



**URBAN DEVELOPMENT DIRECTORATE (UDD)
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH**



Mobilization Report

on

Physical Feature Survey and Scanning of
Mouza Map, Digitization, Editing, Printing etc.
Under "Preparation of Development Plan for
Mirsharai Upazila, Chittagong District: Risk
Sensitive land use Plan (MUDP)"(Package-1)



Consultant:



Tiller

JVC of Geomark Ltd. and Tiller

Bauria

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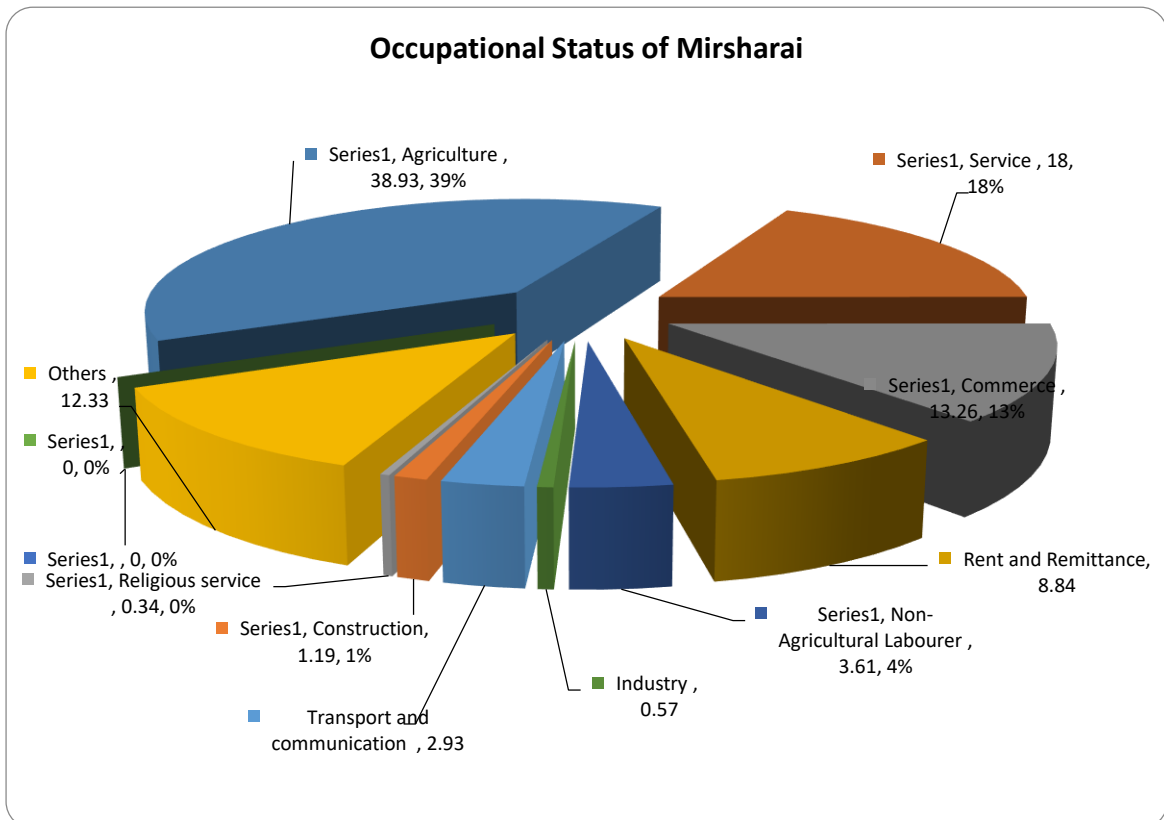
Chapter 1

1. Introduction

1.1 Project Background

Mirsharai came into existence as a thana in 1901 and was upgraded to a upazila in 1983. It is said that during the Mughal period, a military camp was established at the present place of Mirsharai. The camp was named Mehman Sharai. A Muslim warrior named Mirshaha died in that Mehman Sharai and was buried at the present place of Mirsharai upazila. His mazar is still well-known to the people as the mazar of Mirshaha. It is believed that the name of the upazila might have been named after the name of that Muslim warrior.

Mirsharai Upazila (Chittagong district) area 482.88 sqkm (BBS)/509.80sqkm(GIS data), located in between 22°39' and 22°59' north latitudes and in between 91°27' and 91°39' east longitudes. It is bounded by TRIPURA state of India, chhagalnaiya and Feni sadar upazilas on the north, sitakunda upazila and Bay of Bengal on the south, Fatikhhari upazila on the east, sonagazi and Companiganj (noakhali) upazilas on the west. Mirsharai Thana was formed in 1901 and it was turned into an upazila in 1983. Mirsharai Upazila consists of 2 Municipality, 16 Union, 113 Mouza, 41 mahallas, 208 villages. The average size of population of each ward and mahalla are 1546 and 679 respectively. On the other hand, the



average size of population of each union, mauza and village are 23181, 3403 and 1783 respectively.

Mirsharai, the combination of lake and hilly area contains attractive scenic beauty on the southernmost part of Bangladesh. The most important attraction of the upazila is that one can travel Mohamaya Chara Lake by speed boat and explore hilly area and can enjoy Khoiyachora, Baghbiani, Napitachora, Sonaichora, Mithachora and Boyalia waterfalls. This area is located 192.2 km far from DHAKA and 4.5 hour bus journey. Anyone can travel by rail and it is 197 km of rail journey and it takes 4.5 hour from Dhaka to Mirsharai Upazila. 56 km from the CHITTAGONG Divisional headquarters and takes 1.5 hour travel by bus. The Bangladesh Road Transport Corporation introduced a direct bus service from Dhaka to *Mirsharai* via comilla. (Source: Banglapedia, 2012)

At Mirsharai Upazila main river is Feni; Sandwip Channel is notable; canal 30, most noted of which are Feni Nadi, Isakhali, Mahamaya, Domkhali, Hinguli, Moliash, Koila Govania and Mayani Khal. The hills range on the northern and eastern side of this upazila along the bank of the Feni River extended up to Chittagong and the Chittagong hill tracts

Historical Events: Sultan Fakhruddin Mobarak Shah conquered Chittagong in 1340 AD and established the Muslim rule in this region. During the reign of Gaur Sultans Hussain Shah and Nusrat Shah, Paragal Khan and Chhuti Khan were the rulers of this area. Subsequently Nizam Shah, brother of emperor Sher Shah, was the ruler of this area. Nizampur Pargana is named after Nizam Shah and the whole area of Mirsharai came under the control of Nizampur pargana. From the beginning of the 16th century this region was very rich in Bangla literature. Most of the time between 1580 and 1666 this region was under the control of the Arakanese. The place at which (of the present Mirsharai thana) Bujurg Umed Khan, son of Subadar Sayesta Khan, landed after crossing the Feni River was named as Bujurg Umedpur. With the conquest of Chittagong by Bujurg Umed Khan in 1666, this region came permanently under the Mughal rule. Towards the end of British rule in India, Durgapur and Karerhat areas of Mirsharai upazila were the centres of revolutionary activities of Chittagong. A fierce battle was fought between the freedom fighters (under Capt. Wali Ahmed) and the Pak army at a place adjacent to the Fenafuni Bridge on the south of Mirsharai sadar in which about 100 Pak soldiers were killed. Besides, direct encounters were held between the freedom fighters and the Pak army at many places including Shuvapur Bridge, Hinguli Bridge, Aochi Mia Bridge and Mostan Nagar.

