



Government of the People's Republic of Bangladesh

Development Plan of Rangunia Upazila (2013-2033)

June 2018

**Urban Development Directorate (UDD)
Ministry of Housing and Public Works**

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

তারিখঃ

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

গৃহায়ন ও গণপূর্ত মন্ত্রণালয়

পরিকল্পনা শাখা-৩

প্রজ্ঞাপন

তারিখ,

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অতএব, সরকার অত্র প্রজ্ঞাপন দ্বারা রাজশুনীয়া উপজেলা, চট্টগ্রাম এর জন্য প্রণীত নতুন Development Plan (Sub-Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan) এর অনুমোদনের বিষয়টি অনুমোদিত Development Plan সহ সংশ্লিষ্ট সকলের অবগতির জন্য প্রকাশ করিল।

বিশেষ দৃষ্টব্য : অনুমোদিত ডেভেলপমেন্ট প্ল্যান ও প্রতিবেদনের কপি নগর উন্নয়ন অধিদপ্তর, ৮২, সেগুনবাগিচা, ঢাকা-১০০০ এবং জেলা প্রশাসক, চট্টগ্রাম ও উপজেলা নির্বাহী কর্মকর্তা, রাজশুনীয়া এর কার্যালয়ে জনসাধারণের পরিদর্শনের সুবিধার্থে সংরক্ষিত থাকবে। তাছাড়া উক্ত ডেভেলপমেন্ট প্ল্যানটি নগর উন্নয়ন অধিদপ্তরের ওয়েবসাইট (www.udd.gov.bd) এর 14 Upazila Project Link এ সর্বসাধারণের পরিদর্শন ও ডাউনলোড করার জন্য উন্মুক্ত থাকবে।

রাষ্ট্রপতির আদেশক্রমে

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....., উপ-পরিচালক, বাংলাদেশ সরকারি মুদ্রণালয়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।

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(২৮৪৯)

মূল্যঃ ৪.০

PREFACE

This is a great pleasure for all concerned that the “**Preparation of Development Plan for Fourteen Upazilas**” has been successfully completed by June, 2018 under the supervision of the Urban Development Directorate (UDD), Ministry of Housing and Public Works, Government of the People's Republic of Bangladesh. This Development Plan for the period of 20 years (2013-2033) will serve as a guideline for the future Development together with land-use control, effective development and management of the Upazila. This Development Plan comprises of Five-tier Plan in a hierarchical order. Those are Sub-Regional Plan for 20 years, Structure Plan for 20 years, Urban Area Plan for 10 years, Rural Area Plan for 10 years and Action Area Plan for 5 Years.

UDD engaged Consulting firm “Joint Venture of House of Consultants Ltd. (HCL) and Disaster Management Watch (DM Watch)” for the preparation of the development plan for Rangunia Upazila. The Consultants have successfully completed the most essential tasks such as socio-economic survey, PRA, Agriculture Survey, formal and informal Survey, physical feature survey, land use survey, traffic and transport survey, Hydrological Survey and Geological Survey and series of consultation meetings with stake holders for the preparation of the Plan; and then formal public hearing has been made to register public opinions and awareness. Moreover, engineering geological data has been interfaced with land use data to prepare risk sensitive land use plan. The entire works have been completed through participatory planning approach with the Upazila and related stake-holders. During implementation period if needed any change of the land use plan may be allowed with the approval of the appropriate authority.

Urban Development Directorate (UDD) acknowledges the full support and cooperation of Rangunia Upazila Authority, Stake-holders and Civil Societies with the deepest gratitude.

Finally, I appreciate this Plan Book as an important step forward in providing knowledge and tools for planning professional as well as guideline for risk sensitive land-use planning for Rangunia Upazila.

Dr. K. Z. Hossain Taufique
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EXECUTIVE SUMMARY

Urban and rural development plan offers visionary, intelligent solution for the future oriented development opportunities in the locality of urban and rural areas. The development plan is the main public statement of planning policies for the local community. It sets out the land use, amenity and development objectives and policies of the planning authority for short, medium and long-term basis. The plan consists of a written statement of objectives and a map or series of maps along with separate land schedule. The main objectives of development plan of urban or rural areas are (i) reserving, improving and extending amenities; (ii) provision of utility services, waste recovery and disposal facilities; (iii) zoning of areas for residential, commercial, industrial, agricultural, forestry, flood plains etc. purposes; (iv) provision of accommodation for travelers and provision of services for the community. Development plans will also usually include development objectives related to the control of use of buildings, community planning, reservation of land, preservation, conservation etc.

Earlier, development in Bangladesh took place in and around a few major cities. Therefore, the benefits of development were enjoyed by the limited urban people. The small town called secondary town at Upazila headquarter or Pourashava situated at the urban-rural interface having some form of urban infrastructure and the rural population have the most access to these town. Therefore, the development of the town/urban centers in terms of the improvement and expansion of ranges of the services will directly benefit the population of their hinterlands and at the same time will be more economically feasible. According to the Sixth Five Year Plan (SFYP), the main goal of the government's land use policy and management is to ensure best possible use of land resources and delivery of land related services to the people through modernized and efficient land administration for sustainable development including accelerated poverty reduction.

Rangunia Upazila is situated in Chittagong District and bounded by Chandanaish Upazila on the South; Patiya Upazila, Boalkhali Upazila, Raozan Upazila & Kawkhali Upazila of Rangamati District on the West; Kawkhali Upazila of Rangamati District on the North and Kaptai Upazila & Rajasthali Upazila of Rangamati District and Bandarban Sadar Upazila on the East. Rangunia is located in between 22°18' and 22°37' north latitudes and in between 91°58' and 92°08' east longitudes.

Chakma kings (Shukdev Roy, Sher Daulat Khan, Jan Baksh Khan, Tabbar Khan, Jabbar Khan, Dharam Baksh Khan, Rani Kalindi, Harish Chandra Rai and others) ruled this area since 1757. Chakma King Harish Chandra transferred his capital from Rajanagar of Rangunia to Rangamati in 1874.

Rangunia Thana was formed on 24 January 1962 and it was turned into an Upazila in 1983. Rangunia Municipality was formed on 4 July 2000. The area of Rangunia Upazila is about 361.54 sq.km. (BBS 2011) but found 347.87 sq. km. based on the Georeferenced Mouza Map. The area of Rangunia Pourashava is about 30.329 sq. km. Rangunia Upazila has 1 Pourashava consisting of 9 Wards, 15 Unions included 156 Villages and it has total 72 nos. of Mouza. Total population of Rangunia Upazila is about 3, 39,004 among which 32,641 people living in Pourashava area (BBS 2011). Out of total population of Rangunia Upazila, the number of male and female are 168412 and 170592 nos. The distribution of main source of income of the people in Rangunia Upazila are agriculture: 39.71%, non-agricultural labor: 4.30%, industry: 0.58%, commerce: 16.24%, transport and communication: 3.57%, service: 12.31%, construction: 1.30%, religious service: 0.49%, rent and remittance: 10.91% and others: 10.86%.

The total length of road is about 1259.15 km including metal (245.68km), macadam (384.71km) and earthen road (628.76km). The Rangunia Upazila headquarters and Pourashava are situated besides of Chittagong-Kaptai highway. There are three major rivers namely Karnaphuli, Ichamati and Shilok are flowing and nested by a series of distributaries and tertiaries. The Karnaphuli River has divided the Rangunia Upazila headquarter and Pourashava town. The total area of Rangunia Upazila is 361.54 sq. km. (BBS) & 347.87 sq. km. (surveyed) and Paurashava is 15.164 sq. km. Population of this upazila is 3,39,004.

The development plan is to be prepared for the accommodation in planned and better way for the increased population. Therefore, population projection for 20 years is the prime and one of the important parameters for the preparation of development plan. Population projection has been done for the next 20 years and the projected population of upazila is 4,49,883 and Paurashava is 43,733.

Development Plan of Rangunia Upazila was prepared based on the four stages: a) Data Collection & Survey Works; b) Preparation of Thematic Maps based on collected data and survey works; c) Preparation of Suitability Maps for planning; d) Preparation of Development Plan representing through a series of Maps.

There are 19 Thematic Maps were prepared based on 11 types of survey during the survey stage. Each survey has distinct output. The outputs of survey works were presented in the form of Thematic Maps. The Thematic Maps are a) Topographic: Slope, DEM, Contour; b) Geological and Geo-physical: Peak Ground Acceleration (PGA), Shear Wave, Foundation Depth, Micro-zonation; c) Physical Features: Land use, Vegetation, Ecology, Road Type and Width, Connectivity; d) Agriculture: Cropping Pattern, Cropping Intensity; e) Demographic: Population Density based on Year 2011 and Year 2033; f) Hydrology: Water Source, Flood Scenarios and Inundation.

On the basis of survey total agricultural area of this upazila has been identified which is 151.28 sq. km. (43.49%). Three type of cropping pattern is noticeable here which are single crop: 16.67 sq. km. (11.02%), double crop: 98.84 sq. km. (65.34%), triple crop: 35.76 sq. km. (23.64%). Hilly area of this upazila is 123.81 sq. km. (35.59%). There is several number of tourist spots which are Sheikh Rasel Aviery Park, Remnants of the Chakma Rajbari (Shukbilash, Padua), Mahamuni Buddhist Monastery and tea garden.

Suitability analysis is a prime requirement for the preparation of development plan of any urban and rural areas. There are 5 Suitability Maps were prepared after analyzing the suitability of the existing features. Through this analysis suitable area for agriculture, urban and infrastructure development were identified. The area that land slope is more than 5% is not considered for any infrastructure development plan except preservation for hilly or forest areas.

In sub-regional plan, the main focus was to make Rangunia Upazila well-connected in terms of communication with the surrounding Upazilas. Basically, Rangunia Upazila is an agro-based Upazila. The communication among the surrounding Upazilas will help to grow more strong economy through transportation of goods, opportunity of jobs, formation of many business centres, expansion of education facilities etc. Rangunia is surrounded by Kaptai and Bandarban on the east that are very famous tourist spots. It is bounded by Kawkhali on the north, Dhandanaish, Patiya and Boalkhali on the south. Components of Sub-regional Plan are:

The structure plan prepared for the Rangunia Upazila in the light of national planning policies and other guidelines covering a period of 20 years. The structure plan of Rangunia Upazila is presented through Map and statistical table. The total area of Rangunia Upazila is 347.87 sq.km. The total area is covered under structure plan. In the structure plan the agricultural area has been divided into several zones which are Agricultural Zone 11751.38 (13.67%), Eco Sensitive, Agriculture, Water Retention Zone 3300.75 (3.84%), Main Flood Flow Zone 1378.577 (1.604%), Sub Flood Flow Zone 2065.557 (2.403%), Restricted Special 8317.983 (9.676%), Water Supply Protection Zone 3678.29 (4.28%).

The area under structure plan has been sub-divided into 13 strategic planning zones. Within the 13 zones, some issues were identified for policies of plan preparation. The plan contains policies for the following issues: a) Restricted Special; b) Urban Settlements; c) Rural Settlements; d) Agriculture; e) Circulation Network; f) Flood Flow, Water Body and Water Supply Protection Zone; g) Industrial Low Hazard Zone; h) Geology; i) Tourism Development; j) Economic Development.

Proposed facilities have selected based on the existing facilities, projected population, PRA demand and planning standard that are important for the development of the Upazila for the next 20-year. The locations of the proposed facilities have been indicated in the report.

Proposed Facilities of Rangunia Upazila	
Transportation	Truck Terminal, Bus Stand, Truck Stand.
Trade	Retail Trade Zone, Whole sale Trade Zone, Food Processing Zone, Poultry and Fish Processing Zone.
Housing	Affordable Housing Zone
Industry	Industrial Zone
Tourism	Hotel Motel Zone
Amusement and Park	Amusement Park, Auditorium/Cinema Hall, Eco park, Wild Life Sanctuary.
Treatment Plant	Water Treatment Plant, Sewage Treatment Plant
Play Ground and Monument	Upazila Stadium, Monument
Proposed Educational Facilities	Primary School- 3 nos., High School – 29 nos.
Proposed Commercial Facilities	Neighborhood Market-12 nos., Rural Sales & Service Centre (RSSC)- 48 nos.
Proposed Health Facilities	Clinic- 34 nos.
Proposed Transportation Facilities	Tempo CNG Stand-100 nos.
Proposed Bridge/Culvert	Culvert- 7 nos., Bridge-3 nos.

During PRA in the Rangunia Upazila, local people demanded some immediate actions against river bank protection, flood protection, embankment slope protection, construction of regulators, growth centres and low-cost housing for landless people. The mentioned development activities are to be implemented by the concerned government agencies like BWDB, LGED for Rangunia Upazila on priority basis within the first five years of the plan period.

- Protection for river bank erosion;
- Embankment for river flood protection and embankment slope protection;
- Redevelopment plan for growth centres;
- Construction of Regulators for flood control, drainage and water management;
- Low cost housing.

This contingency plan for natural disasters summarizes the Government's alerting systems and organizational framework for responding to such disasters. Functions and responsibilities of Government departments and other bodies in the event of natural disasters including those resulting from severe weather conditions are also set out in this Contingency Plan. The following possible aspects are examined under contingency plan:

- Building Vulnerability Assessment
- Existence of Natural Hazards

In building vulnerability assessment had done to detect vulnerable buildings from existing physical structure survey. In Rangunia Upazila, vulnerability assessment done upon 915 buildings that were more than one story among total 55,041 structures. Among 915 structures, 59 structures were found as moderately sensitive, 494 as sensitive, 253 as averagely sensitive. So, retrofit measure should be taken to make earth quake resistant structure according to its scale of sensitivity.

Four types of hazards have been identified for the project area, Rangunia which are categorized in planning process according to responsive stages to confine under a contingency plan. They are:

- Earthquake
- Landslide
- Flood
- Cyclone

On the other hand, installation of lighting arrestor due to thunder storm is utmost necessary to save human lives. Many people died due to thunder storm. Power Development Board (PDB) or Rural Electrification Board (REB) may study regarding this issue and may perform detailed design for construction of tower in the open field to save the lives.

The implementation modality for the proposed structure plan, urban and rural area plan and action area plan could be implemented by the concerned government agencies like BWDB, LGED, BADC, Pourashava, NHA, BSCIC, BEPZA, DPE etc. and details implementation modality.

The development plan is a blueprint for the planning and development of urban or rural areas for the next 20-years. It sets out where utility services (roads, water supplies, sewerage etc.) are to be provided and it zones land for particular purposes (housing, shopping, schools, factories etc.). When land is zoned for a particular type of development in the development plan, this is a clear indication that a planning permission for this form of development may be obtained. Zoning may also indicate restrictions on development. The plan may list for preservation, particular natural amenities (views, trees, landscape etc.) and particular buildings, features or sites of artistic, architectural or historic interest. Development proposals which might alter or interfere with any of these amenities will be restricted, and works which might otherwise be exempted development will require planning permission.

Glossary of Terms

Action Area Plan: The Action Area Plan guides land use and infrastructure within the area potential for immediate intervention based on public demand and necessity. It is prepared on 5 years interval.

Bazar: Bazar is a Market Place almost synonym of hat with some advanced facilities in comparison to hat. Generally, in a hat, there may not be any permanent business/trading house, shops. But in a bazar, there are some permanent trading houses, shops and these shops are open every day and buyers and sellers attend the bazar from morning till late evening.

Buffer: A zone of user - specified distance around a point, line or area.

Building Code: Regulations established describing design, building procedures and construction details for new homes or homes undergoing rehabilitation.

Catchment: The area contributing surface water to a point on a (Drainage) Area drainage or river system, which may be divided in to sub-catchments.

Climate Change: The slow variations of climatic characteristics over time at a given place. Usually refers to the change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable periods.

Community Service: Community service covers a wide range of urban basic services, like, park, play field, eidgah, health and education services.

Contingency Plan: The problematic structures in project area found to be vulnerable and risky. For these structures a contingency plan has been prepared to make sure safety of the structures in case of earthquake.

Contour: The form of the land. Contour lines are map lines connecting points of the same ground elevation and are used to depict and measure slope and drainage. Spot elevations are points of a specific elevation.

Contour Interval: Difference in elevation between two successive Contour lines. The interval at which contours are drawn on a map depends on the amount of the relief depicted and the scale of the map.

Coordinates: Pairs of numbers expressing horizontal distances along orthogonal axes, or triplets of numbers measuring horizontal and vertical distances.

Detailed Area Plan: Detailed Area Plan is the last tier of the present plan package (Structure Plan, Master /Urban Area Plan and Detailed Area Plan) adopted in Bangladesh which gives detailed development plan of an area at plot to plot level. It also provides a land use zoning plan superimposed on mouza map. A detailed area plan is prepared for approximately three to five years, that is, the plan must be implemented during this period.

Because, spatial changes in urban areas, particularly, in large cities takes place very rapidly. If the DAP is not implemented within five years it would turn obsolete, and a new plan will have to be prepared to accommodate new changes. So, it should be executed as soon as possible. A detailed area plan can be both, participatory or non-participatory. Participatory plans are those plans when it is prepared with direct participation of the local people.

Development: The process whereby a local planning authority Control decides whether a planning application meets the requirements of planning policy, particularly as set out in development plans. The prime function of the Development Control section is to determine planning applications in the public interest, in accordance with planning legislation and the local plan that has been adopted by the plan approving authority.

DEM: The representation of continuous elevation values over a topographic surface by a regular array of z-values, referenced to a common datum. DEMs (Digital Elevation Model) are typically used to represent terrain relief.

Encroachments: A structure that extends over the legal property line of other people or public land.

EIA: It is a detailed study based on Environmental Assessment (EA) to determine the type and level of effects an existing facility is having, or a proposed project would have, on its natural environment.

GIS: A geographic information system merges information in a computer database with spatial coordinates on a digital map.

GPS: Global Positioning System used to determine latitude, longitude, and elevation anywhere on or above the Earth Surface. This system involves the transmission of radio signals from a number of specialized satellites to a hand-held receiving unit. The receiving unit uses triangulation to calculate altitude and spatial position on the Earth Surface.

Growth Centre: Hats and bazars are the trading centers of the rural Bangladesh. Considering the importance of their economic role in national economy, government has decided to develop infrastructure facilities of some selected hats and bazars in every upazila through LGED. The markets which are already provided with such extra infrastructure facilities are called growth center.

Hat: The term 'hat' is very much known to all from time immemorial throughout the country which is a temporary rural market place. In rural Bangladesh farmers and other producers/manufactures used to sit with their surplus products in a suitable place having comparatively better communication system with surrounding villages to exchange these goods. This suitable place is called hat where generally on fixed days sellers and buyers get together and exchange goods and services. This gathering place is developed gradually by the local people at the beginning. The Hatis a rural trading center.

Household: Describes group of people who live in the same house and share food from the same kitchen. Household is similar to a family, except that household members may not have blood relationship.

Katcha: Impermanent structure/ building materials.

Land Use Zoning: Land use zoning plan can be a single plan or it can be devised as a part of master plan. In land use zoning plan the entire area under planning is sub-divided into suitable use zones according to their potentiality for that particular use. Accordingly planning permits are given to developers. Land use helps a city grow maintaining environmental sanctity ensuring livability.

Land Development: Re-shaping land to make better use of it. All planned and unplanned development on land is called land development. This term is usually used for housing development in urban areas.

Local Road: Those Roads are provided at local level to give access to houses and other establishments. It is the lowest level of road hierarchy.

Master Plan: It is the 2nd tier of the three level urban plans. It is prepare for the main city and its surroundings. Its development proposals are more detailed and prepared in map and report forms. It also contains a land use zoning map.

Mouza: Mouza is the smallest unit of Land Survey System with a unique number called Jurisdiction List Number (J.L. No.)

Mode of Transport: Four ways are included in the mode of transport. They are Roadway or Highway, Railway, Waterway, and Airway.

National Highway: Highway is a public road, especially a more major road connecting two or more destinations. National Highways are the primary long-distance roadways. Connect national capital with state capital, major port towns, border areas etc. Most are maintained by the Government. Connecting the neighboring countries is also called the National Highway.

Paurashava/Pourashava: Paurashava/Pourashava is the local name of the municipality. The incorporated area administered by the government as urban area under the Paurashava Ordinance 2008 is considered as the paurashava.

Population Projection: Make future estimation of population using well established and scientifically developed formula.

Pucca: Permanent construction/structure using bricks, cement etc. **Right of Way:** The entire space reserved for use of road. Initially road is developed in a part of the space, but gradually with the pace of urbanization the entire reserved space is used for road and footpath.

Road Hierarchy: The hierarchy of roads categorizes roads according to their functions and capacities.

