a maximum guest holding capacity of 60 people, prayer area and other service areas) and the other part (houses the kitchen, restaurant with a capacity of 60 people and auxiliary services area).

To the east of the motel building is the eco-park which can be accessed by day visitors and also by hotel guests. The entrance to the eco-park is through the forecourt of the motel which is partly bitumen paved and partly flat brick soling paved and is also sometimes used for open air functions/events/film shootings, having a guest holding capacity of 200 people. The eco-park entrance has a small ticketing facility and a temporary ice-cream parlour kiosk operated by BPC. The park is strictly a pedestrian zone with a block paved (composite with brick and concrete paving) trail path of approximately 120 meters long and the rest has unpaved dirt trails. Near the entrance of the eco-park is a small children play area with a covered toilet facility for the day visitors and an open view deck. The park also boasts of two covered observation weather shelters for viewing and appreciating the natural surroundings. There are some unfinished built structures in the eco-park, built for the proposed ropeway piers, one of which is currently being used as a solid waste dumping area.

To the extreme north of the motel building lies a brick paved courtyard with a generator room, three mobile towers with their maintenance shops and a small abandoned toilet.

Preliminary design of Sylhet BPC Motel has begun in the middle of 2016 and will be completed by the middle of the year 2017. As this Project will be implemented on the basis of PPP model, the detailed design will be furnished by the PPP organization, and the IEE/ EMP will be updated at the time of detailed design and will be revised by the Design and Supervision Consultants (DSC) team. Construction of the civil works and procurement of equipment would take around 24to 36 months. So the operation of the BPC Motel Complex should therefore begin in late 2019 or early 2020.

2.3 Description of the Project

a. Planning Principles

- The broad planning principles adopted for this proposed project are as follows:
- Minimal built interventions in eco-sensitive areas;
- Preferring pedestrian environment with minimum vehicular movement in core functional areas;
- Smart planning and placement of infrastructure that minimizes conflicts/ overlaps between users but is accessed universally;
- Planning hierachal movements segregating core activities from service activities;
- Planning approaches that promote conservation and adaptive use of natural resources;
- Perspective planning that is coherent to the future needs and is sustainable;
- Low key sensitized development that is vernacular to its context;
- Compact spatial development that optimizes the use of land resources;
- Low impact development approaches for minimum impacts on environment, social and cultural fabric;
- Minimal carbon footprint by promoting the use of eco-friendly building material, green technology, clean energy and efficient/smart interfaces during construction and operation of the facility;
- Passive green planning approaches for open – built juxtaposition;
- 3R (reduce, reuse and recycle) planning principles for end-products generated by the project;
- Access to and use of non-conventional renewable energy resources;
- Self-sustainable and low maintenance facilities;
- Planning sensitive to social, community and cultural needs;
- Barrier free environment for physically challenged;
- Value for money experience in product mix;
- Disaster resilient facilities that can withhold moderate natural disasters and has planning preparedness;
- Optimally planning and mitigating for pollution potential activities, facilities and amenities.

b. Concept Plan

The main features of the concept plan as illustrated in the concept plan drawing are as follows:

- Consolidation of the property boundary by excluding 0.95 acres leased for operating Bar and 0.96 acres for providing right of way to the existing road from gate of Sylhet Cadet College Shahid Minar to the edge of the existing amusement park, concluding which effectively 26.62 acres is earmarked for concession;
- Construction/reconstruction of boundary wall in masonry/chain-link fencing all around the concession boundary including construction/reconstruction/relocation of 3 gates (main gate adjacent to BPC bar, secondary gate at Shahid Minar entrance and gate to amusement park);
- Upgradation/Reconstruction in cement concrete rigid pavement of the existing approach road of 3.5 Mts average formation width to 4.5 Mts including geometrical & super elevation improvement, necessary breast and retaining wall construction, reconstruction of side drains and culverts, provision of road appurtenances, etc.;
- Demolition and dismantling all built structures within the concession boundary and making the site good for construction;
- Construction of branch roads in rigid pavement for proposed banquet facility (formation width 3.5 Mts), proposed services block (formation width 3.00 Mts) and upgradation of the existing kutcha road to the residential area to a rigid pavement (formation width 3.15 Mts) including construction and provision of all necessary retaining sections, side drains, culverts, road appurtenances, etc. as indicated in the drawing;

- Provision of guard and security room at the main entrance gate;
- Provision for a compacted gravel fill parking for at least 30 cars and 5 battery operated vehicles/carts;
- Provision of water pumping and electric substation including laying of necessary burial networks, construction of sub-grade storage tanks and maintenance yard;
- Provision of a sport and recreation complex comprising of outdoor hard-court sport and indoor sport/games including all necessary equipment, strategically located for easy access to day visitors and overnight guests;
- Provision of covered banquet and ceremonial facility for minimum 120 person capacity and an open to air banquet lawn for minimum 200 person capacity accessible to local population as well as overnight guest;
- Provision of convention facility including conference halls, training rooms, board rooms, buffet lobbies, auditorium and all necessary auxiliary services for minimum aggregated capacity of 400 person accessible to both local population and overnight guests;
- Provision of compacted gravel fill convention parking for at least 10 cars;
- Provision of a maximum three storeyed building block housing 68 guest rooms, food and beverage facilities with minimum aggregated seating capacity of 335 persons, reception, administration, ball room of minimum holding capacity of 80 person and retail and entertainment facilities of minimum holding capacity of 490 person complete with all auxiliary circulations including lifts, staircases, fire exits, etc. and services. Circulation within this building is planned in a manner to provide exclusive access for overnight guest to facilities that are shared as well as preserve privacy;
- Provision of a maximum three storeyed building block housing 20 guest rooms for convention facilities and SPA and wellness centre with aggregated holding capacity of 40 persons complete with all auxiliary circulations including lifts, staircases, fire exits, etc. and services. Circulation within this building is planned in a manner to interconnect SPA and wellness facilities to the guest areas and also 20 guest rooms to the convention and food and beverage facilities;
- Provision of compacted gravel fill valet parking for at least 10 cars;
- Provision of a swimming pool of adequate shape, size and depth including changing rooms, shower cubicles, filtration plant, pool decking etc. accessible to both overnight guests and visitors to SPA and wellness centre;
- Provision of cottage accommodation across categories detailed in the brief with minimum 32 rooms complete with all facilities and auxiliary services. The placement of the cottages are according to vantage positioning vis-à-vis their tariff structure;
- Provision of single storeyed services block housing auxiliary services, staff accommodation and dormitory;
- Provision of a nature hugged open air theatre with minimum holding capacity of 100 to 150 persons;
- Provision of at-least 2 bird watching towers;
- Provision of separate zip lining facilities for overnight guests and day visitors including launch boards and dis-embankment towers;
- Provision of at least 4 outlook/viewing decks appropriately placed in guest and common areas;
- Provision of at least 2 level transporting decks appropriately placed in guest areas including lifts for barrier free access and services to guest areas;
- Provision of an appropriate length of dirt trail of minimum width of 1.50 Mts for hiking and biking purposes along the natural features connecting important parts of the project;
- Provision of paved pathways/sidewalks connecting all features of the project with adequate and appropriately designed ramps, steps and railings;
- Widening, desilting and dredging of the existing Khal (stream) with appropriate pitching, embankments, and gabion protection;

- Treatment of Khal water upstream by provision of water treatment facility including treatment plant room, retention tank, desilting tank, scumming tank, bio-mediation tank, release tank and sluice gates;
- Provision of boating jetty with adequate boats, kayaks, canoes and equipment for water sport activities;
- Provision of waterfront terrace with landscape features;
- Provision of angling facility with fish breeding/culture tanks;
- Provision of 3 reed lagoons with bio-digestion tanks of adequate capacities to treat sewage/septage waste water from the project;
- Provision of a butterfly garden with appropriate green undergrowth and shrubberies and with small incubation facility;
- Provision of picnic spot for day visitors and overnight guests separately with appropriate garden furniture and semi covered weather shelters;
- Provision of separate camping ground and tentage facility for visitors and overnight guests appropriately placed in the project area;
- Development of tea gardens and rubber plantation areas within the project site;
- Provision for pedestrian bridges, decking and cross overs wherever necessary within the site;
- Training of perennial streams within the site;
- Plantation of trees within the tended and untended green areas of the site;
- Plantation and turfing of tended green areas with lawns, shrubs, herbs, plants, undergrowth, ground covers, flower beds, creepers, etc.
- Provision for street/garden furniture at appropriate locations within the site; and
- Provision of any other deemed to be necessary services and facilities within the project area.

c. Description of the Building and Physical Infrastructures

The complex is proposed to have a total built-up area of 13,922 sq. m. The covered/ built up area will include the residential facilities, food/ beverages, spa and wellness, entertainment and recreational facilities among others.

The International Standard Resort is proposed with a mix of rooms and cottages. A detailed description of the rooms and cottages are given below.

The facilities for Single Buildings will include Nap rooms for outbound tourists single bed air conditioned, Economy room double bed non-AC, Standard Room D/B A/C, Executive Room D/B A/C, Deluxe Room D/B A/C, Premium D/B A/C, Presidential Suite D/B A/C, and Auxiliary Space. Nap Rooms for Outbound Tourists will include only a bath and a closet. All other types of rooms will include bath, closet and vestibule. Auxiliary Space includes spaces for walls, partitions and corridors. The total number of rooms will be 68 and the total area required for residential rooms will be 2,646 sq. m.

The facilities for Cottages will include Village Cottage Non A/C, Deluxe Cottage D/B A/C, Cliff Side Premium Cottage, Tea Garden Chalet D/B A/C, Tree House D/B A/C, Outlook Villa Suites D/B A/C, and Auxiliary Space (Includes walls, partitions etc.)

All the different types of cottages will include a bath, closet, vestibule and a veranda. Auxiliary space includes spaces for walls and partitions. The total number of cottages available will be 32 and the total area required for the cottages will be 2304 sq. m. Hence, the total area required for all the residential buildings will be 4950 sq. m.

The Reception, administrative area and restaurants are planned just next to the Main Accommodation Block. The Main Accommodation Block consists of the different types of residential rooms.

The Village Cottages will be located besides a green lawn. The Deluxe Cottages and Cliff Side Premium Cottages will be located opposite each other. The Tea Garden Chalets will overlook the tea gardens. The Tree House Cottages will be located at one corner of the Motel Compound and overlook the gardens. The Outlook Villa Suites will be situated on the ridges and have a beautiful view of the surrounding hillock.

Apart from the residential buildings and restaurants, the International Standard Tourism Complex will offer tourists and guests several services to make their stay more enjoyable and memorable. Brief descriptions of the various services envisaged to be offered by the Resort have been given below.

The International Standard Tourism Resort is proposed with restaurants offering different cuisines, lounge, take away shops and varied refreshment kiosks. All the restaurants, lounge, shop and refreshment kiosk will provide service to the visitors. The Central Kitchen and Cellar will include different facilities, pantry and storage. Auxiliary Space will include spaces for walls, partitions and corridors. The total area required for Food and Beverages will be 1059.5 sq. m.

The Resort will offer the guests various Spa and Wellness facilities such as parlor, sauna, swimming pool, saloon, gymnasium among others. The Spa and Wellness Centre is planned to be located near the Main Accommodation Block and beside the Reception area. The Swimming Pool is envisaged to be developed as an Infinity Pool and will be located beside the Main Accommodation Block. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the Spa and Wellness Facilities will be around 839.8 sq. m.

The tourist complex is envisaged to offer many recreation and entertainment facilities to the guests including boutique/ curio shops, theatre, library, discotheque among others. The Recreational Facility is planned to be located near the Spa and Wellness Centre and beside the valet parking zone. The A/V Theatre will be located on one side of the Motel compound. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the Recreation and Entertainment Facilities will be around 767 sq. m.

Convention and Banquet Facilities including auditoriums, Ball Rooms, Banquet Halls, Conference Rooms, and Board Rooms etc. are planned to cater to the business visitors to the International Tourism Complex at Sylhet. There will be two Convention Facilities (one located near the Recreational Facility and the other beside the guest parking) and Banquet Facilities is planned beside the Banquet Lawn. The Business Executive Guest Room will include a bath, closet and vestibule. Auxiliary Space will include areas for walls, partitions and corridors. The total area required for the Convention and Banquet Facilities will be around 3653 sq. m.

Several sports facilities such as Table Tennis, Carom and Billiard Rooms, Bowling alleys and kindergarten games for kids have also been envisaged in the Motel Compound. The Indoor Sports and Games Facilities are planned to be located in the Recreational Facility located beside the Spa and Wellness Centre. Auxiliary includes areas for walls, partitions and corridors. The total area required for the Indoor Sports Games will be around 769.20 sq. m.

To efficiently carry out the regular administrative and official work, the reception, front office and administration areas have been planned. The Reception, administrative area and restaurants are planned just next to the Main Accommodation Block. The Main Accommodation Block consists of the different types of residential rooms. Auxiliary Space will include areas for walls, partitions and corridors. The total area required for the Reception and Administrative Area will be around 707.20 sq. m.

General Service Facilities such as laundry, maintenance, and storage facilities etc. offer guests a seamless and comfortable stay at the luxurious resort and are also planned. The area for the service facilities is planned to be located at one end of the Motel Compound separate the service area from the main accommodation blocks. Auxiliary Space includes areas for walls, partitions and corridors. The total area required for the General Service Facilities will be around 1176.50 sq. m.

A tended open area of 28,794 sq. m with courts for outdoor games, Event and Banquet Lawn, Parking and Landscaped areas will be provided. The tended open area will comprise the areas for outdoor sports and games, banquet lawn, parking and services. The Badminton, Tennis and Basketball courts will be located on one side of the motel compound near the banquet lawns. Auxiliary Space includes areas for fencing, spectator area etc. The total area required for Outdoor Sports and Games will be around 1322.50 sq. m.

The motel will also have an Event Courtyard and Banquet Lawn for hosting business meetings and other events. The Event/ Banquet Lawn area is planned on one side of the motel compound beside the areas for the outdoor games. Auxiliary Space will include areas for fencing, spectator area etc. The total area required for the Outdoor Event and Banquet Lawn will be around 1641.13 sq. m.

The property will also offer guests the facilities of guest parking, valet parking and convention parking. The guest parking area will be near the gate whereas the valet parking and convention parking areas will be located near the Main Accommodation Block beside the Convention and Recreational Facility. Auxiliary Space will include areas for fencing, circulation etc. The total area required for Parking will be around 3255 sq. m.

Being an International Standard Tourism Complex, the property will need prim, proper, landscaped and tended lawns in the compound to boost the eco-tourism quotient. Outdoor Circulation will include roads, SWM, STP, WWT Plants etc. The Tended Lawns are planned to be located near the Recreational Facilities. Auxiliary Space includes areas for fencing, circulation etc. The total area required for the Landscaping and services will be around 22575 sq. m.

An unintended open area of 72,832 sq. m with space for outdoor activities such as hiking, zip lining, camping, etc. and natural protected areas is planned. The natural Open Area comprises Outdoor Nature Activities and Natural Protected Areas.

The Resort has provisions for the nature lovers by offering them a plethora of experiences such as outdoor nature activities including hiking, biking, bird watching, camping and natural protected areas. Auxiliary Space will include areas for fencing, circulation etc. The total area required for the Outdoor Nature Activities will be around 6789.50 sq. m. The total area reserved for Untended Natural Protected Areas in the Motel Compound will be 66,042 sq. m.

Figures 1 to 4 provide the location maps and preliminary site layout details so far developed at this stage of feasibility study.

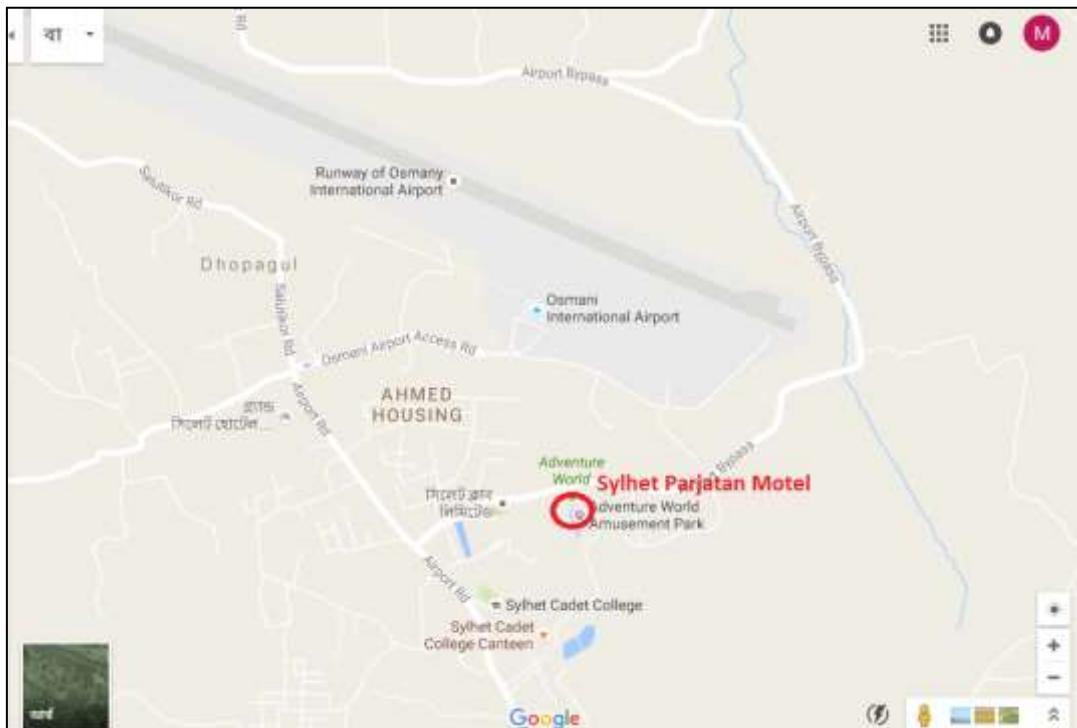


Figure 1: Location of Sylhet Parjatan Motel in Google map



Figure 2: International flight routes from Sylhet

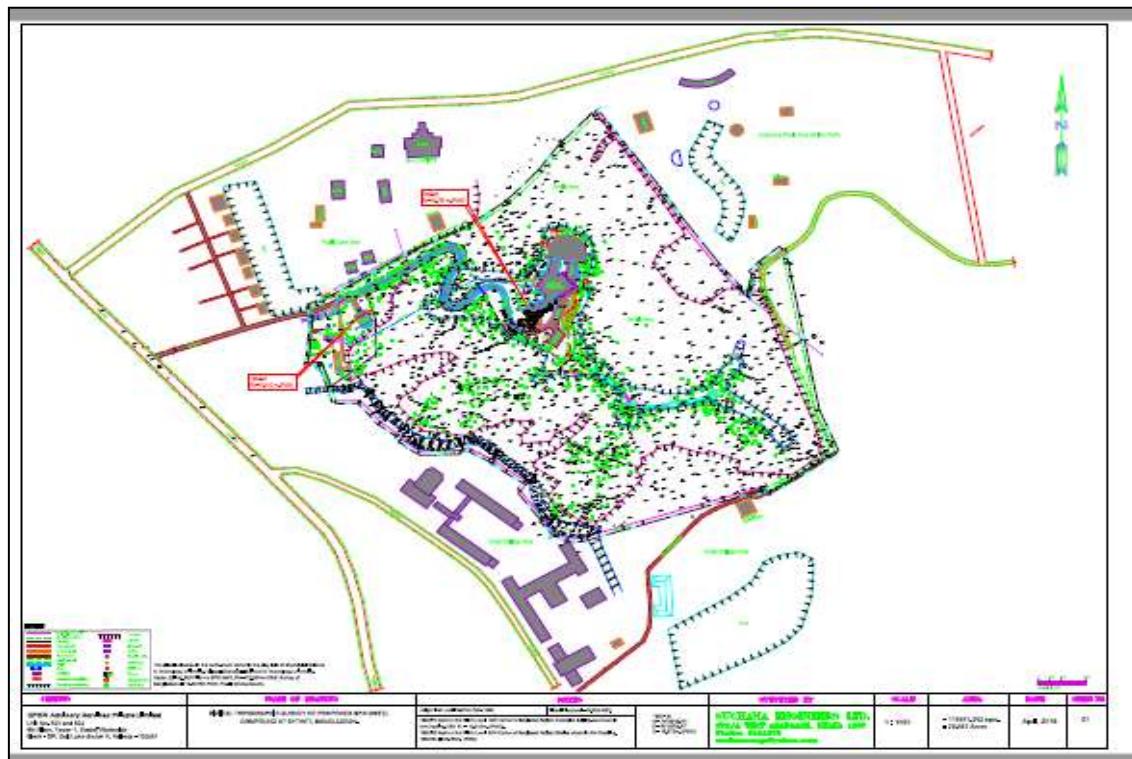


Figure 3: Topographical Survey of the site



Figure 4: Concept Plan of the Project

3 Description of the Environment

3.1 Physical Resources

3.1.1 Topography and Soils

Much of Bangladesh lies on the Gangetic-Bengal Plain, and is flat and low lying particularly around the delta, which floods extensively in the rainy season. North of Dhaka the land gradually begins to rise, towards the foothills of the Himalayas in the north. The influence of the rivers is evident in the soils, which are almost entirely alluvial and generally fertile in the central plains, with a predominantly loam and silt consistency. In the northern and eastern hills, soils are well drained, coarse and loamy, and closer to the sea the land is often saline, particularly in the dry season.

The part of Bangladesh to which the holy city of Sylhet belongs is dominated by the rivers Surma, Kushiyara, Khawai, Dholai, Monu, Kalni and Piain rivers and their tributaries, which drain large quantities of water from the Himalayan Mountains into the Bay of Bengal, through a complex delta system of tidal tributaries and creeks, formed by sediment deposited by the rivers. The physiography of Sylhet consists mainly of hill soils, encompassing a few large depressions known locally as "beels" which can be mainly classified as oxbow lakes, caused by tectonic subsidence primarily during the earthquake of 1762.

Figure 5 below represents the bio-ecological regions of Bangladesh and shows the Surma Basin Floodplain (4d) where the north eastern region, accommodating the city of Sylhet, belongs. This region of Bangladesh comprises the most productive ecosystems of the world.

The topography of the proposed Motel site is hilly and located at a higher elevation than the adjacent approach road. Frequent elevation changes occur within or around the site. The subsurface is characterized by sandy clay with silt and fine sand particles.

The type of soil available around the site of the Motel is sandy clay soil, which is suitable for earth filling during construction activities. This soil will also be very good for plantation of trees and easy growth of trees.

3.1.2 Climate

The climate in the project area is humid and sub-tropical, with a typical three season pattern. During the winter season (November–February), cool winds blow from the north-east. The weather is cool and dry. Rainfall, however, shows variations over the last decade (2006–2015) between 1288 mm in June 2006 and 0 mm in December 2011 - 2014. Average minimum temperatures show, over the same period, variation between 11.5°C in January 2006 and 7.7°C in January 2011. Similarly, the maximum yearly temperature also varies like 38.0°C in May 2006 and 35.0°C in May 2015. Rainfall also increases, and this period is characterized by unstable weather. The monsoon begins in May–June as hot air rises over the Indian subcontinent, creating low pressure areas into which rush the cooler moisture-laden winds from the Indian Ocean and the Bay of Bengal. Around 70–80% of the annual rain falls during this time. The rain is often accompanied by strong winds, sometimes exceeding 100 km/h. Temperature and rainfall both decline post-monsoon, returning rapidly to the winter lows.

Wind data from the Bangladesh Meteorological Department Climate Division suggests that wind directions vary month-to-month in Sylhet, though predominantly in the NW, S, and NE directions. Windborne odour from the city, if any will not deteriorate the quality of air around it as the Motel is far away by about 9 kilometres north of the city.

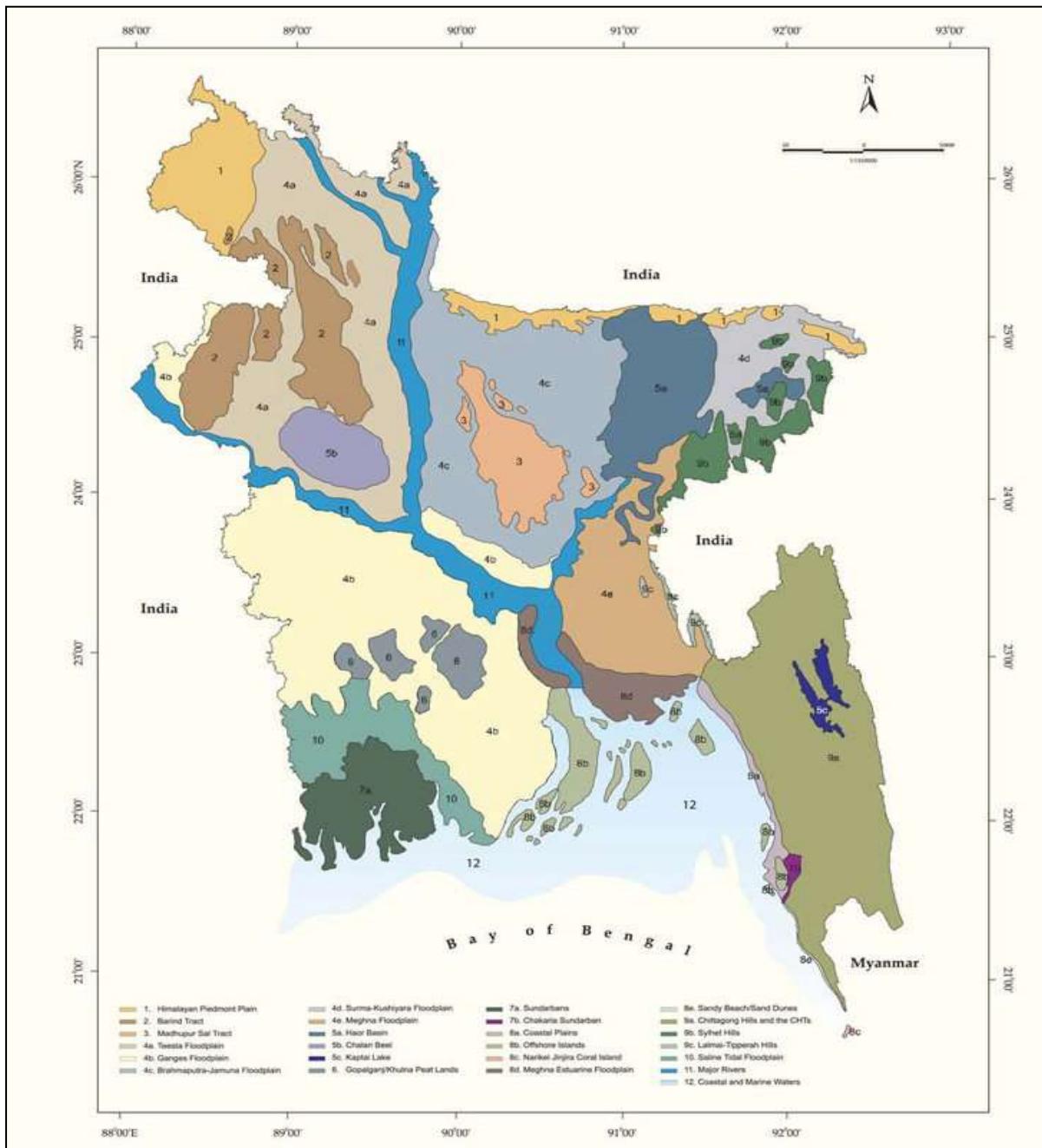


Figure 5: Bio-ecological map of Bangladesh

Although weather patterns are broadly similar throughout the country, differences in topography, winds and other factors produce some quite marked local variations. This is particularly evident in the annual rainfall of around 4,939 mm in 2010 (last ten years' maximum) and 5620 mm in 1988 (last thirty years' maximum) in Sylhet. Relative humidity, average dry bulb temperature, maximum and minimum temperatures and rainfall patterns are represented as under based on the raw data obtained from the Bangladesh Meteorological Department (**Figures 6, 7, 8, 9 and 10**)¹.