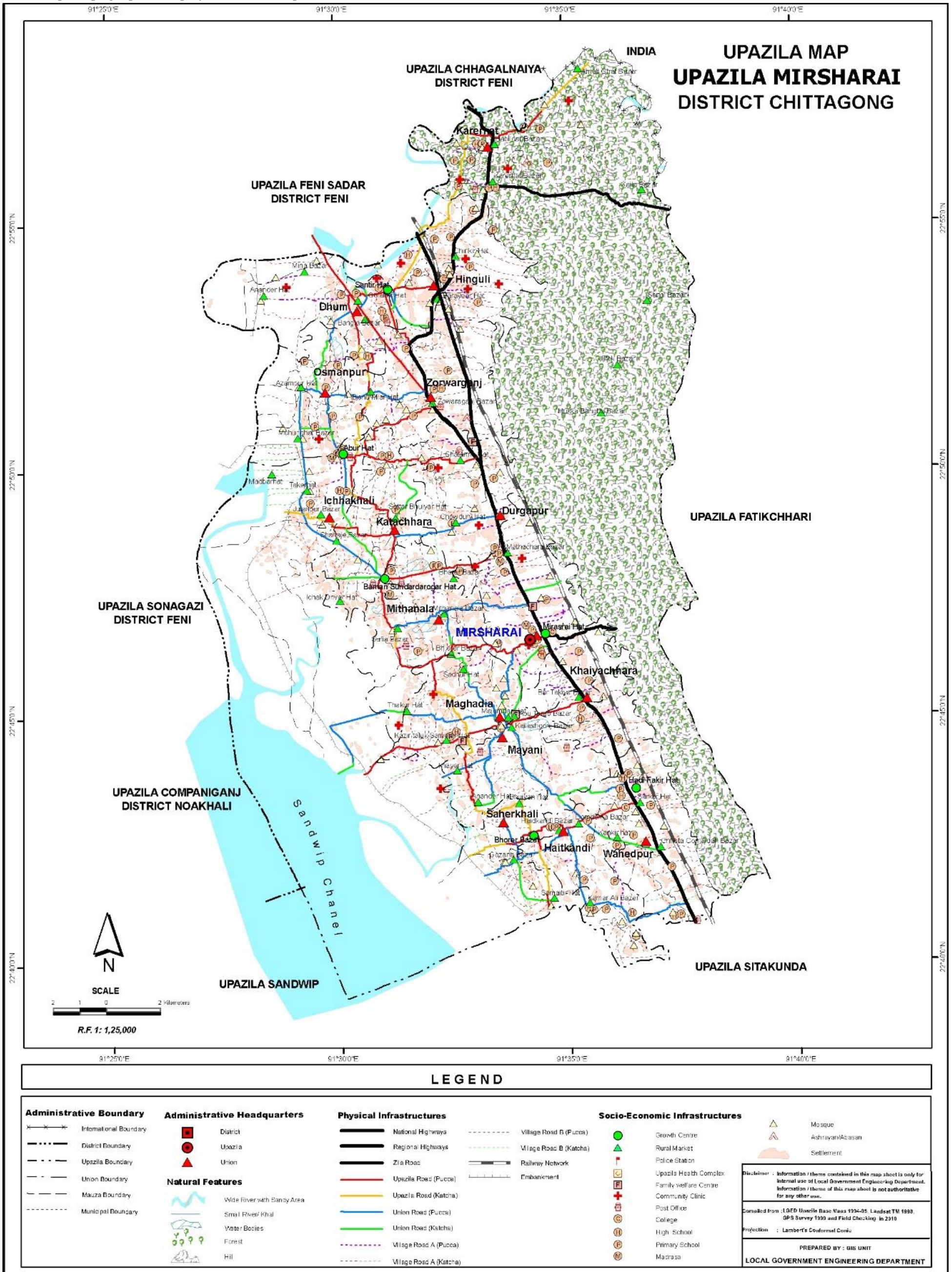
Main occupations: Agriculture 38.93%, non-agricultural labourer 3.61%, industry 0.57%, commerce 13.26%, transport and communication 2.93%, service 18%, construction 1.19%, religious service 0.34%, rent and remittance 8.84% and others 12.33%. Total cultivable land 22,896.40 hectares, fallow land 147713 hectares; single crop 38.91%, double crop 42.46% and treble crop land 18.63%. At present Cultivable land under irrigation is 6,917.85 hectare. Ownership of agricultural land Landowner 51.30%, landless 48.70%; agricultural landowner: urban 38.82% and rural 52.09%.

Value of land: The market value of the first grade arable land is Tk 30000 per 0.01 hectare. Main crops Paddy, potato, aborigine, bean, tomato, pumpkin and radish. Extinct or nearly extinct crops Sugarcane, jute, arahar, mustard, sesame, linseed, ground nut. Main fruits Mango, blackberry, jackfruit, banana, papaya, litchi, pineapple, water-melon.

Communication facilities Roads: Pucca road 230 km, semi-pucca road 119 km, mud road 1435 km; railway 16 km; waterway 11 nautical miles, Rail junction 4. Extinct or nearly extinct traditional transport Palanquin, bullock cart. Noted manufactories Carpet industry, pipe mill, ice factory, rice mill, bakery, brick-field, steel furniture, fish- poultry' feed' factory, bidi factory. There are also Cottage industries, Goldsmith, blacksmith, potteries, weaving, tailoring, bamboo and wood work. Hats, bazars and fairs Hats and bazars are 52, fairs 5, most noted of which are Abu Torab Bazar, Kamar Ali Bazar, Bara Daroga Hat, Mahajan Hat, Karer Hat, Baraia Hat, Shantir Hat, Zorwarganj Baishakhi Mela, Baruni Snan Mela and Shadhinata Mela. Main exports product is Bamboo, fish, paddy, potato, banana, vegetables.

Opportunity: Bangladesh can earn money in local and also in foreign exchange by opening a tourist resort at *Mirsharai*. The spot, if properly developed will become an excellent holiday resort and tourist centre. Rowing facility can be arranged easily; fishing and hunting facilities are already there. The success of developing *Mirsharai* as a tourist centre and Special Economic Zone depends much on good communication facilities and availability of modern amenities. Moreover, the proposed *Special Economic Zone* would generate many industry related new activities including huge vehicular traffic such as air, rail, road and water. This phenomenon would have both positive and negative impact on the socio-economic condition and existing land use pattern of the region. The proposed planning package would guide such probable changes in the socio-economic condition and land use pattern of the region, and would also address the adverse impact of such changes.

Map: Topographic Map of Mirsharai Upazila



Source: LGED digital map

1.4 Objectives of the Project

The objective of the project is to optimize resources and activities for sustenance of marginal people. The activities and resources are very important to the economy and life of the people of Bangladesh whose living conditions are inextricably linked to the productivity and sustainability of the region. There is no long term Holistic Development Plan for the Project area. Coastal zone needs to be integrated with the mainstream of development process of the country. So, an interdisciplinary development planning approach is urgent to optimize livelihood of the region. The Physical development planning problems, needing attention, are as follows:

- (i) To integrate ecology, economy and social resources with the mainstream of development process of the country
- (ii) To frame policies for the best use of land and its control for the Mirsharai Upazila.
- (iii) To optimize environment for sustenance of people.
- (iv) Formulation of Policies and plans for mitigation of different types of hazards, minimizing the adverse impacts of climate change and recommend possible adaptation strategies for the region.
- (v) Formulation of Policies and plans for gradual nucleation of settlements with policies and plans for development of growth centers of the area.
- (vi) Formulation of a guideline for development of tourism in Mirsharai Upazila, and also to accommodate future changes in existing land use pattern, socio-economic condition of the area and quality of life of the people.

1.5 The project location

The proposed project would be prepared on a regional development perspective considering the region as a part of whole of Mirsharai Upazila and its 16 unions. In this development planning package since its location is strategically important from the regional context because this upazila is situated on the way to Dhaka Chittagong highway as the highway runs through this upazila.

Map: Project location in Google Image



Source: Google earth

1.6 Description of the Project Area

A detailed description of the Project Area is given below:

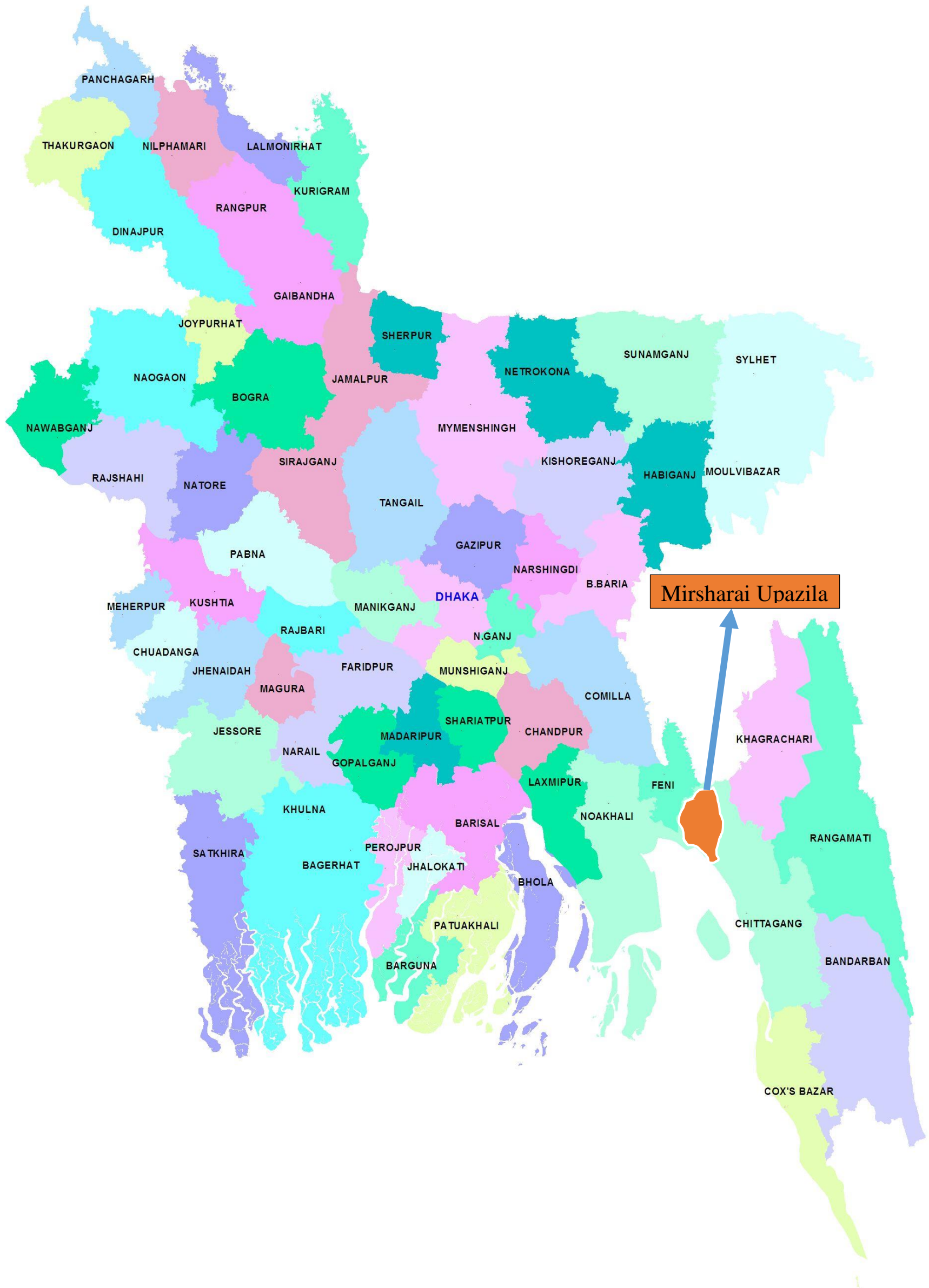
Table: Area, Population and Density of the Project Area