Rural Area Plan: Rural Area Plan (RAP) provides a mid-term strategy for 10 years and covers for the development of rural areas within the project area. Generally, RAP contains an explanatory report, resource maps, conservation and management report, planning rules, rural area plan and a multi-sectoral investment program etc.

Structure Plan: Structure plan develops broad strategies for managing and promoting efficient medium- to long-term urban development. The structure plan integrates economic, physical and environmental planning objectives, providing a framework for development activities in the area. It also indicates the direction and extent of urban growth over a period of next 20 years.

Sub-Regional Plan: It is the document of plan package which determines a long-term vision for the development of an area

Shoulder: Shoulders are strips provided on both the sides of the carriage way. It serves as parking place for vehicles which have developed some defect and need parking.

Solid Waste: Non-liquid waste materials that have been discarded. It may be classified by point of origin (such as agricultural waste, industrial waste, domestic waste or construction waste) or by the kind of waste involved (such as rubbish, ashes, garbage, and special waste).

Structure Plan: Structure Plan is the 1st tier plan of the three level plan currently prepared for urban centres in Bangladesh. It is a policy plan and not a plan in maps. Future urban development policies are written down in the plan report that serve as the framework for subsequent lower level plans, like, master plan/urban area plan and detailed area plan. Major development locations may be symbolically indicated in structure plan.

Suitability Analysis: The suitability is a GIS based process for evaluating the suitability of land for development.

Traffic Volume: Number of vehicles passing a particular road per unit time at a specified time is called Traffic volume.

Thematic Map: A thematic map is a type of map specifically designed to show a particular theme connected with a specific geographic area.

Upazilla/Thana: Sub-District administrative area.

Union: Smallest local administrative unit of rural area which is composed of mouzas and villages. A union has a union parishad.

Urban Fringe Area: Outskirt areas of an urban center. These areas are usually being developed. They low density of population and structure and lack physical infrastructure, particularly road.

Urban Area Plan: It provides an interim mid-term strategy for 10 years and covers for the development of urban areas within the project area. Generally, Urban Area Plan contains an

explanatory report, resource maps, interim management report, planning rules, urban area plan and a multi-sectoral investment program.

Village: Smallest geographic area of rural area. A village may be same as mouza or there may be more than one village in a mouza.

Vulnerability Analysis: To analysis the vulnerable condition of buildings in the project area different criteria have been identified. These are: structure condition, structure age, historical time period, peripheral impact of structure. Depending on these criteria vulnerable buildings have been identified.

Ward: Smallest local administrative unit of urban area. For the operational convenience, Municipalities are divided into three or more wards. The ward boundaries are specified by gazette notification.

Zila/District: District administrative area.

Unit of Equivalence

1 lakh = 1,00,000

1 million = 10,00,000

1 crore = 1,00,00,000

1 katha = 0.05 bighas = 1.65 dec. = 66.9 sq.m. = 720 sq. ft.

1 bigha = 20 kathas = 33 dec = 0.33 ac.

1 acre (ac) = 3 bighas = 4000 sq.m. = 60.50 kathas = 100 dec

1 hectare (ha) = 2.47 ac. = 7.5 bighas = 10,000 sq. m.

1 square metre (sq. m.) = 1.20 sq. yards = 10.76 sq. ft.

1 square kilometre (sq. km.) = 247.1 ac. = 100 ha.

1 square mile (sq. mile) = 259 ha. = 640 ac. = 2.59 sq. km.

1 yard = 3 feet = 0.9m

1 metre = 3.281 feet

1 kilometre = 1000m. = 0.62 miles

1 mile = 1760 yards = 1.61 km.

1MW = 1000 KW = 106 watts

1 Nautical mile = 1.854 mile

ABBREVIATIONS AND ACRONYMS

AAP	Action Area Plan
BADC	Bangladesh Agricultural Development Corporation
BBS	Bangladesh Bureau of Statistics
BEPZA	Bangladesh Export Processing Zone Authority
BIWTA	Bangladesh Inland Water Transport Authority
BSCIC	Bangladesh Small and Cottage Industries Corporation
BWDB	Bangladesh Water Development Board
CDA	Chittagong Development Authority
DAP	Detailed Area Plan
DEM	Digital Elevation Model
DMDP	Dhaka Metropolitan Development Plan
DPE	Directorate of Primary Education
DTM	Digital Terrain Model
FGD	Focus Group Discussion
GCP	Ground Control Point
KDA	Khulna Development Authority
LGED	Local Government Engineering Department
NHA	National Housing Authority
PDB	Power Development Board
PGA	Peak Ground Acceleration
PRA	Participatory Rapid Appraisal
REB	Rural Electrification Board
RHD	Roads and Highway Department
RTK	Real Time Kinematic
SFYP	Sixth Five Year Plan
TIN	Triangulated Irregular Network
TMC	Technical Management Committee
UDD	Urban Development Directorate
SDG	Sustainable Development Goal
BNBC	Bangladesh National Building Code
CBR	Crude Birth Rate
CDR	Crude Death Rate
NS	National Share
IM	Industry Mix
RS	Regional Shift

CHAPTER 1

INTRODUCTION

1.1 General

The world is incubating the largest wave of urban growth in the history and the population growth is spurred more than half the world's population in towns and cities. World population has grown exponentially in the 20th century from around 1.6 billion in 1900 to around 6.1 billion today, with each additional billion people being added more rapidly than the last (Cohen, 2006). The vast majority of this growth has occurred in the developing world which is mainly concentrated in Africa and Asia, and most of the new growth occurs in smaller towns and cities.

Although the population growth rate of Bangladesh has somewhat decreased to moderate level in recent era, it has experienced as one of the world's most densely populated country. The country is going to witness a rapid spread of urbanization over the next decade but there are fewer resources to response this change. According to an estimate, by 2020, nearly every other man, woman and child will live in an urban area (World Bank ed., Bangladesh 2020). At its birth, Bangladesh had an urban population less than 5 million. By 1990, this had increased to 22.4 million and a decade and a half later, urban population stood at 42.3 million. At an annual growth rate of 3.7%, urban population growth in Bangladesh has been higher than all other countries in South Asia barring Nepal (Rahman, 2014). Bangladesh's urban population has been growing at a yearly average rate of 6 percent since independence, at a time when the national population growth was 2.2 percent. As a result, urban population has grown six-fold, compared with a 70 percent increase in rural population (World Bank, 2007).

Urbanization refers to the process by which rural areas become urbanized as a result of economic development and industrialization. Demographically, the term urbanization denotes the redistribution of populations from rural to urban settlements over time. However, it is important to acknowledge that the criteria for defining what is urban may vary from country to country, which cautions us against a strict comparison of urbanization cross-nationally. The fundamental difference between urban and rural is that urban populations live in larger, denser, and more heterogeneous cities as opposed to small, sparser, and less differentiated rural places.

The urbanization and development relationship is inevitable for developing countries like Bangladesh. Urbanization is interlinked with the economic development, social development and environmental protection. The urbanization of the developing world began to accelerate in late twentieth century (Timberlake, 1987), although there was no clear trend in overall urban growth in less developed countries due to inconsistent definition of urban and the lack of quality in their census data. From experiencing of Bangladesh, it has been observed as predominately rural nation but urban is now kept in pace. The following table gives a notion about the urbanization trend of Bangladesh.

Table-1.1: Trends of Urbanization in Bangladesh

Census year	Total national population (million)	Growth rate of national population (%)	Total urban population (million)	Level of urbanization (%)	Decadal increase in urban population (%)	Annual Exponential Growth rate of urban population (%)
1951	44.17	0.50	1.82	4.33	18.38	1.69
1961	55.22	2.26	2.64	5.19	45.11	3.72
1974	76.37	2.48	6.27	8.87	137.57	6.66
1981	89.91	2.32	13.23	15.18	110.68	10.66
1991	111.45	2.17	20.87	19.63	57.79	4.56
2001	123.10	1.47	28.61	23.10	37.05	3.15
2011	134	1.37	28.00	28.40	34.96	3.00

Source: Government of Bangladesh: BBS, population and housing census 2011

Urbanization worldwide has been observed to be an effective agglomeration of economic growth and socio-cultural development. In pure economic terms, urbanization contributes significantly to the national economy. Even in Bangladesh (at 28 percent urban), this sector contributes to more than 60 percent of the GDP. This has grown from as low as 25 percent in 1972-73 and 45 percent in 1995-96 (Islam, 2005). This trend obviously may lead one to delineate that urbanization on a macro-scale would be beneficial to the economy of Bangladesh. Urbanization also impacts social development in terms of higher literacy rate, improvement in the quality of education, and better health indicators. To keep pace with greater urbanization, some institutional or developmental change is necessary to utilize the resources. A well-documented and visionary constitution is needed to survive with the change and to make the urban and rural place livable.

The Context of Rangunia Upazila

By considering the imminent change, the present urban exercise has been taken in Rangunia Upazila, Chittagong District by Urban Development Directorate (UDD) namely "Preparation of Development Plan for Fourteen Upazilas". The project might have potential for development within the next 20 years up to 2033 A.D. The development plan will be comprised of five tier plans (sub-regional, structure, urban, rural and action area) to address the challenges, opportunities and immediate interventions.

1.2 Objectives

According to the Terms of Reference the objectives of Rangunia Upazila Development Plan are to:

1.2.1 National Objectives

To find out development issues and potentials of the Upazila and make a 20 years development vision for the Upazila (both urban and rural area) and prepare a Master Plan in line with the vision for the development;

1. Prepare plan for the people of whole Upazila to develop and update provisions for better transport network, housing, infrastructures for roads, markets, bus terminals, sanitation, water supply, drainage, solid waste management, electricity, education, leisure and such other infrastructure facilities for meeting the social and community needs of the

poor and the disadvantaged groups for better quality of life and at the same time ensure the development of rural area within the project area.

2. Prepare a multi-sector short and long-term investment plan through participatory process for better living standards by identifying the area based priority-drainage master plan, transportation and traffic management plan, other specific plan need as per requirement in accordance with the principle of sustainability;
3. Provide controls for private sector development, clarity and security with regard to future development;
4. Provide guidelines for development considering the opportunity and constraints of future development of Upazila town; and rural area.
5. Prepare 20 years Development Plan to be used as a tool to ensure and promote growth of the city in line with the guiding principles of the Master Plan and control any unplanned growth by any private and public organizations.
6. Facilitating the urban growth to protect the valuable farmland and at the same time provide space and facilities for non-agricultural activities.
7. Provision of standards for use by public bodies.
8. Supporting the livelihood of the inhabitants of Rangunia Upazila.
9. Protecting the eco-system with the understanding that we are a component of the system rather than the consumer of the system.
10. Discouraging the involuntary displacement of the inhabitants in the name of development.
11. Control of undesired development in all areas for which plans have been prepared.

1.2.2 Immediate Objectives

The immediate objectives of the project are:

Objective 1: Determination of Present and Future Function of the Upazila

Preparation of Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan (AAP) are to be based on PRA sessions, land use survey, topographical survey, environmental, disasters/hazards and agricultural studies. The major studies are related to traffic and transportation, drainage and environmental, formal and informal economic studies, slums and squatters, unauthorized encroachment, recreational facilities and stakeholder's participation for planning and development control.

Objective 2: Mechanism for Improving and Guiding Development

The mechanisms for improving and guiding development are:

- Preparation of five tier Development Plans namely: Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan.
- Development of mechanisms for stakeholders, especially communities, who control over all development initiatives.
- Preparation of a set of Institutional and Legislative Restructuring Proposals.
- Selection of appropriate standards and guidelines for improving present conditions and guiding future development.

Objective 3: Review of Existing Problems and Propose initiatives

Review of existing problems and proposed initiatives are stated below:

- Detailed analysis of problems presently hampering development, which can be eliminated by action in the short term.
- Development of sectoral programs to alleviate poverty problems.
- Prepare a minimum number of action area plans for early area development or area upgrading of parts of the town that exhibits a representative cross section of development problems.
- Undertake initiative at Upazila level to promote sustainable economic activity by formal private sector and individuals, groups, GOB and NGOs.

Objective 4: Formulation of Bankable Projects

The factors for formulation of bankable projects areas are mentioned below:

- To determine methodology for identifying Multi-sectoral Investment Projects (MSIP) with their major priorities.
- Prepare a multi-sector investment plan through participatory process for better living standards by identifying areas based on the priority such as Drainage Master Plan, Transportation and Traffic Management Plan and other specific plan as per requirement.
- Providing controls for private sector development and clarity and security with regard to future development for inhabitants and investors. The targeted objectives and guidelines of the development projects would be to initiate and implement through participation.
- To identify a range of projects suitable in both sectoral and spatial terms.
- To develop a package for the priority to a level suitable for financial appraisal.

Objective 5: Increasing Capacity/formulation of Local Authorities for Urban and Rural Management and Development

The factors to be considered in regard to increasing the capacity/formulation of local authorities for urban management and development are:

- To prepare a detailed analysis of the past budgets, their expenditure, liabilities and sources of funds of Pourashava, Upazila Parishad and Union Parishad.
- Providing Land use maps and information at Mouza dag level (parcel) as a professional manner for efficient updating, exchange, dissemination and decision support use.
- To prepare practical and detail proposal for increasing the income of the local authorities with reference to any forthcoming donor's proposal to assist financial management and paying particular attention to the possibilities of increasing revenue from existing and proposed development activities.
- Providing guidelines for development considering the opportunity and constraints of future development. Moreover, for the betterment of the community, actions would be taken through government, public private partnership, private and non-government initiatives as indicated in AAP.

- To prepare proposal for rationalizing the roles and divisions of responsibilities between Upazila and other development agencies.
- To prepare priority list of projects which can be funded from local resources and examine any new forms of funding for such developments.
- To assist Upazila, Pourashava and Union in drawing up schemes within the framework of Strategic Plan and Action Plans for inclusion in Development Programs.
- To strengthen the technical capabilities of local authorities involved in urban management and development.
- Providing Planned Development to ensure Sustainable Environment Action Area Plan (AAP) should be undertaken with the cooperation of other development agencies. So all the agencies should cooperate, coordinate and participate in the process of preparation of Master Plan for proper planning and development. The Plan would be the guiding document for implementation by all concern. GIS based data; map and information would be the resource which could be easily updated when necessary.

1.3 Rationale of the Project

At the present age development plan is the demand of time. The Upazilas are the main developing sectors of the country. For the planned development a master plan is the prerequisite. It will guide the future development of this areas. Master plan will direct the Upazila towards a right path of development. With the population growth it will calculate the future demand of that growing population. It will trigger the way of new employment for the inhabitants of this area.

1.4 Scope of the Project

The scope of Consultancy Services encompasses for Preparation of five tiers Development Plan for Rangunia Upazila, which includes Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan. The study will cover surveys of physical features and preparation of Land use Plan, Traffic and Transportation Management Plan, Drainage and Environmental Plan and Ward Action Plans for the project area.

Considering the above scope of services and to prepare an efficient Development Plan for Rangunia Upazila, the specific tasks to be performed by the consultants in realization of the scope of services as spelled out in the TOR are given below in brief:

- Determination of study area (755 sq. km) based on suitable physical boundary.
- Explanation of the plan (report) indicating population, density, livelihood and its future plan.
- Collection of socio-economic and demographic information and data both from primary and secondary sources in the study context to forecast future population, requirement of different services, physical and social infrastructure facilities, employment generation.
- Identify the exiting natural and man-made drains in the town and investigating 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.
- Preparing a conceptual report on the various alternative solutions to the present storm water problems and selecting the most appropriate and economical alternatives.
- Prepare a Development Plan of the storm water drainage & sewerage system treatment plant for all areas in the town, which will include discharge calculations for the catchment

areas, design of main and secondary drains/sewerage including their sizes, types and gradients and retention areas with preliminary cost estimates for the proposed drainage/sewerage system.

- Prepare a conceptual plan to show the phase-wise implementation schedule in an affordable and practical manner considering the technical, environment, institutional, economic and social feasibility of the proposed works.
- Proposal for preparation of hydraulic and structural designs for the priority areas of the study area and preparing a first phase implementation program.
- Study of the existing drainage maintenance procedures and budgets, if any including solid waste collection and design and estimate costs for a planned maintenance system to ensure that the drains are kept free from blockages and physical damage.
- Recommend planning, institutional and legal mechanisms to ensure provision of adequate land for rights of way for storm water drainage, which will also determine illegal encroachments.
- Investigate methods to find the other phases of the storm water drainages and sewerage master plan.
- Assess additional data requirements, critical additional data, not currently available should be collected through reconnaissance and traffic surveys which should estimate present traffic volume and forecast the future traffic growth and identify travel patterns, areas of traffic, conflicts and their underlying causes.
- Study the viability of different solutions and develop a practical short-term traffic management scheme of implementation, including one-way systems, restricted access for large vehicles, improved signal system traffic islands, roundabout, pedestrian crossings, deceleration lanes for turning traffic, suitable turning radius, parking policies and separation of pedestrians and rickshaws.
- Assess the current land use with regard to transportation, bus and truck terminals, stations, railway stations etc. and recommend actions to optimize this land use.
- Assess existing plot information.
- Prepare a Long-Term traffic and Transportation Plan.
- The Development/Master Plan shall assess major investments and activities of the various development agencies/Ministries and indicate the stages of development preferably through 5-year programming approach. Consultants shall be making to liaison with all government and semi-government and other agencies concerned with their development at the Study area. Contract should also be made with the headquarters of such agencies and full details of such plans should be referenced in the plan.
- Survey and evaluate Urban Land Capabilities considering factors such as flood basin, topography, fertility etc.
- The Development/Master Plan Package shall indicate/outline possible frameworks/strategy for management and development control, institutional arrangement ensuring people's participation etc. for effective implementation of the plan.
- Development of Proposal of By-laws for Land Development, Real Estate Development. Urban Plan Development control and Natural Resources/Green belt and places of historical interest.
- In line with the Master Plan, propose a Detailed Area Plan with a list of priority schemes for the development of roads, drains, traffic management and other social infrastructure for implementation during the first five years of plan period.

- Facilitate City Authority, Union Parishad about the publicity of Master Plan, its preparation strategy, function and their role through making, leaflet, newspapers, cable line, FGD etc.
- Allocating zones for as high, middle and low-density areas.
- Guidelines for control/promote industries at different locations according to their nature such as heavy industrial, light industrial and service industries including waste disposal / treatment plants.
- Guidelines for controlling/guiding location of commercial use.
- To identify the areas reserved for agriculture, flood flow, public/private open spaces, parks, play grounds, play-lots and other recreational uses like green belts, retention pond, water bodies, water front, natural reservoirs, and historical monuments.
- Detailed Area/Action Area Plan will cover all related issues to bring about expected result.
- Allocating the zones where public utilities, institutions and civic services will be established. Moreover, zones of urban deferred areas, for future development expanded areas and areas for new development have to be considered.
- To ensure planning principles/standards, gross/net densities, guideline for future development and development control.
- To exercise control over architectural features, elevations, frontage of buildings and structures including zoning regulations to regulate locations, preservation of heritage, and type of buildings within each zone.
- Earthquake hazard, vulnerability, risk and loss assessment for project area.
- Development of scenario based spatial earthquake contingency plan for project area.
- Prepare and submit Development Plan and Report with required standards as specified in the TOR.

1.5 Structure of the Report

This final report incorporates eleven chapters. First chapter provides an introduction and discussed about the background of the plan preparation. The second chapter illustrates the study area of Rangunia Upazila. Third chapter reviews the development related policies, laws and regulations and planning standards which provides a feedback to the planning process in line with integration of policies and standards suitable for Rangunia Upazila. Chapter four illustrates the population projection of Rangunia Upazila that calculated number of population with different exponential rates for 20 years to forecast the demand of services needs to be allocated in the region and gives an idea about employment structure of Rangunia, whether changes in employment in this region is increasing or decreasing by the analysis of shift-share components. Chapter five reviewed planning standards and chapter six implied the total technical process of planning. Chapter seven provide approach of development plan that included sub-regional, structure, urban and rural plan, and action area plan. Chapter 8 addressed the contingency plan. Chapter 9 presented Sustainable development goals where all development works are related to 12 sustainable development goals. Chapter 10 addressed implementation modality and land use control. Chapter eleven concluded the report suggesting a future guideline. Appendices A, B, C, D,E represents all detailed description of working processes. Appendix-F represents fact sheets for all thematic maps and structure plans are also given in the respective chapters sequentially.

Appendices G, H, I,J, K, L address all minutes of public hearing, public consultation, workshops, TMC on draft plan and final plan.

CHAPTER 2

STUDY AREA PROFILE

2.1 Introduction

The current chapter describes the basic information about Rangunia Upazila. The information presents in this chapter has been collected directly from the field as well as from many other secondary sources including National Population Census Reports of BBS.

