

Introduction

1.1 Background

Physical planning comprises spatial arrangement of physical resources to achieve functional efficiency, public safety and aesthetic quality. Physical/land use planning is primarily concerned with good management and development of land. Land Use Planning provides the mechanism for making comprehensive decision about the use of land and resources. It is an approach that intertwines all segments related to social, economic, physical and environmental dimensions. Countries have rapidly urbanized and developed in an unplanned manner. Many continue to do so in an unprecedented rate. This has generated the conversion of forest lands, agricultural lands, wetlands, and aquifer recharge areas to industrial and urban uses. This trend has enormous impacts on productive agricultural lands and ecological resources and ecosystems. Industrial and urban development has likewise led to the segregation of land uses, e.g. separation of residential houses, shopping centers, and employment centers. Such land use development patterns have impacts on energy and resource consumption which have turned out to be unsustainable for humanity, i.e. emergence of global warming and climate change.

Furthermore, communities have become segregated by age, culture, and income, creating informal settlers who are pushed to dwell in hazard prone areas. Other known impacts of current land use patterns in most countries include those on hydrologic systems, e.g. impervious surfaces, and environmental health problems, e.g. air quality. All these impacts due to unplanned and unsustainable land use development patterns have increased the risks to natural hazards. Vegetation and forest clearance, soil erosion, saline soils and rising water tables resulting from unsustainable land uses have brought more droughts, flooding, and landslides. Locations of houses and infrastructures in hazard prone areas have led to unthinkable deaths as well as resource degradation. It could be seen that land reservations such as river deltas, wetlands, coastal marshes, and coastal reservations had been developed for human settlements, making people extensively exposed to natural disasters.

Urban Development Directorate (UDD) is the only government Organization at the apex for preparing land use plan in Bangladesh. Since its creation, UDD has prepared 50 land use master plan for 50 district towns and 392 Upazila towns from 1984 to 1996. In the recent past UDD has prepared land use master plan for 26 Upazila town / Pourashava / district town by employing its own man power. Besides, UDD has implemented Structure plan, Master plan

and Detailed Area plan for Sylhet and Barisal Divisional Towns and preparation of Development Plan of Cox's Bazar town and Sea-Beach up to Teknaf. But till now no attempt has been made to integrate Disaster Risk Reduction (DRR) into land use planning directly. Comprehensive Disaster Management Programme CDMP-II is involved in formulating different disaster oriented risk and vulnerability maps and respective response related maps. It is possible to make a city/ town resilient, if DRR is incorporated into land use planning.

Keeping this view in mind, Comprehensive Disaster Management Programme (CDMP) II and Urban Development Directorate (UDD) have jointly undertaken a pilot project entitled "Mymensingh Strategic Development plan (MSDP)", 2011-2031 for "Mainstreaming Disaster Risk Reduction Measure into Comprehensive Land Use Planning and Management" for the first time in Bangladesh with a view to preparing a long-term land use management system. The plan would be prepared for 20-year time span and would be implemented all over the country as a model.

CDMP-II has established a unique platform for reducing the risk of disaster and climate change adaptation, within its vast scope of activities, by integrating all stakeholders from grass root to national level. It is noteworthy to mention here that, Mymensingh town is situated within the highest level of seismic risk zone of Bangladesh. Attempt has been made to integrate comprehensive risk of disaster including earthquake into land use planning for the first time in Bangladesh. A planning module would be developed following the planning process of the whole planning package, which would be used as a model in preparation of disaster risk sensitive land use plan. For this reason the follow dimensions have been introduced into land use planning for the first time in Bangladesh

- Geo-morphological structure
- PRA (participatory rapid appraisal)
- 3-D (Three Dynamics) GIS Survey
- Social dynamics of social Space
- Historical pattern of spatial Transformation

1.2 Existing Scenario

Regional Setting

The district covers an area of around 4,363 km², with several small valleys between high forests. The temperature ranges from 12 to 33 °C, and the annual rainfall averages 2,174 mm. The city of Mymensingh stands on the bank of Old, as the 1897 great Assam Bengal earthquake changed the main flow from Brahmaputra to the Jamuna river which co-sided west of the greater Mymensingh region. The area of Greater Mymensingh, the north front line is just at the foot of Garo hills of Meghalaya of India, the south this area excludes the Gazipur district, the east ends in the rich watery land of Bangladesh as native calls 'Hawor', the west ends in the ancient single wood forest(e.g. Muktagacha, Fulbaria and Valuka Upazillas) and the Chars of Jamalpur district sided north-west of Mymensingh district. There is geographical varieties comprises single wood forests, Chars and river valleys and also touching the Himalaya at Garo Hills.