Municipality	Union	Mouza	Village	Population		Density (per sq km)	Literacy Rate (%)
				Urban and Other Urban	Rural		
2	16	103	208	31206	367510	826	55.1

Source: BBS, 2011

Mirsharai sea beach, hilly area, Mohamaya Chara Lake, Khaiya Chara region has the greater potential for tourism development as there are abundant resources to attract tourists. Mirsharai is developing in an unplanned and haphazard manner very rapidly due to the ample opportunity for tourism development, which is acting as pull factor for private sector developers. Hence, this project has been under taken to protect the region from depletion of its natural resources and character and tourism development as well. Moreover, honorable MoHPW Minister expressed his heartiest interest to develop char of this Upazila as an exclusive economic zone; as well as to establish a tourist zone and economic zone covering Mirsharai upazila.

Map: Project location in Bangladesh Map



Source: LGED Digital Map.

1.7 List of Unions/Municipalities of the Study area

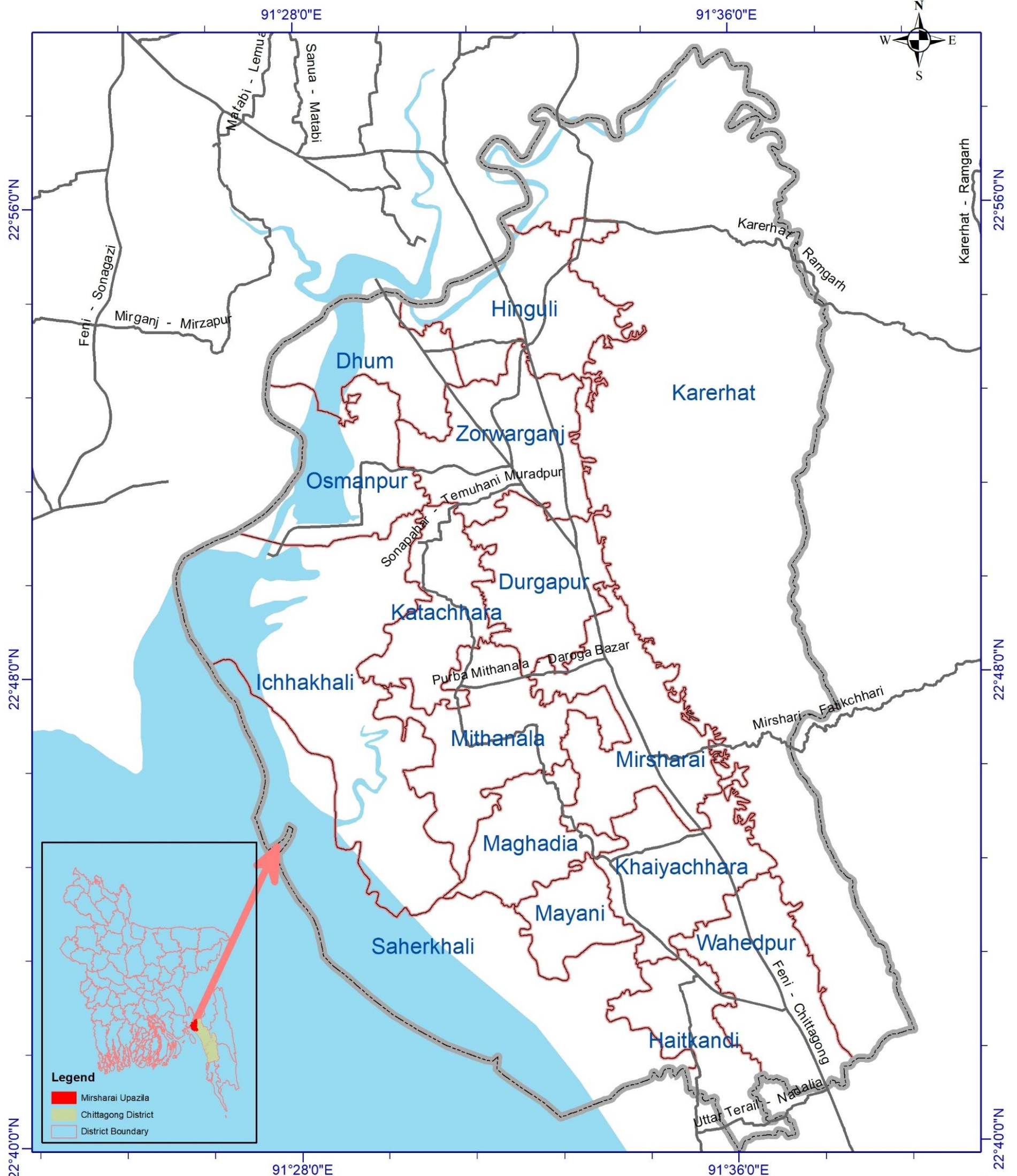
Mirsharai Upazila is comprised of two municipalities and sixteen unions which covers an area of about 482.88 sq. km.

Table: List of Union/Municipalities

SL	Municipality/Union	Name
1.	Municipality	Mirsharai Municipality
2.	Municipality	Baraiyarahata Municipality
3.	Union	Dhum
4.	Union	Durgapur
5.	Union	Haitkandi
6.	Union	Hinguli
7.	Union	Ichhakhali
8.	Union	Karerhat
9.	Union	Katachhara
10.	Union	Khayachhara
11.	Union	Mayani
12.	Union	Mirsharai
13.	Union	Mithanala
14.	Union	Maghadia
15.	Union	Osmanpur
16.	Union	Saherkhali
17.	Union	Wahedpur
18.	Union	Zorwarganj

Source: BBS 2011

**Preparation of Development Plan for Mirsharai Upazila
 Chittagong District: Risk Sensitive land use Plan (MUDP)**



<p>Legend</p> <ul style="list-style-type: none"> Road Upazila Boundary Union Boundary River 	<p>Scale</p> <div style="text-align: center;"> <p>Kilometers</p> <p>1 cm = 2 km</p> </div>	<p>Client</p> <div style="text-align: center;"> <p>Urban Development Directorate (UDD) Government of the People's Republic of Bangladesh</p> </div>	<p>Consultant</p> <div style="text-align: center;"> <p>GEOMARK LIMITED House-33, Road-12, Pisciculture Housing Society Mohammadpur, Dhaka-1207</p> </div>
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Source: Geomark Ltd.

Chapter 2

2. Scope of Work

2.1 Introduction

The Survey firms’ shall have to follow the following step-wise integrated activities for the stated scope of work on the intended different survey works. He/she would have to interlink the intended survey activity with different steps of other related activities conducted by other different survey firms’. A detailed methodology of the specific survey work including procedure for relating its output with that of other different surveys and activities (both attribute and spatial data of physical feature, topographic, land use, transportation, hydrological, socio-economic and other required hard and soft data), which would be imparted by other different survey firms’ has to be mentioned clearly in the proposed technical proposal. The survey firm has to combine the rural database with that of database (GIS database) of municipality area. A presentation of the proposed methodology shall have to make before the Proposal Evaluation Committee (PEC) as part of technical proposal evaluation. The bidder has to make the presentation by using his/her own hardware and software along with valid licence. The Client may the premise of the firm without providing prior notice (if necessary).

The project would provide a framework for a planned development of tourism along with all necessary facilities at Mirsharai Upazila. To accomplish the task a GIS mapping survey based on the mouza maps from the respective sources is required. Components of the survey work are:

2.2 The tasks for has to be accomplished under the project

2.2.1 Collection of Mouza Maps

Available mouza map shall be collected from concerned DC Office and Directorate of Land Records and Survey (DLRS) and scanning of mouza maps will be carried out using drum scanner. Flat bed scanner will not be allowed for scanning of mouza maps. Rotation and alignment must be maintained during scanning of mouza maps. After scanning of mouza maps all scanned files, in digital format, will be submitted to Project Director (PD) for preservation. The survey Firm will be liable to pay and communicate with the respective authority to collect the maps.

2.2.2 Scanning of Mouza Map

Scanning of mouza maps will be carried out using drum scanner. Flat bed scanner will not be allowed for scanning of mouza maps. Rotation and alignment must be maintained during scanning of mouza maps. After scanning all scanned files in digital format will be submitted to Project Director (PD) for preservation.

2.2.4 Digitizing the Mouza Maps

On screen digitization method will be used for digitization of mouza maps. Arc GIS software will be used for this purpose. Feature wise manuscripts will be developed for digitizing the mouza maps and all features will be stored as layer coverage with a separate ID or code number of respective features in the GIS database. To keep uniqueness of all features the ID or code numbers of respective features will be finalised as per suggestion and discussion with Project Director (PD).

2.2.5 Manuscript 01: Point Features.

This manuscript will contain all point features like boundary and other pillars, traverse stations, GT stations, benchmarks etc. Every point will contain a numeric user ID representing feature type.