¹ Source of raw data (Figures 6, 7, 8, 9 and 10): Bangladesh Meteorological Department, August 2016

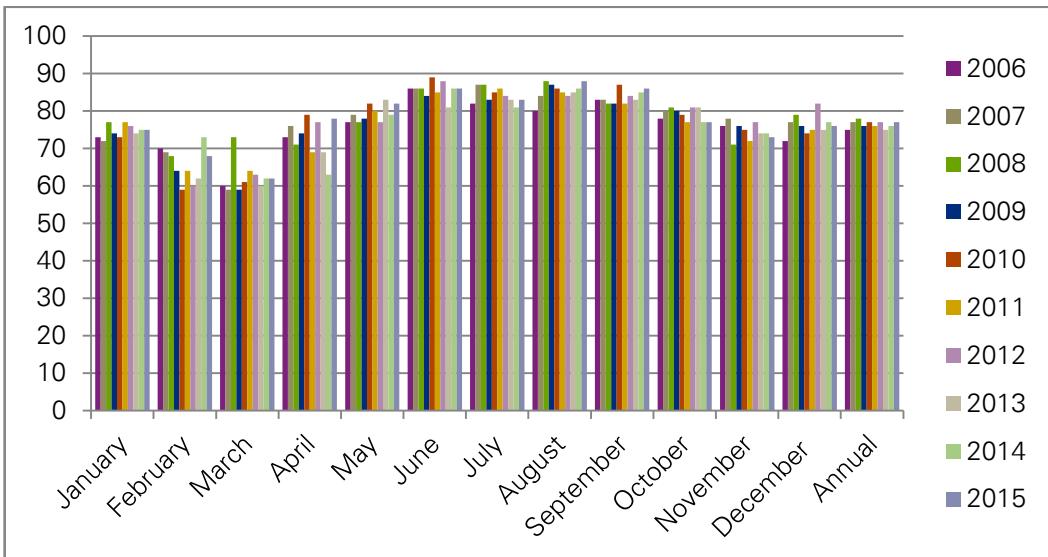


Figure 6: Monthly and annual humidity (%) in Sylhet (2006-2015)

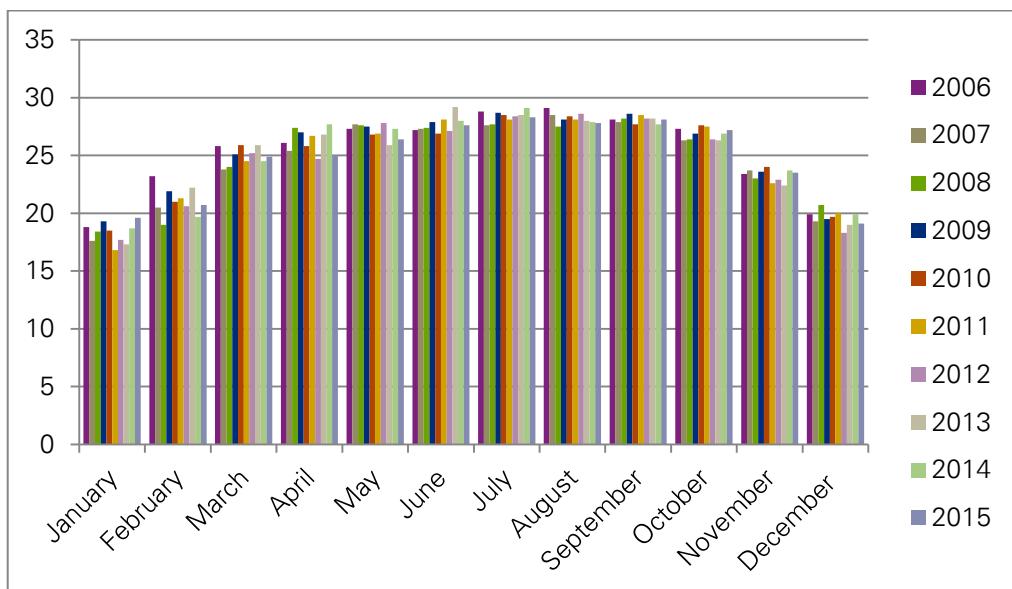


Figure 7: Monthly average dry bulb temperature (°C) in Sylhet (2006-2015)

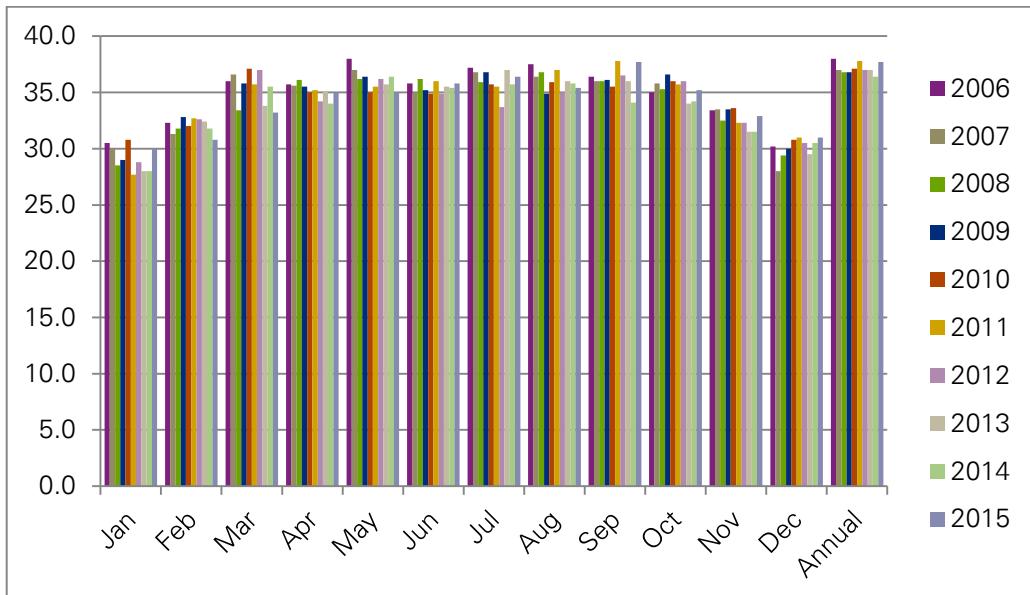


Figure 8: Monthly and annual maximum temperature (°C) in Sylhet (2006-2015)

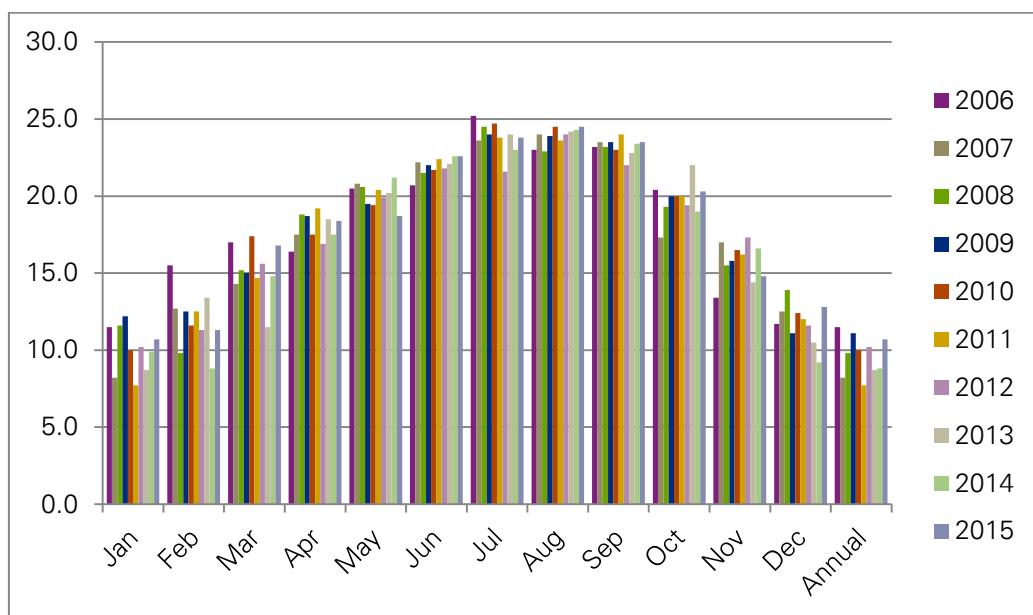


Figure 9: Monthly and annual minimum temperature (°C) in Sylhet (2006-2015)

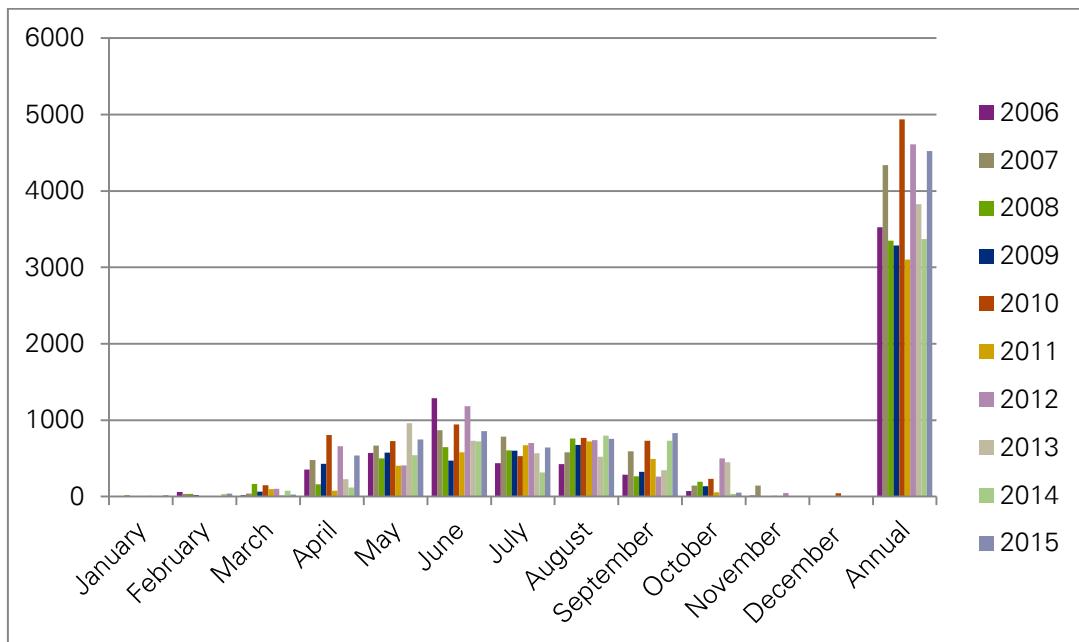


Figure 10: Monthly and annual total rainfall (mm) in Sylhet (2006-2015)

3.1.3 Air Quality

Air quality is significantly better in the city of Sylhet compared to that in cities of Dhaka, Chittagong and Rajshahi where rapid pace of urbanization, industrialization and overcrowding create major air quality problems.

The main atmospheric pollutants are those produced by vehicles and industries and in particular by the burning of fuels. These include particulate matter, hydrocarbons, carbon dioxide, carbon monoxide, and sulphur dioxide, oxides of nitrogen, lead, and ammonia and hydrogen sulphide. Many of these cause respiratory problems in humans, plus other diseases if substances accumulate in the tissues. The main causes of the poor air quality are:

- Poor roads and traffic management leading to severe traffic congestion;
- Use of high sulphur diesel by buses and trucks, and inadequate control of emissions;
- Heavy industrialization, and use of cheaper high-sulphur fuels (coal, wood and tyres) by smaller industries like brick kilns; and
- Poor solid waste management, so burning is the common method of treating garbage.

Surveys by the DOE show levels of Suspended Particulate Matter (SPM) and sulphur dioxide (SO₂) in Sylhet and other cities exceed Bangladesh Air Quality Standards, and levels of atmospheric lead that are above World Health Organization (WHO) standards. These should fall over the next few years however, as laws are enforced reducing the number of two-stroke vehicles, and consumers change to vehicles using lower cost unleaded petrol and compressed natural gas. As the proposed Sylhet landfill site is located in a rural agricultural setting, the air quality within the city is generally good.

3.1.4 Surface Water

Most of Bangladesh lies within the floodplains of the Ganges, Jamuna and Meghna rivers, which drain a catchment of around 1.72 million km² in India, Nepal, China, Bhutan and Bangladesh. Only 8% of the catchment is within Bangladesh, and because of its topography, flood-risk and population density, the quality and quantity of surface waters are major issues for the country. Sylhet lies in the North Eastern Region of Bangladesh, and it is situated on the bank of river Surma. All rivers in the region show large

seasonal variations in flow, and discharge in the Jamuna for example fluctuates between less than 5,000 cumecs in the dry season to a maximum of around 67,000 cumecs in the monsoon.

Like in other towns and cities of Bangladesh, the Sylhet city dwellers, too, use both surface and groundwater as a source of domestic water. Principal difference lies in use of water supply based on treatment with some application of chlorine in Sylhet and other population centres. Pollution of rivers is a major problem, because of the discharge of industrial wastewater and inadequate sewerage.

From a recent study² it was revealed that the water quality of the charas (streams flowing from the hilly areas) are below the standards and this is polluting Surma River water to a large extent. It can also be concluded that the water quality of the charas is deteriorating day by day. The main reason behind this was found as the direct connection of the sewerage network of the city with the charas. From the study, it was found that pH varies from 6.17 to 7.84. DO was found to be very low, even nil in some canal water; minimum average value (for whole year) of DO was detected as 2.1mg/l in Bolram Chara. Maximum BOD was detected as 6.4 mg/l and maximum average value (for whole year) of BOD₅ was found as 3.0 mg/l in Guali Chara. Maximum Total Solids, Dissolved Solids and Suspended Solids were found to be 589, 438 and 252 mg/l respectively; maximum average values (for whole year) of these parameters were 330 mg/l (Mora Gang), 194.2 mg/l (Bolram Chara) and 135.1 mg/l (Mora Gang). Maximum Turbidity was detected as 351 FTU, whereas maximum average values (for whole year) of this parameter was 136.8 mg/l in Guali Chara water.

Maximum Nitrate and Phosphate concentration were found to be 3.7 and 18 mg/l respectively. Maximum average values (for whole year) of these parameters were 1.5 mg/l (Guali Chara) and 9.9 mg/l (Mongoli Chara). It was found that the average concentration of the pollutants in dry season (from November to February) is much higher than in wet season (March to October). From the study it was also revealed that, 'Guali Chara' canal is the most polluted canal. Direct discharge of sewage water to the chara (at Masim Pur and Subani Ghat), solid waste dumping (mainly at Subani Ghat), direct disposal of medical wastes (from Sylhet Bokhkhoe Byadhi Hospital and Sylhet Shoncramok Byadhi Hospital at Baluchar and some clinics at Upashahar), open defecation near the chara (at the slums of Chalibandar and Masimpur), dumping wastes from husking mills (at Masimpur), etc. are responsible for the deterioration of the canal water. Following Guali Chara canal, Mongoli Chara, Moragang, Bolram Chara, Malinichara and Kushi Khal come serially as per the severity of pollution.

The distance of the proposed Motel site and effluent discharge point to the river Surma is about 10 kilometers. The effluent from the Motel will be treated within the site and will be allowed to drain through proper drainage system developed under the project.

3.1.5 Ground Water

There are three main aquifers in the central region of Bangladesh:

- An upper (composite) aquifer, which can reach depths of 50 m and is covered with an upper silty clay layer of less than 20 m;
- A middle (main) aquifer of fine to heavy sands, which is generally 10-60 m thick and in most areas is hydraulically connected with the composite aquifer above; and
- A deep aquifer of medium, medium-to-fine or medium-to-coarse sand, which is generally found at depths below 100 m.

Sylhet City is suffering from a great shortage of domestic water supply. At present, water supply system of SCC is mainly dependent on ground water which meets only 40% of the water demand of

² Deterioration of water quality of Surma River influenced by natural canals passing through Sylhet city of Bangladesh; by M. Ahmed, A. A. Masrur Ahmed and R. K. Majumder; Proceedings of International Conference on Environmental Aspects of Bangladesh (ICEAB10), Japan, September 2010

its total population. The rest of the people are deprived from the water facilities of City Corporation and they mainly depend on hand pump tube wells. Unfortunately, the arsenic contamination in and around the city has made the use of ground water risky for drinking purpose. Although water is being collected from the River Surma via a surface water treatment plant in Topkhana, that can meet a very little portion of the need of city people. The water of Surma River is getting further contaminated day by day due to the direct and indirect disposal of the solid wastes, domestic and municipal sewage and agricultural run-off to the river. The city is blessed by some natural hilly canals, which are responsible for discharging the storm water to the River Surma. These canals contribute greatly to the pollution of river water.

Elsewhere in the country, domestic water in urban areas is mainly abstracted from the surface and middle aquifers, which in many cases (including Rajshahi, Khulna and Barisal) are contaminated by naturally-occurring arsenic, iron and aluminium, plus sewage bacteria, pesticides and industrial chemicals. Groundwater tables often fall by several meters in the dry season, exacerbated by excessive drawdown by tube-wells. Supply of potable water is an increasing problem for the water and sewerage authorities because of the depleting supplies and source contamination.

Discussions with SCC officials during a site visit indicated that the water table at the locations of the proposed Motel site is about 50 - 60 meters below the surface, so there is no problem of water-logging. There were some visible inhabitants in the surrounding area but no sources for the extraction of drinking water.

Supply of potable water is an increasing problem for the water and sewerage authorities because of the depleting supplies and source contamination. Water for the Motel site will be arranged by digging well within the site for construction. The necessary clearance for digging well will be taken from the SCC. Rain water harvesting will be an option for collecting drinking water during operational stage.

3.1.6 Geology and Seismology

The National Seismic Zoning Map (**Figure 11**) produced by the Geological Survey of Bangladesh (GSB), divides the country into three regions: a high risk zone between Mymensingh and Sylhet in the north and north-east; a medium risk zone stretching diagonally from Rajshahi in the north-west through Dhaka and Comilla to Khulna and Cox's Bazar in the south-east; and a low-risk zone in the south and south-west, around Khulna and Barisal. In the medium risk zone, shocks of moderate intensity are possible, with a probable maximum magnitude of 6-7 on the Richter scale. Seismic events in Bangladesh are relatively infrequent but historically, have been severe. The Assam earthquake of 1897 was the largest in the region's history, when a force of 8.7 on the Richter scale caused extensive damage across Assam, Bengal and Bihar. The proposed Motel project is located in the high risk zone and proper seismic factor has been considered for designing the structures for safety against probable earthquake damage.

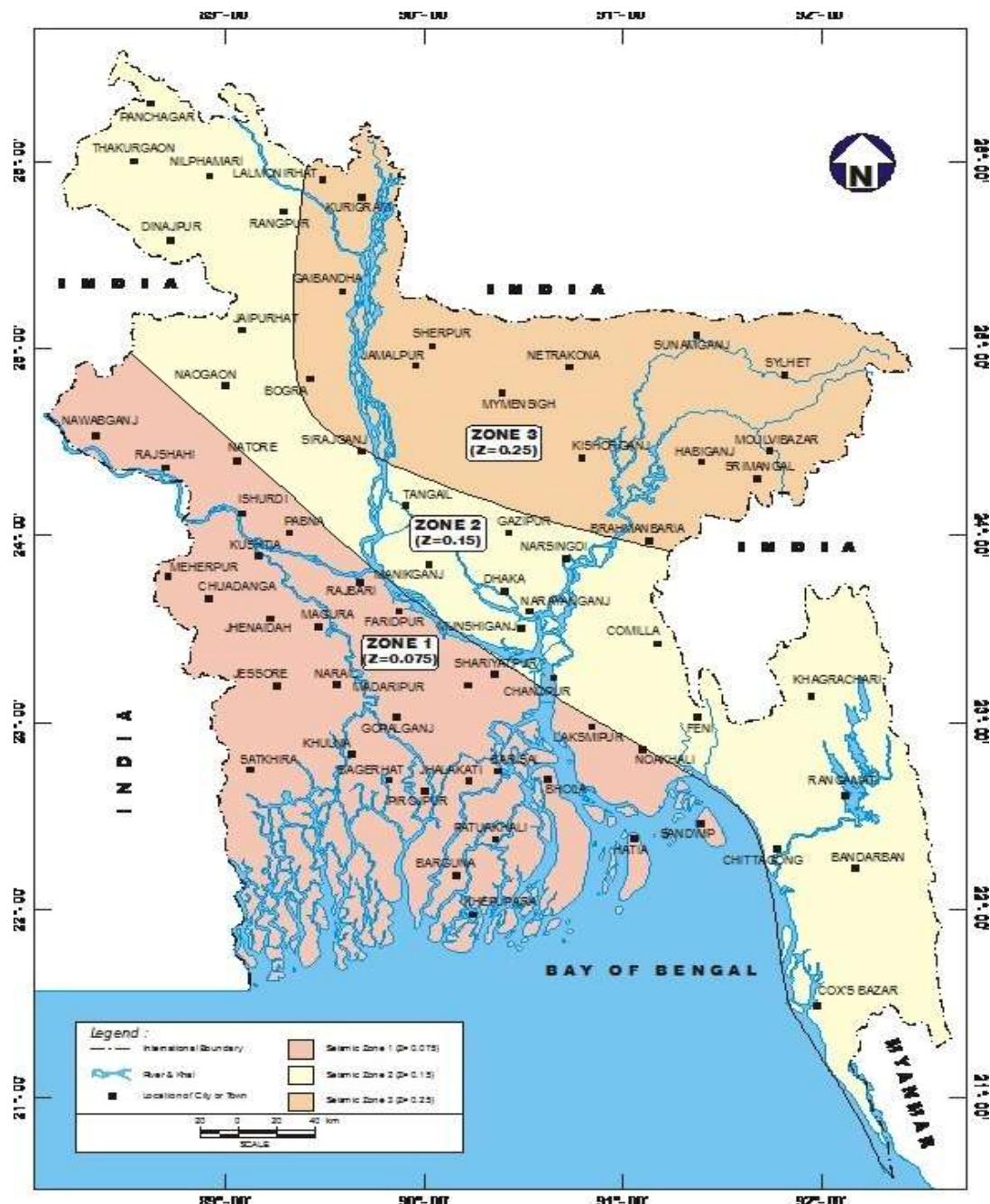


Figure 11: National Seismic Zoning Map of Bangladesh

The Sylhet trough, a sub-basin of the Bengal Basin in north-eastern Bangladesh, contains a thick fill (12 to 16 km) of late Mesozoic and Cenozoic strata that record its tectonic evolution. Stratigraphic, sedimentologic, and petrographic data collected from outcrops, cores, well logs, and seismic lines are here used to reconstruct the history of this trough. The Sylhet trough occupied a slope/ basinal setting on a passive continental margin from late Mesozoic through Eocene time. Subsidence may have increased slightly in Oligocene time when the trough was located in the distal part of a foreland basin paired to the Indo-Burman ranges. Oligocene fluvial-deltaic strata (Barail Formation) were derived from incipient uplifts in the eastern Himalayas. Subsidence increased markedly in the Miocene epoch in response to western encroachment of the Indo-Burman ranges. Miocene to earliest Pliocene sediments of the Surma Group were deposited in a large, mud-rich delta system that may have drained a significant proportion of the eastern Himalayas.

The National Seismic Zoning Map of Bangladesh clarifies the seismological status of the various regions of the country. The city of Sylhet falls within the high-risk zone. The earthquake risk factor for this zone – 3 is 0.25, while the risk factors for zone – 1 and zone – 2 are 0.075 and 0.15 respectively.

3.2 Ecological Resources

3.2.1 Habitats

The main physical features of Bangladesh are its mainly flat and low-lying topography, the dominant presence of the major rivers that drain enormous catchments in surrounding countries, a seasonal monsoon that swells river volumes for several months each year, and the resulting floods that inundate large areas of land. It is not surprising therefore that those aquatic habitats are the country's most important ecological resources.

There is a wide array of aquatic habitats throughout the country: natural and man-made, permanent and ephemeral, of varying sizes and characteristics. The rivers and floodplains are the most important, as they support species that are exploited by man, are the most productive of the habitats, and attract other important species, such as birds. However, as in other environmental sectors, the rapid urbanization and industrialization of the country and its expanding population (particularly the urban poor who use natural resources to supplement both food and income) have brought large scale damage and degradation to these areas.

In Sylhet region nine wetland habitat systems were identified as of outstanding national and international importance for their nature conservation values. They are: (1) Tanguar Haor; (2) Pashua Beel, Gurmar Haor; (3) Hakaluki Haor; (4) Hail Haor; (5) Kaliajuri Area; (6) Companiganj Area; (7) Bara Haor; (8) Kawadighi Haor; (9) Balai Haor. On the other hand, other sites of national importance are: (1) Hail Haor Fish Ponds; (2) Patachatal Beel and Borachatal Beel, Maijeil Haor; (3) Chalnia Beels, Damrir Haor; (4) Erali Beel; (5) Dekhar Haor; (6) Aila Beel and adjacent beels, Panger Haor; (7) Kanamaiya Haor including Pakertala Beel; (8) Bara Beel, Banuar Beel, and Palair Beel, Matian Haor; (9) Meda Beel and Ugler Beel, Ubdakhali Haor; etc.

3.2.2 Rivers

Most rivers in Bangladesh suffer from the negative influence of human habitation, from the disposal of solid and liquid waste in urban and industrial areas around Sylhet and the other cities and towns, and from the diversion of water upstream for irrigation and/or power generation.

Sylhet is famous for predominantly two rivers; one is Surma and the other is Kushiyara. After entering into modern Karimganj District in south Assam, Barak divides in two, with the northern branch being called the Surma River and the southern the Kushiyara River. At this point the river enters the Sylhet Depression (or trough) which forms the Surma Basin. The Surma is fed by tributaries from the Meghalaya Hills to the north, and is also known as the Baulai River after it is joined by the south-flowing Someswari River. The Kushiyara receives tributaries from the Sylhet Hills and Tripura Hills to the south, the principal one from the Tripura Hills being the Manu. The Kushiyara is also known as the Kalni River after it is joined by a major offshoot (distributary) from the Surma. When the Surma and the Kushiyara finally rejoin in Kishoreganj District above Bhairab Bazar, the river is known as the Meghna River.

3.2.3 Floodplains and Fisheries

Floodplains are the natural lowlands alongside rivers, which are inundated each year in the monsoon as the increased volumes of water overflow river banks. These zones are important ecologically as they are the areas into which the adults of many species of fish migrate to breed. Floodplains are rich in nutrients from the inundated soil and decaying vegetation, and are also rich in food in the form of dead insects, soil invertebrates, and aquatic plankton that frequently bloom under such conditions. They are also protected from the strong currents in the main river, so are ideal areas for young fish to feed and grow, before entering the main river when water levels decrease. These areas also frequently attract large numbers of water birds, to feed on the juvenile fish in the shallow waters.

This area falls under the AEZ-22: Northern and Eastern Piedmont Plains. This is a discontinuous region occurring as a narrow strip of land at the foot of the northern and eastern hills. The area comprises merging alluvial fans which slope gently outward from the foot of the hills into smooth low lying basin. Grey Piedmont soils and Non-calcareous Grey Floodplain soils are the major general soil types of the area. Soils of the area are loams to clays in texture having slightly acidic to strongly acidic reaction. General fertility level is low to medium. The districts included in this AEZ are Sherpur, Netrokona, Sunamganj, Sylhet, Moulvi Bazar, Habiganj, Brahmanbaria and Comilla.

Elsewhere in the country floodplains have been similarly affected by flood protection schemes, land reclamation and urban development, and there is little doubt that such areas are far less productive than they once were. Even in the more rural areas the quality of floodplains is degraded, in this case by agricultural development, which exposes floodwaters to pesticides and fertilizers in the soil and crops.

3.2.4 Other Aquatic Habitats

There are a variety of other aquatic habitats throughout the country, and in urban areas these include man-made lakes in residential neighbourhoods, permanent and ephemeral pools in natural lowlands (known as *beels*), and flooded borrow pits excavated for building material. These are generally of little ecological value as the water is frequently polluted, and these areas are often characterized by dense growths of the water hyacinth *Eichornia crassipes*, which out-competes other plants through its rapid growth, although species such as water chestnut and lotus can be seen in places.

3.2.5 Terrestrial Ecology

The city of Sylhet is almost denuded of the trees and vegetation that once had beautified and made its environment congenial to terrestrial ecology specific of this area. Rapid and continuous growth in the city population has encouraged various land-grabbers and mushroom growth of land development firms with a resultant erasure of wetlands, trees, greenries, vegetation and forest lands in and around the city and replaced by widespread concrete jungles in the name of high-rise buildings. The urban terrestrial fauna is very limited as a result, and mainly consists of lizards and geckoes, scavenging birds like house sparrow and crows, mice, rats and other rodents, plus jackal, mongoose, squirrel and monkeys. There is a wider range of species in the farming areas, but even these are mainly animals that are commonly found close to man, such as cattle egrets.

Proposed site for the Motel is completely green with natural vegetation and rich in flora and fauna. Proper precautions will be taken for conservation of this status during implementation of the project.

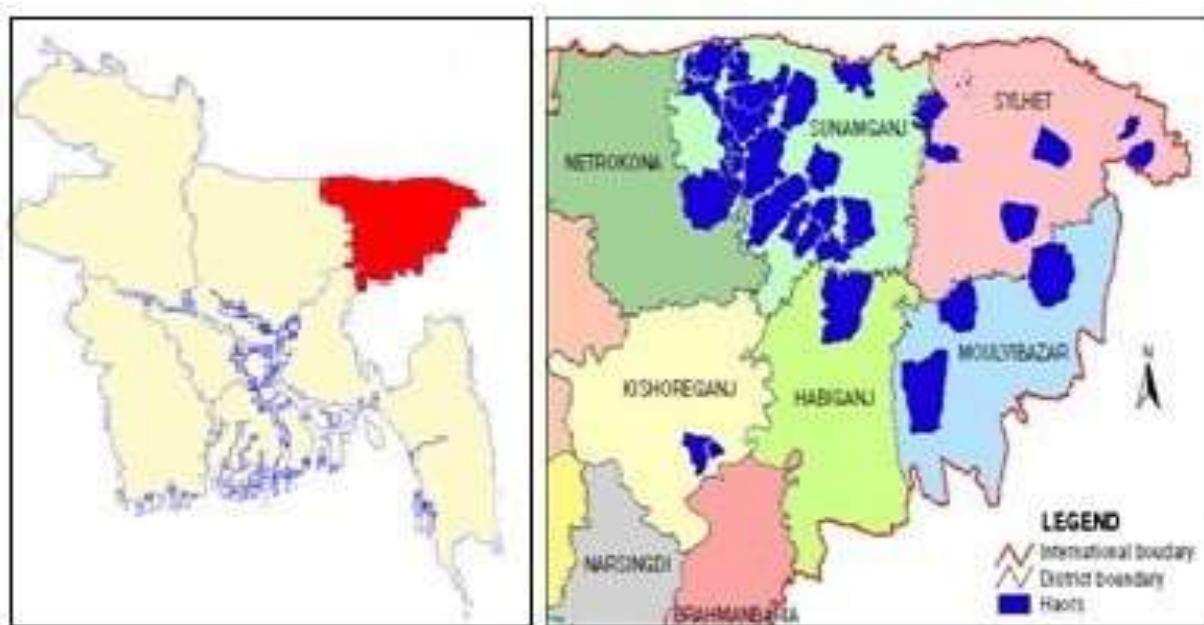


Figure 12: Location of haors in Sylhet region³

3.2.6 Protected Areas and Endangered Species

Important conservation areas are invariably well away from centres of inhabitation for obvious reasons. Nevertheless there are certain areas in the towns and cities that are protected because of their ecological or scientific interest. These are mainly created by man and are intended primarily for entertainment and leisure purposes (such as zoo gardens, civic parks and children's gardens), and are of little interest in terms of nature conservation or species diversity. **Figure13** has been taken from a report prepared under the contract funded by USAID for Integrated Protected Area Co-management (IPAC) for community based climate change adaptation: planning through nishorgo network. In this study, four clusters have been identified: Sundarbans, South-eastern, Sylhet and Central. Here it is clear that the Sylhet cluster is the biggest among the sensitive protected areas of Bangladesh. This area is very much resourceful and ecologically sensitive. The nearest protected and environmentally sensitive haor areas are about 40 km from the proposed Motel site.

³ Identification of land cover changes of the haor area of Bangladesh using Modis Images by Md. Salauddin and A. K. M. Saiful Islam, BUET(3rd ICWFM 2011)

IPAC Clusters and Sites

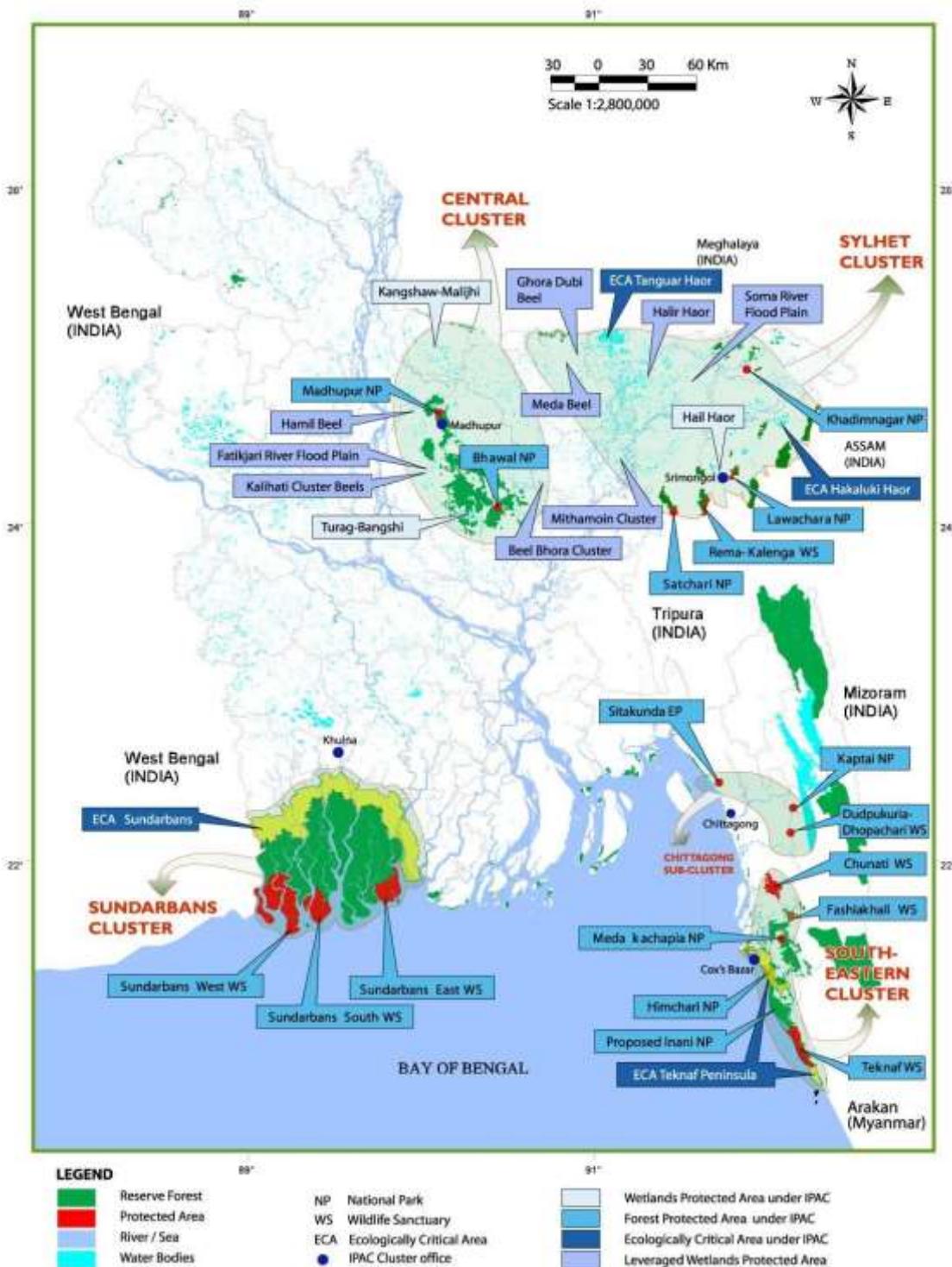


Figure 13: Integrated protected area co-management clusters and sites

3.3 Economic Development

3.3.1 Industry

Industrial growth in the Sylhet region is still in the primitive stage. The area around Sylhet is a traditional tea growing area. The Surma Valley is covered with terraces of tea gardens and lush green tropical forests. Srimangal is known as the tea capital of Bangladesh and for miles around one can see the tea gardens on the hill slopes. There are over 150 tea gardens, including three of the largest tea gardens in the world both in terms of area and production. Nearly 300,000 workers, of which over 75% are women, are employed on the tea estates. Employers prefer to engage women for plucking tea leaves since they do a better job and are paid less than the men. Unfortunately recent drought has killed nearly a tenth of the tea shrubs. The gardens are relics from the days of the British Raj. The plantations were started by the British and the managers still live in white timber homes as they did in those days. The bungalows stand on huge lawns and the service and lifestyle is pretty much unchanged.