2.2 Brief Description of the Project Area

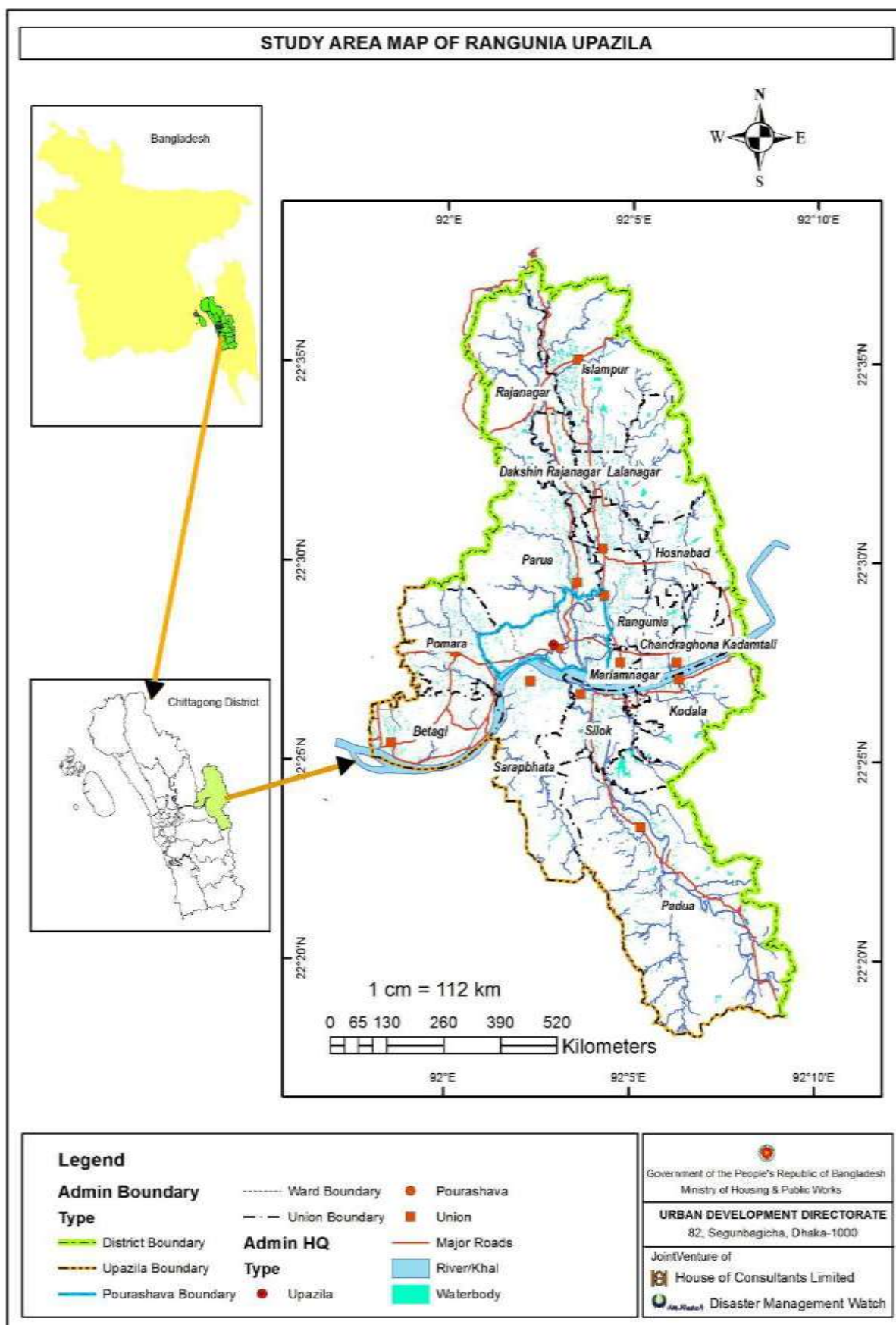
Rangunia Upazila with an area 347.87 sq. km, is bounded by Kawkhali Upazila (Rangamati) on the North, Chandanaish. Patiya and Boalkhali Upazilas on the South, Kaptai, Rajasthali and Bandarban Sadar Upazilas on the East, Raozan and Kawkhali Upazilas on the West. Rangunia Thana was formed on 24 January 1962 and it was turned into an Upazila in 1983. Municipality was formed on 4 July 2000.

2.2.1 Location and Geography

Rangunia Upazila (Chittagong District) area 347.87sq km, located in between 22°18' and 22°37' north latitudes and in between 91°58' and 92°08' east longitudes. It is bounded by Kawkhali Upazila (Rangamati) on the North, Chandanaish, Patiya and Boalkhali Upazilas on the South, Kaptai, Rajasthali and Bandarban Sadar Upazilas on the East, Raozan and Kawkhali Upazilas on the West. The Upazila Map of Rangunia is presented **Figure-2.1**.

2.2.2 History of the Upazila

When Raja Bijoygiri (605-698 AD), one of the predominant King of Chakma marched from Tripura toward the Eastern Region (Hill Tracts, Cox's Bazaar, Chittagong). Rangunia was “no man land” during that period. So, without any battles and less effort, he occupied and captured the whole Regions under his control and Rangunia became the area under the Royal Chakma Kingdom. After Raja Bijoygiri, no any Chakma Raja's appeared in the Chakma history and Royal Chakma Kingdom was under the control of Roang Raja's and Tripura Raja's, who was the powerful Kings, ruled for 300 years in this Regions from 7-10th centuries. After that, Raja Kamal Chega (1095-1179 AD) fought with Magh King of Roang and recaptured the Royal Chakma Kingdom in the Regions. In 1122 AD, he shifted the Royal capital from Roang to Raja Nagar of Rangunia which was the first administrative setup of the Rangunia Upazila of nowadays. Chakma kings (Shukdev Roy, Sher Daulat Khan, Jan Baksh Khan, Tabbar Khan, Jabbar Khan, Dharam Baksh Khan, Rani Kalindi, Harish Chandra Rai and others) ruled this area since 1757. Chakma King Harish Chandra transferred his capital from Rajanagar of Rangunia to Rangamati in 1874. In 1971 encounters were held between the freedom fighters and the Pak army at Ranirhat, Rojarhat and Rangunia. The Pak army conducted looting, burning, rape and mass killing in various places of the Upazila. Rangunia Thana was formed on 24 January 1962 and it was turned into an Upazila in 1983. Municipality was formed on 4 July 2000.



Source: Prepared by Consultants

Figure 2.1: Study Area Map of Rangunia Upazila

2.2.3 Administrative and Cadastral Boundaries

The area of Rangunia Upazila is 347.86 sq. km., it is comprised of 15 Unions, 72 Mouzas, 9 Wards and 156 Villages and one Municipality. The information of union based mouza and village are presented in **Table 2.1**.

Table 2.1: Union based Mouza of Rangunia Upazila

Sr. No	Name of Union/ Paurashava	Area (in acre)	Village based Administrative Units (Mouza)
1	Islampur	3214	Madhya Ghagra, Paschim Nischintapur (Part), Dakshin Kalipur, Uttar Kalipur, Purba Nischintapur (Part) Uttar Ghagra
2	Kodala	2413	Dhopaghata, Kodala, Lot 02 Kodala, Lot 05 Jungle Kodala
3	Chandraghona	2628.77	Chandraghona, Gumijheel, Kadamtali
4	Dakshin Rajanagar	1815.13	Dakshin Ghagra (Part), Paschim Nischintapur (Part)
5	Padua	18124.29	Darikop, Dudhpukuria, Falaharia, Napitpukuria, Narischa, Padua, Paschim Khurusia, Purba Khurusia, Sukbilas, Tripura Sundari
6	Parua	7023.87	Ichhamati, Jungle Parua, Jungle Surat Singherdhala, Kokania, Lot 99 Hazari, Parua, Surat Singherdhala
7	Pomara	4512.06	Jungle Pomara, Pomara
8	Betagi	4405.42	Andarghona, Baniaghona, Betagi, Chengkhali, Dhemirchhara, Dingallonga, Gungunia Betagi, Kaukhali, Pukioiola, Tinchadia
9	Mariamnagar	992.06	Debipur Kadamtali, Katakali, Saidbari
10	Rangunia	3140.84	Gumai, Rangunia
11	Rajanagar	6096.59	Bagabili, Bharanchhari, Dakshin Ghagra (Part), Jungle Bagabili, Lot 56 Bagabili, Lot 57 Thandachhari, Madhya Ghagra, Meghachhari, Sialbukka, Thandachhari
12	Lalanagar	5205.86	Gazalia (Part), Hosnabad Part), Lalanagar, Lot 58 Nischintapur, Purba Nischintapur (Part)
13	Silok	3168.26	Silak, Tailabhanga
14	Sarapbhata	6365.49	Jungle Sarapbhata, Sarapbhata
15	Hosnabad	4815.87	Bainala, Dakshin Nischintapur, Gajalia (P), Hosnabad (Part), Dakshin Jungle Nischintapur, Khargola
16	Rangunia Paurashava	3140.84	Wards (No. 1-9)

Source: BBS, 2011 and prepared by Consultants

2.2.4 Local Authorities

Rangunia Thana was formed on 24 January 1962 and it was turned into an Upazila in 1983. Municipality was formed on 4 July 2000. And it is comprised of 15 Unions. There is one municipality in this Upazila.

2.2.5 Demography & Social Composition

According to the census, 2011, the total populations of the Upazila amounts to 339004 people, among which 168412 are male and 170592 are female. Out of the total population, there are Muslim 280359, Hindu 42626, Buddhist 15621, Christian 332 and others 66. Indigenous communities such as Chakma and Marma belong to this Upazila. The distribution of Urban and Rural Population and Literacy Rate of Rangunia Upazila in Upazila, Union/Ward wise are presented in **Table 2.2** and **Table 2.3** respectively.

Table 2.2: Distribution of Urban and Rural Population and its Literacy Rate of Rangunia Upazila

Population		Literacy Rate (Based on Sampling Survey)	
Urban	Rural	Urban	Rural
32,641	3,06,363	59.28%	49.43%

Source: BBS, 2011

Table 2.3: Union/Ward-wise Population Distribution and Literacy Rate of Rangunia Upazila

Name of Union/Ward	Population			Literacy Rate (%)
	Male	Female	Total	
Islampur	11667	7377	19044	42.50
Kodala	9669	9296	18965	35.40
Chandraghona	15499	14722	30221	57.00
Dakshin Rajanagar	8930	8990	17920	64.80
Padua	17629	18039	35668	38.40
Parua	6966	7457	14423	40.60
Pomara	12256	13403	25659	52.90
Betagi	9788	10722	20510	55.30
Mariamnagar	9059	9599	18658	61.60
Rangunia	6445	6909	13354	59.80
Rajanagar	9713	9459	19172	37.40
Lalanagar	6648	7897	14545	46.10
Silok	8487	9522	18009	50.80
Sarapbhata	12026	13318	25344	47.60
Hosnabad	7515	7356	14871	51.20
Ward No-1	1587	1742	3329	51.50
Ward No-2	1235	1262	2497	46.20
Ward No-3	2925	2700	5625	56.40
Ward No-4	1470	1497	2967	59.30
Ward No-5	1491	1528	3019	55.00
Ward No-6	1530	1564	3094	70.20
Ward No-7	1978	1993	3971	56.10
Ward No-8	2373	2595	4968	75.10
Ward No-9	1526	1645	3171	63.70
Total	1,68,412	1,70,592	3,39,004	

Source: BBS, 2011

Main sources of income of people of Rangunia Upazila in agriculture is 39.71% where 92.87% male and, 7.11% female are engaged in agricultural services, in industry is 0.58% of which 86.48% male and 13.52% female are engaged in industrial services. And 89.04% male and 10.96% female of 10.86% of people are engaged in other services.(Source: BBS, 2011).

2.2.6 Infrastructure and Social Services

Houses and Accommodation

The houses of the Upazila is mixed of building, semi-pucca, tin-shed or kacha houses. The number of RCC houses are very few especially located in Upazila headquarter and in different Unions and village level. Though the school, mosque and various infrastructures are pucca and semi pucca but most of the houses are semi pucca and hut. Total numbers of houses at Rangunia Upazila are 55041. Among these 30,327 are kacha, 10,509 are pucca and 14,205 are semi pucca. (Source: Field Survey, 2016).

Rubber of Dam

There two Rubber Dams functioning actively one is on Ichamati River other on Shilok River in Rangunia Upazila. Rubber dam is used to retain water in the u/s side of the river for mainly irrigation purposes. The water is stored in the river at the end of monsoon by inflated the rubber dam and it is deflated before monsoon. protect the farming lands, roads, houses and very institutions from natural disasters, such as river bank erosion, floods, inland flooding during tide, tidal surges, etc. (Source: Field Survey, 2016)

Sluice Gate, Bridge and Culvert

Sluice gates are used to protect river water not to enter inside and retained water in the u/s side of the canal. There are has 657 bridges and culverts along the different road in Rangunia Upazila. (Source: Field Survey, 2016)

Roads

Most of the roads within Rangunia Upazila are paved; the communication system has improved significantly over the last 5-10 years. But the road system within the unions of the Upazila is not better. All most villages connected to main road with herring bone road and earthen road. Total length of the road at this Upazila is 1259.15km. In most cases, travelling are troublesome for damage of bricks on these roads. Around 245.68km are pucca, around 384.71 km are HBB road and around 628.76 km are katcha road. (Source: Field Survey, 2016). The pictorial views of major roads in Rangunia Upazila are presented in **Photo-2.1**.



Photo 2.1: Major Road Network of Rangunia Upazila

(Source: Reconnaissance Survey)

Irrigation System

For irrigation purposes, shallow and deep tube-wells and shallow machine are used. It has total 8271 tube wells. Among these 1700 are deep tube-wells and rest 6151 are shallow tube-wells. The statistics of Tube-well and its coverage of command area is presented in **Table 2.4**. The pictorial views of canal water using in irrigation in Rangunia Upazila are presented in **Photo-2.2**.

Table 2.4: Description of the Tube-Wells at Rangunia Upazila

Type of Tube Well	Frequency	Coverage of Agriculture Land (acre)
Deep Tube Well	1700	24250
Shallow Tube Well	6151	Nil
Shallow Machine	420	1557

Source: BBS, 2011



Photo 2.2: Irrigation Canal of Rangunia Upazila

(Source: Reconnaissance Survey)

Growth Centre

There are 25 hats and bazars in Rangunia Upazila. Hats and bazars. The names of mentionable bazar are Dhamaer Hat, Mughaler Hat, Roazar Hat, Shantir Hat, and Mariam Nagar Hat. There are 8 places where fairs are held, most important fairs are Chaitra Samkranti Mela (Rajanagar), Muharram Mela (Rangunia), Surya Brota Mela (Majumdarkhil Kadamtali), Rathjatra Mela and Bijoy Mela. The pictorial views of Bazar in Rangunia Upazila are presented in **Photo-2.3**



Photo 2.3: Local Hat and Bazar in Rangunia Upazila

(Source: Reconnaissance Survey)

Drinking Water Sources

Source of drinking water are tap water, tube-well and other sources. About 2.2% people are using tap water, 89.9% tube-well water and 7.9% other source of water.(Source: BBS 2011).

Schools/Educational Institutions

Average literacy 48.9% male 48.70 %, female 49.10%. Educational institutions: college 9, secondary school 33, primary school 107, madrasa 101. The pictorial views of Educational Institution in Rangunia Upazila are presented in **Photo-2.4**.



Photo 2.4: Educational Institutions of Rangunia Upazila

(Source: Reconnaissance Survey)

Religious Institution

The Rangunia Upazila has 260 mosques, 97 Hindu Temples and 22 Buddhist temple. The pictorial views of Religious places in Rangunia Upazila are presented in **Photo-2.5**.



Photo 2.5: Religious Place of Rangunia Upazila

(Source: Reconnaissance Survey)

Health care

There is 1 government hospital, only 1 union health complex, 3 clinics, and 24 health facilities center. Apart from this people from many of the unions depend upon pharmacy, Ojha, Kabiraj and Herbal medicine to cure illness. If the diseases are of complicated nature then they will go to Chittagong for healthcare services. The pictorial view of Upazila Health Complex in Rangunia Upazila is presented in **Photo-2.6**.



Photo 2.6: Upazila Health Complex in Rangunia Upazila

(Source: Reconnaissance Survey)

Banks

There are 12 banks in Rangunia Upazila. **Table 2.5** depicted that the union wise information of Bank. The pictorial view of Bank in Rangunia Upazila is presented in **Photo-2.7**.

Table 2.5: List of Banks in Rangunia Upazila

Union	Name of the Bank	Types of Services
Mariamnagar	Krishi Bank, UCB	Provides agricultural loans on easy conditions, distributing government allowance and money deposits.
Lalanagar	Krishi Bank	Money deposits, DPS, provides loans on easy conditions, provides salary, allowance to non-government Officers.
Rajanagar	Pubali Bank, First Security Islamic Bank, One Bank	Provides agricultural loans on easy conditions, distributing government allowance and money deposits.
Rangunia	Agrani Bank	Provides agricultural loans on easy conditions, distributing government allowance and money deposits.
Chandraghona Kadamtali	Rupali Bank, One Bank, City Bank, First Security Islamic Bank, Grameen Bank	Provides agricultural loans on easy conditions, distributing government allowance and money deposits.

Source: Prepared by Consultant Team Based on Field Survey, 2016

Sports

Football, Cricket, Volleyball, Ha-do-do and Pole game are local sports.

Playing Ground

There are numerous big play ground in this Upazilla, every primary school has a small play field and every higher secondary school has football fields. There are smaller fields in open areas.

2.2.7 Agricultural Land

The Rangunia Upazila covers in total, 151.26 sq.km of agricultural land. Out of which 16.67sq.km of land is engaged in yearly single cropping farming, 98.83 sq.km of land are used in double cropping, 35.76sq.km of land are triple cropping.

Main crops: Paddy, Vegetable, Betel leaf, betel nut, Sugar cane, tobacco etc.

Vegetables: Tomato, Potato, Brinjal, Raddish, Flower Cauli, Cabbage, Bean, Chili, Betel leaf, Betel nut, Lalshakh, Loncho, Kolmi, Peas, Kochu, Turmeric, Bitter Melons, Ginger, Felon, Pumpkins, Gourd, Rai Shakh, Ladies finger, Palong, Spinach, Cucumber etc.

Fruits: Mango, Damson Plum, Jackfruit, Pomelo, Orange, Olive, Star fruit, Banana, Wood Apple, Coconut, Dates, Areca Nut, Country Goose Berry, Bel, Golap Jum. Guava, Pineapple, Tum, Papaya, etc.

The pictorial views of Agricultural land in Rangunia Upazila is presented in **Photo-2.10**.



Photo 2.10: Agricultural Land of Rangunia Upazila

(Source: Reconnaissance Survey)

2.2.8 Bio-Diversity

Birds: Moyna, Oriental Magpie Robin, Vulture, Sparrow, Shyama, Crane, Water hen, Parrot, Crow, Pigeon, Wood pecker, Tailor Bird, King Fisher, Weaver Bird, Gugu, Drongo, Bulbuli etc.

Wild animal: Wild cat, monkey, elephant, wild cock, deer, common mongoose, Squirrel, Gecko, fox, bear cat, wild boar, Chittagong bison, water monitor, bat etc

Reptile: Cobra, lizard, Water Monitor, Russel's Viper, Pangolin, Daras etc

Amphibians: Different types of frogs such as sona, kuno, kola etc

Domestic animals: Cow, goat, buffalo, ram, hen, pigeon, cat, dogs etc

Fishes: Tilapia, carp, catla, African catfish, Nile tilapia, yellow tail catfish, Mrigal, Rohita, Barbe, Taki, Tengra, shrimp, Pursh, stinging catfish, etc. Due to human gripping above said animal, fishes, trees have decreased jeopardized comparing to the past. Most of the specimen will be extinct in future.

2.2.9 Hydrology and River Hydraulics

Main River is Karnaphuli, Shilokand Ichamoti River in Rangunia Upazila. The tidal impacts are observed in the monsoon in the Karnaphuli River. Water level is drastically reduced in the minor rivers, and canal during the lean period.

Waterbody The total area of waterbody is 5987.461 acres.

2.2.10 External Linkage

Roadway communication is the major communication of Rangunia Upazilla with Chittagong Sadar as well as other Upazilas of Chittagong District. Types of transport used in this Upazila are bus, minibus, jeep, taxi, tomtom, auto-rickshaw and engine boat. About 8 Unions out of 15 unions within the Upazila, it has direct bus route connection. (Source: Rangunia Upazila Disaster Management Plan, CDMP)

People are travelling usually by foot, rickshaw on earthen road, rickshaw, auto rickshaw and taxi in metalled road and boat in river among different unions and different wards of unions of this Upazilla.