Mymensingh District Town

Mymensingh town, earlier known as Nasirabad, is placed on the west bank of Brahmaputra River. The population is around 225,811 and the literacy rate is about 65%. Having Bangladesh Agricultural University, huge bridge on Brahmaputra river, 2 medical colleges (Mymensingh Medical College, Community Based Medical College), 8 high schools, Raj bari, natural beauty of farm lands, etc. Mymensingh is one of the best places for living and educating children in Bangladesh. Because there are very few fuel run-vehicles, sound pollution and air pollution levels are very low. It is also one of the best towns in Bangladesh to educate child up to grade ten. There is no public boys' college in Mymensingh town; however, every years lots of students from this town get admission in different universities and medical college in Bangladesh. The first military high school for girls in the country, Mymensingh Girls Cadet College, is also located in Mymensingh town. Religious institutions include 2,362 mosques, 1,020 temples, 600 Buddhist temples, and 36 churches.

1.3 Objectives

The main objectives of the preparation of Strategic development plan are follows

- i. To integrate disaster risk reduction with the comprehensive land use development planning process of the country
- ii. To frame policies for identifying for preventive measure against disaster risk for the best use of land and its control for mainstreaming disaster risk reduction in land use planning

- iii. To develop coping strategies of urban people against disaster through land use planning
- iv. Formulating policies and plans for gradual nucleation of settlements with policies and plans for development of growth centers of the area considering potential risk of disaster in the area.
- v. Formulating of a planning package for development of disaster resilient town in an integrated and comprehensive manner
- vi. Formulating proposal hazard mitigation for the area

1.4 Scope of Works

The Scope of work among others include: to prepare a land use development plan leading to the preparation of Town Plan within the meaning of **Action Plan or Detail Area Plan** Following are the scope of activities prescribed in the TOR:

The scope of work specifies a total number of 28 tasks for Physical feature survey of Mymensingh project area.

Visit to the MSDP area

The survey firm team leader and/ or other team members of the project need to pay visit to MSDP area mainly for two purposes:

- Firstly, to acquire a firsthand knowledge about the area, its problems and prospects, and
- Secondly, to make the people and the local stakeholders aware of the need for a disaster resilient land use plan

a. Consent of the Mayor Regarding Preparation of Master Plan

A good number of Pourashava have already prepared land use/master plans through Urban Development Directorate (UDD) by this time. The vital point of view MSDP is the new modernization plan for Bangladesh because this plan is incorporates with disaster risk reduction and land use. The Consultants firm will enquire about the availability of previous land use/master plan for Mymensingh district town.

b. Inception Seminar/Meeting with the Stakeholders in Mymensingh Pourashava

The Consultants firm shall arrange an Inception Seminar/Meeting at the district town in cooperation with the Mymenshingh Pourashava. The objective of this meeting is to disseminate, among the stakeholders and the Pourashava as well, the Scope and Terms of Reference for the preparation of Development plan. Views will be exchanged with the stakeholders regarding the problems and prospects of the Pourashava in order to develop a 20 year development vision for the district town.

c. Determination of Study Area

- The Consultants team determine the study area (or the area to be covered under the current planning practice), based on existing condition, local demand including potential for future development/expansion, capacity, disaster resilient capacity, external and other ancillary local factors/conditions in and around the center.
- Master plan or land use plan area shall be the Pourashava and its adjacent (urban and rural) fringe area and will be prepared in consultation with the Pourashava and local stakeholders keeping in views the need over a period of 20 years Structure Plan (Strategic Level).

d. Surveys to Ascertain Existing Situation

- The Consultants team will carry out detailed socio-economic, demographic and topographic survey of MSDP area according to approved format and shall also collect data from primary and secondary sources.
- Explain the plan report indicating population, density, activity and implication on neighboring land use (to be identified).
- Collect/obtain socio-economic and demographic information and data both from primary and secondary sources in the study context and also in the municipality and national urbanization context.
- Analyze collected data and information, find out possible area of intervention to forecast future population of mymenshingh municipality (15-20 years), vis-à-vis assess their requirements for different services, physical and social infrastructure facilities, employment generation, housing, right of way and land requirements for various services and facilities like proposed roads, drains, playgrounds, recreation centers and other environmental and social infrastructure.
- In the Master Plan, for development of township, identify suitable location of respective zones/uses, circulation network, utility services, social services/facilities to

be provided and their future requirements depending on the projected size of population and physical development patterns that will take place over time.