However, there are large numbers of investments and businesses in the city and in large towns funded by Sylhetis living abroad, in particular by British Bangladeshis, over 95 percent of whom come from this Sylhet region. The Bangladesh government has set up a special Export Processing Zone (EPZ) in Sylhet, in order to attract foreign investors, mainly from the UK.

3.3.2 Infrastructure

Infrastructure is a major problem in all towns and cities in Bangladesh, where many facilities are inadequate to serve the needs of such a large population, after decades of under-funding and neglect. Dhaka is the only area in Bangladesh with a sewer system and this serves only 20% of the population and the sewers are blocked and leaking in many places. Throughout the rest of the country people use a variety of methods including septic tanks, pit latrines, and open defecation. Septic tanks malfunction because of inadequate design, construction or maintenance, or because the high water table impedes the soak-away function. Many buildings, including high-rise developments, have no sanitation system at all, and discharge their effluent into lakes, rivers, drainage ditches or onto open ground, causing unsightly areas, health risks and water pollution.

In Sylhet urban areas, solid waste management is the responsibility of the Sylhet city corporation; and in most locations NGOs or CBOs operate the primary collection service, removing waste from houses and businesses each day, mainly on cycle-rickshaws. These carry waste to STS at various locations around the town, from where it is carried for final disposal by vehicles operated by the SCC. There is no properly designed and operated sanitary landfill area for the SCC. The SCC at present dumping the waste in the landfill site located in the eastern side of Sylhet-Fenchuganj road, which is close to the Lalmatia Model Town. The process of disposal is by open dumping with little or no management or pest control, and as a result these areas are highly insanitary and hazardous to public and environmental health. There is no effective medical waste treatment facility run by the SCC. The solid waste management system for the Motel will be properly designed and implemented to ensure that the complex is kept completely clean and proper hygienic condition is maintained.

3.3.3 Transportation

The main transport systems used in the city are cycle rickshaws, auto rickshaws (mainly known as baby-taxis or CNGs), buses, mini-buses and cars. There are about 80,000 rickshaws running each day. Sylhet is well connected by highways and railway links to Chittagong and Dhaka, as well as other parts of Sylhet. Highway links to India have been established through the Asian highway. The Sylhet Railway Station is the main railway station providing trains on national routes operated by the state-run Bangladesh Railway.

The city of Sylhet is served by Osmani International Airport, located at the north of the city. It is located just north of the proposed Motel site. The distance is less than half kilometre. It is Bangladesh's third busiest airport and became an international airport due to the demand of expatriate Bangladeshis and their descendants from the United Kingdom and the United States. The main frequent airlines of the airport are, Biman Bangladesh Airlines, United Airways (BD) Ltd. and domestic flights with GMG

Airlines. The airport received its first international arrival on 3 November 2002, with Biman arriving from Kuwait via Abu Dhabi en-route to Dhaka. Work started to upgrade the airport to international standards, including a new terminal building, a jet-way, a taxiway, and expansion of the runway to accommodate wide-bodied aircraft.

3.3.4 Land Use

In most urban areas the expansion has been inadequately planned and controlled, because of ineffective planning and inadequate policing of the planning laws and implementation of the land use policies. As a result, inappropriate mixes of land uses are commonplace (e.g. residential and industrial), and areas have grown without the provision of supporting infrastructure (water, sanitation, schools, hospitals, etc.). Planning problems are compounded by natural and anthropogenic factors, which include: seasonal flooding, which limits the use of large areas; population expansion, which puts a high demand on land; and the high proportion of urban poor, who have little alternative but to erect makeshift shelters on vacant land, increasing the slum areas.

The urbanization pattern of Sylhet City is characterized by haphazard growth. Land use follows a similar general pattern in most towns and cities, with mainly urban uses in the centre and residential in the outskirts. The town centre normally houses the main business and commercial districts, and contains shops and offices lining the roads, often in high-rise developments. There are also service industries in these areas, including restaurants, convenience stores, vehicle repair etc., plus residential units, often above the shops and offices. The urban fringe generally contains the better quality residential developments, and there are also shops and retail outlets, but less industry. There is also some agriculture in the outskirts, particularly in the more rural parts of the city.

The proposed site for the Motel is on the land owned by the Bangladesh Parjatan Corporation, and at present being used for facilitating tourism in the locality.

3.3.5 Power Sources and Transmission

Power problem in the Sylhet region has turned acute over a couple of years as there is a wide gap between the supply and demand. Regular activities in public and private offices and commercial establishments are routinely hampered because of a shortfall of about 50MW of power each day on average. The region accommodates more than a crore people leading to an average daily demand of about 100MW of power, while the supply hovers between 40MW and 50MW. As a result, the Power Development Board (PDB) has to go for load shedding every day in a cyclic order in the region and the city. Rural Electrification Board provides electricity to the areas other than PDB Circle. About 90% of the household within the project area (i.e. Sylhet Divisional town) other than SCC enjoys the electricity facility supplied by REB.⁴

Power is provided to most urban areas through a network of electricity pylons and poles, mainly located beside roadways. This provides connections to individual houses, and revenue collection is by individual household meters. Generation is insufficient to offer a continuous supply, and the providers operate a system of "load-shedding" whereby they turn off the supply for 1-2 hours each day to conserve the resource. Hotels, businesses and the more wealthy residents increasingly use their own generators to augment the supply from the national grid.

The proposed site of the Motel is located very close to the city area. There is power supply available for the existing establishment. It might also be required to install a substation within the Motel area as per design needs.

3.3.6 Other Economic Development

⁴ Final Plan Report (Structure Plan & Urban Area Plan) by Consortium of SHELTECH-EPC

Like most of the towns and cities of Bangladesh, remittance has been the key element of the economic growth of the city and also the region. The money is mainly sent by expatriates of Sylhet living abroad, particularly the United Kingdom, where the majority of the Diaspora Bangladeshi community originates from Sylhet. These foreign Bangladeshis are now looking to invest in the city.

Although Sylhet is a small city in comparison to the capital, it has been transformed drastically over the years. The construction industry in Sylhet is currently booming, with many shopping centers and apartments being built to luxurious standards. It has been described as one of the wealthiest cities in the country. The skyline of the city is mainly dominated by large buildings of western-style shopping malls, which have been the largest investments made by the expatriates. There are many new restaurants and stores, often themed on those found in London, which have been established to cater to the visiting Sylheti expatriate population and the growing Sylheti middle classes. New hotels have been established, the Rose View Hotel and the first Apartment-Hotel and resort in Bangladesh, called Grand Sylhet, are both the only five-star hotels in the city. Large multinational companies have also started to invest in Sylhet, one of these being HSBC Bank, which started its service in 2006 with 6,000 customers, and opened a Customer Service Center in 2008 in the Upashahar area. The Sylhet area contains several important natural gas fields, which make an important contribution to the energy balance of Bangladesh.

The Government has taken steps to create a Special Economic Zone (SEZ) in Sylhet. It is the first SEZ to be created in Bangladesh, after research conducted showed that the region is the best place, which will protect the human and natural resources, including the infrastructure of foreign investment, and to create strong economic development with domestic and international markets. The new zone only allows public-private partnership, without the interference of government finance. The SEZ was proposed due to the demands of the British-Bangladesh Chamber of Commerce, which is an economic forum of British Bangladeshis. The plan comes as an initiative toward stimulating the ongoing investment that has already taken place in Sylhet as well as providing a basis towards long-term investment to turn Sylhet into a major economic hub. Investments by British Bangladeshis led the way for two additional privately owned airlines, Royal Bengal Airlines and United Airways, to launch services in 2007. The investment is regarded to serve the Sylheti population living in the UK. The proposed new international standard Motel will also contribute a lot to enhance the economic growth of the region.

3.4 Social and Cultural Resources

3.4.1 Population and Communities

The Sylhet city has a high population density, with nearly 600,000 people residing in it. It is one of the largest cities in Bangladesh. The Sylhet region is well known for its tea gardens and tropical forests, the city however is currently known for its business boom — being one of the richest cities in Bangladesh, with new investments of hotels, shopping malls and luxury housing estates, brought mainly by expatriates living in the United Kingdom.

The majority of Sylhetis are Muslims (85%), other religious groups include Hindus (15%), and very few numbers of other religions, mainly Buddhists and Christians (less than 0.1%). The majority of the Muslims are mainly Sunni Hanafi; though there are significant numbers of people who follow Sufi ideals, the most influential is the teachings of Saheb Qibla Fultali who descends from the village of Fultoli, Zakiganj. It is believed that the late leader is a descendant of Shah Kamal, one of the disciples of Shah Jalal. Research in Bangladesh found that 60% of Sylhetis pray daily as compared to 35% in the whole country.

Thousands of foreigners have origins in Sylhet. The largest numbers of people from Sylhet living abroad are in the United Kingdom, with a population of about 300,000 (95% of the Bangladeshi population). Over 150,000 people are Bangladeshi-born, who have migrated to the UK. They are highly concentrated in the east London boroughs, having established themselves within the communities, notably in Brick Lane which has been dubbed as *Banglatown*. Sylheti foreigners are known as "Londoni" in Sylhet. Many

have also immigrated to the United States—they are mainly spread out across the country, but have a large concentration in New York City and Hamtramck, Michigan. Tens of thousands of Sylhetis are also working as guest workers in the Middle Eastern Gulf states.

3.4.2 Health Facilities

Sylhet city is a very important place for treatment of patients of the entire division, especially people from remote areas who cannot afford their journey to the capital city of Dhaka. Generally, people tend to visit qualified or competent health service providers, but it is also a common tendency to prefer sources, which are cheaper or free of charges. Government health centres can provide low cost health services, but the quality of services is not proper. Low income of the people is a bar to avail the advantages of improved healthcare facilities available in the private sector. Government hospitals are still important places for treatment particularly for the low income people.

Private sector has already made substantial investment in setting up hospital, clinics, and diagnostic centers. According to SCC, there are 40 private clinics with 1200 beds rendering health services to the city dwellers. The mushrooming of health facilities, concentrated in urban areas, with modern equipment has increased the average overhead cost and total cost in general. People are now more aware about treatment of their health problems. They prefer to go to qualified doctors or hospitals for treatment of family ailments. Private sector is gradually playing greater role in health care services in urban areas, while NGOs are more active among rural and urban poor. Major Public and Private Hospitals in Sylhet town are: Osmani Medical College Hospital (900 beds), Ragib Rabeya Medical College Hospital (500 beds), North East Medical College Hospital (250 beds), Shahid Shamsuddin Hospital (100 beds), Leprosy Hospital (80 beds), T.B. Hospital (56 beds), Red Crescent Maternity Hospital (40 beds), Police Hospital (28 beds), and Infectious Disease Hospital (20 beds).

Public health facilities provide good service, but many are under staffed and under resourced, and ratios of beds per numbers of population are inadequate. Facilities are significantly better in the private sector, but care is expensive, and out of reach of any but the wealthier citizens.

3.4.3 Educational Facilities

The overall literacy rate in the city area (population aged 7 years and above) is 69.73%; compared to the national average of 45.3% as per 2001 census. In the city area male literacy rate is 72.85%, while for female; the corresponding figure is 65.76%. The main reason for this is the large-scale immigration to the city area of the families who either are already literate or who after settlement made use of the extensive educational facilities available in the city to make them more competitive in the local job market.

Sylhet city is served by Board of Intermediate and Secondary Education, Sylhet and educational institutes like Shahjalal University of Science and Technology (SUST). SUST is the first Science and Technology University established in Bangladesh and is one of the most popular educational institutions in the country. There are also other prominent colleges like Sylhet Engineering College, Murari Chand College, Osmani Medical College and Sylhet Polytechnic Institute. Other notable educational institutions are Jalalabad Cantonment Public School and College, Sylhet Cadet College, Sylhet Agricultural University, Madan Mohan College, Women's College Sylhet, Government College Sylhet, and Sylhet Law College. There are also three private universities in Sylhet, namely Metropolitan University of Sylhet, Leading University and Sylhet International University. The Metropolitan University is one of the top class and high quality educational institutions with very good facilities. Many Muslim families also send their children to madrasahs to learn Arabic; such madrasahs includes the Jamia Tawakkulia Renga Madrasah, one of the oldest institutions in the city.

In Sylhet, there are also four private medical colleges, which are Jalalabad Ragib-Rabeya Medical College and Hospital, North East Medical College Hospital, Sylhet Women's Medical College and Durre Samad Red Crescent Medical College.

3.4.4 Socio- Economic Conditions

With an annual per capita income of \$1,466, Bangladesh is one of the least developed countries in the world. Agriculture is the dominant sector nationally (employing 50% of the labor force and contributing 23% of the GDP), followed by manufacturing (10% and 16% respectively). With significant growth in the export of ready-made garments, Bangladesh earned around \$31 billion in the last fiscal year, and a further \$15 billion from the export of manpower, mainly to the Middle East.

The socio-economic condition of the northeast region of Bangladesh is different due to presence of hill tracts, tea gardens, forests, and mineral resources as well as for natural calamities. Sylhet is the major city of this region where a large number of low-income workers live in the slum areas. Landlessness, unemployment in the rural areas and facilities of the city are encouraging the migration of rural poor to the Sylhet city and making rush to the slum areas day by day. Like other cities of Bangladesh, living standard and overall environment, especially the sanitation situation in the slum areas of Sylhet city is miserable. Almost no latrines or urinals are observed here and the inhabitants often defecate at open spaces, hedges, drains and bushes. Only about 16% of the slum dwellers of Sylhet city have access to use sanitary latrines. Moreover, the water they use for drinking and other domestic purposes is far below the permissible water quality standard. The deteriorated sanitation situation causes severe environmental degradation in Sylhet city. Obviously, the improvement of the environmental condition of Sylhet city mostly depends on the improvements of sanitation condition of the slum areas.⁵

The trend for rural-urban migration is largely a result of a lack of secure employment and sustenance in the rural areas; so, people move to the cities where they believe there are better job opportunities. As noted above, these rarely materialize and the end result is an increase in the urban poor, and an expansion of the slums. More than 82% of the population of Bangladesh lives on less than \$2 per day, and such people are mainly the urban poor and the rural poor. Slum dwellers in the towns and cities include people who are in regular employment, plus large numbers who are unemployed and who obtain an income from the streets where they can. Employed slum dwellers work mainly in construction or in factories, or as domestic servants, rickshaw operators, street vendors, etc.

Development of facilities for tourism will enhance growth of the region as well as for the country.

3.4.5 Physical and Cultural Heritage

Bangladesh has many sites, buildings and artefacts that are of historical and cultural significance. Many date back to the British colonial period from the mid-19th to the mid-20th centuries, and some are from earlier periods, including the Muslim era of the 13th to 17th centuries, the Sena dynasty of the 12th and 13th centuries, and even the Gupta Buddhist era of the 4th to 7th centuries A.D. However, construction practices that pay scant regard to the possible discovery of ancient remains have meant that most of the older sites that remain are located well away from urban areas.

Sylhet has a history of conquests and heritage from different types of cultures. The city is described as a City of Saints, with the mausoleum of the great saint Hazrat Shah Jalal, who brought Islam to Bengal during the 14th century, being located here. During the next few centuries it was part of the state of Assam during the rule of British India. After independence between India and Pakistan, Sylhet was then part of East Pakistan based on a referendum, and is now part of Bangladesh. It played a major role in the Bangladesh Liberation War during the 1970s.

Important places of historical interest are: The Shrine of Hazrat Shah Jalal, The Shrine of Hazrat Shah Paran, Shahi Eidgah, Gour Govinda Fort, Kean Bridge, Ali Amjad's Clock Tower, Rampasha, Biswanath (Home of Mystic Poet Hason Raja & Eklimur Raja), Shree Chaitanya Mandir (Nimai), Jainta Rajbari, Malinicherra Tea Garden, Kalagul, The Shrine of Hazrat Sayeed Zakir Shah Fatimi and M.C College. There are two museums: Osmani Museum and Museum of Rajas'(Mystic Poet Hason Raja & Folk Museum). Some new urban places of interest are: Dream Land (Theme Park), Adventure World

⁵Socio-cultural evaluation of sanitation hygiene in Sylhet city of Bangladesh by Mushtaq Ahmed, M. A. Hoque, M. S. K. A. Sarkar, M. A. I. Chowdhury and A. Begum of SUST, Sylhet

(Amusement Park), Osmani Shishu Udyan (Park), Shah Jalal Bridge. And in rural areas, interesting objects are: Manipuri Para, Handicraft and Sheetal Pati.

3.4.6 Indigenous Peoples

The majority of Bangladesh's people are Bengalis, and approximately 2.5 million are indigenous peoples belonging to 45 different ethnic groups. These peoples are concentrated in the north, and in the Chittagong Hill Tracts (CHT) in the south-east of the country. Their historical background, economic activities, social structure, religious beliefs and festivals make them distinctive. There is no specific pocket in the Sylhet City Corporation where indigenous people can be found; rather they have mixed with other people of the community. Within the Sylhet City Corporation, they are getting similar facilities as other citizens there; but they are not having enough opportunities within their own community because mainly of the isolated locations in different rural areas.

The main ethnic groups in Sylhet are Khasi, Manipuri, Garo, Patro, Bishnupriya, Tripuri and Santhal, although ECDO's⁶ non-formal survey identified 35 indigenous groups in total. Among these groups the Manipuri and the Khasi are greatest in population in Sylhet Division. Each group has distinct linguistic and cultural practices.

It is estimated that more than one hundred thousand indigenous people, (1.5% of Sylhet Division's population) live in Sylhet Division with various unique difficulties. Almost all of the regions that indigenous people inhabit are among the most remote areas with a large portion of people living a very hard life. An overwhelming majority of the people live below the poverty line.

Environmental degradation has made their lives even more difficult. They have become the victims of the negative impacts of modernization, as they lack the education and awareness to be able to harness and enjoy the positive benefits that Bangladesh's economic growth has created.

⁶Ethnic Community Development Organization – Voluntary organization working with ethnic community of Sylhet division

4 Anticipated Environmental Impacts and Mitigation Measures

The present report assesses the impacts of the proposed activities on various environmental attributes of the project site.

Methodology: Issues for consideration have been raised by the following means: (i) input from interested and affected parties, if any; (ii) desktop research of information relevant to the proposed project; (iii) site visit and professional assessment by environment specialist engaged by the implementing agency; and (iv) evaluation of proposed design scope and potential impacts based on the environment specialist's past experience. Categorization of the project and formulation of mitigation measures have been guided by the checklist in ANNEX 1: Project Information and Environmental Screening Questionnaire.

4.1 Location and Design Impacts

In the case of this Project there are few impacts that can clearly be said to result from the design or location. This is because:

- The infrastructure involves relatively straightforward construction at a single site, so it is unlikely that there will be major impacts when the facility is built;
- The proposed location of the Motel is in an area where the BPC authority has already its valid ownership as per Government regulations and there is no running activities that causes environmental degradation, and also there are no sensitive areas or receptors nearby; and
- If the Motel operates in the manner intended it should be hygienic and well managed facility that functions with few emissions and without major negative impacts.

Planning principles and design considerations have been reviewed and incorporated into the site planning process whenever possible. The concepts considered in design of the Motel are:

- All the components should have dustbins adequate in size to accommodate solid waste collected from the target area.
- All the components should be provided with independent supply of safe water.
- Water points, hoses and cleaning equipment must be provided in sufficient numbers. Cleaning program must be performed regularly.
- Industrial three phase electricity should be supplied and a standby generator installed.
- Each component should have its own drain and all drains must be accessible for cleaning for efficient waste water system.
- The building components should be protected by fencing to keep out from trespassing animals specially dogs/ cats, etc.
- Relevant national rules in solid waste management should be strictly enforced
- Entire complex would be managed by private organizations/ parties through competitive bidding process following government public-private partnership guidelines.
- Techniques, installation, management and training should be focused on minimization of water consumption, minimization of energy use, minimization of emission to air and minimization of noise.
- Future extensions or possibilities to add some other installation should be kept in mind during the design and during the period of construction.

Interested private developers will bid based on the concept and details included in the bid documents. The bidders will be advised to make their own diligence study prior to the bidding. Necessary documents and studies will be made available to them for their evaluation. It will be up to the bidders to maximize the use of resources made available to them.

4.2 Construction Impacts

Construction method: The work comprises the construction of BPC Motel including all its relevant infrastructures. The following are the scope of work:

- Preparation of the ground by forming to level and grade and excavating locally for foundations or, if necessary, by excavating unsuitable fill material and replacing with imported compacted backfill.
- Shaping of ground to suit footings and floor slab layout and falls and to allow exterior ground drainage.
- Laying and backfilling over underground and under floor drains.
- Boxing foundations and placing reinforcing with column starter bars.
- Pouring of slab and footings and curing.
- Construction of unreinforced masonry infill panels.
- Placing reinforcing, boxing, and pouring columns.
- Placing reinforcing for lintel beams and pouring concrete.
- Casting in bolts and anchor plates as necessary in the columns and lintels.
- Fabrication and fixing roof trusses and bracing.
- Placing and fixing purlins.
- Fixing roof cladding, gutters and downpipes.
- Wall framing with cladding panels and insect mesh as necessary.
- Fixing of external rails for sliding doors.
- Placing and fixing internal beams for rails plus fitting rails and hangers.
- Constructing weather covers for sliding door rails.
- Hanging of hinged doors.
- Internal wall and floor plastering as required.
- Painting as required.
- Electrical Services.
- Supply and/ or manufacture and installation of mechanical equipment.
- Construction of external effluent disposal system.
- Construction of solid waste disposal systems.

As explained above the land on which the BPC Motel is to be built is currently being used for similar purpose. There is open space beside the main road and it is easily accessible by the trucks used for onward transportation of the wastes to the sanitary landfill sites. So during construction, there will be some very minor impacts on the people and there will be no issue of resettlement of affected persons.

The site is located over a small hill. The sides of the hill may have risk of failure in case proper protection measures are not taken. To avoid this risk of landslide, the construction work should be carried out during the dry season when there will be no rain. The positions of the buildings have been so chosen as to avoid the edges of the hill.

Most of the site will be excavated to around 1.50 meter to create the cavities for the foundations of the buildings and paved areas. This will be done by backhoe digger and the excavated sand and soil will be loaded into trucks and transported to the municipal landfill for disposal.

All of the buildings and other structures will have Reinforced Cement Concrete (RCC) foundations; so, metal reinforcing bars will be put into position in the cavities by hand. Concrete (mixed on site or elsewhere) will then be poured into the cavities to form the foundations and floors of the buildings and other structures and the paved surfaces of the roads.

The above-ground RCC elements will then be created by enclosing lengths of metal reinforcing in wooden shuttering and pouring in concrete, which sets to form the structure. This is then repeated in the next portion of reinforcing and so on to create the completed structure. The brick walls of the building, toilets and boundary wall will then be created between the RCC supports by masons laying bricks and mortar by hand. Surfaces will be finished by plastering or tiling.. Doors, windows, electrical fittings and pipe-work for water supply and drainage will also be added by craftsmen and labourers.

All materials will be brought to site on small trucks and offloaded and positioned by hand, and a small crane will be used for any heavier elements such as the steel supports and reinforcing bars, doors and the metal gates for the entrance to the site. All debris will be cleared at the end of construction by loading onto a truck and depositing at the municipal landfill. Disposal sites for excavated soils and contaminated materials will be identified and agreed upon with the DOE before the commencement of any civil works.

There is sufficient space for a staging area, construction equipment, and stockpiling of materials. However, the contractor will need to remove all construction and demolition wastes on a daily basis.

Screening Out Areas of No Significant Impact: From the descriptions given it is clear that implementation of this project will not have major environmental impacts because the construction work is relatively small scale and straightforward, and will all be conducted at only one small site. Because of this there are several aspects of the environment that are not expected to be affected by the construction process and these can be screened out of the assessment at this stage. These are shown in **Table 2**, with an explanation of the reasoning in each case. These environmental sectors have thus been screened out and will not be mentioned further in assessing the impacts of the construction process.

Table 2: Fields in which construction is not expected to have significant impacts

Field	Rationale
Climate	Short-term production of dust is the only effect on atmosphere
Geology and seismology	Excavation will not be large enough to affect these features
Forests, wildlife, endangered species, protected areas	There are no forests, protected nature conservation areas or important habitats or species at or near this site
Coastal resources	BPC Motel site is far from the sea and this is deep inside the country side and such small structure will not affect the coastal resources

Field	Rationale
Agriculture, tourism	There is no agriculture at or near these sites; there will be positive impact on tourism
Population and communities	Construction will not affect population numbers, location or composition
Health and education facilities	There are no schools, clinics, hospitals, etc. at or near this site
Physical or cultural heritage	There are no culturally important buildings or locations at or near this site
Indigenous Peoples (IP)	The proposed site is not used by indigenous peoples or minority communities
Archaeology, palaeontology	No material of archaeological or paleontological significance has been found by previous construction projects in these areas
Ecological value	There are no protected areas in the vicinity of this site and no special ecological interest exists within the boundary of the site under consideration. Construction should therefore have no ecological impacts.

Impacts due to excavations: Excavating the foundations for the buildings, roads, walkways and other structures on sites will produce around 1,200 m³ of waste soil and stone. This is a relatively small quantity so it can be taken to the municipal disposal site without special precautions to reduce the amount of dumping. The material could be put to beneficial use if it was utilized at the landfill to cover waste; so, arrangements should be made by the Contractors with the landfill operators to deposit the waste in a suitable location where it can be used for this purpose. In any case, disposal sites for excavated soils and contaminated materials will be identified and agreed upon with the DOE before the commencement of the excavation activities.

Excavation is likely to be conducted in the dry season to avoid the difficult conditions that can occur when earthworks are carried out during rain. Precautions will therefore be needed to limit dust so that it does not affect surrounding areas or workers on site. Another physical impact associated with large-scale excavation is the effect on drainage and the local water table if groundwater and/or surface water collect in the cavities as they are dug.

Impacts due to alteration of the site: The presence of diggers, trucks and other vehicles and machinery and the developing structures as they are created will gradually alter the landscapes of this site. However most of this area is generally not very "busy" visually and there are no features of any special landscape interest at or around the site, so it should not be necessary to mask the construction site from view by erecting screens.

Impacts on site-specific economy: All of the construction related to this project will be conducted on land that is at present owned by the Bangladesh Parjatan Corporation and at present being used for similar purpose. So there will be no impact on the economy of local people due to construction of this project.

Construction work can provide short-term socio-economic gains for local communities if contractors employ local people in the workforce. To ensure that these benefits are directed to communities that are most affected by the work, contractors are often encouraged to employ people who live in the immediate vicinity of construction sites. This is possible in this case because of the presence of inhabitation in the locality, so the contractor should offer employment to any persons who are willing to work on the present site (in breaking bricks and in other activities) and who are not already employed by some other company. Such persons are economically disadvantaged and this would be improved by even a relatively short period of temporary employment.

Impacts on utilities: There are some temporary infrastructures on the land (power lines, and possibly also water supply pipes) so there could be minor economic impacts from the disruption of supply of these facilities due to damage during construction.

Impacts on accessibility: Excavation work can also have economic impacts if heavy vehicles carrying materials to site and transporting excavated waste to the disposal site cause significant disruption of traffic, particularly where work is conducted in an urban environment such as this. However any such impacts should not be significant in this case, because dump trucks normally have a capacity of 25-30 m³ so the disposal of 1,200 m³ of soil and stone will require a relatively small number of truck movements: around 45.

Impacts on social and cultural resources: Construction activities inevitably produce noise and dust, and these plus the visual appearance of the site and restrictions in access caused by excavation and the presence of vehicles and machinery, are generally the factors that disturb people who live or work in the vicinity. These should however not be major problems in this case as there are no people living on or near this site and the people who work there are already well adapted to this type of disturbance. The construction work is also small in scale, so it should not be necessary to apply measures to reduce noise, dust or other disturbance, beyond the dust suppression measures.

There are no major permanent public buildings at or near the site, and given the current land-use there are unlikely to be any locations that are of any special social or cultural importance to the community (shrines, meeting places, etc.). This should be confirmed by consulting labourers who work on the site during the construction stage and in the unlikely event that there are such locations, assistance should be given in relocating the site and any associated artefacts.

Impacts on health and safety: As is usual on construction sites, the health and safety of workers will need to be protected by measures which the contractor will be required to produce and apply. As adjacent areas are usually heavily used for the storage and processing of building materials, the contractor should also include measures to assure the safety of the public.

4.3 Operation and Maintenance Inputs

Sufficient, safe, potable and constant supply of fresh water will be made available at adequate pressure throughout the premises. Suitable facilities for washing of hands and nail brushes should be there, soap or detergent will be provided for the workers. All sanitary facilities will be equipped with suitable flushing appliance.

Land contamination: The Tourism Complex site will not contaminate the land the way other industrial operations can. The main reason for this is that this building complex will not use any chemicals that can have any detrimental effect on the environment.

Generation of Waste Materials and By-Products: In general, pollutants generated from this building complex will include: wastewater from toilet and cleaning of premises, and mud-fed rainwater drainage during rainy seasons.

Generation of Wastewater: The liquid waste of the building complex is not very high in biological oxygen demand. Also, the quantity will be small and it will be allowed to drain through the existing municipal covered surface drains.

Health, hygiene, and safety: Spread of diseases to workers and their families may occur due to inadequate provision of safety equipment and lack of practice of safety rules and precautions.

Table 3: Fields in which operation and maintenance of the completed Tourism Complex is not expected to have significant impacts

Field	Rationale
Geology, seismology	Operating the Tourism Complex should not affect these factors
Forests, wildlife, endangered species, protected areas	There are no forests, protected nature conservation areas or important habitats or species at or near the site
Coastal resources	BPC Motel is far from the sea and located deep inside the city and such a small structure will not affect the coastal resources
Tourism, population and communities, health and education facilities	This is a place of tourist attraction, and there are no inhabited areas or health/ education facilities near the building complex site. There will be positive impact on these issues
Physical or cultural heritage, archaeology, palaeontology	There are no areas of social, cultural or historical interest or importance near the site
Indigenous Peoples	There are no IP or minority communities near the site

4.4 Mitigation Measures

There are no impacts that are significant or complex in nature, or that need an in-depth study to assess the impact. Thus, the project is unlikely to cause significant adverse impacts. The potential adverse impacts that are associated with design, construction, and O&M can be mitigated to acceptable levels with the following mitigation measures (**Table 4**).