The roads in the Rangunia sub-district town are in good condition. Most of the roads are either paved or bricks built. Taxi, tom-tom or rickshaw are using for local travel.

There are paved roads from the Upazila headquarter to the Unions but not all Wards of the Unions have paved roads, which makes travelling in the monsoon season being troublesome.

2.2.11 Local Stakeholder of the Project Area

1. Upazila Parishad
2. Union Parishad
3. Pourashava/Municipality
4. Upazila Agricultural Office
5. Upazila Health and Family Planning Office
6. Upazila Animal Resource Office
7. Upazila Office, LGED
8. Upazila Education Office
9. Upazila Office of Food Controller
10. Fire Service and Civil Defence
11. Upazila Social Service Office
12. Upazila Youth Development Office
13. Upazila Ansar and VDB Office
14. Local Level Police Authority
15. Upazila Somobay Office
16. Press Club
17. Project Implementing Office
18. Local Office of Ministry of Environment and Forest
19. Roads and Highways Department
20. Bangladesh Forest Department
21. Department of Disaster Management
22. Bangladesh Small and Cottage Industry Corporation
23. Bangladesh Bureau of Statistics
24. Bangladesh Tourism Board
25. Department of Archaeology of Bangladesh

CHAPTER 3

DEVELOPMENT POLICIES, LAWS AND REGULATIONS

3.1 Introduction

National policies and laws broadly cover the aspects of intervention necessary for the development of the diverse areas within an Upazilla. The related policies and laws are considered in the Preparation of Development Plan for Fourteen Upazilas and its sector wise development. This review highlights the important legal issues in acts, rules and regulations relevant to planning.

The aim of the project is to prepare five tier of development plan such as- Sub-Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan to facilitate the improvement of infrastructure and services of the Upazilla.

These plans include several sectoral components such as- socio-economic, housing, population, urban and rural economy, hydrology, geology, disaster, environment, agriculture etc.

Objectives of the study

- The aim of the policy review is to highlight the special features of the relevant legal documents.
- Point out necessary areas of intervention to make them effective facilitators for future regional development.
- Issue identification and attention that need for actions.

3.2 Terminology

Policy: A policy is a deliberate system of principles to guide decisions and achieve rational outcomes. A policy is a statement of intent and is implemented as a procedure or protocol. The declared objectives that the government seeks to achieve and preserve in the interest of national community.

Law: Law is a system of rules that are enforced through social institutions to govern behavior. Laws can be made by a collective legislature or by a single legislator, resulting in statutes, by the executive through decrees and regulations, or by judges through binding precedent, normally in common law jurisdictions.

Planning law must clearly define the extent and content of the rights of the Government and the people. Thus, legislative measures can help to frame policies for best use of land and its policies to control. Law should aim at a clear definition of the responsibilities and functions of various Government departments and its respective powers.

Act: An Act is the final form of any legislation passed by a legislature.

Sub-Regional Plan: Sub-Regional Plan of the study area would be prepared for 20 years according to the guidelines of national policies, formulated and integrated different sectoral strategies at sub regional level, spatially interpreted sectoral strategies at sub regional level, formulated Conservation Plan at sub regional level and formulated Development Plan.

It is also necessary to figure it out the economic disparity by using “shift-share analysis” or “input-output analysis” technique among the Upazila within districts under study for drawing the future socio-economic development scenario.

The sub-region may overlap local authority boundaries relating more to specific problems than administrative convenience. It is a more localized area with its own particular structure, problems and potentials.

Structure Plan: The term Structure Plan is derived from British planning practice but has been internationally adopted. The principal components of such a plan are:

- An inventory of existing physical, demographic, economic, social and infrastructure features.
- An analysis of the major existing problems.
- An estimation of trends and changes likely in future (for the next 20 years).
- The identification of the major constraints on and opportunities for development.
- Consideration of the major development options and policies.
- An indication of the most suitable areas for such development.
- The identification of the priorities in each sector and the major activities needed to implement the development strategy.

The structure plan concentrates on the broad structure of the Upazila and is not concerned with the details of physical layout or individual development details which cannot be implemented until the later stages of the planning period.

Urban Area Plan: Urban Area Plan (UAP) provides an interim mid-term strategy for 10 years and covers for the development of urban areas within the project area. Generally, UAP contains an explanatory report, resource maps, interim management report, planning rules, urban area plan and a multi-sectoral investment program.

Rural Area Plan: Rural Area Plan (RAP) provides a long-term strategy for 20 years and covers for the development of rural areas within the project area. Generally, RAP contains an explanatory report, resource maps, conservation and management report, planning rules, rural area plan and a multi-sectoral investment program.

Action Area Plan: The Action Area Plan (AAP) guides land use and infrastructure within the area potential for immediate intervention based on public demand and necessity. It is prepared on 5 years interval. The preparation of Action Area Plan (AAP) will be formulated through participatory approach involving the local people. It will contains problem analysis using participatory approach, stakeholder analysis, Potential analysis (Basic and derived potentials), Identification of possible projects, Priority ranking of projects, Strategy formulation for prioritized projects. Action Area Plan will provide prioritized projects consisting location of project, goal & objectives, activities, tasks, actors, resources, cost and assumptions/constraints.

The action plan consists of three parts, a summary of resources available, project selection and project evaluation. The analysis of available resources looks at the past availability of funds, insofar as this is possible for such a recent institution as an Upazila and attempts to assess funds likely to be available for the Upazila itself for development in the action plan period.

3.3 Reviewed Policies, Acts and Rules

Policy document usually follows a staged approach for development. Identify specific issues that could trigger the need for a policy review or new policy development or an identification of policy gap. The list of reviewed policies, acts and rules are given below:

1. Climate Change Policies
2. The Sendai Framework for Disaster Risk Reduction 2015-2030
3. Quito Implementation Plan for the New Urban Agenda
4. Sustainable Development Goals (SDG)
5. The United Nations Framework Convention on Climate Change
6. Seventh Five Year Plan (FY2016 – FY2020)
7. National Urban Sector Policy, 2011
8. National Land Use Policy 2001
9. National Housing Policy, 2008 (Draft)
10. Population Policy 2004
11. National Environment Policy 1992
12. Disaster Management Act 2012
13. National Plan for Disaster Management 2008-2015
14. The Climate Change Strategy and Action Plan 2009
15. Industrial Policy 2005
16. National Tourism Policy 1992
17. National Agriculture Policy, 1999
18. National Forest Policy 1994
19. National Fisheries Policy 1998
20. National Water Policy 1999
21. Bangladesh National Building Code (BNBC) 1993
22. The Building Construction Act 1952
23. Building Construction Rules 1996
24. Private Residential Land Development Rule-2004
25. Real Estate Development and Management Act 2010
26. Burning of Bricks (Control) Act 1989
27. National policy for safe water supply and sanitation 1998
28. Bangladesh Water Act 2013.

3.4 Policy Review according to Five Tier Plan wise

3.4.1 Framework of Five Tier Plan

The Strategy and Time Frame of Five Tier Plan is presented in **Table 3.1**.

Table 3.1: Strategy and Time Frame of Five Tier Plan

Five Tier Plan	Duration	Strategy
Sub-Regional Plan	20 years	Long term
Structure Plan	20 years	Long term
Urban Area Plan	10 years	Mid-term
Rural Area Plan	20 years	Long term
Action Area Plan	5 years	Short term

Among 22 policies, the policies were reviewed according to duration and strategy. So, according to duration and strategic point of view some policies are shortlisted. List of Policies according to Five Tier Plan is presented in **Table 3.2**.

Table 3.2: List of Policies according to Five Tier Plan

Five Tier Plan	Review Policies
Sub-regional Plan	<ul style="list-style-type: none"> • Climate Change Policies • The Sendai Framework for Disaster Risk Reduction 2015-2030 • National Agriculture Policy 1999 • Climate Change Strategy 2009 • Disaster Management Act 2012 • National Plan for Disaster Management 2008-2015 • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • National Water policy 1999 • Industrial Policy 2005 • National Urban Sector Policy 2011 • National Fisheries Policy 1998
Structure Plan	<ul style="list-style-type: none"> • Climate Change Policies • The Sendai Framework for Disaster Risk Reduction 2015-2030 • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG) • The United Nations Framework Convention on Climate Change • National Agriculture Policy 1999 • Climate Change Strategy 2009 • National Plan for Disaster Management 2008-2015 • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • The Building Construction Act, 1952 • National Water policy 1999 • Industrial Policy 2005 • National Urban Sector Policy 2011 • National Fisheries Policy 1998
Urban Area Plan	<ul style="list-style-type: none"> • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG) • Climate Change Strategy 2009 • National policy for safe water supply and sanitation 1998 • The Building Construction Act, 1952 • National Water policy 1999 • National Urban Sector Policy 2011 • Bangladesh National Building Code 1993
Rural Area Plan	<ul style="list-style-type: none"> • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • National Water policy 1999
Action Area Plan	<ul style="list-style-type: none"> • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG) • National Agriculture Policy 1999 • Climate Change Strategy 2009 • National Plan for Disaster Management 2008-2015 • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • The Building Construction Act, 1952 • National Water policy 1999 • Industrial Policy 2005 • Burning Bricks Act 1989 • National Urban Sector Policy 2011 • National Fisheries Policy 1998 • Seventh Five Year Plan • Bangladesh Water Act 2013

The issues or the key factors which identify in these policies according to five tier plan are listed in **Appendix A**.

3.4.2 Policy Review according to Conducted Survey Sectors

In the project, the survey was conducted according to the following sectors:

- | | |
|--|--------------------------------------|
| 1. PRA (Participatory Rural Appraisal) | 7. Topographic Survey |
| 2. Socio-economic Survey | 8. Photogrammetric works Survey |
| 3. Agricultural Survey | 9. Traffic and Transportation Survey |
| 4. Formal-informal Economic Survey | 10. Geological & geophysical Survey |
| 5. Physical Features Survey | 11. Hydrological Survey |
| 6. Landuse Survey | |

But in the policy review from the 11 sectors, some sectors are merged as they are identified as same category. So as per the benefits of policy review and for the asperity of work, the sectors are categorized. And same policies are reviewed in different sectors so to remove repeatness, the sectors are categorized. **Table 3.3** depicted that the Sectors are categorized as per Policy Review and **Table 3.4** is presented the Summary of Policies according to Sectors.

Table 3.3: Sectors are categorized as per Policy Review

Sectors	Agriculture
	PRA and Socio-Economic, Formal-informal Economic Sector
	Geology
	Hydrology
	Transport
	Physical, Landuse and Topographic Features

Table 3.4: Summary of Policies according to Sectors

Sector wise Policy List					
Agriculture Sector	PRA and Socio-Economic Formal-informal Sector	Physical, Landuse and Topographic Features	Geology	Hydrology	Transport
1. National Agriculture Policy 1999	1. National Agriculture Policy 1999	1. National Agriculture Policy 1999	1. Climate Change Strategy 2009	1. Population Policy 2004	1. Population Policy 2004
2. Climate Change Strategy 2009	2. Climate Change Strategy 2009	2. Climate Change Strategy 2009	2. National Plan for Disaster Management 2008-2015	2. National Water policy 1999	
3. National Plan for Disaster Management 2008-2015	3. Disaster Management Act 2012	3. National Plan for Disaster Management 2008-2015	• The Sendai Framework for Disaster Risk Reduction 2015-2030	3. National Urban Sector Policy 2011	
4. Population Policy 2004	4. National Plan for Disaster Management 2008-2015	4. Population Policy 2004	3. The United Nations Framework Convention on Climate Change	4. National Fisheries Policy 1998	
5. Safe Water Supply and Sanitation 1998	5. Population Policy 2004	5. The Building Construction Act, 1952		• Climate Change Policies	
6. National Water policy 1999	6. Safe Water Supply and Sanitation 1998	6. National Water policy 1999		5. The United Nations Framework Convention on Climate Change	
7. Seventh Five Year Plan	7. National Water policy 1999	7. Industrial Policy 2005		6. Bangladesh	
8. National	8. Industrial Policy 2005	8. Burning Bricks Act 1989			
	9. National Urban	9. National Urban			

Sector wise Policy List					
Agriculture Sector	PRA and Socio-Economic Formal-informal Sector	Physical, Landuse and Topographic Features	Geology	Hydrology	Transport
Environment Policy 1992 9. Industrial Policy 2005 10. National Urban Sector Policy 2011 11. The United Nations Framework Convention on Climate Change	Sector Policy 2011 10. Seventh Five Year Plan(FY2016 – FY2020) • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG)	Sector Policy 2011 10. National Fisheries Policy 1998 11. Seventh Five Year Plan (FY2016 – FY2020)		sh Water Act 2013	

(To find the key issues please see the Appendix- B)

Among the 26 policies, the sectors are identified. So, here is the summary of the sectors which are identified among the policies. **Table 3.5** depicted that the Summary of Sectors according to Policies.

Table 3.5: Summary of Sectors according to Policies

Policy	Sector
National Agriculture Policy 1999	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features
Climate Change Strategy 2009	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Geology
Disaster Management Act 2012	<ul style="list-style-type: none"> • Formal-informal Sector
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Geology
Population Policy 2004	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Transport • Hydrology
Safe Water Supply and Sanitation 1998	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector
The Building Construction Act, 1952	<ul style="list-style-type: none"> • Physical, Landuse and Topographic Features
National Water policy 1999	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Hydrology
Industrial Policy 2005	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Formal-informal Sector

Policy	Sector
Burning Bricks Act 1989	<ul style="list-style-type: none"> Physical, Landuse and Topographic Features
National Urban Sector Policy 2011	<ul style="list-style-type: none"> Agriculture PRA and Socio-Economic Formal-informal Economic Sector Formal-informal Sector Physical, Landuse and Topographic Features Hydrology
National Fisheries Policy 1998	<ul style="list-style-type: none"> Physical, Landuse and Topographic Features Hydrology
Seventh Five Year Plan(FY2016 – FY2020)	<ul style="list-style-type: none"> Agriculture PRA and Socio-Economic Formal-informal Economic Sector Physical, Landuse and Topographic Features
National Land Use Policy 2001	<ul style="list-style-type: none"> Agriculture PRA and Socio-Economic Formal-informal Economic Sector Physical, Landuse and Topographic Features Hydrology Transport
Climate Change Policies	<ul style="list-style-type: none"> Agriculture PRA and Socio-Economic Formal-informal Economic Sector Physical, Landuse and Topographic Features Geology Hydrology
The Sendai Framework for Disaster Risk Reduction 2015-2030	<ul style="list-style-type: none"> Agriculture Physical, Landuse and Topographic Features Geology Hydrology
Quito Implementation Plan for the New Urban Agenda	<ul style="list-style-type: none"> PRA and Socio-Economic Formal-informal Economic Sector Physical, Landuse and Topographic Features
Sustainable Development Goals	<ul style="list-style-type: none"> Agriculture PRA and Socio-Economic Formal-informal Economic Sector Physical, Landuse and Topographic Features Geology Hydrology
The United Nations Framework Convention on Climate Change	<ul style="list-style-type: none"> Agriculture Geology Hydrology
Bangladesh Water Act 2013	<ul style="list-style-type: none"> Hydrology

(To find the key issues please see the Appendix- B)

CHAPTER 4

CRITICAL PLANNING ISSUES

4.1 Population Projection

Population projection is a scientific approach to fathom the future population growth by making certain assumptions, using the related past available data at the point of time. To forecast the future population several methods have been used. Some are very sophisticated and rigorous while others are simple and less sophisticated. The primary needs of the people cannot be gauged rationally without regard to the expected size and composition of the population, at the same time national resources cannot be appraised adequately without considering population size and structure. Many studies rely on a projection assumed to be the “most likely” outcome, and for this reason it seems widely agreed that it is important to provide users with such a projection. However, while it seems equally important to provide users with an indication of the uncertainty associated with the most likely projection. But there is no generally accepted approach to characterize this uncertainty (Ezra, 2001). For that reason, population projection can switch depending on the situation. Projections for small areas are more uncertain because of greater possibility of migration which is totally uncertain. Uncertainty also depends on some external factors such as war, epidemic, HIV/AIDS, climate change, natural hazards.

4.1.1 Methods of Population Projection

After knowing the present and past census data, the following methods can be applied to project the population for desired year.

- ❖ Arithmetical Increase Method
- ❖ Geometrical Increase Method
- ❖ Incremental Increase Method
- ❖ Exponential Growth Method
- ❖ Compound Rate of Growth Method
- ❖ Cohort Component Method

4.1.2 Review of Projection Methods

In the development of a rural area or city or region, designing of different factors or provisions such as water supply or sanitation scheme is based on the projected population which is estimated for the design period. Any underestimated value will make system inadequate for the purpose intended; similarly, overestimated value will make it costly. For determining a better projection for 20 years, the following methods are reviewed and on the basis of observation the best method has been adopted for the population projection of Rangunia Upazila for next 20 years.

Arithmetical Increase Method

The arithmetic method is suitable for large and old city with considerable development. If it is used for small, average or comparatively new cities, it will give lower population estimate than actual value. In this method, the average increase in population per decade is calculated from the past census reports. This increase is added to the present population to find out the population of the next decade.

Geometrical Increase Method

In this method, the percentage increase in population from decade to decade is assumed to remain constant. Geometric mean increase is used to find out the future increment in population. Since this method gives higher values and hence should be applied for a new industrial town at the beginning of development for only few decades.

Incremental Increase Method

This method is modification of arithmetical increase method and it is suitable for an average size town under normal condition where the growth rate is found to be in increasing order. While adopting this method the increase in increment is considered for calculating future population. The incremental increase is determined for each decade from the past population and the average value is added to the present population along with the average rate of increase.

Cohort Component Method

The standard used in projecting populations is the Cohort Component Method. This method projects the population in a way that duplicates how populations grow or decline. For projection, the following data will be required:

1. Base population by age and sex
2. Time series of life expectancy at birth by sex
3. Times series of total fertility rates and fertility rates by age of mother
4. Time series on net migration, total net amount and/or by age and sex

Exponential Growth Method

The exponential growth is assumed to occur on a continuous basis. Geometric extrapolation is desirable for short intervals and it will be adoptable more when forecasting for a new city and geometric rates are preferable to arithmetic rates for the extrapolation of decreases in population over a series of years.

Compound Growth Method

A compound rate of growth is more realistic in terms of national experience, because most population increase is due to natural increase rather than to an increase in net migration. When working with smaller level of geographic area such as state or country, the role of migration becomes increasingly important factor in respect of population change. Population growth due to net migration is not necessarily better described by compound growth rate method and in fact, growth due to migration is likely to occur at sporadic periods following perceived economic opportunities in the area. The estimate obtained with compound growth rate assumption varies by a variable absolute amount from year to year but by a fixed percentage from year to year.

4.1.3 Justification of Methods Selection

After reviewing the projection methods, it has been determined that three methods out of six as mentioned above are comparatively suitable for the population projection of Rangunia Upazila. The justifications of selected methods are presented in **Table 4.1**.

Table4.1: Justifications of Reviewed Projection Methods

Methods	Data Sufficiency or Adaptability	Justification
Cohort Component method	1) Requires more detailed data <ul style="list-style-type: none"> • Fertility and mortality rates by tenure are approximations • Needs a census for full validation 2) Inflow/outflow concept are more difficult to interpret 3) Issues of consistency such as all tenure household projection	As Rangunia Upazila is under Chittagong Zila, the required data such as birth rate, death rate and migration rate cannot be adoptable in Upazila level. So, the related data are available in either country or region or division or district. The use of such average data may create inconsistent result.
Arithmetical Increase Method	Simple method and it will generate projection based on previous censuses.	It is adaptable for short time and results are generated based on decade and gives low projection for developing areas. In Rangunia Upazila, the projection will be done for next 20 years, thus the projection may not provide the desired result.
Incremental Increase Method	This method is modification of arithmetical increase method and it is suitable for an average size town under normal condition where the growth rate is found to be in increasing order.	Though Rangunia Upazila has increased growth rate, the growth rate will be more varied for future developments.
Geometrical Increase Method	Previous census data and more decadal census data will create the result more accurate and it is suitable for new area is to be developed.	As it gives the higher values, in adverse situation it may not correct. In respect of Rangunia Upazila where new development will be taken place, it is suitable for projection.
Compound Growth Method	This method is viable for long term projection. This method delineates the future projection more accurately if net migration rate is not high enough.	In Rangunia Upazila, net migration is negligible compared to Bangladesh. As the projection is done on compound rate and under different circumstances it will create far better projection for long term period.
Exponential Growth Method	Based on previous census, it will be suitable for short period, large population and historically high growth rate.	In Rangunia Upazila, it is suitable for projection from 5 to 10 years. After considering merits, it can be accepted for population projection.