2.3. Geo-referencing Maps, Ground Control Point (GCP) survey

2.3.1 Map Projection Systems

The Maps will be projected in BTM coordinates. Survey Firm will be needed to collect the appropriate parameters and implement it during the map projections.

2.3.2 Quality Control of Geo-referencing

To ensure the quality and accuracy of the geo-referencing, the Survey Firm has to take all the measure including taking the GCP points and geo-reference the maps utilizing the GCP points.

2.3.3 Selection of Ground Control Point (GCP)

At least 8 nos. of GCP (Tic) should be selected in ground for each of mouza sheet for conducting GCP survey. The joint team of UDD and the personnel appointed by the Survey Firm will select the GCP. Geo-referenced (x, y, z) permanent Bench Mark (BM) pillars uniformly distributed covering the project area have to be established to carry out the total topographic, physical feature and land use survey or as per direction of PD. Design drawing of BM pillars has to be approved by the Project Director (PD).

2.3.4 GCP Survey for ground truthing

For each mouza sheets, at least 8 GCP points has to be selected and taken utilizing the RTK GPS. The configuration of the RTK GPS has to be of latest technology with highest level of accuracy.

2.4. Submission of Data and Map

2.4.1 Map Printing at proper scale

After completing the survey and all the GIS processing, the Maps has to be printed by the survey firm. Maps would be printed at the scale 1:990 with proper annotations, titles and legend. The color grading and symbols for the map layout should be in accordance with the standards of the Client.

2.4.2 Attribute Data Base of the Digitized Mouza Map

We will submit all attribute data of all the features in the mouza map including individual plot number that would be generated from the spatial database.

2.4.4 Survey Report

After completing all the surveys, a survey report including both spatial and attribute database has to be submitted by the Survey Firm along with its progress report.

2.4.5. Institutional Arrangement

The client will form a committee to communicate, monitor and check the tasks accomplished by the Survey Firm.

2.4.6. Team Composition

The Survey Firm will form a highly qualified team to accomplish the tasks as specified in the ToR. Adequate personnel and technical capabilities for providing training on the above-mentioned tasks.

The survey firm has to perform the following tasks including surveys and studies:

2.5 Construction and Establishment of Bench Mark (BM)/Ground Control Point (GCP)

Pillars covering the project area including approximately 5 km. grid in rural area (pillar 10”X10”, Base 3’X 3’, height 5’). RCC pillars are to be constructed marking unique identification number Coordinate X, Y of these pillars along with Z value is to be marked on base map for future reference.

2.6 Physical Feature Surveys

Physical feature survey will have to be conducted for the whole of project (rural or rural-urban fringe) area. Location and dimension (X, Y, Z value) of all existing structures including building type, height, floor type and use of each floor, year of construction/ age, collection of household population data, Ownership of the building and to transfer the data compatible to cohort population forecast, homestead boundary, homestead area, cropping pattern, cropping intensity, location of riser of gas of each household, location of well, tube well, pond, tap water etc, toilet with sewerage facility, safety tank and open drain etc. all water control structures including khal (natural and man-made), cross section of water

bodies specially khal , hill areas with one feet interval and existing routes/ roads, embankments, dykes, box culvert, sluice gate etc, vegetation cover, culmination between flood Plain and homestead, ground water harvesting devise, river *ghat/ganj*, railway station and railway line, all type of roads, location of all existing exposed light/electric, telephone posts and national electric grid/towers/transformer, gas, water, sewerage line etc.

Physical feature survey firm also will be conducted of 12.62 sq.km Urban survey with RTK GPS and total station survey for the urban area of project area, 10% hill area survey out of total hill area 130.00 sq.km/32124.40 acre (Calculated from GIS) with RTK GPS and total station survey of project area (tracking & channel), 50% Plain area survey out of total plain area 379.80 sq.km/93850.11 acre (Calculated from GIS) Rural survey with Satellite image and ground-checking of major settlements through RTK GPS and total station survey of the Project area. (All kind of Survey Uses by RTK GPS), 50% Plain area survey out of total plain area 379.80 sq.km/93850.11 acre (Calculated from GIS) Rural survey with Satellite image and ground-checking of except settlements through RTK GPS and total station survey of the Project area (RL Verification and other Information Collection), Urban survey with RTK GPS and total station survey for the urban area of project area, Two nos BM Pillar for Mirshari urban area , Two nos BM Pillar for Baraiarhat urban area. Rural survey with Satellite image and ground-checking of major settlements through RTK GPS and total station survey for the rural area. One nos BM Pillar for rural survey area each union. Different Types of Survey (as Directed by PD) and Studies (Different scale of survey maps and print outs will be finalized in consultation with the PD).

2.7 Topographic Survey

The Topographic database shall be obtained from geo-referenced 3-D (four band) image and further cross-checked and ground truthing by using RTK-GPS and Total Station to obtain and verify 3-D data (X,Y,Z value) on location and alignment of all data obtained from physical feature survey including roads, flood embankments and other drainage divides. Location and alignment of all drainage and irrigation channels/canals showing depth and direction of flow. Closed boundary/outline of homestead, water bodies, swamps, forest etc. junctions, spot heights or land levels at roughly 10/5 m intervals for the Plain area, 1 m hill area, appropriate interval for sea area and close interval as and when required such as dyke, embankment, roads, rail-roads, river bank, rail line etc.

Chapter 3

3. Mobilization and Orientation

3.1 The Executing Agency

Urban Development Directorate (UDD) was established through a government order in 17th July 1965. This directorate is working under the Ministry of Housing and Public Works. Since its inception, UDD is contributing in developing Master Plan/Land Use Plan for small, medium and large town and cities of Bangladesh. Thus it is contributing in development of the localities and lifestyle of peoples of Bangladesh in direct and indirect ways.

Vision of UDD is to augment the quality of life of the people by improving the environment through planned development activities for adequate infrastructure, services and utility provision, to make optimum utilization of resources especially land and to ensure a geographically balance urbanization. It also aims to reduce local and regional disparity by alleviating poverty and to create good governance in the country through people participation and empowering of woman. Urban Development Directorate would welcome any co-operation, assistance and patronage from national and international quarters.

3.2 The Consultant

Geomark Ltd. is brand with specific focus to the emerging IT Enabled Services (ITES) specializing in the geospatial applications including consultancy on engineering & Architectural Design, Drawing, Supervision, planning GIS, LIS, MIS, AM/FM, processing of remote sensing data, digital mapping/surveying using GPS, geo-spatial and textual data conversion, application software and web page/solutions development and so forth. Apart from ITES, provides professional consulting services particularly for undertaking research and development studies/projects covering and not limited to land, natural resources, environment, urban/real estate development, infrastructure development, institution and organization studies, land related legislation study, human resources development studies, general education related studies, and so forth.

Tiller was founded in 2009 and grown up with focus on Urban & Regional context, developing the avenues in Urban Designing & Planning, Infrastructure Design, Disaster Management, Social Research, GIS Mapping and IT services. **Tiller** is led by a robust, talented & experienced group of Urban Planner, Engineer, Architect, Social Scientist, Environmental scientist and IT professionals. The agreement between Urban Development

Mobilization Report on

Package-1: Physical Feature Survey and Scanning of Mouza Map, Digitization, Editing, Printing etc.

Under “Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive land use Plan (MUDP)” Directorate (UDD) and consultant Geomark ltd.-Tiller has been held on 14th November, 2017 for Package-1: Physical Feature Survey and Scanning of Mouza Map, Digitization, Editing, Printing etc. under the project Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan. Some picture of the contract signing ceremony have been given in the next page.



Picture: Project contract signing ceremony between Urban Development Directorate (UDD) and Geomark ltd.-Tiller join venture on 14th November, 2017.

3.3 Mobilization of the Consultant’s Team

The contract signed on 14th November 2017, the Joint Venture (JV) team of the Geomark-Tiller has initiated their project activities with immediate action. A progress line-up from the consulting JV team is being reported here on different components of task: Mr. ANM Safiqul Alam Managing Director ,GEOMARK , Md Tamzidul Islam Proprietor, Tiller meet with PMO about some issue like database preparation, database format development, GIS data collection and processing, typology of physical feature, major obstacle to collect data and others factors that might have influence for this project. Mirsharai Upazila is one of the diversified Upazila in Bangladesh. A lot of opportunities relating to planning and development existing in this Upazila. Tourism and Economic zone development are the most influence factor for this area and have a potential source of economic growth in Bangladesh. To prepare a successful plan physical feature survey has a great influence and for this project we will accomplish the task including others component of this package

Under “Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive land use Plan (MUDP)”
under the Mirsharai Upazila Development Plan. Some picture of the meeting with project director (PD) have attached bellow-



Picture: Meeting with Project Director (PD)

3.3 Initial Meetings

3.3.1 Work Schedule

Preparation and adjustment work is undergoing with Microsoft Project. The submission has scheduled to be made within 18th onward.

3.3.2 Satellite Imagery Collection

Requisition was made but collection will be delayed due to cloud coverage of the rainy season.

3.3.3 Mouza Map Preparation

Collection, scanning and digitization works are in progress. A sample of 3 (three) scanned mouza maps will be submitted by 18th onward date.

3.3.4 Inception Report Preparation

For inception report preparation it has scheduled to submit within 1 week of the inception report.

3.3.5 Survey Activities

Team formation is in progress. As soon as the inception report will be approved, the team will be mobilized to the field.