Table 4: Recommended Mitigation Measures

Parameter	Mitigation Measures
Planning Phase	

Parameter	Mitigation Measures
Work schedule	<ul style="list-style-type: none"> - Ensure careful planning and scheduling of the activities. - Prepare a traffic management plan and road safety plan.
Barricades and warning signs	<ul style="list-style-type: none"> - Use easily transportable barricades and warning signs such as those made of high reflector plastic materials. - Also use aluminized rolled warning signs to warn the public.
Workers	<ul style="list-style-type: none"> - Employ workers with adequate experience, training, and know-how. It is always advantageous for the contractor to employ workers with adequate experience, training, and know-how in the line of work that they are doing. These people are usually reliable and can be counted upon to exercise good judgment in the field.
Legislation, permits, and agreements	<ul style="list-style-type: none"> - In all instances, the private developer, their consultant and contractor must remain in compliance with relevant local and national legislation. - A copy of the IEE must be kept on-site. - Ensure Environmental Clearance is obtained prior to award of contract.
Access to site	<ul style="list-style-type: none"> - Access to site will be via existing roads. The contractor will need to ascertain the existing condition of the roads and repair damage due to construction.
Setting up of construction camp ⁷	<ul style="list-style-type: none"> - Choice of site for the contractor's camp requires the private developer's environment management specialist's permission and must take into account location of local residents, businesses, and existing land uses. A site plan must be submitted to the environment management specialist for approval. - If the contractor chooses to locate the camp site on private land, he must get prior permission from the environment management specialist and the landowner. - Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. - Recycling and the provision of separate waste receptacles for different types of waste should be encouraged.

⁷ Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation is reduced.

Parameter	Mitigation Measures
Establishing equipment lay-down and storage area ⁸	<ul style="list-style-type: none"> - Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by children, animals, etc. - The contractor should submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures.
Materials management – sourcing ⁹	<ul style="list-style-type: none"> - The contractor should prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, etc.), and submit these to the environment management specialist for approval prior to commencement of any work.
Education of site staff on general and environmental conduct ¹⁰	<ul style="list-style-type: none"> - Ensure that all site personnel have a basic level of environmental awareness training. - Staff operating equipment (such as excavators, loaders, etc.) should be adequately trained and sensitized to any potential hazards associated with their task. - No operator should be permitted to operate critical items of mechanical equipment without having been trained by the contractor. - All employees must undergo safety training.

Construction Phase

- Excavated materials
- Hauling vehicles must always be present at the excavation site.
 - The contractor can process the excavated materials and use these as selected backfill materials.
 - If excavated materials are not suitable for reuse, the contractor should deposit these in an area designated by Sylhet City Corporation.
 - Coordinate with the landfill operators for the disposal of excavated materials.
 - Identify and obtain clearance from DOE for disposal sites of excavated soils and contaminated materials.
 - Obtain from the environment management specialist approval for disposal of excavated materials.
 - Remove waste rapidly by loading material onto trucks as soon as it is excavated;
 - Cover or damp down working areas and stockpiled soil in dry, windy weather; and
 - Use tarpaulins to cover loose material during transportation to and from the site.

⁸ Storage areas can be hazardous and unsightly and can cause environmental pollution if not designed and managed carefully.

⁹ Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

¹⁰ These points need to be made clear to all staff on site before the project begins.

Parameter	Mitigation Measures
Hauling of Construction Materials	<ul style="list-style-type: none"> - Maintain record of excavated materials, disposal dates, and methods. - Conduct the work in the dry season will reduce these impacts, and as the excavation in this case is shallow and small in scale there should be no impact on the water table.
Access	<ul style="list-style-type: none"> - The contractor must maintain all the materials necessary in his inventory so that these can be easily hauled to the construction site when needed. - Advance signage for affected parking areas must indicate duration and alternative parking arrangements. - The contractor should make available in his stock steel plates and wooden planks, which will be deployed on top of excavations to provide temporary access to buildings, street crossings, and other areas where these will be necessary. - Advance road signage must indicate the road detour and alternative routes. Sign boards should be provided for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints.
Occupational health and safety	<ul style="list-style-type: none"> - Employ workers with adequate experience, training and know-how. - These workers should be led by an experienced supervisor or engineer, who will provide the leadership in daily activities. - A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers should be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that he/she is not trained to do. - The contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. - The rules that are explained in the worker conduct section must be followed at all times.

Parameter	Mitigation Measures
Community health and safety	<ul style="list-style-type: none"> - Contractor's activities and movement of staff will be restricted to designated construction areas. - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment management specialist. - Disruption of access for local residents, commercial establishments, institutions, etc. must be minimized and must have the environment management specialist's permissions. - There should be provision of walkways and metal sheets where required to maintain access for people and vehicles. - Businesses and institutions should be consulted regarding operating hours, and factor this in work schedules. - The contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. This can take place by way of leaflets placed in the post-boxes giving the environment management specialist's and contractor's details or other methods approved by the environment management specialist. - Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints. - The contractor will ensure that there is provision of alternate access to business establishments during the construction, so that there is no closure of these shops or any loss of clientele. - The contractor will ensure that any damage to properties and utilities will be restored or compensated to pre-work conditions. - Lighting on the construction site should be pointed downwards and away from oncoming traffic and nearby houses. - The site must be kept clean to minimize the visual impact of the site. - If screening is being used, this must be moved and re-erected as the work front progresses. - Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours. - Notice of particularly noisy activities must be given to residents/businesses adjacent to the construction site. Examples of these include: noise generated by jackhammers, diesel generator sets, excavators, etc. - Noisy activities must be restricted to the times given in the project specification or general conditions of contract. - The environment management specialist and contractor are responsible for ongoing communication with those people who are interested in or affected by the project.

Parameter	Mitigation Measures
	<ul style="list-style-type: none"> - A complaints register (refer to the grievance redressal mechanism) should be housed at the site office. This should be in carbon copy format, with numbered pages. Any missing pages must be accounted for by the contractor. This register is to be tabled during monthly site meetings. - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any complaints/ grievances received by him and forward the details of the grievance along with the action taken to the environment management specialist within 48 hours of receipt of such complaint/ grievance.
Community and public awareness	<ul style="list-style-type: none"> - Storage facilities and other temporary structures on-site should be located such that they have as little visual impact on local residents as possible. - Special attention should be given to the screening of highly reflective materials on site. - In areas where the visual environment is particularly important (e.g. along commercial/ tourism routes) or privacy concerns for surrounding buildings exist, the site may require screening. This could be in the form of shade cloth, temporary walls, or other suitable materials prior to the beginning of construction.
Construction camps and storage areas	<ul style="list-style-type: none"> - The contractor should ensure that open areas or the surrounding bushes are not being used as toilet facility. - The contractor should ensure that all litter is collected from the work and camp areas daily. - Bins and/or skips should be emptied regularly and waste should be disposed of at the pre-approved site. Waybills for all such disposals are to be kept by the contractor for review by the environment management specialist. - The contractor should ensure that his camp and working areas are kept clean and tidy at all times. - After construction work, all structures comprising the construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land). - The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up.

Parameter	Mitigation Measures
Dust and air pollution	<ul style="list-style-type: none"> - All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area should be top soiled and regressed. - The contractor must arrange the cancellation of all temporary services. - Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust. - Access and other cleared surfaces, including backfilled trenches, must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust. - Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for safety, fuel consumption, etc. - The contractor is to have the equipment seen to as soon as possible should excessive emissions be observed,
Noise levels	<ul style="list-style-type: none"> - Noise-generating equipment must be fitted with silencers. - If a worker is exposed to noise above a noise exposure limit, the contractor must investigate options for engineered noise control such as using low-noise excavators, jackhammers, drills, and power generators. - If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor must post warning signs in the noise hazard areas. Workers in a posted noise hazard area must wear hearing protection.
Utilities	<ul style="list-style-type: none"> - Prepare a list of affected utilities and operators - Prepare a contingency plan to include actions to be done in case of unintentional interruption of services.
Water quality	<ul style="list-style-type: none"> - Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or water on-site. - Care must be taken to ensure that runoff from vehicle or plant washing does not enter the surface/ground water. - Site staff should not be permitted to use any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the environment management specialist) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting, etc. - All concrete mixing must take place on a designated, impermeable surface.

Parameter	Mitigation Measures
	<ul style="list-style-type: none"> - No vehicles transporting concrete to the site may be washed on-site. - No vehicles transporting, placing, or compacting asphalt or any other bituminous product may be washed on-site. - All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of or removed from the site. - Hazardous substance/ materials are to be transported in sealed containers or bags.
Waste management	<ul style="list-style-type: none"> - Wastes must be placed in the designated skips/bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection. - Construction rubble should be disposed of in pre-agreed, demarcated spoil dumps that have been approved by the environment management specialist, or at disposal sites.
Conservation of natural environment	<ul style="list-style-type: none"> - As the work front progresses; the contractor is to check that vegetation clearing has the prior permission of the environment management specialist. - Only trees that have been marked beforehand are to be removed, if cutting of trees is required. - The entire area has to be cleaned and maintained immediately after completion of the construction activities to make sure that existing tranquillity of the surrounding area is not disturbed in any way.
Cultural and historical environment	<ul style="list-style-type: none"> - Consult labourers who work on the site during the construction stage and in the unlikely event that there are social and cultural resources in the site; assistance should be given in relocating the site and any associated artefacts. - All the staff and labourers of the contractor are to be informed about the possible items of historical or archaeological value, which include old stone foundations, tools, clay ware, jewellery, remains, fossils, etc. - If something of this nature is uncovered, Department of Archaeology should be contacted and work should be stopped immediately.

Parameter	Mitigation Measures
Safeguards supervisors	<ul style="list-style-type: none"> - The contractor should appoint one environment safeguard supervisor who will be responsible for assisting the contractor in implementation of EMP, coordinating with the DSC, consultations with interested/ affected parties, reporting, and grievance redressal on a day-to-day basis. The resettlement issue will be resolved before the site will be handed over to the Contractor for construction activities.
Operation and Maintenance Phase	
General	<ul style="list-style-type: none"> - Develop O&M Manuals to include all aspects of the management and operation of the building complex - Train all workers to the highest standards available in Bangladesh and given refresher training at least annually - Control access for public/personnel; - Lock rooms or cages for waste storage; - Clean toilets daily; - Provide clean hand washing areas with adequate soap and towels; - Provide clothing and laundry service for workers; and - Clean facility after the work of each day. The waste storage area and other adjacent areas should be sprinkled or sprayed regularly with disinfectants to avoid any spread of disease. - Insert plates and stops to prevent vermin from gaining access to the building. Where insect screening is required, this should consist of nylon insect mesh securely fixed to 150 x 50 reinforcing mesh with galvanized tie wire. Edges should be finished with a screw fixed beading strip where possible (all galvanized). - Audit implementation of O&M procedures at regular intervals (by an Independent Monitoring Agency)
Land contamination	<ul style="list-style-type: none"> - Not store wastes outside the building complex premises to avoid issues of aesthetic nature
Wastewater	<ul style="list-style-type: none"> - After treatment, the discharge standards need to be followed similar to the standards mentioned in Schedule 10 of the ECR 1997 for inland water discharge
Odour	<ul style="list-style-type: none"> - Audit odour to identify and characterize sources and determine any action required. - Store wastes properly inside the premises, preferably in an aerated area to minimize biodegradation and foul odour - Vendors should be asked to pick up waste on a daily basis to minimize degradation and odour - Enclose wastes and by-products during transport, loading/unloading and storage

Parameter	Mitigation Measures
Noise	<ul style="list-style-type: none">- Carry out frequent cleaning of material storage areas to prevent odour- Activities and vehicle movements should be avoided after working hours.- Vehicles should be fitted with silencers.- Vehicles and machinery are to be kept in good working order.

The successful operation of the Tourism complex in the manner intended should bring significant benefits to the stakeholders by keeping the environment cleaner than before.

5 Information Disclosure, Consultation and Participation

5.1 Project Stakeholders

Primary stakeholders are:

- Companies that operate on the proposed building complex;
- People who work at the site, either employed by the BPC authority, a company or self-employed;
- Companies and workers operating in areas adjacent to the building complex sites; and
- Companies and private individuals who are benefitted from the proposed building complex.

Secondary stakeholders are:

- Government institutions whose remit includes areas or issues affected by the project (City Corporations, Planning Authorities, Department of Public Health Engineering, Local Government Engineering Department, Ministry of Finance, Ministry of Health, Ministry of Environment, Roads and Highways Department, etc.);
- NGOs, CBOs and other representatives of persons who may be affected by the project; and the beneficiary community in general.

5.2 Consultation and Disclosure

The private developer will extend and expand the consultation and disclosure process significantly during implementation of the building complex. The private developer should appoint an experienced NGO to handle this key aspect of the program, who will conduct a wide range of activities in the target urban areas to ensure that the needs and concerns of stakeholders are registered, and are addressed in project design, construction or operation where appropriate. The program of activities will be developed during the detailed design stage, and is likely to include the following:

Consultation during detailed design:

- Focus-group discussions with affected persons and other stakeholders (including women's groups, NGOs and CBOs) to hear their views and concerns, so that these can be addressed in project design where necessary; and
- Structured consultation meetings with the institutional stakeholders (Government bodies and NGOs) to discuss and approve key aspects of the project.

Consultation during construction:

- Public meetings with major stakeholders to discuss and plan work programs and allow issues to be raised and addressed once construction has started; and
- Smaller-scale meetings to discuss and plan construction work with primary stakeholders to reduce disturbance and other impacts, and provide a mechanism through which affected persons can participate in project monitoring and evaluation.

Project disclosure:

- Public information campaigns (via newspaper, TV and radio) to explain the project to the urban populations and prepare them for any disruption they may experience once the construction program is underway;
- Public disclosure meetings at key stages to inform the public of progress and future plans, and to provide copies of summary documents in the Bangla language; and

- Formal disclosure of completed project reports by making copies available at convenient locations in the target city, informing the public of their availability, and providing a mechanism through which comments can be made.

5.3 Public Consultations Conducted

Different techniques of consultation with stakeholders were used by the Environment Expert of the Transaction Advisor during the planning stage of project preparation (interviews, public meetings, group discussions, etc.). A questionnaire was designed and environmental information was collected. Apart from this, a series of public consultation meetings were conducted during the project preparation. Various forms of public consultations (consultation through ad hoc discussions on-site) have been used to discuss the project and involve the community in planning the project design and mitigation measures. Issues discussed and feedback received along with details of date, time, location, and list of participants are given in **Annex 3**.

6 Environmental Management Plan

6.1 Implementation Arrangement

The Private Developer: The private developer will have its own team for implementation of the building complex. The team will be responsible for implementation of the project under strict supervision ensuring excellent quality. A consultant company will be responsible for day to day supervision of quality and recommendation for bill payment. The scope of the private developer shall include the following:

- Develop, supply, manage and maintain the building complex, in accordance with the provisions of the contract, good industry practice and applicable Laws;
- Observe and fulfil the environmental and other requirements as specified in the IEE/ EMP and under all applicable laws and applicable permits at all time during the service delivery period;
- Apply for and obtain all necessary clearances and/or approvals for the construction of the building complex from all the concerned governmental agencies;
- Coordinate with the Environment Specialist on updating the IEE/EMP based on detailed designs;
- Procure and maintain in full force and effect, as necessary, appropriate proprietary rights, licenses, contracts and permissions for materials, methods, processes and systems used in or incorporated into the project;
- Appoint, supervise, monitor and control the activities of sub-contractors under their respective project contracts as may be necessary;
- Be responsible for safety, soundness and durability of the building complex, including all structures forming part thereof;
- Ensure that the building complex site remains free from all encroachments and take all steps necessary to remove encroachments, if any;
- Remove promptly from the building complex site all surplus construction machinery and materials, waste materials (including, without limitation, hazardous materials and waste water), rubbish and other debris and keep the area in a neat, clean and hygienic condition and in conformity with the applicable Laws and applicable Permits.

Environmental Specialist: The environment specialist will take care of all environmental issues encountered during implementation of the project.

Contractors: The Contractor's scope shall include the following:

- Carry out the Engineering, procurement and construction of the building complex, in accordance with the provisions of the contract, good industry practice and applicable Laws;
- Observe and fulfil the environmental and other requirements as specified in the IEE/ EMP and under all applicable laws and applicable permits at all time during the construction period;
- Provide all assistance to the Project personnel of the private developer as may be reasonably required for the performance of his/ her duties and services under this project;
- Provide to Environment Specialist reports on a regular basis during the construction period in accordance with the provisions of the contract;
- Appoint, supervise, monitor and control the activities of sub-contractors under their respective project contracts as may be necessary;
- Make efforts to maintain harmony and good industrial relations amongst the personnel employed by private developer in connection with the performance of the contractor's obligations under the contract;

6.2 Capacity Building

A training program has been developed to build the capability of implementing authority. This will be conducted by the Environment Specialist. The private developer will be required to (i) conduct environmental awareness and orientation of workers prior to deployment to work sites; (ii) train the workers to the highest standards available in Bangladesh and given a refresher training at least annually.

The suggested outline of the training program is presented in **Table 5**. The capacity building and training program will be updated during the detailed design stage to incorporate the contractors output.

Table 5: Indicative Capacity Building and Training Program for the Tourism Complex

Description	Contents	Schedule	Participants
To be conducted by Environment Specialist			
Program 1			
Orientation program/ workshop for contractors and supervisory staff	Environmental issues during construction Implementation of EMP Monitoring of EMP implementation Reporting requirements	1 day	Supervisory staff of the private developer
To be conducted by private developer			
Program 2			
Orientation and safety Issues	Building complex implementation activities detailed in drawings; safeguard policy requirements as per Government of Bangladesh rules; safety instructions and use of PPEs ¹¹ by the staff and workers	1 day	Staff and workers of the private developer and Contractor
Program 3			
Action plan for implementation of the implementation project in a timely and of the project	Detailed action plan for implementation of the implementation project in a timely and qualitative manner	1 day	Staff and workers of the private developer and Contractor

¹¹**Personal protective equipment (PPE)** refers to protective clothing, helmets, goggles, or other garment or equipment designed to protect the wearer's body from injury. The hazards addressed by protective equipment include physical, electrical, heat, chemicals, biohazards, and airborne particulate matter. Protective equipment may be worn for job-related occupational safety and health purposes, as well as for sports and other recreational activities. "Protective clothing" is applied to traditional categories of clothing, and "protective gear" applies to items such as pads, guards, shields, or masks, and others.

6.3 Environmental Management Action Plan

The EMP will guide the environmentally sound construction of the project and ensure efficient lines of communication between the Environment Specialist, supervisory staff and contractors. The EMP identifies activities according to the following three phases: (i) site establishment and preliminary activities, including finalizing IEE/EMP; (ii) construction stage; and (iii) post-construction/operational stage. **Table 6** outlines the mitigation measures and persons responsible for implementation and monitoring. The EMP will be updated by Environment Specialist during the detailed design stage.

Environmental monitoring program: Prior to commencement of any civil work, the contractors will submit a compliance report¹² to the Environment Specialist ensuring that all identified pre-construction environmental impact mitigation measures as detailed in the EMP will be undertaken. The Environment Specialist will review the report, and thereafter supervisory staff of the BPC will allow commencement of civil works. Supervisory staff of Parjatan Corporation and the Environment Specialist will be responsible for monitoring.

¹²This compliance report will include information on (i) barricades and warning signs; (ii) area for setting up of construction camps; (iii) methodology for surveys; (iv) area for establishing lay-down and storage; (v) sources of materials; (vi) records of environmental awareness, safety training, and orientation of workers prior to deployment to work sites; (vii) contact information of the environmental and resettlement supervisors; and (viii) construction method statement.

Table 6: Environmental Management Action Plan

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Planning Phase						
Capacity Building	- Develop and submit for approval a capacity building and training program to ensure (i) all workers are trained to the highest standards available in Bangladesh and given refresher training at least annually; and (ii) Private Developer's supervisory staffs are given a high level of training and other support sufficient to achieve the expected standards.	Contractors	Developer's supervising staff	Capacity building and training program	Annually	All applicable laws and regulations
Work schedule	- Ensure careful planning and scheduling of the activities	Contractors	Developer's supervising staff	Plan and schedules	Prior to approval of detailed design documents	Detailed Design documents

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Barricades and warning signs	<ul style="list-style-type: none"> - Use easily transportable barricades and warning signs such as those made of high reflector plastic materials. - Also use aluminized rolled warning signs to warn the public. 	Contractors	Developer's supervising staff	Lists and samples of warning signs and barricades	Prior to approval of detailed design documents	Detailed design documents
Workers	<ul style="list-style-type: none"> - Employ workers with adequate experience, training, and know-how. It is always advantageous for the contractor to employ workers with adequate experience, training, and know-how in the line of work that they are doing. These people are usually reliable and can be counted upon to exercise good judgment in the field. 	Contractors	Developer's supervising staff	Workers list (for internal monitoring)	Prior to commencement of construction	Detailed Design documents

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Community and public awareness	<ul style="list-style-type: none"> - A massive information campaign must precede any construction activity in order to make the public aware of the extent of the problem that might be present during the period of construction. - Open liaison channels should be established between Private Developer authority, the contractors, and interested and affected parties such that any queries, complaints, or suggestions can be dealt with quickly and by the appropriate persons. 	Contractors	Developer's supervising staff	Communication and participation strategy	Prior to approval of detailed design documents	Detailed Design documents
Legislation, permits, and agreements	<ul style="list-style-type: none"> - In all instances, Developer authority, contractors and consultants must remain in compliance 	Contractor	Developer's supervising staff	All applicable permits and approvals	Prior to start of civil works and as necessary	Ensure location clearance and ECC from DOE as per guidance provided in ECR 1997 is obtained

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>with relevant local and national legislation.</p> <ul style="list-style-type: none"> - A copy of the IEE must be kept on-site 					prior to award of contract
Access to site	<p>- Access to site will be via existing roads. The contractor will need to ascertain the existing condition of the roads and repair damage due to construction.</p>	Contractor	Developer's supervising staff	Traffic management plan	<p>Prior to approval of detailed design documents</p>	<p>No complaints received</p> <p>Minimal traffic disturbance</p>
Setting up of construction camp	<ul style="list-style-type: none"> - Choice of site for the contractor's camp requires the DSC environment management specialist's permission and must take into account location of local residents, businesses, and existing land uses. A site plan must be submitted to the environment management specialist for approval. 	Contractor	Developer's supervising staff	Location plan	<p>Prior to approval of detailed design documents</p>	<p>Approved location plan</p> <p>Construction method</p> <p>No complaints received</p>

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<ul style="list-style-type: none"> - If the contractor chooses to locate the camp site on private land, he must get prior permission from the environment management specialist and the landowner. - Under no circumstances may open areas or the surrounding bushes be used as a toilet facility. - Recycling and the provision of separate waste receptacles for different types of waste should be encouraged. 					
Establishing equipment lay-down and storage area	<ul style="list-style-type: none"> - Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by children, animals, etc. - The contractor should submit a method statement and 	Contractor	Developer's supervising staff	Location plan	Prior to approval of detailed design documents	Approved location plan Construction method No complaints received

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Materials management – sourcing	<p>plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures.</p> <ul style="list-style-type: none"> - The contractor should prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, etc), and submit these to the environment management specialist for approval prior to commencement of any work. 	<p>Contractor to submit sources of materials to supervising staff DSC</p>	Developer's supervising staff	Lists of sources	Prior to approval of detailed design documents	All applicable permits (e.g. from Mining Department for quarries, borrow pits, sands and gravel)
Education of site staff on general and	<ul style="list-style-type: none"> - Ensure that all site personnel have a basic level of environmental awareness training. - Staff operating equipment (such as excavators, loaders, etc.) should be adequately trained and 	Contractor	Developer's supervising staff	Records of training	Prior to start of civil works and every new employee	Revised/ Updated IEE/EMP (capacity building)

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>environmental sensitized to any conduct¹³ potential hazards associated with their task.</p> <ul style="list-style-type: none"> - No operator should be permitted to operate critical items of mechanical equipment without having been trained by the contractor. - All employees must undergo safety training. 					
Construction Phase						
Excavated materials	<ul style="list-style-type: none"> - Hauling vehicles must always be present at the excavation site. - The contractor can process the excavated materials and use these as selected backfill materials. - If excavated materials are not suitable for reuse, the 	Contractor	Developer's supervising staff	Construction method statement	As work progresses	<p>Construction method Detailed design documents Identify and obtain clearance from DOE for disposal sites of excavated soils and contaminated materials</p>

¹³ These points need to be made clear to all staff on site before the project begins.

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>contractor should deposit these in an area designated by Sylhet City Corporation.</p> <ul style="list-style-type: none"> - Coordinate with the landfill operators for the disposal of excavated materials. - Obtain from the environment management specialist approval for disposal of excavated materials. - Remove waste rapidly by loading material onto trucks as soon as it is excavated; - Cover or damp down working areas and stockpiled soil in dry, windy weather; and - Use tarpaulins to cover loose material during transportation to and from the site. - Maintain record of excavated materials, disposal dates, and methods. 					

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Hauling of Construction Materials	<ul style="list-style-type: none"> - Conduct the work in the dry season will reduce these impacts, and as the excavation in this case is shallow and small in scale there should be no impact on the water table. - The contractor must maintain all the materials necessary in his inventory so that these can be easily hauled to the construction site when needed. - Advance signage for affected parking areas must indicate duration and alternative parking arrangements. 	Contractor	Developer's supervising staff	Construction method statement	As work progresses	<p>Construction method</p> <p>Detailed design documents</p>
Access	<ul style="list-style-type: none"> - The contractor should make available in his stock steel plates and wooden planks which will be deployed on top of excavations to provide temporary access to buildings, street 	Contractor	Developer's supervising staff	Construction method statement	As work progresses	<p>Construction method</p> <p>Detailed design documents</p> <p>Zero complaints from community/ sensitive receptors</p>

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Occupational health and safety	<p>crossings, and other areas where these will be necessary.</p> <ul style="list-style-type: none"> - Advance road signage must indicate the road detour and alternative routes. Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints. - Employ workers with adequate experience, training, and know-how. - These workers should be led by an experienced supervisor or engineer, who will provide the leadership in daily activities. - A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site 	Occupational health and safety	<ul style="list-style-type: none"> - Employ workers with adequate experience, training, and know-how. - These workers should be led by an experienced supervisor or engineer, who will provide the leadership in daily activities. - A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site 	Occupational health and safety	<ul style="list-style-type: none"> - Employ workers with adequate experience, and safety training, and know-how. - These workers should be led by an experienced supervisor or engineer, who will provide the leadership in daily activities. - A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site 	<ul style="list-style-type: none"> - Employ workers with Occupational health adequate experience, and safety training, and know-how. - These workers should be led by an experienced supervisor or engineer, who will provide the leadership in daily activities. - A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers should be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that</p>		<p>staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers should be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that</p>		<p>staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers should be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that</p>	

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	<p>he/she is not trained to do.</p> <ul style="list-style-type: none"> - The contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. - The rules that are explained in the worker conduct section must be followed at all times. 		<p>he/she is not trained to do.</p> <ul style="list-style-type: none"> - The contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. - The rules that are explained in the worker conduct section must be followed at all times. 		<p>he/she is not trained to do.</p> <ul style="list-style-type: none"> - The contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. - The rules that are explained in the worker conduct section must be followed at all times. 	
Community health and safety	<ul style="list-style-type: none"> - Contractor's activities and movement of staff will be restricted to designated construction areas. 	Community health and safety	<ul style="list-style-type: none"> - Contractor's activities and movement of staff will be restricted to designated construction areas. 	Community health and safety	<ul style="list-style-type: none"> - Contractor's activities and movement of staff will be restricted to designated construction areas. 	