4.1.4 Validation of the Projection Method

Based on justification, Comparative Growth Rate Method, Exponential Growth Rate Method and Geometrical Increase Method have been accepted to project the future population of Rangunia Upazila for next 20 years. The projected population for Rangunia Upazila as a whole are outlined in **Table 4.2**.

Table4.2: Projected Population based on BBS, 1991-2011.

Compound Growth Method	Geometrical Growth Method	Exponential Growth Method
Growth Rate-1.27	Geometrical Mean -1.13	Growth Rate-1.26
Population of Rangunia Upazila will be 447489 (Year, 2033)	Population of Rangunia Upazila will be 489148 (Year, 2031)	Population of Rangunia Upazila will be 447293 (Year, 2033)

Source: Projected by Planning Team based on BBS, 1991-2011.

Rangunia Upazila has the population of 3,39,004 based on the census of BBS, 2011. For projecting 20 years, Compound and Exponential methods have given the same result. As Geometrical method gives the projection based on decade, for next 2 decades from 2011

the projected population is 489148 which is larger than the other two methods based on census from 1991 to 2011.

For the better projection, the census data of BBS for 1981-2001 has cross checked. If it has been taken the base year 1981 and target year 2001, the growth rate has been calculated for the separate methods and on the basis of calculated growth rate the population of Rangunia Upazila in 2011 would have been according to the Compound, Geometrical and Exponential respectively 329750, 329127 and 329193. So, the three methods have been given almost the same results. In fact, the growth rates of three methods from 1981 to 2001 have not been observed in 2011. If it has been considered the growth rate from 1991 to 2001, the calculated population projection would have been 338169 and 338098 in 2011 respectively for Compound and Exponential growth method. And considering the latest growth rate on the basis of 1991 and 2001 is quite satisfactory and result has tended to the actual population in 2011. In this case, Geometrical method cannot be applied as it requires minimum three decades. Lastly, it has been seen that the population of Rangunia Upazila according to the BBS, 2011 is 339004. So, it is clear that the growth rate is increasing after 1991. As a result, in any times of period Compound and Exponential will give more valid data than Geometrical Method. The projection of Rangunia Upazila will be done for 5 years' intervals which will be given the next 20 years as Exponential is more accurate for short time period and Geometrical is bounded for decades and short time period. After reviewing all methods, Compound Growth rate method is the best for projecting population of Rangunia Upazila but it has also been observed that compound growth rate method will be more accurate if it can count more deriving factors in determining its compound growth rate. The **Table 4.3** depicted that the projected results for adopted three methods and outlined the best method.

Table 4.3: Cross Checking according to BBS Data and Projection for 2011

Compound Growth Method	Geometrical Growth Method	Exponential Growth Method	Remarks
Population in 2011 would be 329750 (1981-2001)	Population in 2011 would be 329127 (1981-2001)	Population in 2011 would be 329193 (1981-2001)	Almost same result and three methods are perfect.
Population in 2011 would be 338169 (1991-2001)		Population in 2011 would be 338098 (1991-2001)	For any time period, only two methods are compatible.
Can provide result for long term period		Adaptable for short time period	Compound rate give comparatively better result than Exponential and suitable for any period and will provide more better result if attributing factors count.

Source: Projected by Planning Team based on BBS, 1981-2001.

4.1.5 Adopted Population Projection Method

Compound Growth Method has been applied for population projection of Rangunia Upazila. The formula is outlined below:

$$P_n = P_o (1 + r)^n$$

Where,

P_o = Population in the base year

P_n = Population in the projected year

n = Number of intermediate years

r = Annual rate of growth

4.1.5.1 Basic Assumptions

- The recent trend of change of development is expected to be continued into future.
- The existing population, growth rate, density, literacy rate, urbanization rate reveal that Rangunia Upazila will be developed in near future.
- For determining the growing trend of development, it is necessary to calculate viable growth rate for projecting population for next 20 years.

4.1.5.2 Attributing Factors

There are several factors which may vary the population projection are:

- Increase due to births
- Decrease due to deaths
- Increase/decrease due to migration
- Increase due to annexation.

4.1.5.3 Results

Population projection has been conducted based on the following factors and techniques:

- The base year for such above mentioned projection is 2011 as per available census data.
- Future population is estimated for the future year 2018, 2023, 2028 and 2033 considering 20 years planning period.
- Population projection based on age specific group per the influential areas.
- Finally, Compound Population Projection is used to conduct the Population Projection. Projected growth rate will be considered after reviewing different attributing factors.

4.1.6 Determination of Compound Growth Rate

Population and demographic change are among the most prominent measures to delineate growth and its likely impact on land uses in a community. Therefore, it is helpful to recognize the community's population and growth trends in preparing a realistic and meaningful Master Plan or Development Plan. If it has been projected well, the projection will be resulted in cost efficiency in providing facilities which is necessary for an Upazila. The determination of growth rate will be followed by following ways:

- Calculation of observed compound growth rate based on the census year 1981,1991,2001,2011.
- Factor Analysis which can vary our projection result
- Analysis of Natural Birth Rate and Decadal Growth Rate
- Growth rate determination on the basis of sector wise analysis for Urban, Suburban and Rural area.

4.1.6.1 Calculation of Observed Compound Growth Rate

Rangunia Upazila is experiencing the positive population growth and population is increasing gradually every year. It had seen that population is increasing from decade to decade gradually and it also indicated that different factors are prominent thus increase the population. **Figure 4.1** is represented the population of previous four censuses.

Population is expecting the different population growth in every year in Rangunia Upazila. As the population census had done in every 10 years, it enabled to get decadal growth rate of Rangunia Upazila. Based on previous census, the growth rates calculated on the basis Compound Growth Rate Method and presented in Table 4.4.

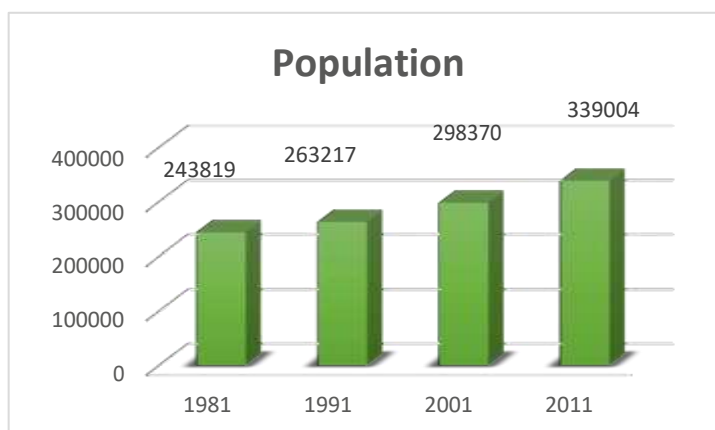


Figure 4.1: Number of Population from 1981 to 2011
Source BBS, 1981-2011.

Table 4.4: Calculation of Compound Growth Rate

Year	Compound Growth Rate	Remarks
1981-2011	1.10%	Low
1991-2011	1.27%	Medium
2001-2011	1.28%	High

Source: Projected by Planning Team based on BBS, 1981-2011.

From Table 4.4, the population growth rate will be lower if it has been considered the previous four decadal census. The growth rate is considerably higher which 1.28% is for Rangunia Upazila if it has been taken the last two censuses. The last three censuses have also indicated the growth rate is closer to the last two censuses which is 1.27%. From the above table, it is clear that the recent growth rate is higher than previous censuses. And the growth rate is increasing greatly after 1991. And it can be said that the growth rate 1.10 on the basis of base year 1981 will not imply in near future so it is rephrased as lower growth rate. If it takes base year 1991 and 2001, the population growth rate is respectively 1.27 and 1.28. So, the population growth rate is gradually increasing after 1991. So, it has been taken the recent growth rate for the population projection but not the exactly 1.28% because it is gradually increasing not steadily increasing. So, the growth rate will be considered greater than 1.28% for the population projection of Rangunia Upazila.

4.1.6.2 Factors Analysis for Determining Growth Rate

Figure 4.2 represented some factors that impacted on the population distribution or change. This can vary the growth rate so that the population projection may fluctuate. From the chart, it has been shown that average household size is decreasing but density is increasing in last three census which imply that people agglomeration is increasing as increased opportunities, employments or service facilities. Population is increasing and urbanization is also going on the pace now at the rate of 17.81 based on BBS, 2011. It suggests that population is

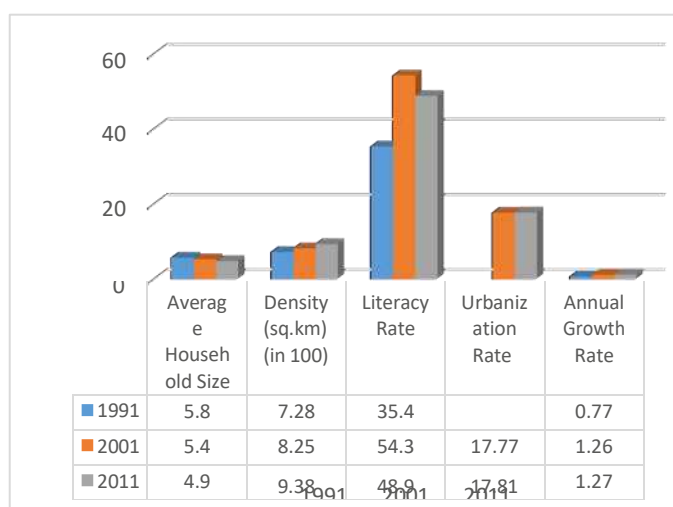


Figure 4.2: Different Attributing Factors from 1991 to 2011

Source: BBS, 1991-2011.

increasing due to different attributing factors. Though the literacy rate apparently has decreased from 2001 to 2011, it is visible that more than 50% population is now getting access to the educational opportunity than the before. If an area has higher density, lower average household size but increased population, higher literacy rate and urbanization also keeping its pace, the growth rate will not be as same as the previous census. It has been shown that the recent annual growth rate is 1.27% according to the BBS, 2011 and calculated compound growth rate is 1.28% (**Table: 4.4**). The growth rate for projecting population for next 20 years will be amenable to consider more than 1.28% according to the above attributing factors.

4.1.6.3 Analysis of Natural Birth Rate and Decadal Growth Rate

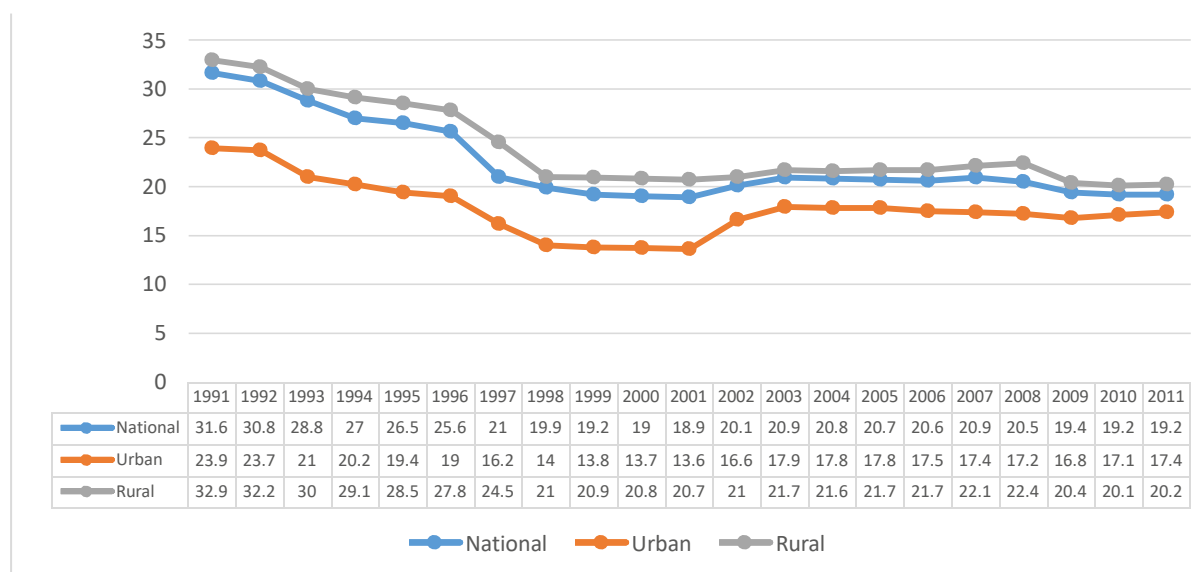
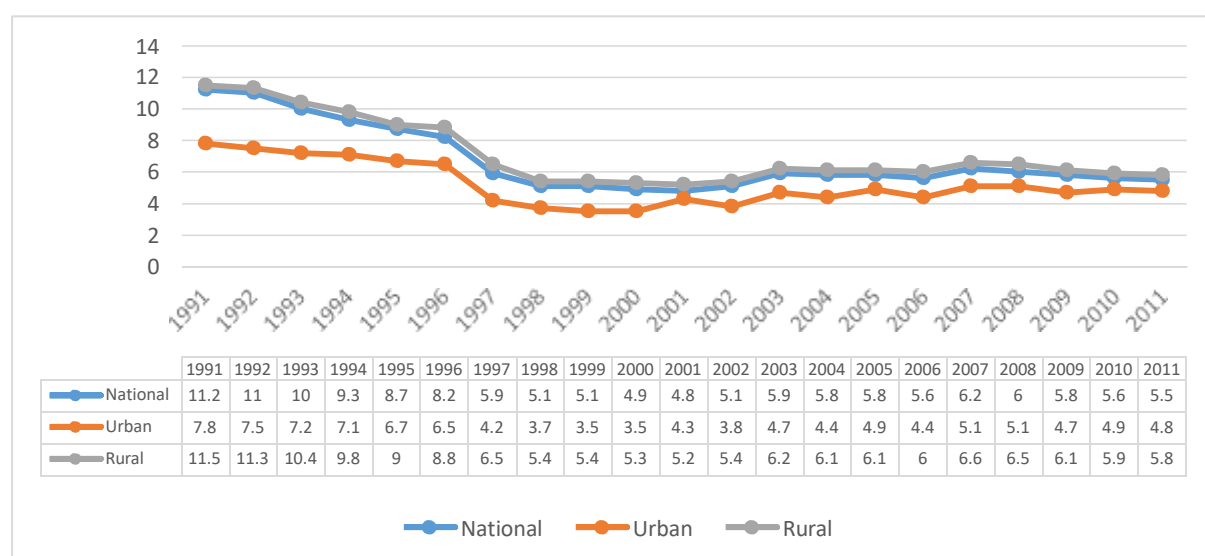


Figure 4.3: Crude Birth Rate (CBR) per 1000

Source: SVRS, BBS, 2011

The **Figure 4.3** represented the Crude Birth Rate per 1000 in Bangladesh where the data is aligned according to the National, Urban and Rural area. The current CBR is 19.2 nationally, 17.4 at urban area and 20.2 at rural area.

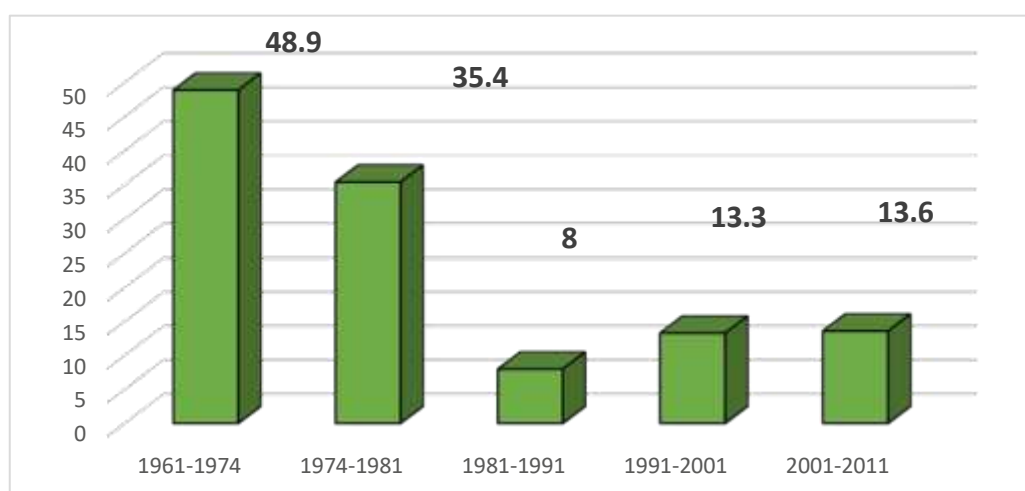


Source: SVRS, BBS, 2011

Figure4.4: Crude Death Rate (CDR) per 1000

The line graphs of **Figure 4.4** represented the Crude Death Rate per 1000 in Bangladesh from 1991-2011. The graph is indicating CDR respectively in urban and rural. On an average, the current crude death rate is 5.5 in national which is 4.8 and 5.8 respectively in urban and rural area.

From the CBR and CDR Figures, it might be concluded that natural growth rate in Bangladesh is 1.37. And the urban natural growth rate and rural natural rate is 1.26 and 1.44 respectively. As Rangunia Upazila is located at a distant region in Chittagong District, it is advisable that the natural growth rate can be maximum limit after ignoring net migrants.

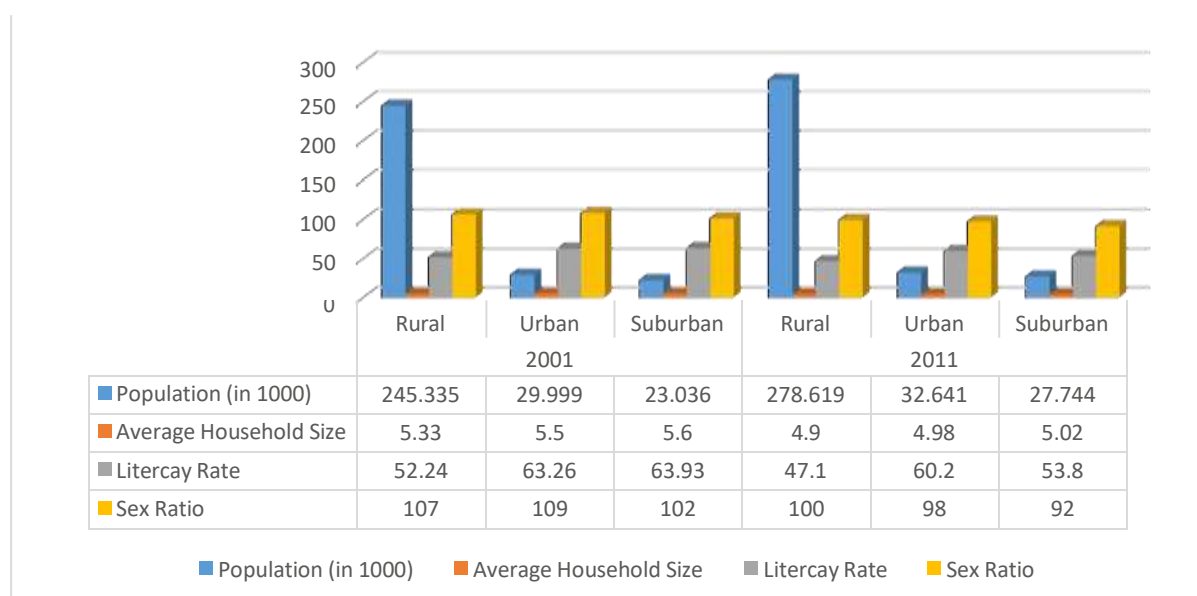


Source: BBS, 2011

Figure 4.5: Decadal Growth Rate (%)

Figure 4.5 represented that decadal growth rate was higher indiscriminately before 1981 but population growth rate was lower between 1981 and 1991. After 1991, population is increasing gradually where it has been seen that 13.3 and 13.6 respectively for 1991-2001 and 2001-2011. So, population is marking a steep accretion for last three decades.

4.1.6.4 Sector wise Analysis for Determination of Growth Rate



(Source: BBS, 2001 & 2011)

Figure 4.6: Attributing Factors in Influential Areas

From the **Figure 4.6**, it has observed that population is increasing in every jurisdictional area such as rural, urban and other urban indicated as suburban based on the BBS 2001 and 2011. Literacy rate is higher at urban area and suburban in 2001 and 2011. Sex ratio is fluctuating in every jurisdiction area at different period. As Rangunia Upazila has a considerable number of population in respect of urban, suburban and rural, different agglomeration of average household size, varying sex ratio and literacy rate, it will be advisable to consider separable growth rate for urban, suburban and rural because of deriving factors in different areas.

4.1.6.5 Area wise Change of Growth Rate

Rangunia Upazila has 12 Unions and 1 Pourashava (Established at 2000) during the census of 2001. In 2011, it has 15 Unions and the same Pourashava. Hosnabad Union has divided into Hosnabad and Lalanagar Union and Rajanagar has divided into Rajanagar, Dakshin Rajanagar and Islampur Union. The **Table 4.5** represented the area wise population change rate according to the adjustment of 2001 and 2011 census.