Chapter 4

4. Work Program

4.1 Overview

The consultancy service would commence with the debriefing meeting. This meeting would help the consultant team to introduce themselves to the Counterpart with UDD, and would facilitate to delivery better working relation during the project works in performing the reconnaissance survey of MUDP project area. At the meeting the team would get in in-depth overviews of the relevant materials that MUDP have in their possession and share their experience in preparation an exhaustive list of collection of documents and drawings to be reviewed.

4.2 Work Plan

The work plan have been prepared by consultation with the project director of this project.

Table: Work plan of the project

SL No	Activity ¹	November, 2017		December, 2017				January, 2018				February, 2018				March, 2018				April, 2018				May, 2018	
		Week		Week				Week				Week				Week				Week					
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
1.	Agreement Sign																								
2.	Mobilization Report																								
3.	Inception Report Submission																								
4.	Mouza Map collection and BM establishment																								
5.	Mouza Map Digitization																								
6.	Mouza Map georeferencing and base map preparation																								
7.	Topographic ground trothing and attribute data Collection																								
8.	Map Updating																								
9.	Field Checking																								
10.	Submission of Survey Report																								
11.	Data processing, Analysis, Interpretation, presentation, Formulation of working paper and submission of Interim Report																								
12.	Preparation of Draft final report for planning package for the project																								
13.	Preparation of Final Report for Planning package for the project																								
14.	Printing of Final Reports and Maps																								

4.3 Key Expertize for this project:

Position	Tasks Assigned
Coordinator	<ul style="list-style-type: none"> i. Overall communication ii. Supervision of the survey work
Survey Expert	<ul style="list-style-type: none"> i. To design different surveys for the project ii. To conduct, coordinate and monitor physical feature, topographical and land use, transportation and other related surveys and studies. iii. Ensure quality and accuracy of survey data. iv. To compile all the survey data into digital form. v. To assist the GIS Expert in transferring survey data into GIS vi. To arrange survey trainings for UDD staff. vii. Preparation for working paper, report and plan of the project as assigned by the PD. viii. Any other survey and studies related Jobs.
GIS expert	<ul style="list-style-type: none"> i. To prepare topographic, physical feature, land use and other related map of the area. ii. To prepare, supervise, manage and monitor digital database (Spatial and attribute) of the project. iii. Installation and troubleshooting of GIS in UDD project office and head office. iv. Ensure the quality of the map and related work. v. To work with a multi-disciplinary team environment to synchronize the multi-sectoral data into GIS database. vi. Preparation of working paper, reports and plan of the project as assigned by the PD. vii. Any other related Jobs.
Photogrammetric Expert	<ul style="list-style-type: none"> i. To prepare topographic, physical feature, land use and other related map of the area. ii. To prepare, supervise, manage and monitor digital database (Spatial and attribute) of the project. iii. Installation and troubleshooting of GIS in UDD project office and head office. iv. Ensure the quality of map and related work. v. To work with a multi-disciplinary team environment to synchronize the multi-sectoral data into GIS database. vi. Preparation of working paper, reports and plan of the project as assigned by the PD. vii. Any other related Jobs.
Surveyor	<ul style="list-style-type: none"> i. topographic, physical feature survey ii. GCP collection iii. Plan and conduct ground surveys designed to establish baselines, elevations, and other geodetic measurements iv. Data updating

Chapter 5

5. Reconnaissance survey and activity

5.1 Overview

Reconnaissance survey has done to clarify the brief survey of the study area that can provide the assessment team with valuable information to help plan the field data collection. After a meeting between Project Director (PD) and Project manager (PM) with the consultants on 23th November, 2017 the date for reconnaissance survey was scheduled to start from 28th November, 2017. An official letter was issued for the Reconnaissance survey which have been included in the annexure of this report.

5.2 Team Member of the reconnaissance survey

1. ANM Safiqul Alam (Shaheen), Managing Director, Geomark Ltd.
2. Tamjidul Islam, Proprietor, Tiller
3. Howlader Nazmul Huda, Planner
4. Imran Hossain, Surveyor
5. Md. Ariful Islam, Data and Documentation Officer

5.3 Meeting with Local Stakeholders

In the reconnaissance survey several meeting were held with the following stake holders

1. Assistant Engineer, Baruaierhat Municipality
2. Assistant Engineer, Mirsharai Municipality
3. Chairman, Mayani Union
4. Meeting with Local people
5. Meeting in tea stall

5.4 Document and Maps Collected During the Reconnaissance Survey

1. Geology map-sedimentation
2. Geology map-fault lines
3. Hydrology map-SRTM DEM
4. Hydrology map
5. Soil major type
6. Topographic maps of 1942
7. Broad landuse map
8. Statistical Data from Bangladesh Burro of Statistics (BBS)
9. Pourashava map, UDD

5.5 Major Findings of the Reconnaissance Survey

Several times the physical plan have been done in this area, especially in the municipality area, but none of those plan have been implemented. Industrial development should be in a proper manner by maintaining rules and regulation to protect the liveable environment. Lack of infrastructure, drainage, waste disposal point etc. are the major problems of in the municipality area but rural road condition are good. The railway line are unprotected in most of the junction.

5.5.1 Basic Information of the Study area

The population is 380,000 where Population density is 764 per sq. km. in a literacy rate of 52.01%. The basic information of Mirsharai is given bellow which have been collected from secondary sources.

Table: List of institution of the project area

SL No.	Name	Number
1.	Govt. Primary Schools:	145
2.	Madrasas	24
3.	Hat Bazaars	34
4.	Post Offices:	30
5.	Govt. Hospital:	1; with 50 beds.