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	<ul style="list-style-type: none"> - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment 	<ul style="list-style-type: none"> - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment 	<ul style="list-style-type: none"> - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment 	<ul style="list-style-type: none"> - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment 	<ul style="list-style-type: none"> - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment 	<ul style="list-style-type: none"> - Should the construction staff be approached by members of the public or other stakeholders, staff should assist them in locating the environment management specialist or contractor, or provide a number through which they may contact the environment management specialist or contractor. - The conduct of the construction staff when dealing with the public or other stakeholders should be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the environment

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	<p>management specialist.</p> <ul style="list-style-type: none"> - Disruption of access for local residents, commercial establishments, institutions, etc. must be minimized and must have the environment management specialist's permissions. - Provide walkways and metal sheets where required to maintain access for people and vehicles. - Consult businesses and institutions regarding operating hours, and factor this in work schedules. - The contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. <p>This can take place by way of leaflets placed in the post-boxes giving the</p>		<p>management specialist.</p> <ul style="list-style-type: none"> - Disruption of access for local residents, commercial establishments, institutions, etc. must be minimized and must have the environment management specialist's permissions. - Provide walkways and metal sheets where required to maintain access for people and vehicles. - Consult businesses and institutions regarding operating hours, and factor this in work schedules. - The contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. <p>This can take place by way of leaflets placed in the post-boxes giving the</p>		<p>management specialist.</p> <ul style="list-style-type: none"> - Disruption of access for local residents, commercial establishments, institutions, etc. must be minimized and must have the environment management specialist's permissions. - Provide walkways and metal sheets where required to maintain access for people and vehicles. - Consult businesses and institutions regarding operating hours, and factor this in work schedules. - The contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. <p>This can take place by way of leaflets placed in the post-boxes giving the</p>	<p>management specialist.</p> <ul style="list-style-type: none"> - Disruption of access for local residents, commercial establishments, institutions, etc. must be minimized and must have the environment management specialist's permissions. - Provide walkways and metal sheets where required to maintain access for people and vehicles. - Consult businesses and institutions regarding operating hours, and factor this in work schedules. - The contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. <p>This can take place by way of leaflets placed in the post-boxes giving the</p>	

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	<p>environment management specialist's and contractor's details or other method approved by the environment management specialist.</p> <ul style="list-style-type: none"> - Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints. - The contractor will ensure that there is provision of alternate access to business establishments during the construction, so that there is no closure of these shops or any loss of clientele. - The contractor will ensure that any damage to properties and utilities will be restored or 		<p>environment management specialist's and contractor's details or other method approved by the environment management specialist.</p> <ul style="list-style-type: none"> - Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints. - The contractor will ensure that there is provision of alternate access to business establishments during the construction, so that there is no closure of these shops or any loss of clientele. - The contractor will ensure that any damage to properties and utilities will be restored or 	<p>environment management specialist's and contractor's details or other method approved by the environment management specialist.</p> <ul style="list-style-type: none"> - Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints. - The contractor will ensure that there is provision of alternate access to business establishments during the construction, so that there is no closure of these shops or any loss of clientele. - The contractor will ensure that any damage to properties and utilities will be restored or 	<p>environment management specialist's and contractor's details or other method approved by the environment management specialist.</p> <ul style="list-style-type: none"> - Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/complaints. - The contractor will ensure that there is provision of alternate access to business establishments during the construction, so that there is no closure of these shops or any loss of clientele. - The contractor will ensure that any damage to properties and utilities will be restored or 	

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	<p>compensated to pre-work conditions.</p> <ul style="list-style-type: none"> - Lighting on the construction site should be pointed downwards and away from oncoming traffic and nearby houses. - The site must be kept clean to minimize the visual impact of the site. - If screening is being used, this must be moved and re-erected as the work front progresses. - Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours. - Notice of particularly noisy activities must be given to residents/ businesses adjacent to the construction site. <p>Examples of these include: noise generated by</p>		<p>compensated to pre-work conditions.</p> <ul style="list-style-type: none"> - Lighting on the construction site should be pointed downwards and away from oncoming traffic and nearby houses. - The site must be kept clean to minimize the visual impact of the site. - If screening is being used, this must be moved and re-erected as the work front progresses. - Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours. - Notice of particularly noisy activities must be given to residents/ businesses adjacent to the construction site. <p>Examples of these include: noise generated by</p>		<p>compensated to pre-work conditions.</p> <ul style="list-style-type: none"> - Lighting on the construction site should be pointed downwards and away from oncoming traffic and nearby houses. - The site must be kept clean to minimize the visual impact of the site. - If screening is being used, this must be moved and re-erected as the work front progresses. - Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours. - Notice of particularly noisy activities must be given to residents/ businesses adjacent to the construction site. <p>Examples of these include: noise generated by</p>	

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	<p>jackhammers, diesel generator sets, excavators, etc.</p> <ul style="list-style-type: none"> - Noisy activities must be restricted to the times given in the project specification or general conditions of contract. - The environment management specialist and contractor are responsible for ongoing communication with those people who are interested in or affected by the project. - A complaints register (refer to the grievance redressal mechanism) should be housed at the site office. This should be in carbon copy format, with numbered pages. Any missing pages must be accounted for by the contractor. This register is to be tabled 		<p>jackhammers, diesel generator sets, excavators, etc.</p> <ul style="list-style-type: none"> - Noisy activities must be restricted to the times given in the project specification or general conditions of contract. - The environment management specialist and contractor are responsible for ongoing communication with those people who are interested in or affected by the project. - A complaints register (refer to the grievance redressal mechanism) should be housed at the site office. This should be in carbon copy format, with numbered pages. Any missing pages must be accounted for by the contractor. This register is to be tabled 		<p>jackhammers, diesel generator sets, excavators, etc.</p> <ul style="list-style-type: none"> - Noisy activities must be restricted to the times given in the project specification or general conditions of contract. - The environment management specialist and contractor are responsible for ongoing communication with those people who are interested in or affected by the project. - A complaints register (refer to the grievance redressal mechanism) should be housed at the site office. This should be in carbon copy format, with numbered pages. Any missing pages must be accounted for by the contractor. This register is to be tabled 	

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	<p>during monthly site meetings.</p> <ul style="list-style-type: none"> - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any complaints/ grievances 	<p>during monthly site meetings.</p> <ul style="list-style-type: none"> - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any 	<p>during monthly site meetings.</p> <ul style="list-style-type: none"> - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any 	<p>during monthly site meetings.</p> <ul style="list-style-type: none"> - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any 	<p>during monthly site meetings.</p> <ul style="list-style-type: none"> - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any 	<p>during monthly site meetings.</p> <ul style="list-style-type: none"> - Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. - The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction. - The contractor should immediately take the necessary remedial action on any

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	<p>received by him and forward the details of the grievance along with the action taken to the environment management specialist within 48 hours of receipt of such complaint/grievance.</p>		<p>complaints/ grievances received by him and forward the details of the grievance along with the action taken to the environment management specialist within 48 hours of receipt of such complaint/grievance.</p>		<p>complaints/ grievances received by him and forward the details of the grievance along with the action taken to the environment management specialist within 48 hours of receipt of such complaint/grievance.</p>	
Community and public awareness	<ul style="list-style-type: none"> - Storage facilities and other temporary structures on-site should be located such that they have as little visual impact on local residents as possible. - Special attention should be given to the screening of highly reflective materials on site. - In areas where the visual environment is particularly important (e.g. along commercial/ tourism routes) or privacy concerns for 	Community and public awareness	<ul style="list-style-type: none"> - Storage facilities and other temporary structures on-site should be located such that they have as little visual impact on local residents as possible. - Special attention should be given to the screening of highly reflective materials on site. - In areas where the visual environment is particularly important (e.g. along commercial/ tourism routes) or privacy 	Community and public awareness	<ul style="list-style-type: none"> - Storage facilities and other temporary structures on-site should be located such that they have as little visual impact on local residents as possible. - Special attention should be given to the screening of highly reflective materials on site. - In areas where the visual environment is particularly important (e.g. along commercial/ tourism routes) or privacy 	Community and public awareness

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	<p>surrounding buildings exist, the site may require screening. This could be in the form of shade cloth, temporary walls, or other suitable materials prior to the beginning of construction.</p>		<p>concerns for surrounding buildings exist, the site may require screening. This could be in the form of shade cloth, temporary walls, or other suitable materials prior to the beginning of construction.</p>		<p>concerns for surrounding buildings exist, the site may require screening. This could be in the form of shade cloth, temporary walls, or other suitable materials prior to the beginning of construction.</p>	
Construction camps and storage areas	<ul style="list-style-type: none"> - The contractor is to ensure that open areas or the surrounding bushes are not being used as toilet facility. - The contractor should ensure that all litter is collected from the work and camp areas daily. - Bins and/or skips should be emptied regularly and waste should be disposed of at the pre-approved site. Waybills for all such disposals are to be kept by the contractor for review 	Construction camps and storage areas	<ul style="list-style-type: none"> - The contractor is to ensure that open areas or the surrounding bushes are not being used as toilet facility. - The contractor should ensure that all litter is collected from the work and camp areas daily. - Bins and/or skips should be emptied regularly and waste should be disposed of at the pre-approved site. Waybills for all such disposals are to be kept by the contractor for review 	Construction camps and storage areas	<ul style="list-style-type: none"> - The contractor is to ensure that open areas or the surrounding bushes are not being used as toilet facility. - The contractor should ensure that all litter is collected from the work and camp areas daily. - Bins and/or skips should be emptied regularly and waste should be disposed of at the pre-approved site. Waybills for all such disposals are to be kept by the contractor for review 	Construction camps and storage areas

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	<p>by the environment management specialist.</p> <ul style="list-style-type: none"> - The contractor should ensure that his camp and working areas are kept clean and tidy at all times. - After construction work, all structures comprising the construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land). - The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up. - All hardened surfaces within the construction camp area should be ripped, 	<p>by the environment management specialist.</p> <ul style="list-style-type: none"> - The contractor should ensure that his camp and working areas are kept clean and tidy at all times. - After construction work, all structures comprising the construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land). - The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up. - All hardened surfaces within the construction camp area should be ripped, 	<p>by the environment management specialist.</p> <ul style="list-style-type: none"> - The contractor should ensure that his camp and working areas are kept clean and tidy at all times. - After construction work, all structures comprising the construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land). - The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up. - All hardened surfaces within the construction camp area should be ripped, 	<p>by the environment management specialist.</p> <ul style="list-style-type: none"> - The contractor should ensure that his camp and working areas are kept clean and tidy at all times. - After construction work, all structures comprising the construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land). - The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up. - All hardened surfaces within the construction camp area should be ripped, 	<p>by the environment management specialist.</p> <ul style="list-style-type: none"> - The contractor should ensure that his camp and working areas are kept clean and tidy at all times. - After construction work, all structures comprising the construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land). - The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up. - All hardened surfaces within the construction camp area should be ripped, 	

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	<p>all imported materials removed, and the area should be top soiled and regressed.</p> <ul style="list-style-type: none"> - The contractor must arrange the cancellation of all temporary services. 		<p>all imported materials removed, and the area should be top soiled and regressed.</p> <ul style="list-style-type: none"> - The contractor must arrange the cancellation of all temporary services. 		<p>all imported materials removed, and the area should be top soiled and regressed.</p> <ul style="list-style-type: none"> - The contractor must arrange the cancellation of all temporary services. 	
Dust and air pollution	<ul style="list-style-type: none"> - Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust. - Access and other cleared surfaces, including backfilled trenches, must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust. - Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for 	Dust and air pollution	<ul style="list-style-type: none"> - Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust. - Access and other cleared surfaces, including backfilled trenches, must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust. - Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for 	Dust and air pollution	<ul style="list-style-type: none"> - Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust. - Access and other cleared surfaces, including backfilled trenches, must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust. - Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for 	Dust and air pollution

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	safety, fuel consumption, etc. - The contractor is to have the equipment seen to as soon as possible should excessive emissions be observed,		safety, fuel consumption, etc. - The contractor is to have the equipment seen to as soon as possible should excessive emissions be observed,		safety, fuel consumption, etc. - The contractor is to have the equipment seen to as soon as possible should excessive emissions be observed,	
Noise levels	- Noise-generating equipment must be fitted with silencers. - If a worker is exposed to noise above a noise exposure limit, the contractor must investigate options for engineered noise control such as using low-noise excavators, jackhammers, drills, and power generators. - If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor must post warning signs in the noise hazard areas. Workers in a posted	Noise levels	- Noise-generating equipment must be fitted with silencers. - If a worker is exposed to noise above a noise exposure limit, the contractor must investigate options for engineered noise control such as using low-noise excavators, jackhammers, drills, and power generators. - If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor must post warning signs in the noise hazard areas.	Noise levels	- Noise-generating equipment must be fitted with silencers. - If a worker is exposed to noise above a noise exposure limit, the contractor must investigate options for engineered noise control such as using low-noise excavators, jackhammers, drills, and power generators. - If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor must post warning signs in the noise hazard areas.	Noise levels

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	noise hazard area must wear hearing protection.		Workers in a posted noise hazard area must wear hearing protection.		Workers in a posted noise hazard area must wear hearing protection.	
Utilities	<ul style="list-style-type: none"> - Prepare a list of affected utilities and operators - Prepare a contingency plan to include actions to be done in case of unintentional interruption of services. 	Utilities	<ul style="list-style-type: none"> - Prepare a list of affected utilities and operators - Prepare a contingency plan to include actions to be done in case of unintentional interruption of services. 	Utilities	<ul style="list-style-type: none"> - Prepare a list of affected utilities and operators - Prepare a contingency plan to include actions to be done in case of unintentional interruption of services. 	Utilities
Water quality	<ul style="list-style-type: none"> - Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or water on-site. - Care must be taken to ensure that runoff from vehicle or plant washing does not enter the surface/ ground water. - Site staff should not be permitted to use 	Water quality	<ul style="list-style-type: none"> - Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or water on-site. - Care must be taken to ensure that runoff from vehicle or plant washing does not enter the surface/ ground water. - Site staff should not be permitted to use 	Water quality	<ul style="list-style-type: none"> - Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or water on-site. - Care must be taken to ensure that runoff from vehicle or plant washing does not enter the surface/ ground water. - Site staff should not be permitted to use 	Water quality

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the environment management specialist) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.</p> <ul style="list-style-type: none"> - All concrete mixing must take place on a designated, impermeable surface. - No vehicles transporting concrete to the site may be washed on-site. 	<p>any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the environment management specialist) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.</p> <ul style="list-style-type: none"> - All concrete mixing must take place on a designated, impermeable surface. - No vehicles transporting concrete to the site may be washed on-site. 	<p>any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the environment management specialist) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.</p> <ul style="list-style-type: none"> - All concrete mixing must take place on a designated, impermeable surface. - No vehicles transporting concrete to the site may be washed on-site. 	<p>any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the environment management specialist) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.</p> <ul style="list-style-type: none"> - All concrete mixing must take place on a designated, impermeable surface. - No vehicles transporting concrete to the site may be washed on-site. 	<p>any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. Municipal water (or another source approved by the environment management specialist) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.</p> <ul style="list-style-type: none"> - All concrete mixing must take place on a designated, impermeable surface. - No vehicles transporting concrete to the site may be washed on-site. 	

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<ul style="list-style-type: none"> - No vehicles transporting, placing, or compacting asphalt or any other bituminous product may be washed on-site. - All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of removed from the site. - Hazardous substance/ materials are to be transported in sealed containers or bags. 		<ul style="list-style-type: none"> - No vehicles transporting, placing, or compacting asphalt or any other bituminous product may be washed on-site. - All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of removed from the site. - Hazardous substance/ materials are to be transported in sealed containers or bags. 		<ul style="list-style-type: none"> - No vehicles transporting, placing, or compacting asphalt or any other bituminous product may be washed on-site. - All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of removed from the site. - Hazardous substance/ materials are to be transported in sealed containers or bags. 	
Waste management	<ul style="list-style-type: none"> - Wastes must be placed in the designated skips/bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent 	Waste management	<ul style="list-style-type: none"> - Wastes must be placed in the designated skips/bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent 	Waste management	<ul style="list-style-type: none"> - Wastes must be placed in the designated skips/bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent 	Waste management

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection. - Construction rubble should be disposed of	wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection.	wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection.	wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection.	wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection.	wastes from being blown out by wind. - Littering on-site is forbidden and the site should be cleared of litter at the end of each working day/night period. - Recycling is to be encouraged by providing separate receptacles for different types of wastes and making sure that staff is aware of their uses. - All waste must be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site should be provided for the environment management specialist's inspection.

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>in pre-agreed, demarcated spoil dumps that have been approved by the environment management specialist, or at disposal sites.</p>		<p>- Construction rubble should be disposed of in pre-agreed, demarcated spoil dumps that have been approved by the environment management specialist, or at disposal sites.</p>		<p>- Construction rubble should be disposed of in pre-agreed, demarcated spoil dumps that have been approved by the environment management specialist, or at disposal sites.</p>	
Conservation of natural environment	<ul style="list-style-type: none"> - As the work front progresses; the contractor is to check that vegetation clearing has the prior permission of the environment management specialist. - Only trees that have been marked beforehand are to be removed, if cutting of trees is required. - Clean the entire area and maintain immediately after completion of the construction activities to make sure that 	Contractor	Developer's supervising staff	Vegetation clearing	As required	<p>Only allowed trees/ vegetation to be cleared; allowed trees for cutting will be selected in case of unavoidable circumstances only, these will be properly recorded and compensatory mandatory program for plantation of at least two trees for each of the trees cut will be ensured</p>

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Cultural and historical environment	<p>existing tranquility of the surrounding area is not disturbed in any way.</p> <ul style="list-style-type: none"> - Consult laborers who work on the site during the detailed design stage and in the unlikely event that there are social and cultural resources in the site; assistance should be given in relocating the site and any associated artifacts. - All the staff and laborers of the contractor are to be informed about the possible items of historical or archaeological value, which include old stone foundations, tools, clayware, jewelry, remains, fossils etc. - If something of this nature is uncovered, Department of Archaeology should be 	Contractor	Developer's supervising staff	Chance finds	As necessary	All chance finds shall be reported and turned over to the Department of Archaeology.

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Safeguards supervisors	<p>contacted and work should be stopped immediately.</p> <p>- The contractor should appoint one environment safeguard supervisor who will be responsible for assisting the contractor in implementation of EMP, coordinating with the DSC, consultations with interested/ affected parties, reporting, and grievance redressal on a day-to-day basis.</p>	Contractor	Developer's supervising staff	Hiring and actual work	As work progresses	Continuous work output and reporting records
Operation and Maintenance Phase						
General	<ul style="list-style-type: none"> - Develop O&M Manuals to include all aspects of the management and operation of the complex - Train all workers to the highest standards available in Bangladesh and given 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual Public health survey (5 years)	As determined in the O&M Manual	As specified in the O&M Manual and all applicable laws and regulations

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
	<p>refresher training at least annually</p> <ul style="list-style-type: none"> - Control access for public/ personnel; - Clean toilets daily; - Provide clean hand washing areas adequate soap and towels; - Provide clothing and laundry service for workers; and - Clean facility after the work of each day. <p>The waste storage area and other adjacent areas should be sprinkled or sprayed regularly with disinfectants to avoid any spread of disease.</p>					
Land contamination	<ul style="list-style-type: none"> - Do not store wastes outside the building premises to avoid issues of aesthetic nature 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	As specified in the O&M Manual and all applicable laws and regulations
Wastewater	<ul style="list-style-type: none"> - After treatment, the discharge standards need to be followed similar to the standards mentioned 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	ECR 1997 (Rule 13: The standard limits of the discharge of liquid wastes shall be determine in

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Other wastes	<p>in Schedule 10 of the ECR 1997 for inland water discharge</p> <ul style="list-style-type: none"> - All other wastes arising in the site should be properly disposed of by appropriate methods. - Disposed into a solid waste bin (skip) and immediately transport out of the site in a closed wheel-barrow or similar other device. 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	accordance with the standards specified in Schedule 10)
Odor	<ul style="list-style-type: none"> - Audit odor to identify and characterize sources and determine any action required. - Carry out frequent cleaning of material storage areas to prevent odor 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	As specified in the O&M Manual and all applicable laws and regulations
Noise	<ul style="list-style-type: none"> - Activities and vehicle movements should be avoided after hours. - Vehicles should be fitted with silencers. - Vehicles and machinery are to be 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	As specified in the O&M Manual and all applicable laws and regulations

Parameter	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameters to be Monitored	Frequency of Monitoring	Guidelines/ Standards
Water use	<p>kept in good working order.</p> <ul style="list-style-type: none"> - Minimize water use through dedicated metering of water consumption 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	As specified in the O&M Manual and all applicable laws and regulations
Health, hygiene, and safety	<ul style="list-style-type: none"> - Workers should undergo regular medical check-up - Workers should be provided with protective gear like head cover, gloves, etc - Provide training on safety to staff to avoid accidents - Regularly monitor the site to ensure compliance with occupational health and safety rules 	Developer/ contractor	Developer's supervising staff	Specifications in the O&M Manual	As determined in the O&M Manual	As specified in the O&M Manual and all applicable laws and regulations

6.4 Reporting

The Environment Specialist will submit monthly monitoring reports to the project manager of the private developer, and the project manager will discuss the report with the supervisory staff and take necessary action as required. The reports will be kept in file for future record.

6.5 Environmental Costs

The total estimated cost for the Project calculated during feasibility study stage is BDT 1,004,000,000. The private developer's cost for site establishment, preliminary activities, construction and environmental mitigation measures related to EMP implementation during planning, design, construction, and operations will be incorporated into the contractual agreements, which will be binding on him for implementation.

The mitigation measures during the operation phase are again of good operating practices, which will be the responsibility of the implementing agency (Private Developer). All monitoring during the operation and maintenance phase will be conducted by the implementing agency; therefore, there are no additional costs.

The activities identified in the EMP mainly include site inspections and informal discussions with workers and local community, and this will be the responsibility of the private developer with the assistance of ES, costs of which are part of project management.

Table 7 presents the estimated cost to implement the EMP. The EMP and the costs for the EMP implementation will be updated during detailed engineering design. The figures show that the total cost of environmental management and monitoring for the Tourism Complex is Tk 4.38 million. It includes the cost of all surveys (long-term bi-annual wastewater monitoring will be done by DOE and test costs borne by operator according to DOE fee rates as per Schedule 14 of the ECR, 1997) and other expenses associated with implementing the EMP for this project during project implementation. It also includes the cost of the long-term survey of public health proposed in the EMP for this project.

Table 7: Environmental Management and Monitoring Costs for Tourism Complex

Item	Quantity	Unit Cost (TK.)	Total Cost (TK.)	Sub-total
1. Monitoring during Construction (2 years)				
Environmental Specialist	1 x 6 month	250,000 ¹⁴	1,500,000	
Survey Expenses	Lump Sum	1,300,000	1,300,000	2,800,000
2. Survey of Public Health (5 years)				

¹⁴ Unit cost of domestic consultants is based on current rates and includes fee, travel, accommodation and subsistence.

Item	Quantity	Unit Cost (TK.)	Total Cost (TK.)	Sub-total
Domestic Consultant	5 x ½ month	200,000	500,000	
Supporting Staff	5 x ½ month	100,000	250,000	
Other Expenses	Lump Sum	830,000	830,000	1,0,000
TOTAL COST (TK.)				4,380,000

7 Findings and Recommendations

7.1 Findings

The process described in this document has assessed the environmental impacts of all elements of the infrastructure proposed under the Tourism Complex project at Sylhet. Potential negative impacts were identified in relation to the design, construction and operation of the infrastructure, and mitigation measures have been developed to reduce all negative impacts to acceptable levels. These were discussed with specialists responsible for the engineering aspects of program development, and as a result some measures have already been included in the outline designs for the infrastructure. These include:

- Ensuring that the site selected for the project is owned by Bangladesh Parjatan Corporation and does not contain any residential property, to avoid the need to relocate households; and
- Selecting a site that is in an uninhabited area where there are no sensitive receptors because the people in the proposed site do not stay there permanently.

This means that the number of impacts and their significance have already been reduced by amending both the design and location of elements of the project.

In the construction phase there are not expected to be major negative impacts because the construction work is relatively small scale and straightforward and will be conducted at a single site. Other mitigation and enhancement measures are included in the EMP, which also shows the location of the impact, the body responsible for the mitigation, and the program for its implementation.

Operation and maintenance of the completed building complex will be the responsibility of the private developer up to the end of the maintenance and service delivery period. It will be vital that the facility operates to the highest professional standards because if this is not the case it could easily replicate the practices and effects that are common at other existing buildings in the city. These include impacts on:

- **Worker health and safety**—if equipment, procedures and hygiene are inadequate;
- **Environmental quality** – if solid waste is not properly collected and transported on a daily basis.

The IEE includes a number of measures relating to the design to ensure that the facility operates to a high standard and avoids these and other impacts. The main measures are that:

- All aspects of management and operation should be set out in O&M manuals prepared by an internationally reputed consultant;
- All workers are trained to the highest available standards and re-trained annually;
- Ensuring sufficient training and financial support to the Sylhet Motel Project to achieve expected standards.

If these and the other mitigation measures recommended by the IEE are implemented, then the Tourism Complex should operate without significant negative impacts.

Mitigation will be assured by a program of environmental monitoring conducted during both construction and operation to ensure that all measures are provided as intended, and to determine whether the environment is protected as envisaged. This will include observations on and off site, document checks, and interviews with workers and beneficiaries during the construction stage, and weekly monitoring of all practices at the Tourism Complex for the first five years of operation, by the

private developer. Any requirements for remedial action will be reported to top management of the private developer. There will also be a longer-term survey to monitor the expected improvements in public health.

Finally, stakeholders were involved in developing the IEE through face-to-face discussions on site and a large public meeting held in the town, after which views expressed were incorporated into the IEE and the planning and development of the project. The IEE and other documents will be made available at public locations in the town and summaries will be disclosed to a wider audience. The consultation process will be continued and expanded during project implementation, when a nationally-recognized NGO will be appointed to handle this key element to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation.

7.2 Recommendations

There are two straightforward but essential recommendations that need to be followed to ensure that the environmental impacts of the project are successfully mitigated. These are that Project Implementation Unit of the private developer should ensure that:

- All mitigation, compensation and enhancement measures proposed in this IEE report (**Table 6**) are implemented in full, as described in this document; and
- The EMP of this report is updated during detailed design and also implemented in full during construction and operation period.

A copy of the EMP shall be kept on-site during the construction and operation period at all times.

The EMP shall be made binding on the contractor operating on the site, and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document shall constitute a failure in compliance.

8 Conclusions

The environmental impacts of the proposed Tourism Complex have been assessed according to guidelines and results reported in this IEE. The potential adverse environmental impacts are related to the (i) construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices; and (ii) operation period, which can be managed by the mitigation measures and environmentally sound O&M practices.

In relation to Bangladeshi ECR 1997, the Tourism Complex project is considered to have very little potential for environmental impacts and can be classified as Orange – B category. The environmental impacts that have been identified can be mitigated by the measures mentioned in this IEE and EMP. So this IEE document will be sufficient and acceptable to DOE as part of the ECC application and further study for impact assessment will not be necessary.

9 Annexures

ANNEX 1: Project Information and Environmental Screening Questionnaire filled

COVER INFORMATION SHEET

FORM CI

Legal Name of the Project:

PPP Transaction Advisory Services for Establishment of International Standard Tourism Complex at Existing Motel Compound at Sylhet

Project Location Country:

Bangladesh

Project Location Village/Town/City:

Sylhet

Project's Administrative Jurisdiction:

Rural Urban

Division Name:

Sylhet

Zila (District) Name:

Sylhet

Upazila/Thana (Sub-District) Name:

Sylhet Sadar

Union Name (if applicable):

Khadim

Project's Local Government Jurisdiction:

City Corporation Pourashava/ Municipality Zila Parishad Upazila Parishad Union Parishad Others

Name of Local Government: **Sylhet City Corporation**

Project Client Details:

Legal Name of Client: **PPP Authority Bangladesh and Bangladesh Parjatan Corporation**

Client Address: **Bangladesh Parjatan Motel, Airport Road, Sylhet**

Landline Phone Number/Fax: **0821712426**

Official Email: **sylhetparjatanmotel@gmail.com**

Name of Client's Nodal Rep.: **Kazi Ashrafur Rahman**

Designation: **Manager**

Details of Nodal Rep.: Mobile No. **01920987862**

Email: **ashrafur66@yahoo.com**

Information Validator/Surveyor/Investigator's Details:

Designation	Organization	Name	Validation Date	Signature
Manager	BPC Motel Sylhet	Kazi Ashrafur Rahman	26/03/2016	
Associate Director	KPMG India, I&GS	Sumouleendra Gosh	31/03/2016	
Assistant Manager	KPMG India, I&GS	Ankush Chakraborty	31/03/2016	
Executive Partner	PRIMAACS Project Consultants LLP	Tushar Chakravarty	31/03/2016	

SITE INFORMATION SHEET: GENERAL PROFILE

FORM SI-01

GPS location of the project site	Longitude	91.870793°	Latitude	24.949868°	MSL (mts)	42.00
Total area of the project site	Bigha	67.392	Acre	27.000	In Sq. Mts	109265.22
What is the type of land tenure/title holding of the project site?	Freehold	Government	If leased or operated, expiry year of tenure N/A			
Name of the titleholder	Bangladesh Parjatan Corporation					
Is the project site notified under national special area/zone?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, name of Act/Law		N/A		
Is the project site under applicable local byelaws purview?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, name of Byelaw		Bangladesh Pourashava Act 2009		
Is the project site delineated within agro-ecological zone?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, name of the zone		N/A		
Is the project site within the aviation flightpath/funnel	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, name of nearest airport		Osmania International Airport, Sylhet		
Type of major land uses designated to the project site	<input type="checkbox"/> Agriculture <input type="checkbox"/> Fisheries <input type="checkbox"/> Wetland & Estuaries <input type="checkbox"/> Forestry <input type="checkbox"/> Salt beds <input type="checkbox"/> Urban <input type="checkbox"/> Infrastructure <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Tourism <input type="checkbox"/> Special Eco-systems <input type="checkbox"/> Rivers <input type="checkbox"/> Water Bodies <input type="checkbox"/> Cultivated <input type="checkbox"/> Rural Built-up <input type="checkbox"/> Non-cropped Village Land					
Brief description of current usage	Tourism and Recreational usage, used for renting for signal towers of mobile operators					
Is the project site located near a settlement?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, name of the settlement	Ahmed Housing Area		Distance (Kms)	0.75 Km
Are there critical natural/environmental features within the site?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, brief description		Top of small hill with vegetated slopes		
Is the project site terrain sloped?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, slope gradient (%)	46%	Total Station Survey availability	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the project site secured by fencing?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, type of fencing	Masonry Wall <input type="checkbox"/>	Barbed Wire <input checked="" type="checkbox"/> Hedged <input checked="" type="checkbox"/> Others <input type="checkbox"/>		
How many access/entry points does the project site have?	2	Type of last mile road to site	Concrete	Distance (mts)	300	
Is the project site within the seismic zone?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, seismic categorization	Zone 1	Site landslide/slippage prone?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Modes of travel that connect the project site	Roadway <input checked="" type="checkbox"/>	Railway <input checked="" type="checkbox"/>	Waterway <input checked="" type="checkbox"/>	Airway <input type="checkbox"/>	Others <input type="checkbox"/>	Others, please mention
Nearest modal node headway to the site (Kms)	0.30 Km	9 Kms	2.5 Kms			
	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
						Option 7

Project site's connectivity to towns/ cities/ villages/ sites (name & distance in Kms)	Dhaka 247 Kms	Hobigunj 89 Kms	Moulvi Bazar 229 Kms	Sri Mongol 88 Kms	Jaflong 63 Kms	Mymensingh 288 Kms	Karimgunj 230 Kms
Project site's nearest primary health care	Name	Sylhet Medical College			Distance (Kms)	8.50 Kms	
Project site's nearest fire station	Name	Sylhet Fire Station			Distance (Kms)	8.25 Kms	
Does the site have electric connection?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If No, nearest substation (mts)			Average hour of outages/day	3 Hrs	
Does the site have piped water connection?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If No, nearest source (mts)			Average hour of supply/day	24 Hrs	
Is the site connected to a sewage trunk?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If No, nearest lead (mts)			ST 35 mts	Avg. maintenance cycle (days)	1825 days
Is the site serviceable for waste management?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If No, nearest dump yard (Kms)			On site	If Yes, collection cycle (days)	N/A

SITE INFORMATION SHEET: SPECIFIC PROFILE

FORM SI-02

Is the project site a consolidated land parcel?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Mauza Nos.
If Yes, Names of the Multiple Titleholder	Bangladesh Parjatan Corporation	
Are there buildings inside the project site?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Building Loading Type Load Bearing <input type="checkbox"/> Framed Structure <input checked="" type="checkbox"/> Composite <input type="checkbox"/> Others <input type="checkbox"/>
Type of construction	Brick Masonry <input checked="" type="checkbox"/> Stone Masonry <input type="checkbox"/> Concrete Masonry <input type="checkbox"/> Composite Masonry <input type="checkbox"/> Wooden <input type="checkbox"/> Others <input type="checkbox"/>	
General structural safety condition of building	Excellent <input type="checkbox"/> Good <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Venerable <input type="checkbox"/> Dangerous <input type="checkbox"/>	
Is the main building annexed with ancillary built structures?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	What is the total covered area of the built up section (Sq.m)?
Average number of floors in the building	Ground <input type="checkbox"/> One <input type="checkbox"/> Two <input checked="" type="checkbox"/> Three <input type="checkbox"/> Four <input type="checkbox"/> Five <input type="checkbox"/> >Five <input type="checkbox"/>	
Is the building used for guest accommodation?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, mention the total number of rooms for guest accommodation? 26
Are the guest accommodation rooms categorized as per facilities/standards?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, mention the types and details of guest room categorizations below:
Total guest rooms in building	26	Type Name AC Queen AC Twin Non AC Twin
Total guest beds in building	52	No. of Rooms 5 8 13
Bed Capacity		10 16 26
Does the building have restaurant/eatery etc.?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, mention total seating capacity 60 Area (Sq.m)
Does the building have banquet facility?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, mention total holding capacity 200 (open air) Area (Sq.m)

Does the building have convention facility?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, mention total holding capacity	60	Area (Sq.m)
Does the building have indoor guest recreation facility?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes, provide description	N/A	
Does the site have outdoor guest recreation facility?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes, provide description	N/A	
General exterior aesthetical appearance of the building	Vernacular <input type="checkbox"/> Plush/Modern <input type="checkbox"/> Pleasing <input type="checkbox"/>	Sterile <input checked="" type="checkbox"/> Unpleasant <input type="checkbox"/>		
General interior aesthetical appearance of the building	Vernacular <input type="checkbox"/> Plush/Modern <input type="checkbox"/> Pleasing <input type="checkbox"/>	Sterile <input checked="" type="checkbox"/> Unpleasant <input type="checkbox"/>		
Does the site have onsite sewage/septage treatment facility?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Type: Conventional <input checked="" type="checkbox"/> Package STP <input type="checkbox"/> Bio Digestion <input type="checkbox"/> Others <input type="checkbox"/>		
Does the site have rainwater harvesting system?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Type: Tank <input type="checkbox"/> Recharge <input type="checkbox"/> Runoff <input type="checkbox"/>	Capacity (ML):	N/A
Does the site have on/offsite waste management system?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes, mention system	N/A	
Does the site have onsite micro electricity production system?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If Yes, mention system	N/A	
Year of establishment of building & provision	1994	Capital cost of building and provision (Lakhs BDT)		
Av. annual electrical bill (BDT)	850000	Av. annual water bill (BDT)	N/A	Av. annual gas/LPG bill (BDT)
Is property tax levied	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If Yes, annual tax (Lakh BDT)	21000	Av. annual municipal charges/fees (BDT)
				150000
				15000

SITE INFORMATION SHEET: ENVIRONMENTAL SCREENING 1

FORM SI-05 A

Is the project area adjacent to or within any of Cultural Heritage Site Archaeological Site Legally Protected Area (Core zone or Buffer Zone)
 the following environmentally sensitive areas? Wetland Mangrove Estuarine Special area for protecting biodiversity

Short Remarks: No, Ratargul Swamp Forest, wetland area – 35 km north from the site; and Distributaries of Surma river – 10 km south from the site.