e. Assessment of Drainage System

- The Consultants team will identify the existing natural and man-made drains in the town and investigate the mechanisms of the drainage and local river system to assess the extent and frequency of flood damage and determine areas where flooding or poor drainage is most severe.
- The Consultant team will be study the contour and topographic maps produced by the relevant agencies and also review any previous drainage Master Plan available for the Pourashava.
- In such exercise the Consultants will consider all relevant issues including discharge calculation for the catchments areas; design of main and secondary drains along with their sizes, types and gradients and retention areas with preliminary cost estimates for the proposed drainage system.

g. Storm Water Drainage

- The Consultants team will prepare a concept paper on the various alternative solutions to the present storm water problems and selecting the most appropriate and economical alternatives.
- Prepare a Master Plan of the storm water drainage system for all areas in the town, which will include discharge calculations for the catchments areas, design of main and secondary drains including their sizes, types and gradients and retention areas with preliminary cost estimates for the proposed drainage system.
- Prepare concept plan to show the phase-wise implementation schedule in an affordable and practical manner considering the technical, environmental, institutional, economic and social feasibility of the proposed works.
- Proposal for preparation of hydraulic and structural designs for the priority areas of the Pourashava and preparing a first phase implementation program.
- Carryout a study of the existing drainage maintenance procedures and budgets, if any, including solid waste collection and design.
- Estimate costs for a planned maintenance system to ensure that the drains are kept free from blockages and physical damage.

- The Consultants will also be responsible for recommending planning, institutional and legal mechanisms to ensure provision of adequate land for the establishment of proper rights of way for storm water drainage, which also will deter illegal encroachment.

h. Data Collection and Demand Assessment

- Assess and collect the essential data relating to Pourashava map, master plan, and land use plan, regional and national high way development plans, accident statistics, number and type of vehicles registered in the Pourashava and road improvements on going and proposed.
- Assess additional data requirements, critical additional data not currently available will be collected through reconnaissance and traffic surveys. This will help estimate present traffic volume and forecast the future traffic growth and also identify travel pattern, areas of traffic conflicts and their underlying causes.
- Survey and evaluate the urban land capability considering factors such as flood basin, topography, fertility and the like.

i. Traffic and Transport

- Study the viability of different solutions for traffic management and develop a practical short term traffic management plan, including one way system, restricted access for large vehicles, improved signal system traffic islands, roundabouts, pedestrian crossings, deceleration lanes for turning traffic, suitable turning radius, parking policies and separation of pedestrians and rickshaws etc.
- Assess the non-pedestrian traffic movements that are dominated by cycle rickshaw. Special recommendations should be made as how best to utilize this form to transport without causing unnecessary delays to other vehicles. Proposals should also consider pedestrians and their safety, with special attention for the children.
- Assess the current land use with regard to road transportation, bus and truck stations, railway stations etc. and recommend actions to optimize this land use, especially with regard to Pourashava owned land.

- Prepare a Road network plan based on topographic and Base Map prepared under the Project. Recommend road development standards which will serve as a guide for the long and short term implementation of road. Suggest Traffic and Transportation Management Plan and also suggest a traffic enforcement measure.

1.5 Location of Project Area

The Mymensingh Zila headquarter is located at a distance of about 121 km (75 miles) away from the capital of the county, Dhaka. The Pourashava (Municipality) is located within the Zila headquarters. It lies between the 24°43' and 24°45' north latitude and 90° 23' and 90° 25' east longitude. The Project Area constitutes Mymensingh Pourashava and adjacent 10 (ten) unions of Mymensingh Sadar Upazila with an area of about 27933.43 hectare or 69024.70 acre. The whole of Project Area consists of 116 mouzas.