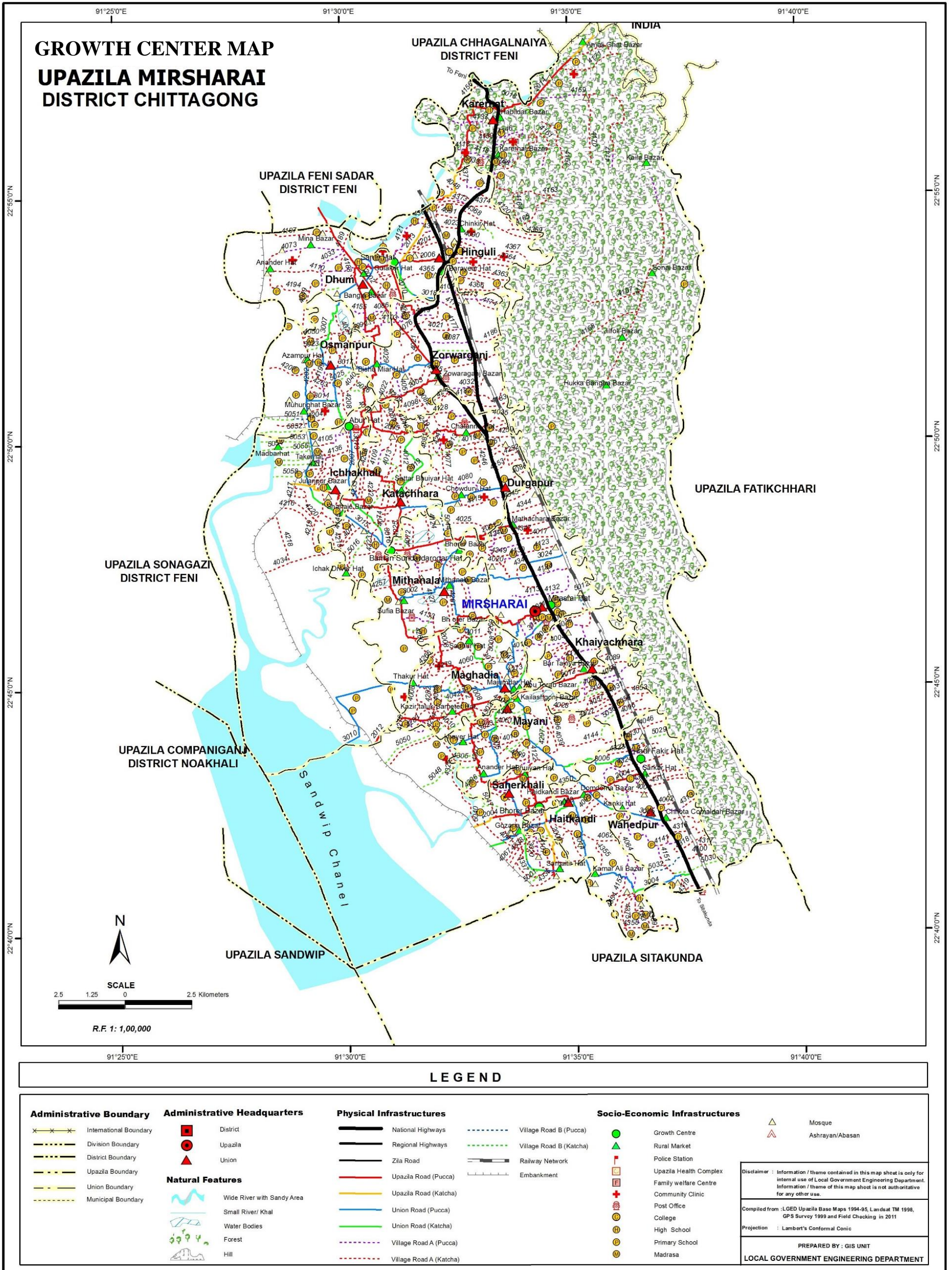
Source: BBS 2011

Table: List of growth center in Mirsharai Upazila

SL no	Name	Location
1.	Mithachara	Mithachara, Mirsharai
2.	Joraganj	Dakin Sona Pahar, Mirsharai
3.	Korerhat bazar	Katagang, Mirsharai
4.	Abur hat	Azampur, Mirsharai
5.	Bamansundar Darogar hat	Baman Sundor, Mirsharai
6.	Abutorab bazar	Abutorab, Mirsharai
7.	Koylashganj	Abutorab, Mirsharai
8.	Bartakia bazar	Bartakia, Mirsharai
9.	Koila bazar	Karer Hat, Mirsharai
10.	Hadi fokir hat	Hadi Fakirhat, Mirsharai
11.	Chowdhurihat bazar	Dewanpur, Mirsharai
12.	Azampur bazar	Osmanpur, Mirsharai
13.	Madbarhat bazar	Icahkhali, Mirsharai
14.	Jhulanpur bazar	Jhulanpul, Mirsharai
15.	Esak driverhat bazar	Purba Ichakhali, Mirsharai
16.	Tekerhat bazar	Poschim Ichakhali, Mirsharai
17.	Chattar bhuiarhat bazar	Bariakhali, Mirsharai
18.	Toraddas chwodhurihat bazar	Katachara, Mirsharai
19.	Choytannerhat bazar	Hajissarai, Mirsharai
20.	Moghadia sadhur bazar	Gajaria, Mirsharai

Source: Upazila website

Map: Growth center map in Mirsharai Upazila



Source: LGED digital map

5.6 Meeting with Stakeholders and Project Area during Reconnaissance Survey

The survey firm have conducted reconnaissance survey including Focus Group Discussion, Tea Stall Meeting etc.; meeting with the local public representatives including Mayor of the municipalities, UP chairman, counsellor etc. The picture of the reconnaissance survey have been attached below.

5.6.1 Meeting with Municipalities

There are two municipalities (Mirsharai and Baraiyarahata) in the Mirsharai Upazila. By discussion with the municipality member and official it is found that there is a lot of problem in plan implementation. Lack of infrastructure like-road, water supply, electricity etc. is a common phenomenon. In the present situation Mirsharai Upazila might be a virtuous economic hub in the economic development of Bangladesh and they are very much enthusiastic for the Mirsharai Upazila Development Plan.



Picture: Meeting with Municipalities officials

5.6.2 Tea Stall Meeting at in front Bariarhat Paurasava

During reconnaissance survey a tea stall meeting was done to understand the people perception about present situation of the study area.

Table: List of people joined in tea stall meeting

Sl	Name	Address	Phone No.
01	Md. Boshir Ahmed	4 no. Word, Bariarhat Paurasava	01813146107
02	Md. Jasim Uddin	5 no. Word, Bariarhat Paurasava	
03	Md. Sarwar Hossen	2 no. word, Bariarhat Paurasava	
04	Mohammad Hossen	9 no. word, Bariarhat Paurasava	
05	Md. Sujon	Vill. Dhum, Mirsarai	



Picture: Meeting with local people at tea stall

5.6.2.1 Tea Stall Meeting Output

Local people are very much concern with industrial development. BSRM has developed an industry in this region that are affecting the local environment. Development should be in a proper manner so more job opportunity created. The local market should be developed.

5.6.3 Focus Group Discussion (FGD) at Abutorab Bazar, Mayani, Mirsarai

A focus group discussion was arranged at Aubotorab bazar in Mirsharai Upazila to understand the local scenario of economic activities. They are very much enthused about the development plan of Mirsharai Upazila. They want more economic activity so that more job opportunity is created. Besides they are very much concerned with industrial development that hinders the liveable environment.

Table: List of people joined in the focus group discussion

Sl	Name	Address	Phone No.
01	Md. Azam Khan	Moddho Mayani, Mirsarai	01817202639
02	Md. Enayet Ullah	Moddho Mayani, Mirsarai	01812884058
03	Md. Nobil Chan	Moddho Mayani, Mirsarai	01822321062
04	Md. Mofij Uddin	Moddho Mayani, Mirsarai	01876691042
05	Md. Harun	Moddho Mayani, Mirsarai	01859611410



Picture: Focus group discussion with local people

5.6.3.1 Focus Group Discussion Output

Most of the people are concerned with road, drain, pure drinking water in the municipality area. Planning should be in a participatory way so that local people can be benefited.

5.7 Some Scenario of the Project Area

For better understanding of the project area some snaps have been taken during reconnaissance survey. Mirsharai Upazila is one of the important area for tourism and economic development. Mahamaya Lake and Khoiachora Waterfall are the wonderful tourism location in the project area.

5.7.1 Unions of the Study Area

There are 16 numbers of union in Mirsharai Upazila. To sustain any kind of development local government has to take a vital role. In the project area most of the union parishad are physically well structured. A snaps of the union parishad are illustrated below with picture.



Picture: 11 no Moghadia Union Parishad



Picture: 13 no Mayani Union Parishad

5.6.2 Rivers/Canals of the Study Area

In Mirsharai there are two rivers named Feni and Muhuri along with number of canals like- Isakhali, Hinguli, Moliash, Koila Govania, Mahamaya, Domkhali, and Mayani Khal.



Picture: Feni river of the project area



Picture: Canal of the project area

5.6.3 Economic Activity of the Study Area

Like others growth centre of Bangladesh in Mirsharai Upazila regular economic activities are performed. A snap of economic activity is shown below-



Picture: Fruits market in the Municipality area



Picture: Shops in the Municipality area

5.6.4 Tourism Spot of the Study Area

There are two important tourism location in the Mirsharai Upazila named- Mahamaya lake and Khoiachora Waterfall. Mahamaya is very beautiful but an artificial lake. After Rangamati Kaptai lake, Mahamaya lake is the largest in Bangladesh with 11 square kilometer area.



Picture: Mahamaya Lake



Picture: Khoiachora Waterfall

5.8 Housing and Household Characteristics

In the upazila, there are 79545 households. Distribution of household by type shows that there are 99.59% general unit, 0.13% institutional and 0.28% other unit.

5.8.1 Household Size

The average household size (general) for the upazila is 5.0 persons, for rural area the size is also 5.0 and for urban area the size is somewhat lower i.e., 4.7 persons.

5.8.2 Type of Housing Structure

In the upazila, 9.6% general households live in pucca house, 9.2% in semi-pucca house, 79.2% in kutchha house and the remaining 2.0% live in jhupri which are shown in Figure

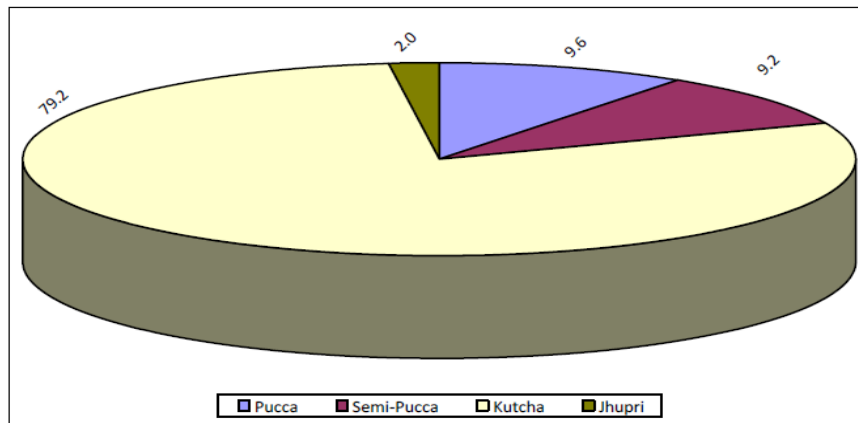


Figure: Housing Structure by Type, BBS-2011

5.8.3 Source of Drinking Water

In Mirshaha upazila, 93.9% general households get the facilities of drinking water from tube-well, 1.6% from tap and the remaining 4.5% households get water from other sources.

5.8.4 Sanitation

In the upazila, 76.2% general households use sanitary latrine, 21.7% nonsanitary latrine and the remaining 2.1% have no toilet facilities.

5.8.5 Access to Electricity

All the 16 unions of the upazila have been brought under the Rural Electrification Program. However, a total of 56.0% general households reported to have electricity connection in the entire upazila in 2011 as against 34.7% in 2001.