Will the proposed project lead to impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical and cultural resources?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Will the proposed project lead to disturbance to previous ecology (e.g. sensitive or protected areas)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Will the proposed project lead to alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:

Will the proposed project lead to deterioration of surface water quality due to silt runoff and sanitary wastes from worker based camps and chemicals used in construction?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	
Are there any anticipated chances of increased air pollution due to proposed project construction and operation?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Short Remarks:	During construction phase only
Are there any anticipated chances of noise and vibration due to project construction and operation?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Short Remarks:	During construction phase only
Are there risks of poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local population?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	
Will the proposed project lead to creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	
Are there risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological and radiological hazards during project construction and operation?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	

SITE INFORMATION SHEET: ENVIRONMENTAL SCREENING 2

FORM SI-05 B

Are there risks to community health and safety due to transport, storage, use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	
Are there community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible community?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	
Will there be generation of solid waste and/or hazardous waste during construction and/or during operation of the project facility?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Short Remarks:	There will be no hazardous waste in any stage
Will there be use of chemicals during construction and/or during operation of the project facility?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Short Remarks:	

Will the project facility lead to generation of wastewater/septage/sewage during construction or operation?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Short Remarks: Proper arrangement for treatment and safe disposal will be ensured
Are there any endangered/rare habitats of flora and fauna within the project site which might be risked extinction due to the construction and/or operation of this project facility?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks: There are no endangered/ rare habitats within the project site
Are there any anticipated risks of alteration in local flora and fauna and/or local ecology during the initial conception of this project?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Will the project in its initial conception require lopping/cutting/pruning of trees/vegetation during the construction and/or operation of this project facility?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Short Remarks: During construction stage only
Will the project in its initial conception aggravate traffic and pedestrian conflicts and/or risks?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Short Remarks:
Does the proposed project include activities & outputs that support upstream planning processes that potentially pose impacts or are vulnerable to environmental change?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Does the proposed project include the implementation of downstream activities that potentially pose environmental impacts or are vulnerable to environmental change?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:

SITE INFORMATION SHEET: ENVIRONMENTAL SCREENING 3

FORM SI-05 C

Will the proposed project involve natural forest harvesting or plantation development without an independent forest certification system for sustainable forest management?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Will the proposed project involve the production and harvesting of fish populations or other aquatic species without an accepted system of independent certification to ensure sustainability?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Does the proposed project pose risks of degrading soils, changing traditional cultivation patterns and/or alter fertility levels?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:
Will the proposed project result in significant greenhouse gas emissions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:

Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:	
Could changes in temperature, precipitation, or extreme events patterns over the project lifespan affect technical or financial sustainability?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:	(e.g., increased extreme rainfall increases flooding, damaging proposed infrastructure)
Are there any demographic or socio-economic aspects of the project area that are already vulnerable?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:	(e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)
Could the Project potentially increase the climate or disaster vulnerability of the surrounding area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Short Remarks:	(e.g., by paving vulnerable groundwater recharge areas, or using water from a vulnerable source that is relied upon by many user groups, or encouraging settlement in earthquake zones)

ENVIRONMENTAL SCREENING OUTCOME & CATEGORIZATION Select from the following:

- Category 1 No impacts major impacts/risks are envisaged at this stage. No further action is needed. Screening Outcomes are disclosed publicly.
- Category 2 There are possible environmental benefits, impacts, and/or risks associated with the project (or specific project component), but these are predominantly indirect or very long-term and so extremely difficult or impossible to directly identify and assess. Preparation of further Environmental Examinations with Risks and Mitigation Measures is mandated for next stage of project activity.
- Category 3 Impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice, but require some minimal or targeted further review and assessment to identify and evaluate whether there is a need for a full environmental assessment. Preparation of Environmental Monitoring & Management Plan is mandated for next stage of project activity.
- Category 4 Impacts and risks are significant, and so full environmental assessment is required. In these cases, a scoping exercise will need to be conducted to identify the level and approach of assessment that is most appropriate. A detailed Environmental Impact Assessment is mandated for the next stage of the project.

Environmental Screening Summary

No major environmental concerns were identified during screening. The ownership of the site is with Bangladesh Parjatan Corporation and it does not come under any declared forest area. The nearby sites of ecological importance are:

- Ratargul Swamp Forest, wetland area – 35 km north from the site; and
- Distributaries of Surma river – 10 km south from the site.

Key environmental issues:

- Trees and undergrowth in the site may have presence of fauna (mammals & reptiles)
- Solid waste/hazardous waste generation during construction and operation
- Wastewater/septage/sewage generation during construction and operation
- Project will lead to cutting/pruning of trees/vegetation during construction/operation
- Increased air pollution during construction
- Increased noise pollution and vibration during construction

ANNEX 2: Photographs of the Existing Site Conditions



Entrance from the main road



Zigzag path to the Motel



Sharp bends



Entrance gate



Steep slope in the road



Septic tank system for sewage treatment



Entrance to the eco-park



Statue in front of the Motel



Green area in eco-park



Green hilly area within the eco-park



Top view of the Adventure world park



Incomplete ropeway base at the park



Adventure world park in dilapidated condition



Artificial lake in the park



Adventure world park



Adventure world park



Adventure world park



Statue in adventure world park

ANNEX 3: Records of Public Consultations Conducted

The stakeholders' consultation meeting was held at Sylhet Parjatan Motel Lobby at 11-15 AM on 9 August 2016 with the staff of the Motel.

Several small group discussions were held because all the staff of the motel could not leave their workplaces at a time, which would disrupt the management of the motel.



Figure 14: Meeting at Sylhet BPC Motel Lobby

The Environment Specialist welcomed the participants in the meeting and explained goals and objectives of the project. He told that the Government of Bangladesh through the Bangladesh Parjatan Corporation has undertaken a project to construct one modern Tourist Complex at the same location of the existing motel. This project would be implemented under Government's priority Public-Private Partnership (PPP) model, which would encourage investment from the private organizations. This project will enhance overall economic condition of the country in the long run by creating better tourism facilities for tourists and attracting foreign as well as local tourists.

It was disclosed in the discussion that BPC operates a 50-bed motel at this location, which will be re-developed into an international standard tourism complex on PPP basis. The developer will be responsible for the development of the complex at existing motel compound and operate and maintain the complex during the contract tenure in order to support Government's policy of promoting and enhancing tourism facilities in Bangladesh.

It was revealed during the discussion that the land proposed for construction of the tourist complex is owned by the Bangladesh Parjatan Corporation. It is a quite big area of about 109,265 m² (27.00 acres) located in a very attractive position, and it will be sufficient for construction of tourism complex as per design of international standard. It is at present being used at a very low profile with insufficient return on the investment. The existing facilities developed in the eco-park and also in the wonderland are not being utilized properly. This could not attract the intended visitors and therefore, was continuously running at loss. The participants from the local motel staff clearly stated that the area proposed for construction of tourist complex will be kept free from any kind of external hindrance by their own initiative during the construction activities by the contractor in the site.

It was disclosed in the meeting that the project would be implemented soon and the local people would get benefit of getting employment as soon as the construction works started. They also expressed their willingness to get long-term deployment after the implementation of the project. It was disclosed to the participants that the local people would get preference during selection of staff and workers for running the complex in a sustainable manner.

The participants were convinced that the socio-economic and environmental condition of the local people and the locality would be definitely better after implementation of the project and they showed their willingness to cooperate whole heartedly during construction and operation and maintenance phase of the tourist complex.

There were no issues left for discussion and the meeting was closed with a vote of thanks to all participants.

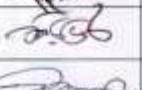
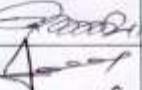
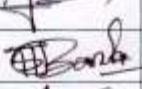
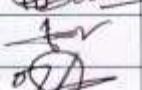
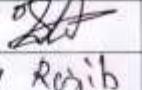
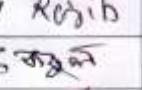
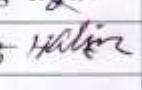
Ministry of Civil Aviation and Tourism (MoCAT)
Bangladesh Parjatan Corporation (BPC)
Establishment of International Standard Tourism
Complex at Existing Motel Compound at Sylhet

Attendance Sheet

Time: 11 - 00 AM

Date: 9/8/2016

Place of meeting: Sylhet Parjatan Motel complex Union/ Ward: Khadijan Thana: Airport

Sl. No.	Name of Participant	(Father's/ Husband's Name)	Address	Mobile No.	Signature
1	Md. Zahid Hossain	MD ATM HANIF	Parjatan Motel Sylhet	01711575425	
2	Giasuddin Ahmed	Ayub Ali	Parjatan Motel Sylhet	01712153489	
3	Md. Abdul Mannan	Late-Rajib Ali Khan	Parjatan Motel Sylhet	01819751407	
4	Md. Ismail Ali	Late-Ishak Ali	Parjatan Motel,Sylhet	01712269326	
5	Sreebabu Chandra Dey	Late-Sitaa Parjatan Dey	DO	01712667843	
6	Md. Jamal Hossain	Abul Hossain	DO	01717740248	
7	Md. Abo Bakar Siddik	Late-Ajar Hossain Molla.	DO	01722443202	
8	MR. Rajib Miah	Md.Sokkor Bhunya	DO	01785940431	Rajib
9	MR. Babur Miah	Mujahid Uddin Daly.	DO	01746265996	
10	MR.Abdul Halim	Late-Abed Ali	DO	01676862715	Halim
11					
12					
13					
14					
15					

Annexure – 15

SOCIAL ASSESSMENT REPORT

Social Impact Assessment

**For International Standard
Tourism Complex in Sylhet**

November 2016

List of Abbreviations

AC Land	Assistant Commissioner Land
ADB	Asian Development Bank
AOI	Area of influence
BDT	Bangladeshi Taka
BNSB	Bangladesh National Building Code
BPC	Bangladesh Parjatan Corporation
CBE	Commercial Business Enterprise/Community Business Enterprise
CCEA	Cabinet Committee for Economic Affairs
CUL	Compensation Under the Law
DC	Deputy Commissioner
DLAC	District Land Acquisition Committee
DLR	Directorate of Land and Records
DoE	Directorate of Environment
DTA	Domestic Tariff Added/Area
DVA	Domestic Value Added
ECA	Environmental Conservation Act
ECR	Environmental Conservation Rules
EMP	Environmental Management Plan
EP	Entitled Person
FGD	Focus Group Discussion
FHH	Female Headed Household
FTA	Free Trade Area/Agreement
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GRC	Grievance Redress Committee
HBB	Haring Bone Bond
HH	Household
IGP	Income Generation Program
LA	Land Acquisition
LAO	Land Acquisition Office/ Officer
LAP	Land Acquisition Proposal
MDG	Millennium Development Goal
MRV	Market Replacement Value
NOC	No Objection Certificate
PAPs	Project Affected Persons/s
PPP	Private Public partnership
POV	Purpose of Visit
PVAT	Property Valuation Advisory Team
RAP	Resettlement Action Plan
RoW	Right of Way
RoR	Record of Right
RPF	Resettlement Policy Framework
RR	Rent Receipt
SIA	Social Impact Assessment
ToR	Terms of Reference
USD	United States Dollar

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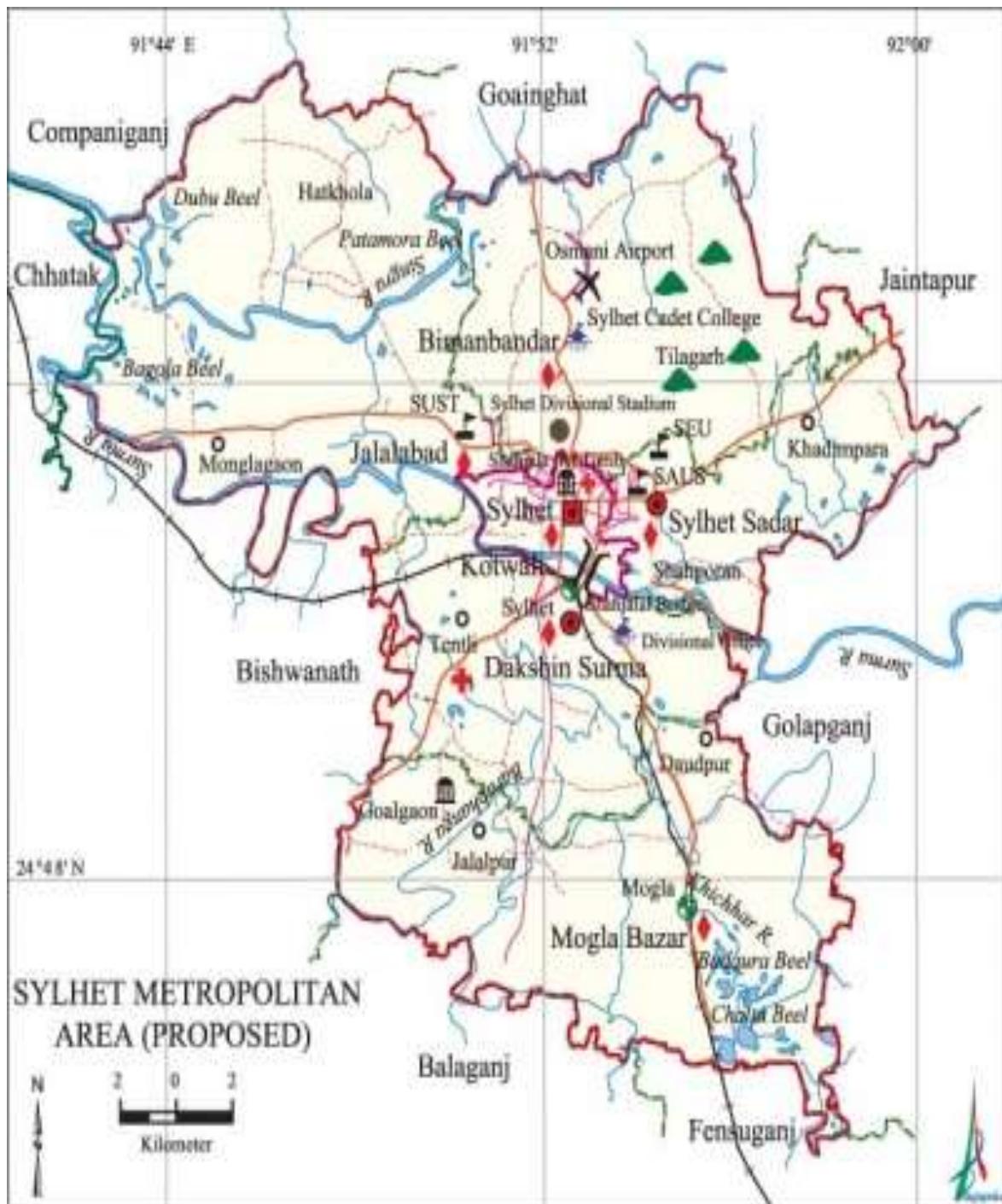


Figure 1: Sylhet Metropolitan Area

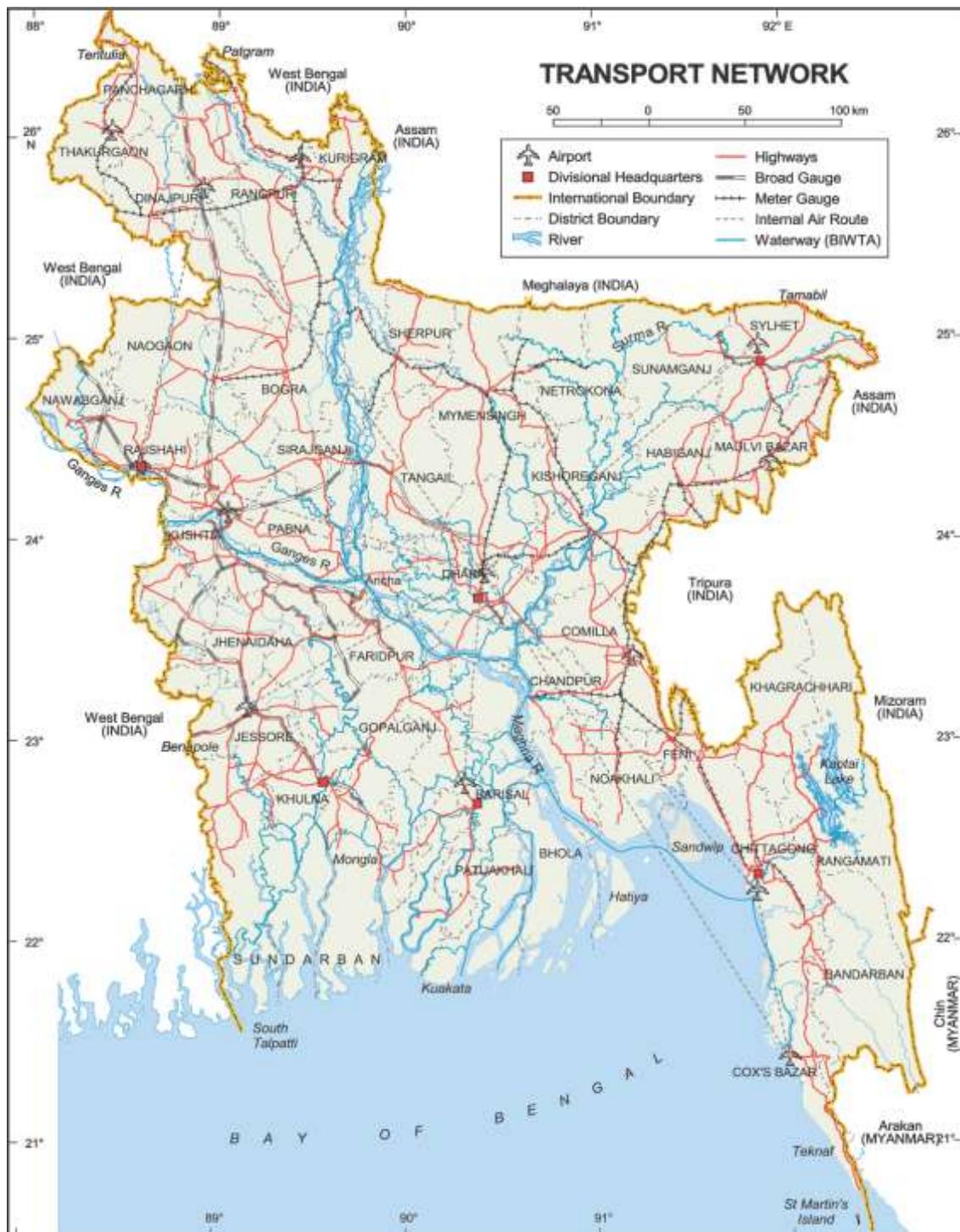


Figure 2: Bangladesh Transport Network Map

1 Introduction

1.1 Background

The Bangladesh Parjatan Corporation (BPC), under Ministry of Civil Aviation and Tourism (MoCAT), Government of Bangladesh has a mandate to promote tourism industry in the country. As a part of its mandate to promote tourism in the country, BPC manages hospitality and commercial facilities at different tourism nodes in Bangladesh – 25 such hotels and motels exist with close to 600 keys at main tourist spots in the country. The Parjatan Motel, Sylhet is one of those facilities.

Located in the picturesque Surma valley and covered with scenic tea gardens, lush green tropical forests and a number of small rivers including hilly fountains, Sylhet is a special Tourist destination in Bangladesh. The region is located between towering hills, the Khasi and Jaintia to the north and the Tripura hills (International Border) to the south. It breaks the monotony of the flat Gangetic plains and is often termed as the Queen of hills. Its terraced tea gardens, rolling landscapes, exotic flora and fauna and thick tropical rain forests add just the perfect backup to the Sylhet landscape. A large number of hilly rivers, natural lakes and water bodies provide a sanctuary to millions of migratory birds during winter season in the area.

Given the exotic beauty of Sylhet and concomitant tourism potential, the Bangladesh Parjatan Corporation intends to develop an International Standard Tourism Complex in its existing motel compound in Sylhet through the PPP route. The existing motel is situated on a hillock overlooking the Osmani International Airport and provides a pleasant view of the hills at a distance. The proposed project has also been provided in-principle approval by the CCEA of the Government of Bangladesh in August 2015.

KPMG Advisory Services Private Limited has been engaged for carrying out a Feasibility Study for the above project. During the preliminary site visit and assessment by the Project Team, it was identified that the Motel complex had a plain area only at the top of the plateau table, while the rest of the area had steep slopes to its south and north and had a gentle slope in the east and west. The site had dense pine plantation on the western slopes, tea plantation and natural undergrowth on the northeast slopes, and dense rainforest vegetation to its east. Being placed on a Surma valley ridge, most of the slopes of the project site were either south or north facing, always covered with sunlight during most seasons. A canal/ khal (Malinichhara) flowed at length on the outside part of the south-western fence-wire boundary of the site. The Sylhet Cadet College boundary was on the same side attached to the canal/ khal (Malinichhara). The Ahmed Housing Estate and Koira Housing area were situated to the north of the project site.

A Social Screening indicated an overall positive social impact from the proposed resort. A total of 27.59 acres of government ownership land would be required and no land acquisition would be triggered for the project as no additional private land was required and therefore, neither displacement of people nor any impact on the habitation of indigenous people was envisaged. Further, a few social issues were identified such as:

- Possible transfer/ reassignment for permanent staff working in Parjatan Motel, Sylhet
- Possible loss of livelihood for casual/ contract workers in Parjatan Motel, Sylhet. A total of 10 permanent and 9 casual staff were employed in the Motel
- Possible realignment of a village road near the vicinity of the site

However, since the project was a tourism project and was expected to increase the influx of tourists in Sylhet City, it could be expected to lead to a positive social impact including:

- Creation of employment – direct and indirect
- Fillip to local tour operators, transportation service providers

- Fillip to local artisans and handicraft industries (Sylhet is a prominent place for cane production and handicrafts)

In order to fulfil the requirements of the Feasibility Study, a Social Impact Assessment (SIA) study was conducted in July 2016 by a Bangladeshi Social Safeguard Expert. In this Impact Assessment exercise, compliance of the proposed project to the safeguard policies of the Bangladesh Government was analysed by assessing the existing ground level information and a report was prepared.

1.2 Objective

As per the Terms of Reference (TOR) of the Feasibility Study, the project requires an assessment of impact due to proposed intervention. (**Annexure – 1** of this report)

1.3 Methodology

To conduct SIA, pertinent socio-economic information of the project was collected from primary and secondary sources and analysed. Documents collected from Bangladesh Parjatan Corporation and the opinion of the concerned motel personnel regarding how the project was going to influence their socio-economic conditions, were considered necessary for the analysis. For the above reason, public consultations/ Focus Group Discussions were also conducted. Further, the relevant Bangladeshi laws on land acquisition and requisition and associated measures were also studied.

1.4 Scope of the Report

The social Impact Assessment has been carried out as per the defined activities in the Terms of Reference (TOR). These include:

- To assess the socio-economic impact of the project;
- To conduct stakeholder analysis; and
- To ensure people's participation and include feedback for mitigating project impact (if any)

1.5 Social Impact Assessment

The SIA includes people's expectation, opinion regarding the feasibility of the proposed International Standard Tourism Complex in place of present motel, their challenges and opportunities. Since the land is free from any kind of significant impacts, no abbreviated or full RAP was prepared. But for the development of the location for the proposed project, the existing road including the culvert at entry point of the highway/ main road will have to be improved. Therefore, an SIA is needed as per legal requirement.

1.6 Social Impact

The Sylhet Motel officials reported that the total land area of Sylhet Motel is 41.54 acres, of which 13.00 acres has been leased out to a private investor to operate an Amusement Park; 0.95 acres has been leased for a Bar and the rest 27.59 acres are earmarked for the development of the Tourism Complex.

There is a boundary wall around the Amusement park and all other sides are earmarked with wire fence boundary. The local people reported that BPC authority maintained the road. The people of the community reported that there was only one entry point through the project site to the main highway road (Sylhet International Airport/ Sylhet Highway). Another 200-250 m road led to the national highway of Sylhet to Dhaka. From this point onwards all the roads merge and become one road connecting with the highway.

It is worth mentioning that while conducting Social Impact Assessment (including FGDs with the motel staff), there were zero social impacts found.

The social survey identified that no squatter families are living within the vicinity of the motel and therefore, no affected families or persons are necessary to record. However, nine casual/ contract staff families of the motel may temporarily lose their job but can be easily employed during the project construction and operation period.

Since there is ample space to extend/ develop the Tourism Complex in the immediate vicinity of the original structures, there is no displacement or long-term impact on livelihood anticipated under the project. A huge volume of various types of trees (consisting mostly of pine, rain forests, different timber yielding trees or shrubs, jackfruit and mango trees) existing in the area will not be affected by the construction of the new facility. It was also found that there were 30 Macaques and 120 monkeys living in the forest areas. However, impacts (if any) are expected to be partial and temporary in nature. The impacts of the project can be classified under various heads:

Project Affected Area:

A total of 41.54 acres of land ownership lies with the Bangladesh Parjatan Corporation of Bangladesh Government. The surrounding remaining land of the area is also under Government ownership. No private land is required for acquisition.

Project Displaced Persons:

There will be no displaced person due to implementation of the project.

Culturally Affected Area:

No cultural objects are found to be affected by the project.

Indigenous/Tribal People:

There are no indigenous/ tribal people found in the project area.

Project Impacts:

Construction of the international standard hotel will increase employment in the form of permanent, casual and temporary which will increase revenues, help the tourism industry in the country, which in turn will increase new investors in the country and improve the standard of living of the locality, including improvement in education, health and hygiene, food intake for the underprivileged population of the area, accessibility to the main road and essential services and reduce travel time considerably.

No major social impacts/ risks are envisaged in the project.

Table 1: Summary of Project Impacts (if any)

Sl. No.	Project Impact	Total
1	Total quantity of land (acres) affected	zero
2	Total area Affected (decimal) and occupied by squatters	zero
3	Total Number of families affected	zero
4	Total partially affected houses or structures	zero
4.1	Total No. Tin Shed structures Affected	zero
4.2	Total No. Toilet affected (Tin Roof with thatched walls)	zero
4.3	Total No. of rooms used as Kitchen (Kutcha)	zero

Sl. No.	Project Impact	Total
4.4	Total no of rooms used as store (for fire wood)	zero
4.5	Total no. of tube wells affected	zero
5	Total number of families whose trees are only affected	zero
6	Total No. of Indigenous peoples families	zero
7	Total No of flora and fauna affected	zero

Further, the Executing Agency will form a committee comprised with the concerned Deputy Project director, Sylhet Pourashava's concerned Officer representing the Mayor or mayor himself, Executive Director of the Sylhet Municipality and Executing Agency's concerned official. This SIA elaborates the country's laws on Safeguard Policy and policies related to land acquisition and requisition and presents an Entitlement Matrix (Table-4), that is in practice in the country considering the funding agency's requirement.

1.7 Conclusion

All stakeholders including the government officials and the Casual staff including community people reported that no land acquisition would be required as there was no private land affected by the project. They reported that it might be necessary to expand the existing primary entry point road and if it was required, there was enough government owned lands on both sides of the existing road. The owner of the remaining area was another government organization (Land Department/ Khas land). No forests would be impacted. However, for compliance with the Government social safeguard policy, the SIA Consultant has included the prevailing laws of the country on land acquisition and requisition for better understanding of the definitions, eligibility criteria, LA procedures, mitigation issues, compensation policy, and entitlement matrix in Table-4.

2 Socio-Economic Profile of the Families under Project Site

According to the 2013 census (website), 30 million people out of a total population of 130 live in cities in Bangladesh (area: 147,570 sq. km). Compared with other countries in Asia, the level of urbanization in Bangladesh (roughly 23%) is still low and as such a high percentage live in village level. Further, different facilities are at present available in the village level due to the high commitment of the present government and people are able to enjoy most of the facilities at village level and try to reside in their own lands with available amenities. The characteristic of the project site is a mixture of urban and rural close to the district headquarters of Sylhet. Residents are mostly involved in agriculture and business activities, travelling daily from villages to the nearby district H.Qs. Hence their attitude towards construction of the new International standard tourism complex is positive keeping in mind their future generation.

The socio-economic profile of the project has been collected through secondary data collection and Focus Group discussions and meetings that were conducted at the project site. There are 19 families with a cumulative population of 42. Among these, 9 families are losing contract job opportunity for a temporary period. These households are located in Khadim Union of Sylhet Sadar Upazila and all of them work at the site on a temporary basis. The member list is enclosed with the Public Consultation meeting/ Focus Group Discussion in **Paragraph 9.3 Participants List**

2.1 Demographic Profile of Project Area

The demographic profile of the Motel staff's family members (42 population) revealed that 19 persons are between 25- 50 years old, 13 persons are between 15-25 years old and 10 persons are below the age of 15 years. There is one Hindu and all other are Muslims within the project site. There are 2 women staff and 17 men staff = 19 total staff. Among these staff, the sex ratio is: males constitute 89.47% and females constitute 10.53 %.

2.2 Literacy

The general literacy rate of project staff above the age of 7 years and above is calculated about 44 % from the field survey data. This is indicated in below:

Table 2: Literacy Level of the staff¹

Education	Number of Staff
Literacy	2
Primary	5
Secondary	12
Total	19

¹ Source: SIA, 28-30 July 2016

3 Review of Applicable Legal Policies

3.1 Legal Context of Land Acquisition in Bangladesh

The current GoB legislation governing land acquisition for public purposes includes: the Acquisition and Requisition of Immovable Property Ordinance (1982) and its amendments in 1992 and 1994, and the East Bengal State Acquisition and Tenancy Act (1951) revised in 1994. Under the law, the owners affected by the acquisition will be eligible to compensation for (i) land permanently acquired (including standing crops, trees, houses); and (ii) any other impact and damages caused by such acquisition. In accordance with the Ordinance, the legal process is initiated by an application by the requiring agency or department to the Deputy Commissioner (DC) of the concerned District with a detailed map of the proposed area. In determining the compensation, the DC considers the recorded price of land transacted during the past 12 months in the Project area, plus a 50 percent premium on the assessed value of the property for compulsory acquisitions. The 1982 Ordinance, however, does not cover the Project Affected Persons (PAPs), such as informal settlers/ squatters, persons without titles or ownership records. Further, the compensation paid does not constitute market or replacement cost of the property acquired.

The first step in acquiring land is an application to the Ministry of Land through the concerned ministry requesting requisition and transfer of the land and property in question. A detailed statement specifying whether the land mentioned in the application is needed for public or private purpose, the area of the land, a sketch-map, purpose for which it could be used, etc. should be submitted as well. The Ministry of Land examines the application and sends it to the concerned DC for necessary action. The DC then authorizes the Additional Deputy Commissioner related to land (ADC-Land) to prepare and execute a plan of action for requisition. The DC in turn issues a public notice regarding the requisition with a view to settling matters relating to payment of compensation to the owner or owners of the property or any other person or persons entitled to compensation, and any other related issues. When any property is required temporarily for a public purpose or in the public interest, the DC may requisition it by an order in writing. In case of such a requisition of property, compensation shall be paid to the owner or owners of the property determined in accordance with legal provisions, and the decision taken by the government is deemed to be final. Any person who contravenes or attempts to contravene an order, or who obstructs the enforcement of an order, is punishable with imprisonment for a term which may extend to three months, or with a fine which may extend to Taka three thousand, or with both.