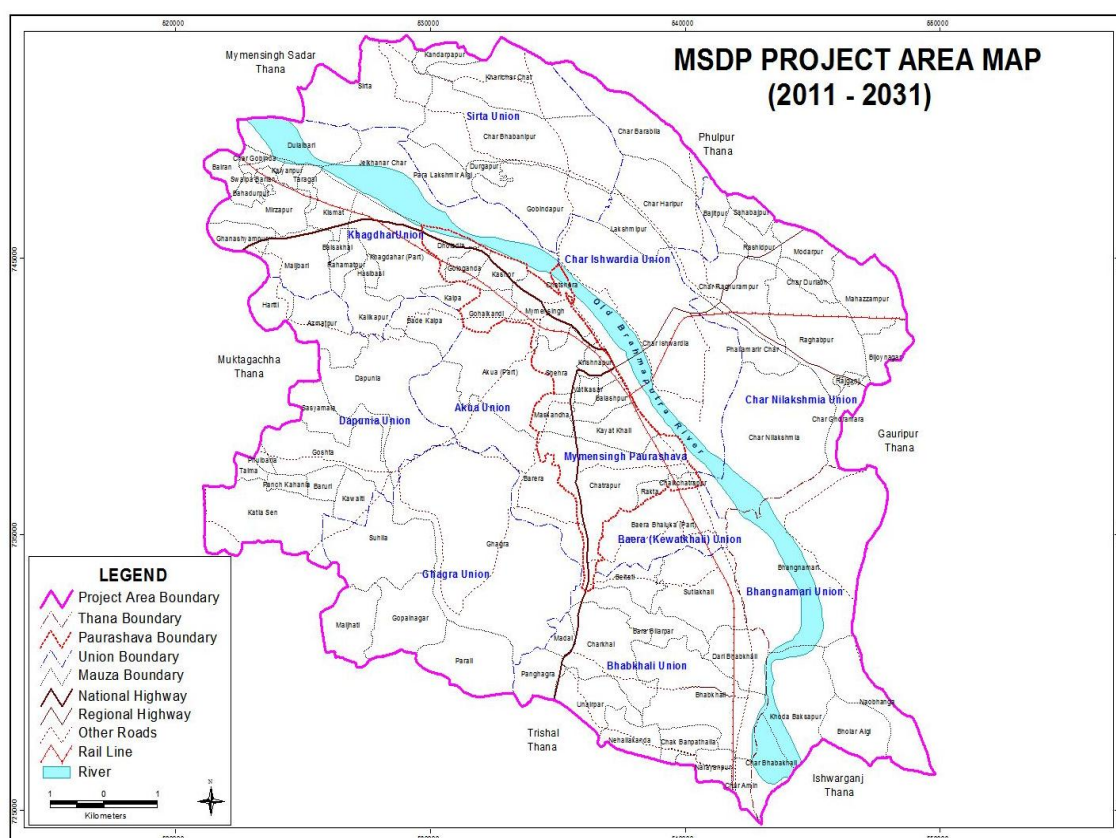


Figure 1: Map of MSDP Project Area

1.6 Categories of Activities

- Signing of Contract:** The contract between UDD and Decode-Bestway-Geomark joint venture has been signed on 20th June 2013 for the survey work “Physical Feature

Survey Work with RTK GPS, Total Station & using 3D Image with Relevant Supporting Other Survey for Area (Rural & Urban) MSDP Project”.

- II. **Preparation of the Work Schedule:** Preparation and adjustment of the work schedule for the project activities is finalized with Microsoft Project. Draft Plan was submitted and discussed with PMO and revised schedule has incorporated this report.
- III. **Collection of Satellite Image:** Requisition has been made on **4th March, 2013** but collection is being delayed due to cloud coverage over the project area during rainy season. (Annexure-VI)
- IV. **Replacing of GIS Consultant:** The survey firm consultant has been replaced. Team also replaces the CV of GIS Consultant, Mr. ANM Safiqul Alam with the CV of Mr. Tamzidul Islam. (Annexure-II)
- V. **Reconnaissance Survey:** Reconnaissance Survey has been made on 23rd July – 25th July, 2013.
- VI. **Survey Tools Preparation Activities:** Team formation is in progress. As soon as the inception report will be approved by the PMO, the team will be mobilized to the field.
- VII. **Primary Data Collection:** Questionnaire for socio-economic survey is structured by consultant and survey expert has reviewed and justified in field level. (Annexure-VII)
- VIII. **Secondary Data Collection:** is on going from respective department as BWDB, BBS, DoE, SoB etc.

OTHER ACTIVITIES

The following survey activities will be performed according to ToR

- I. Physical Feature Survey Work with RTK GPS, Total Station & using 3D Image
- II. Socio-economic Survey
- III. Transport Survey
- IV. Hydrological Study
- V. Urban and Rural Economy Survey
- VI. Other Study

- a. Recreational open Space
- b. Health Facilities
- c. Educational Facilities
- d. Pollution Study

VII. Preparation and Submission of Inception Report: Has scheduled to submit within one week of field visit