5.9 Mouza Map Collection and Digitization

There are 113 numbers of mouza in the project area and we have collected the mouza map for 100 mouzas. The list of mouza and scan copy of mouzas have been attasted below-

Table: List of Mouza

DISTNAME	THANAME	UNINAME	MAUZNAME	JL_NO
Chittagong	Mirsharai	Dhum	Char Kalidas	96
Chittagong	Mirsharai	Dhum	Char Krishajay	98
Chittagong	Mirsharai	Dhum	Char Raghunathpur	97
Chittagong	Mirsharai	Dhum	Dhum	23
Chittagong	Mirsharai	Dhum	Mobarakghona	34
Chittagong	Mirsharai	Dhum	Naherpur	24
Chittagong	Mirsharai	Durgapur	Durgapur	52
Chittagong	Mirsharai	Durgapur	Gopalpur	47
Chittagong	Mirsharai	Durgapur	Hajisarai	14
Chittagong	Mirsharai	Durgapur	Hariharpur	48
Chittagong	Mirsharai	Durgapur	Janarddanpur	45
Chittagong	Mirsharai	Durgapur	Raghunathpur	50
Chittagong	Mirsharai	Durgapur	Roypur	49
Chittagong	Mirsharai	Durgapur	Shikar Janarddanpur	46
Chittagong	Mirsharai	Haitkandi	Baliadi	92
Chittagong	Mirsharai	Haitkandi	Dakshin Muradpur	83
Chittagong	Mirsharai	Haitkandi	Dakshin Muradpur	83
Chittagong	Mirsharai	Haitkandi	Haitkandi	84
Chittagong	Mirsharai	Haitkandi	Jagadishpur	91
Chittagong	Mirsharai	Haitkandi	Kurua	85
Chittagong	Mirsharai	Hinguli	Azamnagar	21
Chittagong	Mirsharai	Hinguli	Jamalpur	20
Chittagong	Mirsharai	Hinguli	Paschim Hinguli	22
Chittagong	Mirsharai	Hinguli	Purba Hinguli	11
Chittagong	Mirsharai	Ichhakhali	Company Nagar	40
Chittagong	Mirsharai	Ichhakhali	Paschim Ichhakhali	66
Chittagong	Mirsharai	Ichhakhali	Purba Ichhakhali	67
Chittagong	Mirsharai	Ichhakhali	Uttar Ichhakhali	41
Chittagong	Mirsharai	Karerhat	Baraia	5
Chittagong	Mirsharai	Karerhat	Bhalukia	4
Chittagong	Mirsharai	Karerhat	Chhattarua	N/F
Chittagong	Mirsharai	Karerhat	Dakshin Alinagar	10
Chittagong	Mirsharai	Karerhat	Geramara	8
Chittagong	Mirsharai	Karerhat	Joypur Purba Joar	1
Chittagong	Mirsharai	Karerhat	Kata Paschim Joar	99
Chittagong	Mirsharai	Karerhat	Katagang	3
Chittagong	Mirsharai	Karerhat	Paschim Alinagar	6
Chittagong	Mirsharai	Karerhat	Paschimjoar	2
Chittagong	Mirsharai	Karerhat	Purba Alinagar	7

Mobilization Report on

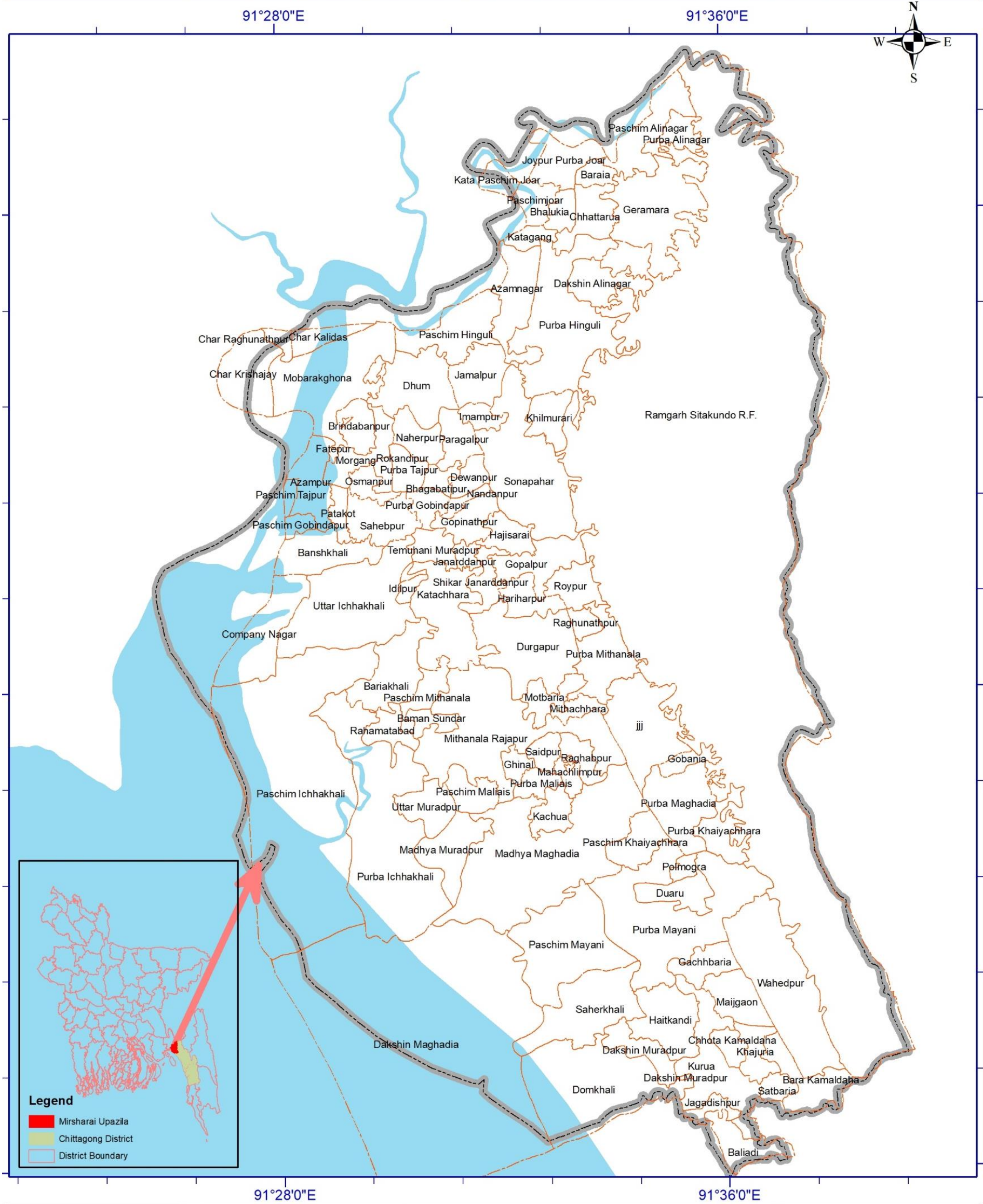
Package-1: Physical Feature Survey and Scanning of Mouza Map, Digitization, Editing, Printing etc.

Under "Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive land use Plan (MUDP)"

DISTNAME	THANAME	UNINAME	MAUZNAME	JL_NO
Chittagong	Mirsharai	Karerhat	Ramgarh Sitakundo R.F.	95
Chittagong	Mirsharai	Katachhara	Baman Sundar	62
Chittagong	Mirsharai	Katachhara	Bariakhali	65
Chittagong	Mirsharai	Katachhara	Idilpur	42
Chittagong	Mirsharai	Katachhara	Katachhara	44
Chittagong	Mirsharai	Katachhara	Paschim Mithanala	64
Chittagong	Mirsharai	Katachhara	Temuhani Muradpur	43
Chittagong	Mirsharai	Khaiyachhara	Duaru	77
Chittagong	Mirsharai	Khaiyachhara	Paschim Khaiyachhara	72
Chittagong	Mirsharai	Khaiyachhara	Polmogra	76
Chittagong	Mirsharai	Khaiyachhara	Purba Khaiyachhara	75
Chittagong	Mirsharai	Khaiyachhara	Purba Mayani	78
Chittagong	Mirsharai	Maghadia	Kachua	57
Chittagong	Mirsharai	Maghadia	Madhya Maghadia	71
Chittagong	Mirsharai	Mayani	Paschim Mayani	79
Chittagong	Mirsharai	Mirsharai	Gobania	74
Chittagong	Mirsharai	Mirsharai	Mahachlimpur	56
Chittagong	Mirsharai	Mirsharai	Mithachhara	54
Chittagong	Mirsharai	Mirsharai	Motbaria	53
Chittagong	Mirsharai	Mirsharai	Purba Maghadia	73
Chittagong	Mirsharai	Mirsharai	Purba Mithanala	51
Chittagong	Mirsharai	Mirsharai	Raghabpur	55
Chittagong	Mirsharai	Mithanala	Ghinal	60
Chittagong	Mirsharai	Mithanala	Madhya Muradpur	69
Chittagong	Mirsharai	Mithanala	Mithanala Rajapur	61
Chittagong	Mirsharai	Mithanala	Paschim Maliais	70
Chittagong	Mirsharai	Mithanala	Purba Maliais	58
Chittagong	Mirsharai	Mithanala	Rahamatabad	63
Chittagong	Mirsharai	Mithanala	Saidpur	59
Chittagong	Mirsharai	Mithanala	Uttar Muradpur	68
Chittagong	Mirsharai	Osmanpur	Azampur	36
Chittagong	Mirsharai	Osmanpur	Banskhali	39
Chittagong	Mirsharai	Osmanpur	Brindabanpur	33
Chittagong	Mirsharai	Osmanpur	Fatepur	35
Chittagong	Mirsharai	Osmanpur	Morgang	32
Chittagong	Mirsharai	Osmanpur	Osmanpur	30
Chittagong	Mirsharai	Osmanpur	Paschim Gobindapur	38
Chittagong	Mirsharai	Osmanpur	Paschim Tajpur	N/F
Chittagong	Mirsharai	Osmanpur	Patakot	29
Chittagong	Mirsharai	Osmanpur	Rokandipur	31
Chittagong	Mirsharai	Osmanpur	Sahebpur	28
Chittagong	Mirsharai	Saherkhali	Dakshin Maghadia	80
Chittagong	Mirsharai	Saherkhali	Domkhali	82

Map: Mouza map of Mirsharai Upazila

Preparation of Development Plan for Mirsharai Upazila Chittagong District: Risk Sensitive land use Plan (MUDP)



<p>Legend</p> <ul style="list-style-type: none"> Mouza Boundary Upazila Boundary River 	<p>Scale</p> <div style="text-align: center;"> <p>3 1.5 0 3</p> <p>Kilometers</p> <p>1 cm = 2 km</p> </div>	<p>Client</p> <div style="text-align: center;"> <p>Urban Development Directorate (UDD) Government of the People's Republic of Bangladesh</p> </div>	<p>Consultant</p> <div style="text-align: center;"> <p>GEOMARK LIMITED House-33, Road-12, Pisciculture Housing Society Mohammadpur, Dhaka-1207</p> </div>
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Source: Geomark Ltd.