In essence, the law is largely indifferent to the present socio-economic conditions, or the long-term adverse impacts on incomes and livelihood that the acquisition and displacement may cause on the affected people. Also, there are no other policies that complement the acquisition ordinance in ways to assess, mitigate and monitor adverse impacts that the affected people may suffer. Therefore the project (Sylhet International Standard Hotel Complex) complies with the existing government safeguards policy prevailing in the country.

3.2 Type of Losses

The ways the people will typically lose from the acquisition of land and other properties include the following;

- **Loss of Residential structures** – Project will need partial/ total dismantling/ removal of structures coming in the way of the construction activity, especially for track-setting works. These would be pucca, semi-pucca and kutcha structures.
- **Loss of homestead/ agricultural lands** – Some homestead/ many agricultural lands will be acquired for both track setting and station building construction works.

- **Loss of business** – There will be minimal acquisition from business structures, on the other hand, huge number of trees and bamboo jhar/ bush covering Gardens including land will be needed to be acquired which had been considered as their prime source of business income on yearly basis.
- **Loss of employment/ income** – The self-employed agri-labourers will face temporary loss of employment/ income due to relocation or resettlement as well as disruption from construction activities.
- **Loss of Community Assets**- Some common property resources, structures, significant number of trees, etc. will be affected.

4 Policy, Law and Compensation Entitlement

4.1 National Policy and Laws on Resettlement

In Bangladesh, the law relating to the acquisition and requisition of privately owned immovable property is the Acquisition and Requisition of Immovable Property Ordinance, 1982 (Ordinance No. II of 1982). In exercise of the powers under this Ordinance, the GoB on payment of compensation can acquire any land, building and crops for any public purpose or in the public interest.

To initiate proceedings for acquiring land or other immovable property, EA requiring land has to submit an application to the District Commissioner (DC) with the details of the area to be acquired and a map showing the location details. The DC then issues a notice under section three of the Ordinance stating that the property is to be acquired. A person interested in the land may object to its acquisition within 15-20 days. The DC hears the objections, and if he is satisfied that the acquisition is in public interest or for a public purpose, he submits his report to that effect to the government, whose decision as to the purpose for acquisition is final. The DC then issues another notice under section six stating that the property is to be acquired and claims for compensation may be made to him. The DC enquires into the claims before making the compensation award. The Ordinance spells out matters that shall not be considered in determining compensation (Section eight and section nine respectively). The factors that the DC takes into consideration in determining the compensation amount are sale/purchase transactions in the locality during the past twelve months and current market rate.

The Acquisition and Requisition of Immovable Property Ordinance, 1982 (Ordinance No. II of 1982) was amended in 1993 to increase the amount of premium (part of compensation amount) from 25% to 50% on the assessed value of the property to match its replacement value (MRV). Another significant amendment to the Ordinance was made in 1994, which provided for payment of crop compensation to the tenant cultivators.

Although amended a few times up to April 2004, the 1982 Ordinance remains restrictive in its scope. The fact is that acquiring land, and not addressing resettlement issues, was the purpose for which the 1982 Ordinance was issued. Thus the impact of land acquisition that often include forced relocation and uncertainties of rebuilding livelihoods in unfamiliar places remain inadequately addressed. For example, there is no compensation for those who though not owners of land but depend on land for their livelihoods (tenants, sharecroppers, agricultural labourers, for example). Only the legal owner of the land receives compensation under the existing law, but they too are not able to replace the lands lost, as the compensation amount is never adequate. The following summarises the laws on resettlement:

Table 3: Government of Bangladesh Laws on Resettlement

Ordinance No. II as Implemented in Bangladesh
Sections 3 and 18 exempt the acquisition of property used for religious worships, public or educational institutions, graveyards & cremation grounds.
Section 8 prescribes the amount of compensation to be determined by the Deputy Commissioner (DC) based on: (i) market value of the property considering average value during the twelve months preceding the publication of notice of acquisition; (ii) damage to standing crops and trees; (iii) damage for severing such property from other properties of the person

Ordinance No. II as Implemented in Bangladesh
occupying the land; (iv) adverse effects to other properties, immovable or movable and/or earning; and (v) cost of change of place of residence or place of business. In addition, the Deputy Commissioner will award a sum of fifty percent on such market value of the property to be acquired.
The requiring body submits land acquisition proposal to the Office of the DC for appropriate action: (i) if the total land is above 50 <i>bighas</i> , or 16.66 acres, the approval will come from the National Government; (ii) if requirement is above 2 acres and below 16.66 acres, approval comes from the Divisional Land Allocation Committee; and (iii) if the land is 2.0 acres or less, the approval will be made at the District Land Allocation Committee.
Section 3 provides that whenever it appears to the Deputy Commissioner that any property in the locality is needed or is likely to be needed for any public purpose or in the public interest, he shall publish a notice at convenient places on or near the property in the prescribed form and manner stating that the property is proposed for acquisition.
Section 4 provides the occupant of the land to raise their objections in writing that should be filed to DC within 15 days of publication. The DC will then hear the complaints and prepare his report and the record of proceedings within 30 days following the expiry period of 15 days given to APs to file their objections.
Upon approval of the request for land by the DC Office, its staff will conduct the physical inventory of assets and properties found in the land. The inventory form consists of name of person, quantity of land, list of assets affected, materials used in the construction of the house. The cut-off date is the date of publication of notice that land is subject to acquisition, and that any alteration or improvement thereon will not be considered for compensation.

4.2 Bangladesh Parjatan Corporation Resettlement Policy Requirements based on Bangladesh Government's Acquisition & Requisition of Land Policy

As the above review shows, the legal system in Bangladesh on mitigation of loss of land and other assets is focused on compensating the loss of assets. Bangladesh in recent years has however adopted resettlement policies of ADB and other donors funded development projects on an ad hoc basis, which largely conform to the internationally acceptable standards. Following this precedent and in accordance with the legal and policy requirements of the BPC and Government of Bangladesh, (for example it's a priority project of the CCEA of the country), the resettlement guidelines has been enlisted below for easy understanding for this project covering 41.54 acres of Government land.

- Resettlement will be avoided, but where it becomes unavoidable it will be minimized as much as possible.
- Persons whose land is affected will receive, where possible, replacement land or local market value of the land to rebuild the same in other places.
- Compensation rated for all land and fixed assets will be at their replacement costs.
- Owners of homestead/ building/ residential/ business units will be compensated at replacement cost. The affected leaseholders will receive compensation due to indirect project impact.
- Community structures/ common property resources lost will be rebuilt or replaced.
- Special attention will be paid to households headed by women and vulnerable groups with provisions made for social and economic support to help them improve their status.
- The absence of a formal legal title to land/ structure (residential/ business) by some affected groups will not be a bar to resettlement assistance.
- Income restoration assistance will be provided to ensure there is no loss of income during relocation and resettlement.

- Compensation payments to affected families will be completed before the start-up of physical works (e.g. civil works).
- Public information campaigns and consultations will be conducted to inform the people about the project and involve the affected people in planning and implementation of resettlement activities.

Some of the salient provisions of the law that require added mechanisms to meet BPC's requirements are provided below:

Avoiding/ Minimizing Land Acquisition: The law only implicitly discourages unnecessary acquisition, as lands acquired for one purpose cannot be used for a different purpose. However, there are no mechanisms to monitor if this condition is actually adhered to.

Eligibility for Compensation: The law stipulates compensation only for the persons who appear in the land administration records as the owners with titles. It does not recognize the rights of those, such as squatters, who do not possess legal title to the lands they live in or make a living from.

Compensation Paid For: Provides for compensation for lands and other objects built and grown on them (structures, trees and orchards, crops and any other developments like ponds, built amenities, etc.). No provisions are there to assess and restore lost income stream or income sources that acquisition causes to the affected persons, be they legal titleholders or others like squatters, tenants and employees of affected businesses.

Compensation Standards: Although the law stipulates 'market prices' of the acquired lands as the just compensation, the legal assessment method almost always results in prices that are far below the actual market prices. Certain pricing standards, which are regarded as unrealistic, are used to assess other losses like structures and various built amenities, trees, crops, and the like.

Relocation of Homestead Losers: No legal obligation is there to relocate, or assist with relocation of, those whose homesteads have been acquired. Such persons/ households, be they titleholders or squatters, are left on their own.

Ensuring Payment/ Receipt of the Compensation: Even with the given legal provision, the compensation process is too lengthy, and there is no certainty about when an affected landowner would get the stipulated compensation, or whether he would at all get it. Lands are legally acquired and handed over to the project execution agency as soon as the acquisition authority identifies the owners (or 'awardees'), by examining the records, and sends a legal notice advising them to claim the compensation (or 'awards'). Here ends the legal obligation, and now it is the obligation of the affected landowners to prove, by producing an array of documents that the acquired lands legally belong to them. As gathering these documents is a long, expensive and cumbersome process, many landowners may be unable to claim their compensation. The project has meanwhile started to use the lands.

Socioeconomic Rehabilitation: Finally, the provisions are so restricted that the law shows no concern whatsoever about the long-term socioeconomic changes the affected persons and households might undergo in the post-acquisition period. Except for the compensation at the legal 'market price', there are no other provisions in the acquisition or other-laws that require the government to mitigate the resultant adverse impacts caused by the acquisition. Socioeconomic rehabilitation of the involuntarily displaced persons is totally absent in the legal regime of the country.

4.3 Definitions

The following definitions will be applicable for any RPF:

Project Affected Persons (PAP): Project Affected Persons include any person or persons, households, a firm, or private or public institution who, in the context of acquisition of assets and change in land usage, as of the cut-off date, on account of the execution of the project, or any of its subcomponents or part, would have their:

1. Standard of living adversely affected;
2. Right , title or interest in any house, land (including residential, commercial, agricultural and grazing land) or any other movable or fixed assets acquired or possessed, in full or in part, permanently or temporarily adversely affected; or
3. Business, occupation, places of work or residence or habitat adversely affected, with or without displacement.

It means persons or affected household and consists of all members of a household residing under one roof and operating as a single economic unit, who are adversely affected by a project or any of its components. For resettlement purposes, affected persons will be considered as members of affected households.

Households (HH): A household is a group of persons who commonly live together and would take their meals from a common/ one kitchen.

Replacement cost: It means and includes an amount needed to replace an asset at current market value including depreciation and overhead expenses of the transaction, including registration stamp duty and registration charges, as follows:

- i. Agricultural land based on its productive potential;
- ii. Residential land based on current market value;
- iii. Houses and other related structures based on current market prices of building materials and labour, without depreciation and deductions for salvaged building materials, including transaction costs (such as administrative charges, registration and titling (mutation, land revenue payment), etc.);
- iv. Trees, crops and plants on current market value; and;
- v. Other productive assets like shops and commercial assets based on market value of similar location attribute i.e. premium etc.;

Cut-off date: Cut-off date is the date of commencement of the census of PAPs within the project area boundaries including Veda. This is the date on and beyond which any person whose land is occupied for project use, will not be eligible for compensation.

Census: Census means a field survey carried out to identify and determine the number of Project Affected Persons (PAP), their assets, and potential impacts; in accordance with the procedures, satisfactory to the relevant government authorities, and the Resettlement Compensation/ Safeguard Policies. The meaning of the word shall also embrace the criteria for eligibility for compensation, resettlement and other measures, emanating from consultations with affected communities and the Local Leaders.

Displacement: Displacement means the involuntary taking of land resulting in direct or indirect economic and social impacts caused by: a) Loss of benefits from use of such land; b) relocation or loss

of shelter; c) loss of assets or access to assets; or d) loss of income sources or means of livelihood, whether or not the project affected person has moved to another location.

Compensation: Compensation means the payment in kind, cash or other assets given in exchange for the taking of land, or loss of other assets, including fixed assets thereon, in part or whole.

Involuntary Land Acquisition: Involuntary Land Acquisition is the taking of land by government or other government agencies for compensation, for the purposes of a public project against the will of the landowner. The landowner may be left with the right to negotiate the amount of compensation proposed. This includes land or assets for which the owner enjoys uncontested customary rights.

Land Acquisition: Land Acquisition means the taking of or alienation of land, buildings or other assets thereon for purposes of the Project.

Restoration and Rehabilitation Assistance: Restoration and Rehabilitation means the provision of development assistance in addition to compensation such as land preparation, credit facilities, training, or job opportunities, needed to enable project affected persons to improve their living standards, income earning capacity and production levels; or at least maintain them at pre-project levels.

The Resettlement Plan (RP): The RP will be publicly disclosed in impacted areas to set out the resettlement and compensation policy, organizational arrangements and design criteria to be applied to meet the needs of the people who may be affected by the program. The Resettlement Action Plans ("RAPs") for any investment project (construction) will be prepared consistent with the provisions of the prepared RP.

Vulnerable Groups refers to:

- Female headed/ Widows, households with dependents;
- Disabled household heads;
- Households falling under the generally accepted indicator for poverty/ marginalized groups, low income households and informal sector operators;
- Incapacitated households – with no one fit to work / elderly households with no means of support and landlessness, (This group is among other things, characterized by low nutrition levels, low or no education, lack of employment or revenues, old age, ethnic minority and/or gender bias.

Usufruct Rights: It means that the rights, which have been acquired by private citizens/ groups through a formal agreement with the government. Project authority will pay for remainder of the lease value or fulfil the obligations agreed in the contract, and any other entitlements in accordance with the mitigation policies (where agreements are between private parties, the owner of the affected property will fulfil any obligations agreed between them).

Squatters: Squatters are persons who occupy/ possess an asset without legal title.

Encroachers: Encroachers are persons who are owners of land adjacent to public property, who have illegally extended their land holdings or structures into the public land.

Trees and orchards: Market price of all trees, including those in orchards, grown on private and public lands. The compensation for fruits will be assessed and paid in terms of seasonal and perennial characteristics.

5 Procedures for Land Acquisition

Procedures for Land Acquisition in Bangladesh will be as per the following steps:

Step 1. According to “**Acquisition and Requisition of Immovable Property Ordinance, 1982**”, Government of the People’s Republic of Bangladesh, just after the exact ground locations of the required lands are identified and selected, the engineering consultants will carry out detailed engineering surveys and design the construction, rehabilitation and improvement works and lay them on the mouza maps. (This will be the basis for preparation of land acquisition proposals (LAPs) which require administrative approval by the relevant Ministries before they are submitted to DCs for acquisition).

Step 2. After that, the LAPs will be prepared for each site and will include plot schedules, (with dag or plot numbers), the amount of land to be acquisitioned from each plot, and the ownership status, such as private and public lands. With the acquisition locations demarcated on the ground, work on the major process tasks, such as social screening and PAP census, will begin to generate the RAP inputs and submit to DC office.

Step 3. Upon receipt of the LAPs, the DCs will register the cases, and organize a physical verification of the information provided in the documents. The GMs deputed by the project authority, supported by the Directorate of Land and Revenue (DLR) staff, will answer any queries from the DC offices and assist to resolve any issues and problems with the LAPs. Physical verification by the JVAT will then be followed by the following steps in the acquisition process:

- The DCs will issue the Legal Notice-3 (under Section 3 of the law), which will contain the plot numbers from which lands will be acquired and its purposes. The notice, which will be displayed in public places, will give the concerned landowners a fixed period of 15 days to lodge objections to the proposed acquisitions, and another 30 days (maximum, if Deputy Commissioner allows) for the DCs to hear them.
- Upon resolution of the objections, if any, the DCs will then submit the LAPs/ LA cases to the District Land Acquisition Committee (DLAC) for review and approval.
- Following the issuance of Notice-3, and while the approval is being processed, an on-site inventory and verification will be carried out jointly by the acquisition officials and the project authority staff, in the presence of the concerned PAPs, to classify and document the assets that will be acquired and compensated for.

While the district acquisition officials will themselves assess, according to the legal method, the compensation for the land, other assets, such as houses and other built structures, trees, standing crops, etc. will be assessed by the representatives of the concerned GOB departments, such as Public Works, Agriculture, Forestry, etc., by using departmental standards. The compensation so determined is the compensation-under-law or CUL which may or may not be the replacement values/ current market prices of the acquired assets.

- Upon receipt of the Deputy Commissioners' approval, hearing of any objections by DCs, and completion of the joint on-site inventory and joint verification by the JVAT, the DCs will issue Notice-6 to the individual property owners stating that the inventoried assets will be acquired and taken possession of, and that all claims for compensation be made to the concerned DCs. The claims made will be received and reviewed on the basis of this on-site inventory and verification.
- Once valuation of all assets is completed, the DCs will prepare the ‘compensation assessment rolls’ or compensation budgets for the individual LAPs/ LA cases and submit them to the DCs of the district authority requesting the funds within a maximum of 60 days. After review, the DC will take necessary actions.

- Upon approval, the project will place the funds with the DCs who will in turn issue Notice-7 indicating the amount of compensation, and advising the landowners to make the compensation claims, with the evidence that they are the legal owners or have an interest in the lands. The following evidence are required:
 - Record of Right (ROR) or Porcha as proof of ownership to the lands
 - Rent Receipt (RR), commonly known as Dakhila where the affected person owns lands in excess of 25 standard bighas.
- The claims for compensation are accepted if the ownership evidence is found satisfactory. The CUL is then paid by checks drawn on the GOB Treasury at the district headquarters. If a landowner loses lands in more than one Mouza or LA case, CUL payments are made by as many checks.

6 Institutional Framework

6.1 Introduction

The Executing Agency will implement the RP by NGO and set up a Resettlement Unit (RU) within the Project Implementation Unit (PIU) to be established for the project. The resettlement unit, under the overall responsibility of the project director, will carry out the assignments of implementing the restoration plan. The RU will have one Deputy Director as Chief Resettlement Officer (CRO) assisted by one assistant director as Resettlement officer (RO) and the support staff in the field and in the HQs. RU manpower will be trained after recruitment and posting. The Project Director will ensure land acquisition with assistance of district administrations and CRO.

Upon clearance of land acquisition proposal by Deputy Commissioner or Ministry of Land, a property valuation advisory team (PVAT) will be formed through government gazette to recommend replacement market value of land and other properties. PVAT will have representatives from Executing Agency in the chair, representative from the implementing agency as the member secretary and representative from the DCs.

GRCs will be established with representatives from the Executing Agency, PAPs, women/ vulnerable groups, local government. The PAPs can call upon the support of consulting agency to assist them in presenting their grievances or queries to the GRC. The CRO will chair the GRC. Other than disputes relating to ownership right under the court of law, GRC will review grievances involving all resettlement benefits, relocation and other assistance. Grievances will be redressed within a month from the date of lodging the complaints. To ensure people participation, participants from local level union Parishad leaders will be invited to attend the meeting.

6.2 Eligibility Criteria for defining Categories of Affected people

This section describes that the likely displaced persons can be categorized into four groups, namely:

Affected Individual: An individual who suffers loss of assets or investments, land and property and/ or access to natural and/ or economic resources as a result of the sub-project activities and to whom compensation is due. For example, an affected individual is a person who farms a land, or who has built a structure on land that is now required by a sub-project for purposes other than farming or residence by the initial individuals.

Affected Household: A household is affected if one or more of its members is affected by sub-project activities, either by loss of property, land, loss of access, or otherwise affected in any way by project activities. This provides for:

- i. any members in the households – men, women, children, dependent relatives, friends and tenants;
- ii. vulnerable individuals who may be too old or ill to farm along with the others;
- iii. relatives who depend on one another for their daily existence;
- iv. relatives who may not eat together but provide housekeeping and other domestic chores; and

- v. other vulnerable people who cannot participate for physical or cultural reasons in production, consumption, or co-residence. In the local cultures, members of production, consumption, and co-resident groups form overlapping, often incongruent sets of people who may exchange domestic or farming services on a regular basis even though living separately. Compensation will not be limited to people who live together in a co-resident group, since this might leave out people whose labour contributions are critical to the functioning of the "household". For example, among polygamous groups, each wife has her own home.

Affected local community: A community is affected if project activities affect their socio-economic and/ or social-cultural relationships or cohesion. For example project activities could lead to such improvement of socio-economic welfare that class-consciousness arises coupled with cultural erosion, etc.

Vulnerable Households: Vulnerable households may have different land needs from most households or needs unrelated to the amount of land available to them: These household types are not mutually exclusive, so that the elderly may be internally displaced persons, and women are affected individuals.

- Unmarried women
- Non-farming
- Elderly
- The infirm or ill
- Orphans
- Women headed HH
- Widow/ helpless

6.3 Identification and Mitigation of Impacts: Entitlement to Affected People without Legal Right to Land

Lack of ownership does not imply ineligibility for compensation rights. The lack of legal right to land or assets will be regarded as criterion for withholding financial compensation or assistance in relocation in the project. However a project will endeavour to provide suitable alternatives to resettle displaced families.

6.4 Methods of Valuing Affected Assets: Compensation at Replacement Value

All acquisition of land would be done based on the Land Acquisition Act, 1982 and following the provisions of this SIA which provide compensation for properties to be acquired and support to be extended for meeting replacement value of the property. Under the Land Acquisition Act, compensation are assessed, and paid, by DC office to PAPs for each Mouza where his/ her assets are located. Such compensation under law (CUL) that includes 50% premium on assessed values does not fully meet replacement cost. In order to estimate top-up amounts, implementing agency will not engage a third party/ independent consultant/ NGO/ institution to conduct market study to determine market rates for different types of assets, it will follow GOB rule. Thus the amount of top-up that is due to pay to a PAP (the calculation includes: Market value minus (-) the compensation paid by the DC = replacement cost/ market prices thereof) is determined.

6.5 Measures to Avoid Illegal Occupation of Cleared Land

The preparation of a Resettlement Action Plan will require that an early cut-off-date, preferably at the time of the baseline survey, is established. The implementing agency will ensure that the information on cut-off-date and eligibility are provided to the people with the clear understanding that anyone illegally occupying the land after the cut-off-date will not be entitled to any compensation and/ or assistance. The implementing agency will also take appropriate measure to ensure that all lands that are cleared for the project, remains clear of squatters.

6.6 Identification of Vulnerable Groups

This section describes identification of different vulnerable groups:

Vulnerable Groups refers to:

- i. Female headed/ Widows, households with dependents, Pregnant women,
- ii. Disabled household heads,
- iii. Households falling under the generally accepted indicator for poverty/ marginalized groups, low income households and informal sector operators;
- iv. Incapacitated households – those with no one fit to work/ elderly households with no means of support and landlessness. This group is among other things, characterized by low nutrition levels, low or no education, lack of employment or revenues, old age, ethnic minority status and/ or gender bias.

These are distinct groups of people who might suffer disproportionately or face the risk of being marginalized from the effects of resettlement and specifically include:

- Loss of aggregate income;
- Complete loss of residence;
- Loss of land (compared to overall land holding); and
- Lack or loss of accesses to common property resources for those, whose livelihood depends on these.

7 Compensation Policy and Entitlement Matrix

7.1 Introduction and Entitlement Matrix

The aim of the Project Compensation policy is to provide a comprehensive coverage for lost assets and restoration and/ or enhancement of livelihoods for all categories of the affected people, whether affected directly, indirectly, with or without legal titles of the lands or structures, and tenants, etc. The affected people will receive compensation in cash for land and other assets at its replacement value. In addition, assistance will be provided in other forms, such as shifting or moving allowance, resettlement assistance to business/ shops, income restoration allowance, and assistance to female headed households to help the project affected persons regain or improve their living standards. With these compensation measures, the affected people should be able to replace lost assets and restore income and livelihoods of the affected people.

Although there is a provision for replacement of land in the land acquisition laws as well as resettlement guidelines, the replaced land will not be a practical compensation solution, given the land scarcity in the country, generally.

On the basis of affected persons categorized according to their losses, the Entitlements are presented in the Entitlement Matrix in **Table. 4** and Tree Census in **Table 5**. The Entitlement matrix lists 12 types of losses and the corresponding proposed entitlements to cover all possible losses. Given the impact of the project and the nature of losses the PAPs have to sustain, compensation should not only include replacement cost for land and other lost assets, but also measures to restore income and livelihood of the PAPs. The following Compensation Policy and entitlement is an example that was awarded in different investment projects in Bangladesh in the past funded by either World Bank or Asian Development Bank.

(This is being enclosed as a probable suggestion to take action for the benefits of the PAPs. The final decision will be verified and undertaken by the DC office/ PVAT/ PWD committee based on the estimates from assigned NGO to implement the RP.)

For enhancing the project's poverty reduction focus and restoration of losses to vulnerable groups, including women-headed households, additional entitlements have been indicated in the matrix (**This Entitlement Matrix is given for better understanding if the Executing Agency apply for international funding sources for project construction**):

Table 4: Entitlement Matrix²

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
1	Loss of Agricultural land, pond/ ditch/ water body/ beel/ haor and orchards by landowner	Legal owners of the land at the time of serving notices under section 3 to 7 of LA Laws	Replacement land or value, Stamp duty, land registration related all fees, VAT, etc. to facilitate land purchase	<ul style="list-style-type: none"> a. Assessment of quantity and quality of land. b. Assessment of CCL by DC assessment of market value by land Market survey. c. Title updating. d. Payment of CCL (100%) + 50% premium. e. euepepsy will be fully informed of the entitlements and procedures regarding payment. f. Additional cash Grant to cover the maximum allowable Replacement Value of land determined by PVAT. g. Stamp duty will Be due to each PAP in case of land is being purchased within one year of receiving CCL from DC. 	DC, Executing Agency, NGO / Resettlement Specialist
2	Loss of access to cultivable land by tenant or, mortgaged land	Tenants and Sharecrops or mortgagers of the land under contract/ deed as identified during PAP Identification survey	a. decimal land due acquisition of land by the government re-mortgaged money receivable from Loss shall be paid action	All the individuals identified During PAPs survey as tenant or share croppers/ mortgaged of land If he legal owners certify the tenancy/ lease/ mortgage Cash grant of Tk. 100/dec. will be	Executing Agency

² Source: Similar projects of GoB: Bangladesh Export Promotion Zone Authority: BEPZA- Complex construction

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
				<p>paid after taking possession of the land and the legal owner is paid his CCL.</p> <p>Crop Compensation rate for: - Single Cropland @ Tk.150/- per decimal land</p> <p>Double Cropland @ Tk.200/- per decimal land.</p> <p>Multiple Croplands @ Tk.250/- per decimal land.</p> <p>Legal owner will take away the crop if he cultivates the crop or crop will be divided as per contact. The mortgagee shall be paid balance mortgaged money through Resettlement Specialist.</p> <p>Owner will take away the crop/fish/ tree, or crop will be divided as per contact between LO and Tenant.</p>	
3	Loss of trees/ perennial crops/ fishes	Persons with legal ownership of the land where the trees are located and standing crops/ fisheries are grown at the time of serving notice u/s 3 or as	Compensation at the market value , based on productive of land/ water body/ pond etc. and age of trees assessed by PVAT. Owner(s) will be allowed to take away their Perennial crops/ pond fishes /trees,	<p>Assessment of loss and market value of the loss.</p> <p>Payment of CCL Cash</p> <p>Compensation for the losses.</p> <p>Crop/tree/fish Compensation rate will be determined by PVAT:</p> <p>For standing crop/vegetables</p>	DC, Executing Agency, NGO

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
		recorded in the LA award Book	etc. from affected /project areas.	<p>Single Cropland @ Tk.150/- per decimal land.</p> <p>Double Cropland @ Tk.200/- per decimal land.</p> <p>Multiple Cropland @ Tk.250/- per decimal land</p> <p>For Trees: Timber Trees= Present Market values:</p> <p>Fruit-bearing trees= 3 years fruits values at present market rate. For Open water & culture fishes:</p> <p>Fishes stock in pond/ditch/lake etc. at open market rate.</p> <p>Legal owner will take away the crop/fish/tree if he cultivates the crop. Or crop will be divided as per contact between LO and Tenant</p>	
4	Loss of homestead/commercial land/ plot be legal land owners	Legal owners of the land at the time of serving LA notice under section 3 as recorded in the LA Award Book	<p>Replacement land or, CCL plus premium as per LA Law.</p> <p>Additional grant to cover market value of land , and Stamp Duty to purchase Replaceable land.</p> <p>Plus land.</p> <p>Registration and related fees will be due to a PAP if he/ she purchases land within one year after receiving CCL from DC.</p> <p>PAPs/ will be allowed to take</p>	<p>a. Assessment of quantity and quality of land</p> <p>b. Assessment of CCL by DC</p> <p>c. Assessment of market value by land market survey</p> <p>d. Title updating</p> <p>e. Payment of CCL (100%) + 50% premium</p> <p>f. All potential PAPs will be fully informed of the entitlements and procedures for getting those</p> <p>g. Additional cash grant to cover the maximum</p>	DC, Executing Agency, NGO

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
			away all salvageable material from their plots (HHs, CBEs etc.)	allowable replacement value of land, or Provide an alternative plot to PAPs a resettlement village , if possible	
5	Losses of homestead/commercial structures by legal owners	Legal owners of the land at the time of serving LA notice under section 3 as recorded in the LA Award Book	Cash compensation for the structures at market value. One time Cash grant to shift/ transfer the structures to new location. PAPs will be allowed to take away al salvageable materials from their plots (HHs/ CBEs, etc.)	Payment of CCL for structures losses to Awardees. Verification of PAPs data, PVAT report and PWD rates and other records and payment of MARV for structures to PAPs after receiving CCL and Dc. All PAPs will be fully informed beforehand about their compensation entitlement and assistance and assisted in obtaining it. A transfer grant/ shifting allowance @Tk.5, 000/- to each HH will be paid during or after vacating the project sites. @ 10% of CCL or, maximum Tk.10, 000/- for development of homestead /business as structure reconstruction	DC, NGO, Executing Agency

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
				grant to legal owners. For hiring alternative Accommodation Tk.5,000/- who is affecting by living house as legal owner. PAPs will take away all salvageable materials. Additional cash grant Tk. 1,000/- for vulnerable/elderly people headed HHs	
6	Loss of access to HH/ commercial Structures (rented/ leased)	Tenants renting/ leasing the property as identified by the PAP survey/ resettlement census	One-time cash grant	Verification of Survey/ census/ video records and other records. A shifting allowance of Tk.2,500/- per unit will be paid after relocation from project sites.	Executing Agency
7	Loss of HH by squatters and unauthorized occupants on Govt. land/ structures	Heads of HH occupying Homestead land illegally or squatting on ROW identified by PAP survey	Compensation for the lost structure (if owner) as per assessed value/ price by DC. Cash grant for shifting of the house from ROW	Verification of Survey and data and Award Books. Transfer or shifting cost Tk. 2,500/- per household. PAP will take away all salvage materials.	DC, NGO, Executing Agency
8	Loss of business by the CBEs due to dislocation	Owner/ occupier/ operator of business as recorded by the Survey	Business restoration grant Tk. 8,000/ unit if owner and Tk. 4,000/- if not owner (rented , lease holders etc.)	All persons recorded by the RC and Survey/census. Cash grant to be paid after taking possession of vacant land.	NGO, Resettlement Specialist/Executing Agency

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
9	Loss of income, employment/ work opportunity of full-time/ part-time workers/ wage loss due dislocation	Workers of affected businesses as recorded in the Survey	One time cash grant of : For unskilled workers: one-time cash grant Tk.3,000/- For skilled workers: one time cash grant Tk. 4,000/-	All persons recorded by the PAPs survey. Cash grant to be paid after vacating the land and taking possession of land by PAPs. Involvement of the incumbents in project civil works.	BR, NGO, Executing Agency
10	Loss of community facilities/ common property resources by PAPs	The Community as whole where the PAPs will Relocate	CCL for structure. Transfer grant. Reconstruction /improvement of community facilities/ common property resources	Cash compensation under the provision of Law: Cash grant of Tk.400/- for transfer of structure. PAP will take away all salvage materials.	DC, NGO, Executing Agency
11	Adverse impact on the host communities due to relocation of PAPs / during and after the implementation of the project	The affected or host area/villages where displaces persons have resettled	Surface pond/ water for domestic use water and or sanitation and sanitary latrines. Provision for tube well for pure drinking water and hygienic solid waste management and dumping safe place and outside the locality	Assessment of community needs. Consult the host population and provision for common property resources. Implement the environmental improvement and mitigation task.	Executing Agency, NGO Community/ Contractors
12	Poverty reduction to vulnerable PAPs	Any affected Vulnerable PAPs (legally & Socially Recognized	Provision for one time cash Grant Tk.5,000/-	Assessed during PAPs survey & JVS. Consult Resettlement Action Committee and Affected host Population. Integrate poverty	Executing Agency, NGO

Sl. No.	Nature of Loss	Entitled Persons/ PAPs	Loss Entitlements	Implementation Issues	Responsible Organization/ Corporation
				mitigation programs of Executing Agency.	