Table4.5: Percentage of Change in Unions and Pourashava

Union/Pourashava	Population (2001)	Population (2011)	Increase	% Change
Rangunia Pourashava	29999	32641	2642	9
Betagi Union	20618	20510	-108	-1
Chandraghona Kadamtali Union	24689	30221	5532	22
Rajanagar, Dakshin Rajanagar & Islampur Union	44344	56136	11792	27
Hosnabad & Lalanagar Union	26398	29416	3018	11
Kodala Union	15494	18965	3471	22
Mariamnagar Union	17142	18658	1516	9
Padua Union	29922	35668	5746	19
Parua Union	14365	14423	58	0
Pomra Union	24716	25659	943	4
Rangunia Union	10242	13354	3112	30
Sarapbhata Union	23470	25344	1874	8
Silok Union	16971	18009	1038	6
Rangunia Upazila	298370	339004	40634	14

Source: Estimated by Planning Team based on BBS, 2001-2011.

From the table, it is seen that Rangunia Union, Rajanagar, Dakshin Rajanagar and Islampur Union have the increasing population. It is seen that different areas are expecting different population. For projecting population, it is advisable that different growth rate should be

taken based on the above table. For flourishing its development Rajanagar Union has divided into three Unions after 2001 census. In 15 Unions, only Betagi Union has slightly negative growth rate. On the basis of population in 2001 and 2011, different annual growth rates have been observed which is shown in **Figure 4.7**.

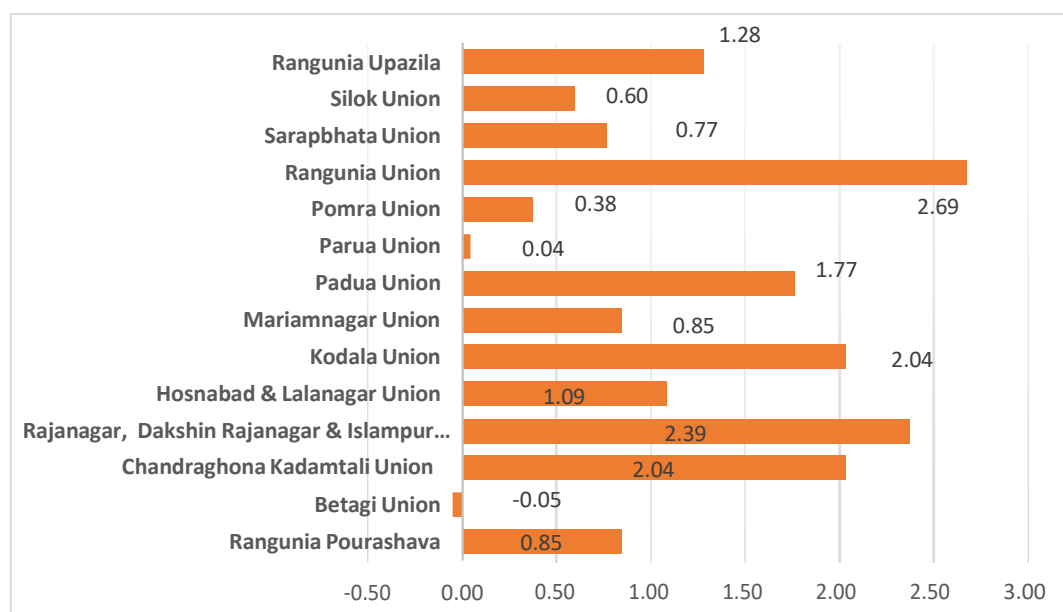


Figure4.7: Annual Growth Rate in Unions and Pourashava

Source: Estimated by Planning Team based on BBS, 2001-2011.

From the **Figure 4.7**, it is observed that Rangunia Pourashava has the annual growth rate of 0.85 and Rangunia Upazila has overall 1.28 growth rate. Between Unions, Rangunia, Kodala, Rajanagar, Dakshin Rajanagar, Islampur and Chondroghona Unions have the annual growth more than 2%.

As it is seen that growth rates are varied according to the influential areas, it is clear that different separable growth rates have to be identified and the following table represents the annual growth rate according to the influential areas namely Urban, Suburban and Rural areas.

The **Table 4.6** represented the recent growth rate 1.31 for Urban and Suburban areas and 1.28 for rural areas. At a glance, it is seen that highest growth rate 2.69 has been observed at Rangunia Union and 2.39 at Rajanagar, Dakshin Rajanagar and Islampur Union. In above table, highly negative growth rate 15.72 has shown at rural areas in Pomra Union but it has not occurred. It is showing because of annexation of some areas in Other Urban areas according to the 2011 census. In an overall Pomra Union has 4% growth rate where some areas are included in suburban areas and others are Rural. Thus, the rural areas and suburban areas in Pomra Union has different data but not negatively growth of population. The result is showing because of more people or areas are now included in Other Urban area in 2011 than in 2001. As the population was higher at rural areas in Pomra Union in 2001 than that of 2011, the result is showing negative. So, the result is negative for diversion of population between areas or annexation of areas with other urban area but overall union has positive growth rate.

Table 4.6: Change of Annual Growth Rate in Influential Areas

Jurisdiction Area	Population (2001)	Population (2011)	Growth Rate
Urban/Rangunia Pourashava	29999	32641	0.85
Suburban/Other Urban	23036	27744	1.88
Urban & Suburban Areas	53035	60385	1.31
Rural/Unions	245335	278619	1.28
Betagi Union	20618	20510	-0.05
Chandraghona Kadamtali Union	24689	30221	2.04
Rajanagar, Dakshin Rajanagar & Islampur Union	44344	56136	2.39
Hosnabad & Lalanagar Union	26398	29416	1.09
Kodala Union	15494	18965	2.04
Mariamnagar Union-Rural	15118	15903	0.51
Padua Union	29922	35668	1.77
Parua Union	14365	14423	0.04
Pomra Union-Rural	3704	670	-15.72
Rangunia Union	10242	13354	2.69
Sarapbhata Union	23470	25344	0.77
Silok Union	16971	18009	0.60
Rangunia Upazila	298370	339004	1.28
*Suburban areas include areas from Mariamnagar Union and Pomra Union			

Source: Estimated by Planning Team based on BBS, 2001-2011.

4.1.6.6 Adjustment and Determination of Compound Annual Growth Rate

As Rangunia Upazila is growing Upazila and economic development will be grown as Pourashava and other Governing Bodies have flourished in this area. The above analysis asserts that the recent growth rate 1.28 will not be worked. From previous analysis, it is clear that some area has extensive growth rate where developments and other facilities have increased. As different attributing factors are visible and prominently increasing the opportunities which may mark the inflow in near future. After considering all effects, the study has found that the recent growth rate 1.28 in 2011 have increased by 1% of the growth rate 1.27 in 2001. The projection will be done for 20 years, so on an average it is clear that 1% of growth rate will be increased by 10 years. The determination of growth rate is presented in **Table 4.7**.

Table 4.7: Determination of Growth Rate

Jurisdiction Area	Compound Annual Growth Rate		
	Low	Medium	High
Urban	1.31	1.32	1.34
Suburban	1.31	1.32	1.34
Rural	1.28	1.29	1.31
Justification	As usual growth rate	1% adjustment for attributing factors	2% adjustment for attributing factors

Source: Estimated by Planning Team based on BBS, 2001-2011.

The **Table 4.8** represented the indication about Urban, Sub Urban and Rural Area.

Table 4.8: Notion about Urban, Suburban and Rural Areas

Urban Area	Suburban/Other Urban Area	Rural Area
Rangunia Pourashava consists of 9 Wards	Saidbari under Mariamnagar Union and Pomara, Dakshin Pomara, Bacha Shahnagar, Hajipara Maijpara, Hila Gazipara, Madhya Pomara, Hajipara Sikdarpara and Sapleza Para under Pomra Union.	15 Unions but excluding Suburban areas and Pourashava.

4.1.7 Population Projection and Distribution

Rangunia Upazila is now growing in diverse sites and its development will be flourished in near future. After considering different aspects, it has been considered low, medium and high growth rate respectively in Urban, Suburban and Rural areas. The **Table 4.9** represented the projected population on the basis of low, medium and high growth rate in the respective areas.

Table 4.9: Projected Population according to the Different Growth Rate

Jurisdiction Area	Population (Base Year 2011)	Growth Rate	Projected Population			
			Year 2018	Year 2023	Year 2028	Year 2033
Urban/Pourashava	32641	Low-1.31	35754	38158	40724	43462
		Medium-1.32	35779	38204	40793	43557
		High-1.34	35829	38294	40930	43746
Suburban/Other Urban	27744	Low-1.31	30390	32434	34615	36942
		Medium-1.32	30411	32472	34673	37022
		High-1.34	30453	32549	34789	37183
Rural/Union	278619	Low-1.28	304563	324560	345870	368580
		Medium-1.29	304773	324945	346451	369382
		High-1.31	305195	325716	347616	370990
Rangunia Upazila	339004	Low	370707	395152	421209	448985
		Medium	370964	395621	421917	449961
		High	371477	396559	423335	451919

Source: Projected by Planning Team based on BBS, 2011

The recent compound annual growth rate of Rangunia Upazila is 1.28 which is then adjusted on the basis of different criteria and three different viable growth rates have been calculated for three influential areas. If it is considered overall development of Rangunia Upazila, it will be optimised that the medium growth rate will be allowable to indicate the future growth. For the projection of future population in Rangunia Upazila, medium growth rates have been determined for Urban, Suburban and Rural areas and the projected results are summarised in **Table 4.10**, **Table 4.11** and **Table 4.12** respectively.

Table 4.10: Projected Population in Urban Areas

Rangunia Pourashava	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
Ward-01	2011(Base)	340	476	509	360	340	260	679	173	70	123	3329
	2018	372	522	558	394	372	285	744	190	77	135	3649
	2023	397	557	596	421	397	304	795	203	82	144	3896
	2028	424	595	637	449	424	325	849	216	87	154	4160
	2033	453	635	680	480	453	346	906	231	93	164	4442
Ward-02	2011(Base)	267	347	337	267	227	195	552	142	65	97	2497
	2018	293	380	370	293	249	213	605	156	71	107	2737
	2023	313	406	395	313	266	228	646	167	76	114	2923
	2028	334	434	421	334	284	243	690	178	81	122	3121
	2033	357	463	450	357	303	260	736	190	87	130	3332
Ward-03	2011(Base)	591	664	833	641	546	551	1277	259	113	152	5625
	2018	647	728	913	703	598	604	1400	284	123	166	6166
	2023	691	777	974	751	639	645	1494	303	132	178	6584
	2028	738	830	1040	801	682	689	1596	323	141	190	7030
	2033	788	886	1111	856	728	736	1704	345	150	203	7506
Ward-04	2011(Base)	297	335	383	347	267	261	685	211	62	119	2967
	2018	325	368	420	381	293	286	751	231	68	130	3252
	2023	347	392	448	406	313	306	802	247	73	139	3473
	2028	371	419	478	434	334	326	857	263	78	148	3708
	2033	396	447	511	463	356	348	915	281	83	158	3959
Ward-05	2011(Base)	320	368	405	344	293	242	664	184	82	115	3016
	2018	351	404	443	377	321	265	728	202	89	126	3306
	2023	375	431	473	403	343	283	777	216	95	134	3530
	2028	400	460	506	430	366	302	830	230	102	143	3769
	2033	427	491	540	459	391	322	886	246	109	153	4025
Ward-06	2011(Base)	272	312	347	312	288	285	758	226	93	201	3094
	2018	298	343	380	343	315	312	831	248	102	220	3391
	2023	319	366	406	366	337	333	887	264	109	235	3621
	2028	340	391	433	391	360	356	947	282	116	251	3867
	2033	363	417	462	417	384	380	1012	301	124	268	4129
Ward-07	2011(Base)	361	504	532	445	342	334	933	258	99	163	3971
	2018	396	553	583	488	374	366	1023	283	109	178	4353
	2023	423	590	623	521	400	390	1092	302	116	191	4648
	2028	452	630	665	556	427	417	1166	323	124	203	4963
	2033	482	673	710	593	456	445	1245	344	132	217	5299
Ward-08	2011(Base)	427	556	537	527	472	457	1317	333	124	214	4963
	2018	468	610	588	577	517	501	1443	365	136	234	5440
	2023	500	651	628	616	552	535	1541	390	145	250	5809
	2028	534	695	671	658	590	571	1645	416	155	267	6202
	2033	570	742	716	703	630	610	1757	444	166	285	6623
Ward-09	2011(Base)	285	390	371	381	263	231	691	244	101	209	3168

Rangunia Pourashava	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
	2018	313	428	407	417	288	254	758	268	111	229	3472
	2023	334	457	434	445	308	271	809	286	119	245	3708
	2028	357	487	464	476	329	289	864	305	127	262	3959
	2033	381	520	495	508	351	309	922	326	135	279	4227

Source: Projected by Planning Team based on BBS, 2011

Table 4.11: Projected Population in Suburban Areas

Suburban Areas	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
Union: Mariamnagar Community: Saidbari	2011(Base)	262	331	350	350	292	262	601	143	55	110	2755
	2018	287	362	384	384	320	287	658	157	60	121	3020
	2023	306	387	410	410	342	306	703	168	64	129	3225
	2028	327	413	437	437	365	327	751	179	69	138	3443
	2033	349	441	467	467	390	349	801	191	74	147	3676
Union: Pomra Community: Dakshin Pomara	2011(Base)	235	310	323	246	238	217	651	193	82	151	2646
	2018	258	339	354	270	261	238	713	212	90	165	2900
	2023	276	362	378	288	279	254	762	226	96	177	3097
	2028	294	387	403	308	298	271	813	241	103	188	3307
	2033	314	413	431	328	318	290	869	258	109	201	3531
Union: Pomra Community: Bacha Shahnagar	2011(Base)	289	312	353	260	218	218	530	130	59	83	2453
	2018	317	341	387	285	239	239	581	143	65	91	2689
	2023	339	365	413	304	256	256	620	152	69	98	2871
	2028	362	389	441	325	273	273	662	162	74	104	3066
	2033	386	416	471	347	291	291	707	173	79	111	3273
Union: Pomra Community: Hajipara Maijpara	2011(Base)	279	343	348	351	258	181	539	149	77	133	2657
	2018	306	376	382	384	283	198	591	163	84	146	2912
	2023	327	401	407	410	302	211	631	174	90	155	3110
	2028	349	428	435	438	322	226	674	186	96	166	3321
	2033	372	457	464	468	344	241	720	199	103	177	3546
Union: Pomra Community: Hila Gazipara	2011(Base)	379	398	454	382	300	263	692	188	79	155	3290
	2018	415	437	498	419	328	289	758	206	87	170	3606
	2023	443	466	532	447	351	308	809	220	93	181	3850
	2028	473	498	568	477	374	329	864	235	99	193	4111
	2033	505	532	606	510	400	352	923	250	105	207	4390
Union: Pomra Community: Madhya Pomara	2011(Base)	893	1099	1219	953	790	756	1855	455	215	352	8586
	2018	979	1205	1336	1045	866	828	2033	499	235	386	9411
	2023	1045	1286	1427	1115	925	884	2171	533	251	412	10049
	2028	1116	1373	1524	1191	987	944	2318	569	268	440	10730
	2033	1192	1467	1627	1272	1054	1008	2475	607	286	470	11457
Union: Pomra Community: Hajipara	2011(Base)	223	279	318	260	230	193	527	118	86	86	2321
	2018	244	306	349	285	252	211	578	130	94	94	2544
	2023	261	326	372	305	269	226	617	139	101	101	2716

Suburban Areas	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
Sikdarpara	2028	279	348	398	325	287	241	659	148	107	107	2900
	2033	298	372	425	347	307	257	704	158	115	115	3097
	2011(Base)	255	358	373	309	267	261	788	188	79	155	3031
Union: Pomra Community: Sapleza Para	2018	279	392	409	339	292	286	864	206	86	169	3322
	2023	298	419	436	362	312	305	922	220	92	181	3548
	2028	318	447	466	386	333	326	985	235	98	193	3788
	2033	340	477	497	413	356	348	1052	251	105	206	4045

Source: Projected by Planning Team based on BBS,2011.

Table4.12: Projected Population in Rural Areas

Unions	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
Betagi Union	2011 (Base)	2051	2502	2748	2215	1846	1723	4512	1313	574	1005	20489
	2018	2244	2737	3006	2423	2019	1885	4936	1436	628	1099	22413
	2023	2392	2918	3205	2583	2153	2009	5262	1531	670	1172	23896
	2028	2550	3111	3417	2754	2295	2142	5611	1632	714	1250	25478
	2033	2719	3317	3644	2937	2447	2284	5982	1740	761	1332	27164
Chandraghona Kadamtali Union	2011 (Base)	3022	3657	4050	3324	3083	2720	6618	1723	756	1209	30161
	2018	3306	4000	4430	3636	3372	2975	7240	1884	826	1322	32992
	2023	3525	4265	4723	3877	3595	3172	7719	2009	881	1410	35175
	2028	3758	4547	5036	4134	3833	3382	8230	2142	939	1503	37503
	2033	4007	4848	5369	4407	4087	3606	8774	2284	1002	1603	39986
Rajanagar Union	2011 (Base)	2071	2588	2377	1879	1860	1821	4371	997	479	709	19153
	2018	2265	2831	2600	2055	2034	1992	4782	1091	524	776	20951
	2023	2415	3019	2773	2191	2169	2124	5098	1163	559	827	22337
	2028	2575	3218	2956	2336	2312	2265	5435	1240	596	882	23816
	2033	2745	3431	3152	2491	2465	2415	5795	1322	635	940	25392
Hosnabad Union	2011 (Base)	1532	1948	1814	1547	1338	1294	3480	892	372	654	14871
	2018	1675	2131	1985	1692	1464	1415	3806	976	407	716	16267
	2023	1786	2272	2116	1804	1561	1509	4058	1041	434	763	17344
	2028	1905	2422	2256	1923	1664	1609	4327	1109	462	814	18491
	2033	2031	2583	2405	2050	1774	1715	4613	1183	493	867	19715
Islampur Union	2011 (Base)	1543	2209	2057	2019	2171	1981	5123	895	419	628	19044
	2018	1687	2416	2250	2208	2375	2166	5604	979	458	687	20832
	2023	1799	2576	2399	2354	2532	2310	5975	1044	489	733	22210
	2028	1918	2747	2557	2510	2700	2463	6370	1113	521	781	23680
	2033	2045	2929	2727	2676	2878	2626	6792	1187	555	833	25248
Kodala Union	2011 (Base)	1934	2465	2428	2029	1953	1669	4172	1100	398	797	18946
	2018	2116	2697	2655	2220	2137	1826	4564	1203	436	871	20725
	2023	2256	2875	2831	2367	2278	1946	4866	1283	464	929	22096
	2028	2405	3066	3019	2523	2429	2075	5188	1368	495	990	23559
	2033	2565	3269	3218	2690	2590	2213	5531	1458	528	1056	25118

Unions	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
Lalanagar Union	2011 (Base)	1469	1876	1920	1673	1324	1164	3025	887	436	771	14545
	2018	1607	2052	2100	1830	1448	1273	3309	971	477	843	15910
	2023	1713	2188	2239	1951	1544	1357	3528	1035	509	899	16963
	2028	1827	2333	2387	2080	1646	1447	3762	1103	543	959	18086
	2033	1948	2488	2545	2218	1755	1543	4011	1176	578	1022	19283
Mariamnagar Union	2011 (Base)	1463	1813	2004	1908	1590	1399	3499	970	429	811	15887
	2018	1600	1983	2192	2087	1740	1531	3827	1061	470	887	17378
	2023	1706	2114	2337	2226	1855	1632	4080	1131	501	946	18529
	2028	1819	2254	2492	2373	1977	1740	4350	1206	534	1009	19755
	2033	1940	2404	2657	2530	2108	1855	4638	1286	569	1075	21062
Padua Union	2011 (Base)	4102	5065	4673	3317	3103	3032	7776	2140	963	1462	35632
	2018	4487	5540	5111	3629	3394	3316	8506	2341	1053	1600	38977
	2023	4784	5907	5449	3869	3619	3536	9068	2496	1123	1706	41557
	2028	5100	6298	5810	4125	3859	3770	9669	2661	1197	1818	44307
	2033	5438	6715	6195	4398	4114	4019	10309	2837	1277	1939	47240
Parua Union	2011 (Base)	1428	1832	1918	1471	1240	1183	3303	966	389	678	14409
	2018	1562	2004	2098	1609	1357	1294	3613	1057	426	742	15761
	2023	1665	2136	2237	1716	1447	1379	3852	1127	454	791	16804
	2028	1776	2278	2385	1829	1542	1471	4107	1202	484	843	17916
	2033	1893	2428	2543	1950	1644	1568	4379	1281	516	899	19102
Pomra Union	2011 (Base)	71	96	88	90	59	55	150	28	13	20	669
	2018	78	105	96	98	64	60	164	31	14	22	732
	2023	83	112	102	105	69	64	175	33	15	23	781
	2028	88	119	109	112	73	68	187	35	16	25	832
	2033	94	127	116	119	78	73	199	37	17	27	887
Dakshin Rajanagar Union	2011 (Base)	1702	2186	2204	1953	1649	1487	4032	1147	538	1021	17920
	2018	1862	2391	2411	2137	1803	1627	4410	1255	588	1117	19602
	2023	1985	2550	2571	2278	1923	1735	4702	1338	627	1191	20900
	2028	2117	2719	2741	2429	2050	1849	5014	1426	668	1270	22283
	2033	2257	2898	2922	2590	2186	1972	5345	1520	713	1354	23758
Rangunia Union	2011 (Base)	1269	1509	1589	1335	1229	1055	3111	961	441	855	13354
	2018	1388	1651	1738	1461	1344	1154	3404	1052	482	935	14608
	2023	1480	1760	1853	1557	1433	1230	3629	1121	514	997	15574
	2028	1577	1876	1976	1661	1528	1312	3869	1196	548	1063	16605
	2033	1682	2001	2107	1770	1629	1399	4125	1275	584	1133	17704
Saraphbata Union	2011 (Base)	2864	3421	3675	2864	2230	2002	5170	1470	634	1014	25344
	2018	3133	3743	4020	3133	2440	2190	5656	1608	693	1109	27723
	2023	3340	3990	4286	3340	2601	2335	6030	1714	739	1182	29558
	2028	3561	4254	4570	3561	2773	2490	6429	1828	788	1261	31514
	2033	3797	4536	4872	3797	2957	2654	6854	1949	840	1344	33600
Silok Union	2011 (Base)	1891	2287	2323	2017	1513	1513	3926	1099	576	864	18009
	2018	2068	2502	2541	2206	1655	1655	4294	1202	630	946	19700
	2023	2205	2667	2709	2352	1764	1764	4579	1281	672	1008	21003

Unions	Years	Projected Population according to the Age Group										Total
		0-4	5-9	10-14	15-19	20-24	25-29	30-49	50-59	60-64	65+	
	2028	2351	2844	2889	2508	1881	1881	4882	1366	717	1075	22393
	2033	2507	3032	3080	2674	2006	2006	5205	1456	764	1146	23876

Source: Projected by Planning Team based on BBS, 2011.