Chapter 6


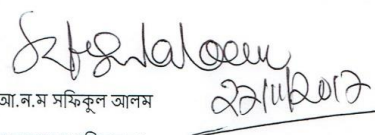
6. Conclusion

This report is part of the project activities and progress of work. This will guide the future activities including field surveys, data collection, analysis, report preparation and map production. The primary profile of the project area based on secondary source and collection of data has been useful in understanding the characteristics of the project area.

It is understood that the project area mainly in Mirsharai Upazila and in this Upazila there is a lot of opportunity for economic growth comprising to tourism and industrial zone development. So, the successful completion of this project is very important for development of the project area in our national context and in the regional context.

Annexures

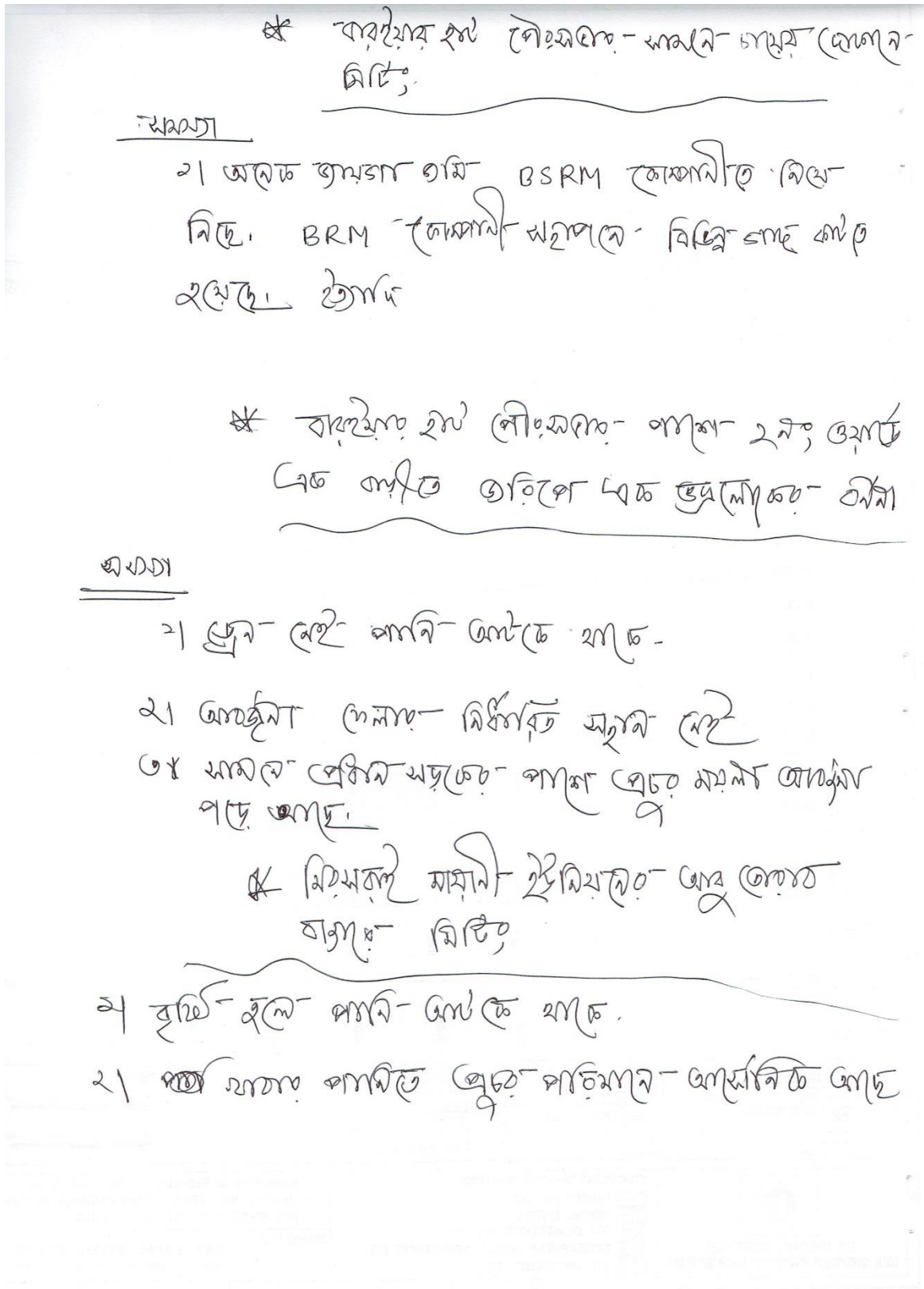
A1. Letter of Reconnaissance Survey

	<p style="text-align: right;">GEO MARK LTD and TILLER (JVC) House-23, Road-12, Block-Kha, Pisciculture, Housing Society, Mohammadpur, Dhaka-1207, Bangladesh. +88(02) 8190464, 01716291050 geomarkbd@gmail.com</p>
<p>তারিখ :</p>	
<p>বরাবর, প্রকল্প পরিচালক "চট্টগ্রাম জেলার মিরসরাই উপজেলার উন্নয়ন পরিকল্পনা প্রণয়ন" (MUDP) নগর উন্নয়ন অধিদপ্তর ৮২, সেগুনবাগিচা, ঢাকা-১০০০</p>	
<p>বিষয় : "চট্টগ্রাম জেলার মিরসরাই উপজেলার উন্নয়ন পরিকল্পনা প্রণয়ন" প্রকল্পের সার্ভে কাজে প্যাকজে-১ ও প্যাকজে-৩ এর Mobilization Report 2 & 3 Inception Report এবং Reconnaissance Survey জন্য প্রয়োজনীয় তথ্য সংগ্রহ ও প্রকল্প এলাকা পরিদর্শনের অবগতি প্রসঙ্গে।</p>	
<p>জনাব,</p>	
<p>উপরোক্ত বিষয়ে প্রেক্ষিতে বিনীত ভাবে জানানো যাচ্ছে যে, "চট্টগ্রাম জেলার মিরসরাই উপজেলার উন্নয়ন পরিকল্পনা প্রণয়ন" এর জন্য প্যাকজে-১ ও প্যাকজে-৩ এর Mobilization এবং Inception Report তৈরির জন্য নিম্নোক্ত ব্যক্তিবর্গ প্রকল্প এলাকায় তথ্য সংগ্রহ ও Reconnaissance Survey সম্পন্ন করার জন্য ২৮/১১/২০১৭ থেকে ৩০/১১/২০১৭ এই (৩)তিন দিন প্রকল্পের এলাকায় অবস্থান করবেন।</p>	
<p>নাম:</p> <ol style="list-style-type: none">১. আ.ন.ম, সফিকুল আলম২. তামদিদুল ইসলাম৩. হাওলাদার নাজমুল হুদা৪. ইমরান হোসেন	<p>পদবি</p> <p>ব্যবস্থাপনা পরিচালক, জিওমার্ক লি. সি,ই,ও-টিলার। প্লানার, জিওমার্ক লি. সার্ভেয়ার।</p>
<p>অতএব, উপরোক্ত বিষয়ের জন্য যথাযথ সহযোগিতা করার জন্য অনুরোধ করা গেল।</p>	
<p>বিনীত</p>	
<p>আপনার বিশ্বস্ত</p>	
	
<p>আ.ন.ম সফিকুল আলম ব্যবস্থাপনা পরিচালক জিওমার্ক লিমিটেড এবং টিলার (জেডিসি)</p>	

A2. Some Snaps of the Project Area



A3. Notes of Reconnaissance Survey



বাহাধর হুমি পৌরসভা

১৯৯৮ পাবনা-৬৯৬৯
সহকারী প্রোগ্রামার
০১৪৫২ ২৬৬৪২২

৩ম স্তর

অধিকতর জেলায় নতুন পারিকল্পনা তৈরি হলে কিছু ব্যক্তিগত
সেই। এতে যদি আলাদা করে কিছু পারিকল্পনা
কোন ব্যক্তিগত কোন কোন করে।
এতে আমি যখন একটি পরিকল্পনা করে
কোন কোন কোন করে

মিত্রসহায় পৌরসভা

১৯৯৮ বঙ্গ শ্রমিক ইউনিয়ন
সহকারী প্রোগ্রামার (সিভিল)
০১২১৬ ৫৬৬২১৪

৩ম স্তর

৩ম পৌরসভায় জেলা জেলায়। এতে ব্যক্তিগত
কোন ব্যক্তিগত পৌরসভায় ব্যক্তিগত করে
কোন কোন কোন পারিকল্পনা করে
কোন কোন করে।