Table 5: Tree Census

Name of Tree	Name of Mouzas and quantity of trees (average large, medium and small size has been averaged)		Total number of Trees
TIMBER TREE			
Mahogany			
Jackfruit			
Kadam			
Pine/ Debdaru			
Babla			
Chambal			
Neem			
Fig/ Dumur			
Shirish			
Chhalim			
Banyan			
Fara / Sara			
Gachh			
Jiyal			
Koroi			
Akashi			
Mandar/Shimul			
17 Items	A.	Sub Total No. Timber Tree:	
PERENNIAL TREE			
Bamboo			
1 Item	B.	Sub Total No. Perennial Tree:	
FRUIT TREE			
Mango			
Coconut			
Kool/Boroi/ Jujube			
Bel			
Guava			
Banana			
Safeda			
Dates			
Jamrul			
Palm/Tal			
Berry/Jam			
Tamarind/Tetul			
Amra			
Lemon			
Chalta			
Jambura			
Betelnut			
Olive/Jalpoi			
Gab			
Kamranga			
Ata/apple fruit			
Sajna			
23 Items	C.	Sub Total No. Fruit Tree:	
Grand Total (A+ B+ C+) =no. of Trees			

7.2 Cut-Off Date

The cut-off date for compensation eligibility will be the date of notification under section 3 of the Acquisition and Requisition of Immovable property Ordinance, 1982, GoB. For other affected persons (not legal owners) the date of census/ socio-economic surveys will be the cut-off date. Persons settling in the project area after the cut-off date will not be eligible for compensation or assistance.

7.3 Grievance Redress

Participation by affected people in the planning and implementation of resettlement is expected to enhance the acceptance of the project, and reduce their dissatisfaction. There will nevertheless be occasions when some individuals or groups feel dissatisfied with the resettlement package or the manner of its implementation.

The project will establish a grievance redressal mechanism to deal with such cases of discontentment. The organization or Government party implementing the Land Acquisition and Resettlement Plan will set up a broad based Grievance Redressal Committee (GRC) with adequate representation of the affected people, including women in adequate number. The Chairman of the Pourashava and the concerned officials of Executing Agency and DC office / District Commissioner's office will be other important members of the committee. The Executive Head or MD of Executive Agency will head the committee and the concerned other party representative will serve as its secretary. The committee will meet regularly and maintain a complete record of the meetings, grievance removed, etc. It will be ensured that grievances are removed as speedily as possible.

The affected persons will be free to approach higher authorities for grievance redressal if they still feel that they did not get what they expected. Grievances relating to land titles will remain outside the purview of this committee, and persons with such grievances will be advised to approach the appropriate courts of law for their resolution.

7.4 Local Perceptions of the People

The local views about the project are favourable. Generally, people see the project in a positive light, thanks to the emphasis on Focus group discussion approach followed right from the start. People think they have good reasons to welcome the initiative, as it will serve the local majority young groups to get employment opportunity and in turn get higher education, health care facilities with additional income. With the new international standard hotel complex construction, people hope to enjoy a better standard of living in a relatively safe environment. People also expect better civic amenities in the area.

8 Relocation and Income Restoration

No resettlement issue will be triggered in the project site. However, for future intervention the project will make all possible efforts to avoid/ minimize resettlement. Even those who will need to move will stay close to the sources of their livelihoods and will thus be saved from total disruption that is so common in relocation to distant locations. However, when relocation becomes unavoidable, the project will assist the affected people, especially women headed households and other vulnerable groups, in ways that will ensure that no one shall be worse off than they were before the project which might be the case for female staff of the Motel.

9 Stakeholder Consultations

9.1 Project Stakeholders

The public consultations have been conducted at project site which ensured the engagement of the community during the planning stage. This exercise enabled the gathering of opinions on the social issues and confirmed that 41.54 acres of Motel land ownership lies with BPC thus no RP is required. The Public Consultations in form of FGD were held at two levels. The first was with the permanent staff of BPC, who has potential involvement with the project and secondly with the casual staff who in turn reflected the views of the community wherein the new proposed project is to be located. The issues discussed included the following:

- The consultations process between the BPC, the community;
- The objective of construction of International Standard Tourism Complex;
- The further participation of the communities in the process of the project development;
- The role of the BPC and the staff and the coordination process;
- Awareness of the communities on knowledge based income activities and the project in general; and;
- Other general issues

9.2 Consultation Outcomes

A disclosure was made to facilitate the understanding the project among stakeholders and for them to voice their views and concerns regarding the Project and its impacts. The summary of these consultations and outcome of the same is provided in the below table:

Table 6: Summary of stakeholder consultations at project site

Issues	Comments/Suggestions
Impacts of the project including possibility of temporary displacement of existing nine casual staff and the primary entry point including culvert	<ul style="list-style-type: none"> ■ This new International Standard Hotel will bring benefit for the country as well as for the community for augmentation of services benefitting their everyday lives. ■ As anticipated, the loss of Temporary job facilities at the motel will be compensated by other alternative opportunities during construction period and further during operation of the complex at the site. The job opportunities will increase. ■ It will partially affect women who may be in a job loss. However, in Sylhet context, women are not considered to work in open area due to its orthodox characteristics. ■ One of the major benefits of the Project as expressed by the staff that would be in terms of increase in job opportunities for the local people. ■ Improvement of the primary road including the vulnerable culvert with outfall will serve the project boarders and tourist vehicles. ■ Road construction would definitely augment the frequency and quality of the transport, thereby further

Issues	Comments/Suggestions
	<p>improving access of all strata from the area to various social services and income opportunities.</p> <ul style="list-style-type: none"> ■ Most of the participants shared that during construction, influx of labour may create a good income generation opportunity whereby they can sell garden produce to these labourers at a roadside stalls. Most noted improved access to roadside small business in the future, and improved transport links, as possible for the project benefits.

9.3 Participants List

Type of Meeting: Focus Group Discussion-01 (Permanent Staff)

Date: 30-07-2016

Conducted by: Maleka Rahman

Venue: Sylhet Motel, Khadim Union Parishad, Sylhet Sadar Thana, Sylhet District

Table 7: Participants List Focus Group Discussion-01

#	Name	Position
1	Mr. Mohammad Zahid Hossen	Unit Manager-Sylhet Motel
2	Mr. Giyasuddin Ahmed	Executive Officer
3	Mr. Abdul Mannan	Assistant Shef
4	Mr. Ismail Ali	Executive Assistant
5	Mr. Sreebas Chandra Dey	Electrical Forman
6	Mr. Raj Ahmed Ali	Junior Laundry hand
7	Mr. Hiru Mia	Bellman
8	Mr. jamal Hossen	Bellman
9	Mr. Yunus Ali	Security Guard
10	Mr. Abu Bakar Siddiq	Cleaner

The Attendance Sheet is provided in **Annexure – 2**.

Type of Meeting: Focus Group Discussion-02 (Casual Staff)

Date: 30-07-2016

Conducted by: Maleka Rahman

Venue: Sylhet Motel, Khadim Union Parishad, Sylhet Sadar Thana, Sylhet District

Table 8: Focus Group Discussion-02

#	Name	Position
1	Mr. Kamal Parbhez	Junior Executive
2	Mr. Abdul Matin	Assistant
3	Mr. Abdul Halim	Assistant

#	Name	Position
4	Mr. Rakib Ali	Dishwasher
5	Mr. Mominul Huq	Security Guard
6	Mr. Rajib Mia	Assistant
7	Mr. Babul Mia	Gardener
8	Mrs. Shirin Begum	Maid
9	Mrs. Monowara Begum	Mashalchi/ Light person

The Attendance Sheet is provided in **Annexure – 3.**

9.4 Photos

	
Motel Manager with his working Team	Motel Manager with his working Team
	
Temporary Staff	Guards & Gate ticket Collector for Eco-Park

 A photograph showing three staff members at a wooden reception desk. Two men are seated behind the desk, and a woman stands to their right. The room has a traditional feel with a green carpet and shelves in the background.	Discussion meetings held in informal way as staff was limited
Staff at work	

10 Implementation Schedule

It is expected that the Project Plan will be implemented from 2017 onwards over a construction period of three years. The Executing Agency will initiate some advance actions such as the establishment of the Project Site office, identification of the contractor, bidding contract schedule process, and related labourers and other staff for the field, formation of scrutiny committee and, hire consultant to negotiate loan. The overall schedule of the Project implementation is based on the principle that the project implementation schedule may be revised as per field situation An example is given in the table below:

Table 9: Tentative Project Plan Implementation Schedule

11 Monitoring and Evaluation

The progress of the International Standard Hotel Project in Sylhet must be monitored during its construction and operation periods. The supervision and monitoring work will include the tasks like review of social safeguard issues implementation and verification of the results of internal monitoring in the project area.

Monthly progress report will be prepared and submitted by the responsible agency for project implementation and completion. During the implementation period till completion of the project, Project Team Leader will send project progress status report to the Executing Agency. Further an external capable and efficient monitoring and evaluation agency will evaluate the social safeguard issues like disposal of the salvage materials from the construction area, issues related with female labourers (same wage vis-à-vis male-workers, labour shed with safe drinking water supply, toilets, safety equipment – gloves, safety-cap, boot, apron, etc., any accidental cases/ casualties including preparing site specific Health & Safety Plan, Quality Assurance Plan, Gender Action Plan, Social Safe Guard Monitoring Plan or Social Management Plan (SMP) for the workers to be followed by the construction company.

Monitoring of Project Progress

The monitoring and evaluation agency will advise and assist Executing Agency in monitoring the effects of the project during construction and operation period. Monitoring will be a critical process to confirm that former subsistence levels and living standards are re-established and that corrective measures are applied when necessary. The main range of activities to be monitored will include:

- Workers wage, health and hygiene system on daily, weekly or monthly basis
- Uniform payments for male and female workers (if any)
- Employment opportunities for the casual staff of the existing motel
- Re-establishment of income levels.

The monitoring and evaluation agency will coordinate with all concerned government and private agencies, local bodies, NGOs and any affected parties for amelioration of social issues.

Table 10: Sample Format of Monthly Progress Report by Ngo/other responsible officials

Sl. No.	Task to Complete by Week/Month/Year	Accomplished	Tasks not completed	Expected Activities to be Accomplished by Week/ Month/Year
1				
2				
3				
4				
5				
6				
7				
8				
9				

12 Reference

Sl. No.	Documents/Publications Consulted
1	Terms of Reference : Establishment of International Standard Tourism Complex at Existing Motel Compound at Sylhet
2	Draft Map of the Location
3	Bangladesh Transport Network Map
4	Over Information Sheet on site: Project Name : Bangladesh Tourism PPP Project
5	Project Name: Bangladesh Tourism PPP Project: Project Activity Type: Site Information Sheet: General Profile
6	Project Name: Bangladesh Tourism PPP Project: Project Activity Type: Site Information Sheet: Specific Profile
7	Project Name: Bangladesh Tourism PPP Project: Project Activity Type: Site Information Sheet: Social Screening 1- Involuntary Resettlement
8	Project Name: Bangladesh Tourism PPP Project: Project Activity Type: Social Screening 2- Indigenous People
9	Project Name: Bangladesh Tourism PPP Project: Project Activity Type: Social Screening 3- General
10	Project Name: Bangladesh Tourism PPP Project: Project Activity Type: Social Screening Outcome & categorization
11	Draft Feasibility Report (Concept Plan Part): International Standard Tourism Complex in Sylhet: PPP Authority, Bangladesh
12	Draft Feasibility Report (Site Appreciation Part): International Standard Tourism Complex in Sylhet: PPP Authority, Bangladesh

13 Photographs of the Project Area



Photo-01: Primary Entry Point BPC Sylhet



Photo-02: Primary Entry Point BPC Sylhet

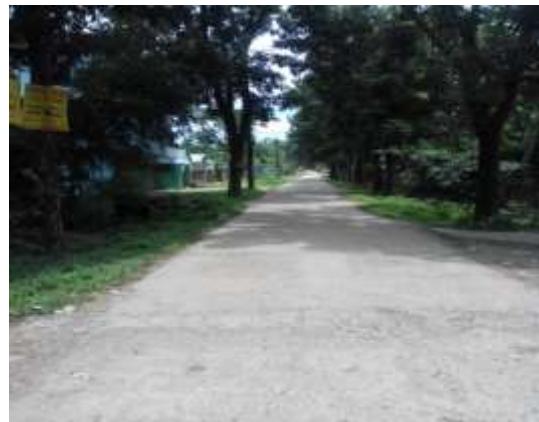


Photo-03: Primary Entry Point BPC Sylhet



Photo-04: Khal in Photo-03: Primary Entry Point Culvert without outfall



Photo-05: Primary Entry Point culvert outfall



Photo-06: Site border with barbed wire (Bar staff quarter)

From the initial habitation, there exist long green hills, tea garden and fields for paddy and other crops. Intermittently, there are small villages and Bazaar like Malinichhara Bazaar, which may be bypassed.

There are Fish cultivation ponds. The Malinichhara khal/ canal on south side is used for fish cultivation and the ponds are also used for fish cultivation.



Photo-07: Left side of the canal/khal belong to BPC and right side to Sylhet Cadet College



Photo-08: Temporary structure on GoB khas land outside of Motel boundary



Photo-09: Discussion in nearby outside of the project site



Photo-10: BPC Bar at outside of the main Motel site



Photo-11: Primary Entry Point road view with housing society



Photo-12: Koira Housing Estate on left side of the primary entry point of the project



Photo-13: Adjacent place housing structures at second entry point side



Photo-14: The Second Entry point road view to the Motel



Photo-15: Probable adjacent place –behind is the forest view



Photo-16: Adjacent place



Photo-17: Swan and other Birds catering outside of the area



Photo-18: Vegetation in the project outside area



Photo-19: East border at Children Park adjacent narrow road-behind is the forest view joints at main highway to airport



Photo-20: Adventure World-Children Park



Photo-21: Event Celebration area at children park



Photo-22: Restaurant space at children park



Photo 23 : Macau species at Echo park area



Photo 24 : Macau species at Eco park area



Photo 25: Dinosaurs structure at Children park



Photo 26: Food Corner at Children Park

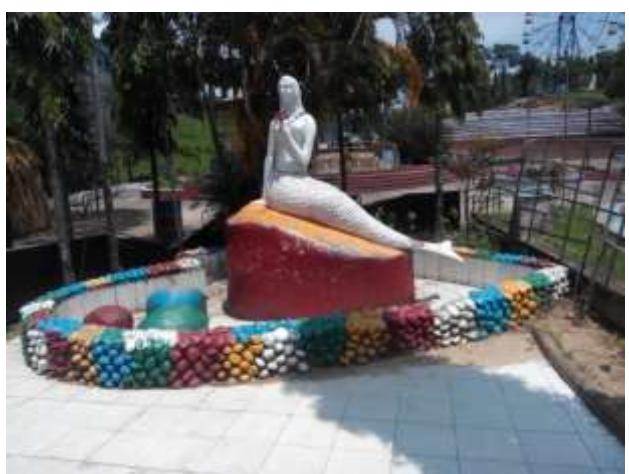


Photo 27: Mermaid at Children Park



Photo 28: Pucca and semi Pucca structures in near location on private land



Photo 29: The Consultant at Children park area

14 Annexures

Annexure – 1

Terms of Reference

Establishment of International Standard Tourism Complex at Existing Motel Compound at Sylhet

Background

Bangladesh Parjatan Corporation (BPC) is an autonomous body under Ministry of Civil Aviation and Tourism (MoCAT) with the role to promote tourism sector in the country. BPC is also mandated to provide quality accommodation services as part of promoting tourism sector in the respective area.

As part of its mandate for promoting tourism in the country, BPC manages hospitality and commercial facilities at different tourism nodes in Bangladesh. BPC manages 15 hotels and motels with close to 500 keys at main tourist spots of the country including Sylhet, Cox's Bazar, Teknaf, Rangamati, Chittagong etc.

Located on the picturesque Surma valley, covered with Scenic Tea Gardens, lush green tropical forests and crisscrossed by numerous rivers, Hill destination Sylhet is a special Tourist Destination in Bangladesh. Laid between towering hills, the Khasia and Jaintia to the north and the Tripura hills to the south, Sylhet breaks the monotony of the flat Gangetic plains and often termed as the Queen of Hills. While terraced tea gardens, rolling landscapes, exotic flora and fauna sets the breathtaking scenery, thick tropical rain forest adds just the perfect backdrop to the Sylhet landscape. Besides, a large number of rivers, natural lakes and water bodies provide a sanctuary to millions of migratory birds.

BPC operates a 50-bed motel at Sylhet which it is currently planning to re-develop into an international standard tourism complex on PPP basis. The PPP developer will be responsible for the development of the complex at existing motel compound and operate and maintain the complex during the contract tenure in order to support government's policy of promoting and enhancing tourism facilities in Bangladesh.

The proposed Project (international standard tourism complex at existing motel compound at Sylhet) has been provided in-principle approval by the Cabinet Committee for Economic Affairs (CCEA) on 22 August 2015. BPC has requested support from the PPP Authority for project development and transaction advisory services for the Project. PPP Authority is now in the process of engaging an advisor for the provision of technical, commercial, financial, transaction, environmental, and social advisory services to support the process for appointment of PPP developer for the Project.

Project Description

BPC is currently operating the Motel Sylhet, which was established as a 50 key motel. The motel is located near the sylhet Airport in an exquisitely idyllic setting. The proposed Project site is approximate of 25 acres of land. BPC wishes to re-develop this complete site in order to establish an international standard tourism complex.

Objective of the Consulting Assignment

The objective of this assignment is to procure transaction advisory services:

- a) To assess technical, commercial, financial, environmental and social viability for the establishment of an international standard tourism complex (5-star standard) at existing Motel Sylhet complex of BPC on the basis of a PPP Structure.
- b) To assist the government in developing and finalising procurement documents for appointment of a PPP developer for the Project

Project Delivery Role

The PPP Office is procuring the Transaction Advisor to support the Implementing Agency, BPC and the Line Ministry, MoCAT to deliver the Projects.

- In delivering the Project the Transaction Advisor will work directly with the Project Director, appointed by the BPC/MoCAT.
- The Transaction Advisor will maintain close liaison with the Project Director and the PPP Office for smooth expedition of the assignment
- PPP Office will maintain an oversight role through participation in the Project Steering Committee (where established) or/and through periodic updates throughout the various phases of the project.
- PPP Authority will make payment on successful delivery of objectives and deliverables set out in the Scope of the Services in consultation with BPC.

Scope of the Services

The Transaction Advisor will carry out the detailed feasibility study for the Project on the basis of a PPP structure taking in to account issues relating to the technical, financial, commercial, social, economic, environmental and other relevant factors including local and national issues, applicable laws, regulations, standards, specifications etc.

Prior to completion and final submission of the deliverables the Transaction Advisor shall present the draft findings and recommendations to the Key Stakeholders and take into account any feedback provided on the final Detailed Feasibility Study and the Procurement Documents.

The scopes of work for the transaction advisor are the following:

1. Introduction

- Executive Summary setting out the overall findings and key issues of the Project.
- Introduction to the Project and objectives.
- Background of the Project.
- Approach and Methodology to the Feasibility Study including data collection.
- Summary of the Key Assumptions applied throughout the Detailed Feasibility Study.

2. Needs Analysis

Discuss with BPC and Identify

- The strategic objectives of the Ministry and the BPC.
- Assessment of the need for provision of service.

3. Linked Project Assessment

- Identify key linked projects and the relevant government agencies who will have responsibilities for implementing the linked projects.
- Identify and highlight critical issues for implementing various linked projects

4. Technical Assessment and Survey Analysis

- Scoping and assessment of the technical suitability of the site selected for the Project.
- Identify requirements for the project including the amount of land, critical inputs, utility services and access arrangements that will need to be secured, topography, soil condition survey etc.
- Prepare broad/indicative master plans for the Project
- Prepare estimates of capital and operating costs for the Project
- Annex 1 sets out the detailed tasks that are expected to be carried out as part of the Technical Assessment, Preliminary Engineering and Survey Analysis.

5. Project Scope

- Formulate development concepts of the modality in which the private sector developer/sponsor will deliver the Project, the role of the public sector in relation to the Project and the on-going overview and review of private sector performance. Consider where applicable the following:
 - the broad output specification, the key performance indicators (KPIs)
 - Description of services to be delivered by the private partner/contracting authority
 - The allocation of cost and review between the private partner/contracting authority
- Identify Minimum Project Requirements / services for the Project

6. Environment and Social Impact Assessment

- Assessment of environment and social impact in relation to the Project (Initial Environment Examination, Environmental Impact Assessment and Social Impact Assessment).
- Recommendations report for safeguarding environment impacts (Environmental Management Plan).
- In carrying out the assessment and setting out the recommendations, compliance with relevant Bangladesh environmental and social laws, regulations, policies, procedures and guidelines should be addressed.

7. Demand assessment and Market study

- Conduct market analysis to identify the sector structure, demand drivers and dynamics, expected growth and level of competition, assess the extent to which there is a supply gap
- Conduct the survey of willingness to pay and provide a commentary on the relevant market practice.
- Prepare pricing analysis based on a market survey to identify willingness and ability to pay
- Identify critical market risks, and possible mitigation strategies;

- Development of risk matrix to identify and assess scale of potential project development and implementation risk and allocation of risk against stakeholders.
- Review of local and international market capability (including developer, contractors, sub-contractors and financers) to deliver the Projects.
- Consultation with potential bidders to assess market interest in the Project.
- Taking into account market feedback in relation to the project scope and preliminary design of the concession contract with the private sector.
- Recommendations in relation to potential market interest and how to engage with the market to maximise competition.
- Preparation of a consolidated list of approvals/consents/clearances required from government institutions.

8. PPP Transaction Structure

- Options assessment of alternative ways of structuring the Projects to be delivered as a PPP.
- Recommendations on the proposed structuring option for delivering the Projects as a PPP.
- Detailing the capital and operational costs of delivering the Projects, including direct and indirect costs, that will be incurred over the whole life cycle of the project.
- Detailing the revenue stream that will be delivered from operating the Project.
- Development of various possible alternatives for revenue maximization and preparation of revenue model for the Project.
- Development of a Financial Model (including all assumptions made) with functionality to carry out sensitivity analysis on variables such as occupancy level, tariff (room rent) levels etc.
- Listing of all assumptions made in relation to assessing the cost and revenue of the Project, including inflation rate, discount rate, depreciation, forecast demand etc.
- Assessing the commercial viability of the Projects if structured with or without any direct additional government support.
- Propose alternative options for a payment mechanism.
- Advising on any Fiscal or Special Incentives (permissible within Bangladesh PPP policy) that can be considered for the Project and assessing the financial implications of these incentives on the Project.
- Assessing what additional options exist to make the commercial viability of the Project more attractive while taking into account the additional financial impact and burden that may fall to the public sector including any potential tax related issues.
- Recommendation on the optimum structuring approach for delivering this Project as PPP.

9. Heads of Terms for Concession Agreement

- Set out the key commercial terms and conditions that will need to be reflected in the concession agreement.
- Set out a proposed payment mechanism and any alternatives.
- Set out the proposed key performance indicators and service credits that will be included.



10. Procurement Support

- Development of an outline structure for the Project Information Memorandum and invitation for Tender (IFT) documents,
- Provide input in developing the Invitation for Tender (IFT) documents especially evaluation criteria and assigning weightage to each of them
- Provide input into the draft concession contracts in accordance with applicable Bangladeshi laws, taking in to account the PPP policies, guidelines and the draft PPP model concession agreements,
- Support in project marketing activities to potential bidders
- Support in the bidding and evaluation process for selection of the investor

11. Training and Transfer of Knowledge

The Transaction Advisor shall arrange a short offshore Study Tour for up to 1 week for 5 (five) government officials (from the Ministry/ Implementing Agency/ PPP Authority) to showcase similar projects that have been delivered in other countries or regions.

List of reports, Schedule of deliveries, period of performance

- ✓ Inception Report
- ✓ Detailed Feasibility Study Report covering items 1-9 above and highlighting Service Requirements and Performance Standards Specification
- ✓ Draft Tender Package including IFT and Concession Agreement

10 copies and 3 soft copies of all reports mentioned herein below shall be submitted to the contracting authority.

Timing for Delivery of Reports

Inception report:

On commencement of the consultancy, the consultant shall prepare and submit an inception report within 2 weeks of signing the agreement. The inception report shall be a further elaboration of the consultant's submission towards understanding of the RFP, the methodology to be followed, the proposed work plan, the key interim and final delivery milestones, the schedule of delivery of the various components of the detailed feasibility report etc.

Detailed Feasibility Study Report:

Within 8 weeks of signing contract the consultant shall submit the draft detailed Feasibility Study Report and within 10 weeks of signing contract the consultant shall submit the final Detailed Feasibility Study report

Draft Tender Package:

Within 14 weeks of signing contract the consultant shall submit the draft Tender Package including Information Memorandum, IFT and the Concession Agreement

Annex 1

Preliminary Technical Assessment

The general scope of services for Preliminary Technical Assessment shall cover but is not limited to the following major tasks:

I. Studies, data collection and surveys

As part of the feasibility studies, the advisors may need to collect data (both primary and secondary as required), conduct surveys and studies to:

- a. Establish a base-map as part of a graphic information system covering the Projects site.
- b. Study the availability and level of service of physical infrastructure in the neighborhood of the sites. These would include the water supply, sewerage, power, drainage, telecom etc.
- c. Review previous studies and map planned and on-going projects surrounding the project sites including communications networks, other civil infrastructure projects, utility up-gradation etc.
- d. Advice an overall development plan linking the Projects including township and local market development.
- e. Study of market trends: This analysis can be subdivided into the following segments:
 - The investor's perspective: A perception analysis of major developers to identify preferences on product mix, price, amenities, positioning, etc. from the perspective of potential investors.
 - Commercial Survey: An opinion survey of commercial in primary, secondary and tertiary catchment areas shall be carried out to assess the potential of the subject sites for such a kind of development.
 - The Users perspective: A primary survey shall be carried out to assess demand and analyze the positioning of the Projects with respect to the different product/service mix.

II. Determine Costs and Recommend Cost-based and Market-based Rates

A survey of upcoming competitive activities in the surrounding areas needs to be assessed for understanding the future supply of competing developments. It would provide information on the following aspects:

- Nature of new developments coming up around the study site and in its neighborhood.
- The prices at which the similar facilities are charged currently.
- Unique feature that such developments are offering.
- The quantum of additional supply under various categories.
- The absorption period of these developments.



III. Conduct Competitive Benchmarking and Pricing

Competitive benchmarking (Local and international) should be conducted to study and benchmark competing developments in the sites area. The benchmarking will focus on profile of relevant investors, type of product, absorption rate, prevailing prices and amenities/ facilities provided by the developer.

A price band also needs to be determined that realistically captures the value proposition and optimizes the net returns from the Projects. Pricing (unit charges or as structured) to be determined.

IV. Broad Technical Assessment

As part of the scope of services the advisors need to conduct broad technical assessment of the project. The scope will include but may not limit to the following assessment:

- Site location and connectivity infrastructure
- Site land profile and access to the land
- Extent of land available and existing land tenure and use
- Broad Engineering design of the site.
- Appropriate zoning to accommodate various project components & to ensure compatibility
- Identification of facilities and amenities in the project facility (e.g. utility management including power, water, gas etc.)
- Requirement and use of open space
- Requirement and details of other facilities (e.g. shops, parking, playground etc.)
- Land / built up area after accounting for infrastructure to be made available
- Commercial profiling of the area
- Topography and preliminary estimates of land development issues
- Soil type and hydrology details
- Cyclone, earthquake, flooding considerations
- Competition from other similar commercial projects and facilities

V. Detailed Engineering Study

After the broad technical assessment, the advisors need to conduct the engineering studies with reasonable depth as required for a PPP project of this nature. These details may be required primarily for site assessment, site lay-out design and master planning as provided below:

1. Sites Assessment: Inventory and conditions survey of the proposed sites including but not limited to the following:
 - a. Water Source – quality & quantity
 - b. Locally available construction materials – source & availability
 - c. General soil profile and sub-soil characteristics;
 - d. Constraints from construction point of view like temporary drains, canals, lakes etc.
 - e. General cutting & filling area



- f. Boundary demarcation
 - g. Infrastructure availability road connection, drain, power distribution network, Substation etc.
 - h. Neighborhood study
 - i. Topographic Survey
 - j. Preliminary Geo Technical analysis
2. Layout Design and Master Planning: Specific scope may include but may not limit to the following:
- a. Prepare layout Plan for the sites
 - b. Develop a Master Plans
 - The following considerations shall be made for master planning:
 - ✓ Land use and zoning
 - ✓ Drawing and mapping of land use mix – Accommodation buildings, commercial Retail, infrastructure, Common facilities, Road, Green space etc.
 - ✓ Building and construction guidelines
 - c. Prepare Project implementation schedules



Annexure – 2

Annexure – 3

ATTENDANCE SHEET

TYPE OF MEETING P.C. FEDERAL LEVEL CONSULTATION/TRAINING ON DATE 30-7-2016

CONDUCTED BY Maleka Rahmann

NAME OF THE DISTRICT/ROORKEE/SHARJAH/UP/RAJASTHAN/THANE/UNION TERRITORY - Khadim U.P.

Sylhet Sadar, Sylhet District

NAME/ADDRESS	OCCUPATION/DESIGNATION	CONTACT NO. SIGN
କୁମର କାନ୍ତଳ ପାତ୍ରଚାର	(ବୈଧୁତିକ ଉତ୍ସବ)	
୧ "ଅର୍ଦ୍ଧନୀ ମିଶନ"	(ବୈଧୁତିକ ପାଇତ୍ରାନ୍ତକ)	
୨ "ଅର୍ଦ୍ଧନୀ ପାଇତ୍ରାନ୍ତକ"	(ବୈଧୁତିକ) ଚାରିତ୍ରୟକାଳ	
୩ "ପାଇତ୍ରାନ୍ତକ" ଲିମାନ୍ୟୁ	ଚାରିତ୍ରୟକାଳକାର -	
୪ "ଅର୍ଦ୍ଧନୀ ଏବଂ"	(ବୈଧୁତିକ ପାଇତ୍ରାନ୍ତକ) -	
୫ ପାଇତ୍ରାନ୍ତକ ଏବଂ	(ବୈଧୁତିକ ପାଇତ୍ରାନ୍ତକ)	
୬ ପାଇତ୍ରାନ୍ତକ	(ବୈଧୁତିକ)	
୭ ପାଇତ୍ରାନ୍ତକ	(ବୈଧୁତିକ)	
୮ ପାଇତ୍ରାନ୍ତକ	(ବୈଧୁତିକ)	