The total urban and rural population from base year 2011 to 2033 are presented in the **Table 4.13 and Table 4.14** respectively.

Table 4.13: Projected Population in Urban Areas

Rangunia Paurashava	Population (2011 Base Year)	Projected Population (2033)
Ward No. 01	3329	4462
Ward No. 02	2497	3347
Ward No. 03	5625	7539
Ward No. 04	2967	3976
Ward No. 05	3019	4042
Ward No. 06	3094	4147
Ward No. 07	3971	5322
Ward No. 08	4968	6652
Ward No. 09	3171	4246
Total	32641	43733

Source: Projected by Planning Team based on BBS, 2011.

The **Table 4.13** depicted that the present urban population and projected urban population in the next 20 years. From the data it is visible that Ward no. 03 will have the highest population and then Ward no. 07 and 06 after 20 years.

Table 4.14: Projected Population in Rural Areas

Union	Population (2011 Base Year)	Projected Population (2033)
Betagi	20510	27282
Chandraghona Kadamtali	30221	40160
Rajanagar	19172	25503
Hosnabad	14871	19801
Islampur	19044	25358
Kodala	18965	25227
Lalanagar	14545	19367
Mariamnagar	18658	21864
Padua	35668	47446
Parua	14423	19185
Pomra	25659	38066
Dakshin Rajanagar	17920	23861
Rangunia	13354	17781
Sarapbhata	25344	33746
Silok	18009	23980
Total	306363	408627

Source: Projected by Planning Team based on BBS, 2011.

From the **Table 4.14** it may be concluded that Chandroghona Kadamtoli, Pomara, Padua, Mariamnagar, Sarapbhata will be populated than other unions in rural areas in next 20 years.

4.2 Shift Share Analysis

4.2.1 Objectives

- 1) To determine the contribution of different sectors in the growth of Rangunia Upazila by using shift share components from year 2003 to 2013.
- 2) To compare the regional growth status of the Rangunia Upzila and also identify progressive and less progressive industries with respect to the employment of the selected industrial sectors.

4.2.2 Concept of Shift Share Analysis

Shift share analysis is a regional economic growth tool. This process helps in order to determine trend of local economy, prioritizing the industry which have to developed, use of public funds efficiently. The dynamic and changing regional economies have been capturing the attention of policy makers, community leaders, and researchers (McNamara 1991; Knudsen, 2000.). However, a regional economy consists of firms and industries with a variety of economic potentials. Growth or decline in any of these sectors occurs by technological innovation, capital and labour productivity, location, changes in product demand, and shifts in input costs, which directly or indirectly affect the overall growth of the economy (Gebremedhin and Lass, 1995; Bartik 2004). As various sectors affect economic growth of a particular region differently, understanding the comparative advantage of these sectors becomes important in development decisions of the region (Deming, 1996; Melachroinos, 2002).

As a regional planning tool shift share analysis explores the scenario of economic growth of a region which is generated by a national growth in that sector, supportive industry mix and comparative advantage of that particular region. The shift-share analysis divides the change in local industry employment into three components:

- National Share (NS)
- Proportionality Shift /Industry Mix (IM)
- Local Share/Regional Shift/Differential Shift (RS)

National Share (NS) Component

Share of regional job growth attributable to growth of the national economy. The share of local job growth can be attributed to growth of the national economy. Specifically, if the nation as a whole is experiencing employment growth ("a rising tide lifts all boats"), one would expect total national growth to exert a positive growth influence on the local area.

Industry Mix (IM)/Proportionality Shift Component

The industrial mix or proportionality shift component reflects differences in industry "mix" between the local and national levels. The mix-factor examines how national growth or decline of a particular industry translates into local growth or decline of that industry. It deals with how much growth can be attributed to the region's mix of industries. Also estimates how many jobs were created/not created in each industry due to differences in industry and total national growth rates

Regional Shift (RS)/Differential Shift Component

This share of local job growth describes the extent to which factors unique to the local area have caused growth or decline in regional employment of an industrial group. Even during periods of general prosperity, some regions and some industries grow faster than others do. This is usually attributed to some local comparative advantage such as natural resources, linked industries or favourable local labour situations. It helps to identify how many jobs are created/not created as a result of the region's competitiveness and the region's progressive and less progressive industries.

Calculation of Shift Share Components

The shift share component for each industry in the region has been determined using the following formulas:

$$\text{National Share, } N_j = \sum [E_{ij0}(E_t/E_o) - E_{ij0}]$$

$$\text{Proportionality Shift Component, } P_j = \sum [(E_{it}/E_{io}) - (E_t/E_o)]E_{ij0}$$

$$\text{Differential Shift Component, } D_j = \sum [(E_{ijt}/E_{ij0}) - (E_{it}/E_{io})]E_{ij0}$$

$$\text{Total Regional Growth, } G_j = E_{jt} - E_{j0} = N_j + P_j + D_j$$

$$\text{Total Net Shift Component, } (P+D)_j = E_{jt} - (E_t/E_o)E_{j0} = G_j - N_j$$

Where, E_j = total employment in region j

E = total national employment

o, t = initial and terminal period

i = industry subscript

Identification of Fast Growing and Slow Growing Sectors

In the above equations, if the proportionality shift component is found to be positive, the region is specialized in nationally fast-growing sectors and if this component is negative, the region is specialized in nationally slow growing sectors.

Identification of Progressive and Less Progressive Sectors

The progressive and less progressive sectors of a region are identified from the differential shift component. The progressive sectors for a region has been identified by the positive differential shift component and the less progressive sectors have been identified by the negative differential shift component. Positive differential shift component for an industry implies the region has advantage (e.g. natural resources, favourable location and an efficient labour market) for flourishing of the industry. Differential shift component with negative value means there exists locational disadvantage for the industry to grow in the region.

The economic growth of the Upazila has been compared in terms of national share component, industry mix component and regional shift component and growth rate for every industrial sector.

4.2.3 Scope of the Study

Shift share is a standard regional analysis method that attempts to determine how much of regional job growth can be attributed to national trends and how much is due to unique regional factors. It helps answer why employments are growing or declining in a regional industry, cluster, or occupation. It is the tool to study the components of economic growth. Its

popularity is mainly its simplicity and easy to use that means required data and excel spread sheet. Here its scopes are mentioned below-

- Showing the connection between different region and success.
- Polarizing the indication of regional growth rate decline if negative and increase if positive.
- Differentiating in the sectoral structure of regions on the differences in their success.
- Identifying the progressive and less progressive industries.

4.2.4 Comparison of Employment Growth Among Industries

There have been used the employment data of 2003 and 2013 representing the time for economic growth and economic crisis respectively. Data for employment growth in Rangunia Upazilla and the national employment growth in Bangladesh have been taken from the Economic Census District Report – Chittagong Bazar 2001, 2003 and 2013 respectively from Bangladesh Bureau of Statistics.

National growth rate with comparison to the growth rate of Rangunia Upazila is presented in the **Figure 4.8** and showed that national growth rate of industrial sector wise category.

National Growth Rate Analysis

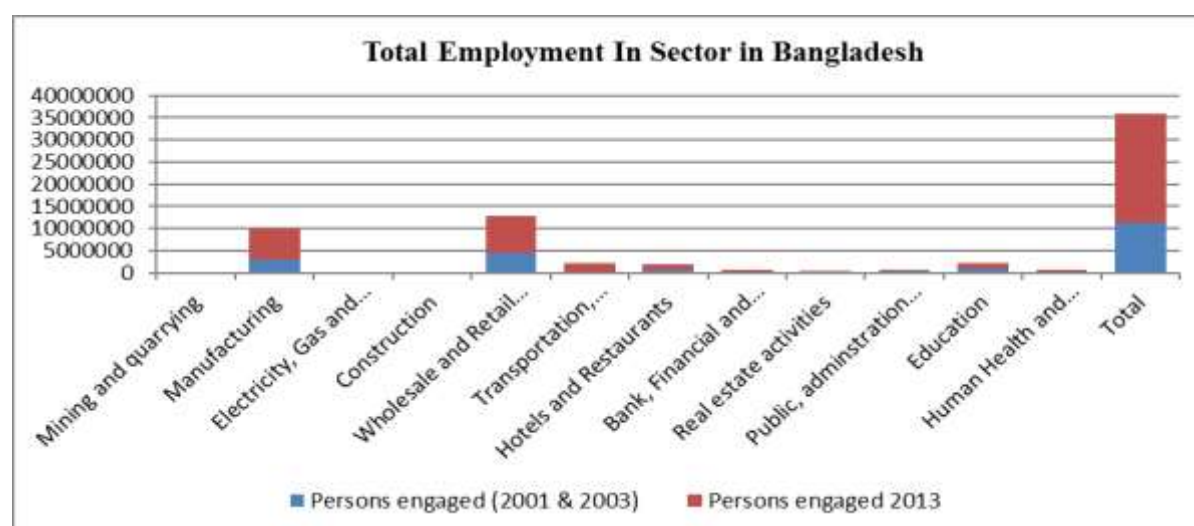


Figure 4.8: Distribution of Industries according to Growth of Employment in National level between 2001 & 2003 and 2013

The **Figure 4.8** presented that employment growth rate increases in 2013 in respect of 2001 & 2003. It also showed that manufacturing and wholesale retail industries are the most fast growing industries among all the industries in the national context. The employment generations in these sectors are higher than any other sectors over the years.

Shift Share Analysis in Rangunia Upazila

In sector wise analysis, the aim is to compare the employment growth rate of each sector in Rangunia Upazilla in respect of Bangladesh. Employment growth rate has been calculated for each sector of this Upazilla with respect to the national employment of that sector and presented in **Table 4.15**.

Table 4.15: Employment Data for Rangunia Upazila: 2003 and 2013

Employment Category	2003	2013	Change in Jobs	% change
Mining and quarrying	0	1	1	-
Manufacturing	3841	10777	6936	1.81
Electricity, Gas and water supply	20	20	0	0.00
Construction	18	0	-18	-1.00
Wholesale and Retail Trade, Repair of motor vehicles & motorcycle	8982	11349	2367	0.26
Transportation, storage and communication	612	230	-382	-0.62
Hotels and Restaurants	2948	2534	-414	-0.14
Bank, Financial and insurance Activities	418	1195	777	1.86
Real estate activities	97	19	-78	-0.80
Public, administration and Defence, Compulsory Social security	311	893	582	1.87
Education	2141	3648	1507	0.70
Human Health and Social work	444	957	513	1.16
Total	19832	31623	11791	0.59

Source: BBS Economic Census, 2003 and 2013

According to the analysis, the **Table 4.16** showed that the Upazila only added 11791 jobs during the period of (2003-2013). It suggested that the area is not performing as well as the national average

Table 4.16: Shift Share Components of Rangunia Upazila in Context of National: 2003 and 2013

Employment Category	National share	Industrial Mix	Regional Shift	Total Regional Growth	Net Shift
Mining and quarrying	0.00	0	0	0	0.00
Manufacturing	4201.42	1230.26	1504.31	6936	2734.58
Electricity, Gas and water supply	21.88	6.48	-	28.35	6.48
Construction	19.69	-14.55	-23.14	-18.00	-37.69
Wholesale and Retail Trade, Repair of motor vehicles & motorcycle	9824.84	-2081.19	-5376.65	2367	-7457.84
Transportation, storage and communication	669.43	3767.03	-4818.46	-382	-1051.43
Hotels and Restaurants	3224.63	-1020.24	-2618.39	-414	-3638.63
Bank, Financial and insurance Activities	457.22	-14.39	334.16	777	319.78
Real estate activities	106.10	-170.14	-13.96	-78	-184.10
Public, administration and Defence, Compulsory Social security	340.18	-512.88	754.69	582	241.82
Education	2341.90	-760.94	-73.96	1507	-834.90
Human Health and Social work	485.66	-126.22	153.56	513	27.34
Total	21692.96	303.22	-10177.83	11818.35	-9874.61

Source: BBS Economic Census, 2003 and 2013

From the **Table 4.16**, it presented that the overall national growth component shows that, if the local economy was identical to the national economy, then the number of jobs in the county should have grown by 21692 between 2003 and 2013.

Mining and quarrying, electricity, gas and water supply and construction sectors added less jobs than expected if they performed at the national average. Obviously, the changes (gains or losses) in employment that occur at the local level do not exactly follow the overall national trend.

The overall industrial mix component of 303 means that Rangunia Upazila has nearly 303 added jobs than it would have if its structure was identical to the nation. Though construction, wholesale and retail trade, repair of motor vehicles & motorcycle, hotels and restaurants, bank, financial and insurance activities, real estate activities, public administration and defence, compulsory social security, education, human health and social sectors are growing slower.

According to the regional shift component, the negative value means there are 10177 less jobs are generated in Rangunia Upazila. Most of the sectors have negative values so that means these industries are growing slower.

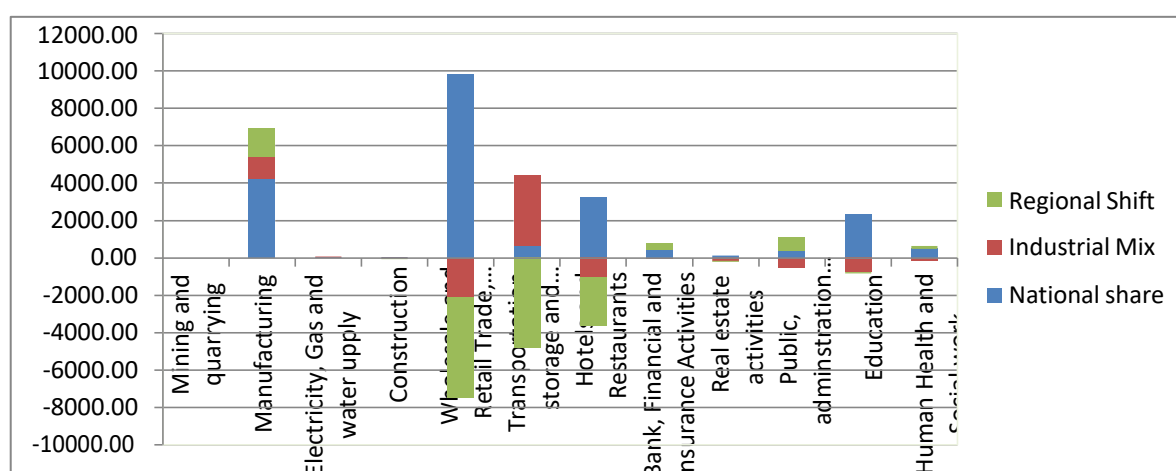


Figure 4.9: Distribution of Industries According to Shift Share Components in Rangunia Upazila

The analysis has been carried out by comparing the change values of the national share, proportionality shift, differential shift and regional growth with respect to the total employment in the respective region considering employment data in the year 2003 and 2013.

In Rangunia Upazilla, most of employment growth has been generated because of national employment growth. Proportionality shift/industrial mix has a very mild impact on regional employment growth but Regional Shift/ Differential shift has negatively influenced in employment growth. It could be recognized that employment in this Upazila has grew more slowly than the nation because of regional shift effects.

In Rangunia Upazila, differential shift for manufacturing, bank, financial and insurance activities, public, administration and defence, compulsory social, human health and social work have a positive value but all other sector have negative impact. So, these sectors have some slow growing industries which generate employment at a lower rate.

Comparison of Employment Growth among Industries

The aim of sector wise analysis is to compare the employment growth of each sector in Rangunia Upazila. From the calculation it could be easily recognized that which sector is progressive and which sector is less progressive in this sector by using Net Shift Component. If the value of Net Shift Component is positive it indicates regional growth of this sector is better than national growth. If the value is negative, it indicates less regional growth of this sector than national growth. Table 2 shows progressive and less progressive sectors of Rangunia Upazila as per Shift-share analysis. Net Shift Component for Rangunia Upazila

provides negative value which means overall economic growth of Rangunia Upazila is less progressive than national growth.

Table 4.17: Progressive and Less Progressive Sectors of Rangunia Upazila.

Activity Sector	Progressive	Less Progressive
Mining and Quarrying	✓	
Manufacturing	✓	
Electricity, Gas, Water, Steam, and Air Conditioning Supply	✓	
Construction		✓
Wholesale and Retail Trade, Repair of Motor Vehicles & Motorcycles		✓
Transportation, Storage, Information and Communication		✓
Accommodation and Food Services Activities (Hotel & Restaurants)		✓
Financial and Insurance Activities	✓	
Real estate activities		✓
Public Administration and Defence	✓	
Education		✓
Health and Social Works	✓	
Total		

From the Table 4.17, it observed that among different types of sector, mining and quarrying, manufacturing, Electricity, Gas, Water, Steam, and Air Conditioning Supply, Financial and Insurance Activities, Public Administration and Defence, Health and Social Works are progressive industries in Rangunia Upazila so it shows that employment is growing in these industries whereas wholesale and Retail Trade, Repair of Motor Vehicles & Motorcycles, Transportation, Storage, Information and Communication, Accommodation and Food Services Activities (Hotel & Restaurants), Real estate activities, Education are less progressive industries. So it said that employment is declining in these industries.

It is important to keep in mind that this is a descriptive tool rather than a diagnostic one is important. The shift-share analysis does not tell us why some local industries are more competitive and why some are less competitive—differences may be due to technology, management, or worker productivity. A more in-depth analysis of local versus national industries is required to sort out the sources of these differences. Potential factors could include access to natural resources, local wage rates, workforce productivity, or regional transportation networks.

CHAPTER 5

PLANNING STANDARD

5.1 Introduction

Facilities and services are the main features of a development plan. Depending on the demand and population projection facilities and services are calculated. For this purpose, planning standard is formulated for this specific project.

5.2 Basic Notions of Planning Standard

SITE density includes only the residential component of the land area. It is the most concentrated measure of density.

NET residential density includes the residential component plus local roads.

GROSS residential density includes residential uses, local roads plus local non-residential land uses such as parks and schools.

URBAN residential density includes all the above land uses plus regional land uses such as employment, transport and regional open space.

METROPOLITAN density is a macro measure, often used in international comparisons and includes all land (i.e. including non-urbanised land within what are often arbitrary administrative boundaries)

Use of Density Measures

- Estimate the intensity of built form on a particular site or a place;
- Model the impacts of development standards;
- Keep track of how well a development is performing against the original 'vision';
- Calculate population densities.

Working with Density Measures

- Density measures are only indicators, not design tools;
- The 'right' density evolves over time;
- Higher density does not always equal higher buildings;
- Higher net residential density does not always equal more people;
- The same building type can yield different net residential densities;
- Density is not intensity.

5.3 Formulation of Planning Standard

Table 5.1: Recommended Standard for Major Land Uses

Types of Land Uses	Recommended Standard
1. Residential	
General Residential	150 persons/1 acre
Real Estate-Public/Private	200 population/ 1 acre
2. Roads	
Upazila Primary Roads	70 feet and above
Upazila Secondary Roads	40 feet
Upazila Local/Tertiary Roads	32 feet
Access Roads	20 feet

Types of Land Uses	Recommended Standard
3. Education	
Nursery	0.5 acre/10,000 population
Primary School/ Kindergarten	2.00 acres/5000 population
Secondary/High School	5.00 acres /20,000 population
College	10.00 acres/20,000 population
Vocational Training Centre	5 - 10 acres / Upazila
4.Open Space	
Play field/ground	3.00 acres/20,000 population
Park	1.00 acre /10000 population
Neighborhood Park	1.00 acre /10000 population
5. Recreational	
Stadium/Sports Complex	5 – 10 acres/Upazila Headquarter
Cinema/ Theatre	1.0 acre /20,000 population
6. Health	
Upazila Health Complex	10 -15 acres/Upazila Headquarter
Health Centre/Maternity Clinic	1.00 acre/ 5,000 population
7. Community Facilities	
Mosque/Church/Temple	0.5 acre /20,000 population
Eidgah	1.0 acre/20,000 population
Graveyard	1.00 acre /20,000 population
Community center	1.00 acre /20,000 population
Police Station	3 – 5 acres/Upazila Headquarter
Police Box/Outpost	0.25 acre/ per box
Fire Station	1.00 acre/ 20,000 population
Post office	0.5 acre /20,000 population
8. Utilities	
Pump House for Water supply	0.25 acre /20,000 population
Solid waste Disposal Site	5– 10 acres/Upazila Headquarter
Waste Transfer Station	0.25 acres/per waste transfer station
Electric Sub-station	1.00 acre/20,000 population
Telephone Exchange	0.5 acre/20,000 population
Fuel Station	1 acre/20,000 population
9. Commerce and Shopping	
Wholesale Market	1.0 acres/ 10000 population
Retail Sale Market	1.0 acres/ 1000 population
Corner Shops	0.25 acre/per corner shop
Neighborhood Market	1.00 acre/per neighborhood market
Super Market	1.50 – 2.50 acres/per super market
10.Industry	
Small Scale	2 acres /1000 population
Heavy Industry	5.0 acres /10000 population
11.Transportation	
Bus Stand	1.0 acre /20,000 population
Truck Terminal	0.50 acre /20,000 population
Launch/Steamer Terminal	0.50 acre /20,000 population
Rickshaw/Van/TempoStand	0.25 acre /one baby taxi/tempo stand
Passenger Shed	0.02 acre /one baby taxi/tempo stand
12. Administration/Government Service	
Upazila Complex	10-15.00 acres
Pourashava Office	3 – 5 acres

Source: Compiled and Suggested by Consultants based on Planning Standard of UDD, LGED, Land Development Rules of Private Housing Project, 2004; Education Directorate; Power Development Board; BIWTA; Youth Development Directorate; Bangladesh Parjaton Corporation; Bangladesh Railway; University Grants Commission; Bangladesh Oil, Gas & Mineral Resource Corporation; RHD; DMDP; DAP; KDA Master Plan etc.

5.4 Residential Density Control

Residential density can be measured in five ways: site, net, gross, urban and metropolitan. All five residential density measures are calculated using the same basic ratio formula: the number of dwellings divided by the area of land they occupy.

Table 5.2: Residential Standard

Public Sector Housing Site/Estate	Private Sector Housing Site/Estate	Neighbourhood Size	Rural/Scattered Housing Area
Calculate the Gross and Net density	Calculate the Gross and Net density	Calculate the Housing UnitShow the FAR aspectsDetermine the maximum and minimum area size	

Public Sector Housing Estate

It is proposed that all public-sector housing estates should develop 55% for residential area and reserve at least 45% of its area for community service facilities including road. Density of public sector is determined in the following manner:

Assuming that,

- ✓ There is 2 units in each floor of each 3 katha plot (Comfortable housing with respect of our country) area on average,
- ✓ Each building having maximum 3 storied in height (If the distance is 7.6 meter to 10.59 meter between front side road and mandatory open space of the building, the height of the building will be maximum 9.50 meter, Building Construction Rules, 1996)
- ✓ 6 families will be living in each 3 katha,
- ✓ Total population in each 3 katha will be (Average household size is 4.9 in Rangunia Upazila, converting to 5 as average H/H size): $5 \times 6 = 30$ persons,
- ✓ Net density per acre ($30 \div 3 \times 55$) = 550 persons,
- ✓ Assuming 55 acres as net residential area of a 100-acre residential area estate,
- ✓ Total population of the housing area: $55 \times 550 = 30,250$,
- ✓ Gross density of public sector housing area ($30250 \div 100$) = 302 persons/acre.

GROSS RESIDENTIAL DENSITY/ACRE: 302 persons

NET RESIDENTIAL DENSITY/ACRE: 550 persons

Means of Implementation: incorporation of density standard as rules under Section 18 of EBBC Act, 1952.

Private Sector Housing Estate-Cooperative and Commercial

Due to profit motive of the private housing companies it would be difficult to achieve the same density standard as suggested for public sector housing estates. The amount of saleable land percentage is 60% and minimum land for services and facilities can be fixed at 40%. This would give following gross and net densities for privately organized housing estates:

Assuming that,

- ✓ 2 units in each floor of each 3 katha plot on average,
- ✓ each building having 3 storied in height,
- ✓ 6 families living (2×3) in each 3 katha,
- ✓ total population in each 3 katha (assuming 5 as average family size): $5 \times 6 = 30$ persons,
- ✓ net residential density per acre ($30 \div 3 \times 60$) = 600 persons

- ✓ gross residential density can be calculated as follows:
- ✓ assuming 60 acres as net residential area of a 100-acre residential area estate,
- ✓ total population of the area: $60 \times 600 = 36000$ persons.
- ✓ gross residential density of the private organized housing area: $36000 \div 100 = 360$ persons/acre.

GROSS RESIDENTIAL DENSITY/ACRE: 360 persons

NET RESIDENTIAL DENSITY/ACRE: 600 persons

Neighbourhood Size

According to the Private Residential Land Development Rule, 2004, the following issues have to be considered:

- There will be minimum 5 acres land for development of private residential land in Dhaka City Corporation Area and outside of City Corporation and Pourashava there will be minimum 10 acres land.
- There will be gross density maximum 350/acre for the development of private residential land.
- Maximum 70% area of the total land are allowable to sell and 30% of the land will be preserved for providing civic facilities and utility facilities according to the private residential development rule, 2004.

Limit all public and private sector housing estates (plot) units to 50 acres maximum and minimum 5 acres for Urban Area and 10 acres for Rural Area.

This would give an estimated maximum population size of 15,100 persons (at 302 persons /acre gross density) for public sector housing estates and 18,000 persons (at 360 persons / acre gross density) for private sector housing estates including cooperative housing.

Housing Unit Calculation

Given:

1 acre = 43,560 square feet (sq. ft.) and 20 units/acre as a **minimum density**

Example Plot Size = 5,000 sq. ft. plot

$$= \frac{\text{Plot Size}}{\text{Desired Unit}} = \frac{5000}{20} = 250 \text{ sq. ft.} \approx 2160 \text{ sq. ft.}$$

Example Plot Size	Plot Size	Allowable Unit	Round up to
5000	2160	2.31	2
7500	2160	3.47	4
10000	2160	4.63	5

The thresholds for whole units at 20 units per acre are as follows:

2160 sq. ft. = 1 unit

4320 sq. ft. = 2 units

6480 sq. ft. = 3 units

1 acre = 43,560 square feet (sq. ft.) and 30 units/acre as a **minimum density**

Example Plot Size = 5,000 sq. ft. plot

$$= \frac{\text{Plot Size}}{\frac{\text{Total Land}}{\text{Desired Unit}}} = \frac{5000}{\frac{43560}{30}} = 1452 \text{ sq. ft.} \approx 1450 \text{ sq. ft.}$$

Example Plot Size	Plot Size	Allowable Unit	Round up to
5000	1450	3.45	4
7500	2175	5.17	5
10000	2900	6.90	7

The thresholds for allowable units at 20 units per acre are as follows:
 1450 sq. ft. = 1 unit
 2900 sq. ft. = 2 units
 4350 sq. ft. = 3 units

Building Construction Rules for Density Control

Section 12(1) of Building Construction Rules, 1996 sets a formula for building height determination based on the width of the front road. This rule imposes a limit on the building height as long as the front road is less than 75 ft. (22.87 meter). Indirectly this limits the number of family or the size of population in a building.

Building Height

According to the Building Construction Rules (1996), the maximum height of a building will not be more than the summation of front side road width and the mandatory open space between road and building site. According to the law, the following decisions can be summarized:

Distance between Front side road and space of the building	Building's Highest Height (meter)
7. 60-10.59 m	9.5 m
10. 60-13.59m	12. 50m
13. 60-16.59m	15.50m

Source: Building Construction Rules, 1996.

According to the rules, the building's height doesn't less than the above values, if the width of adjacent road of the site tends to the following conditions, the estimated building's height will be the correspondent value according to the following table.

Width of the Road of Adjacent Site	Building's Highest Height (meter)
4.55-7.59m	18.50m
7.60-10.66m	27. 50m
10. 67-15.24m	42.50m
15.25-22.99m	60.50m

Here is also one condition, if the width of the Road of the adjacent Site is 23.50 or more then there is no limit of the height of the building.

Source: Building Construction Rules, 1996.

CHAPTER 6

TECHNICAL APPROACH OF PLAN PREPARATION

6.1 Introduction

The planning approach has described in this chapter where applied techniques are elaborated. The survey outputs are incorporated in order to produce certain findings of Rangunia Upazila and served as basis for final plan preparation. Through this process the existing land use, physical features, agricultural situation, flooding scenario, geological factors and other related facts are portrayed into maps and then analysed through GIS Techniques.

6.2 Methodology of Plan Preparation

Planning process depends on a bunch of works which reflects the existing condition of the project area. To reveal the existing situation several surveys have been done and further gone through a technical process. The technical methodology has been shown in the **Figure 6.1**.

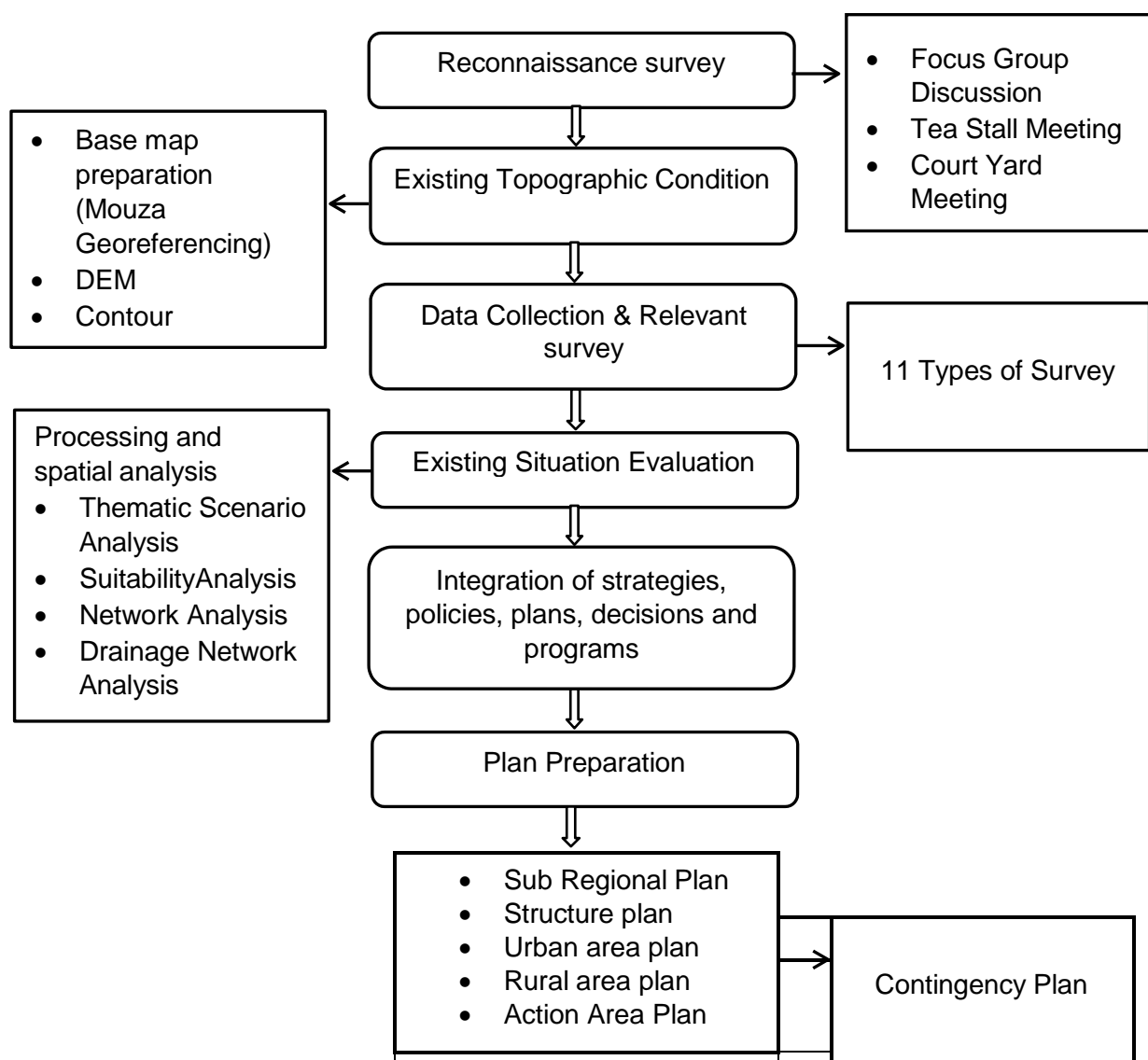


Figure 6.1: Technical Methodology of Plan Preparation

6.2.1 Reconnaissance Survey

A reconnaissance survey had carried out to identify the extent of works and get an idea about project area which includes several Focus Group Discussion, Courtyard Meeting, Tea stall Meeting.

6.2.2 Existing Topographic Condition

Satellite image had purchased for the concern area then processed the image for planning works from where Digital Elevation Model (Dem), Contour, Physical Feature extraction are important phenomena. To get the project area boundary, Mouza maps have been collected from Land Record and Survey Department (DLRS) and processed for further works.

6.2.3 Data Collection and Relevant Survey

During the survey stage, 11 types of survey had conducted that were paraphrased in the **Figure 6.2**. The detail description and procedure had described in Final Survey Report.

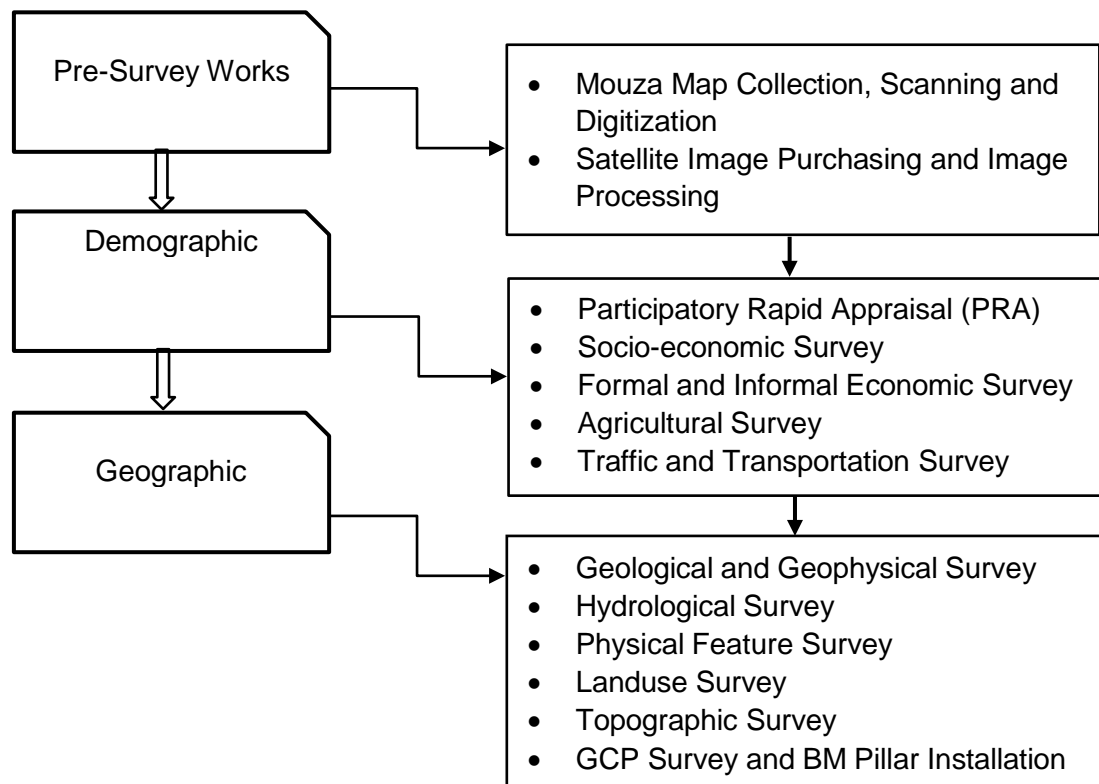


Figure 6.2: Flow chart of Conducted Surveys

6.2.4 Existing Situation Evaluation

In this stage, several scientific ways followed through GIS Analysis which help to go in a concrete decision. The following techniques were applied:

- Thematic Scenario Analysis
- Suitability Analysis
- Network Analysis
- Location Allocation Analysis
- Drainage Network Analysis

6.2.5 Integration of Strategies, Policies, Plans, Decisions and Programs

Depending on the analysis, several decisions were made depending on planning phase. Few decisions, strategies and policies had placed in broad scale in Sub Regional Plan and Structure Plan and other decisions suggested in small scale for Urban and Rural area plan. Immediate intervention emphasized in action area plan.

6.2.6 Plan Preparation Process

Plan preparation process outlined in following diagram which has been further elaborated in **Chapter 7**. Outline of Plan Preparation Process are described in **Figure 6.3** to **Figure 6.6**.

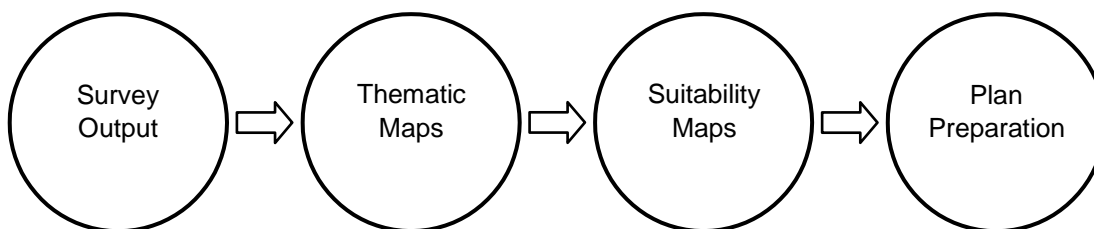


Figure 6.3: Flow Chart of Plan Preparation Basis

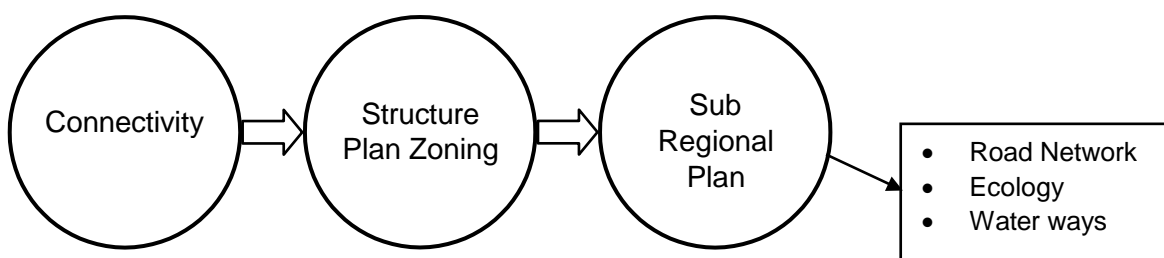


Figure 6.4: Flow Chart of Sub Regional Plan Process

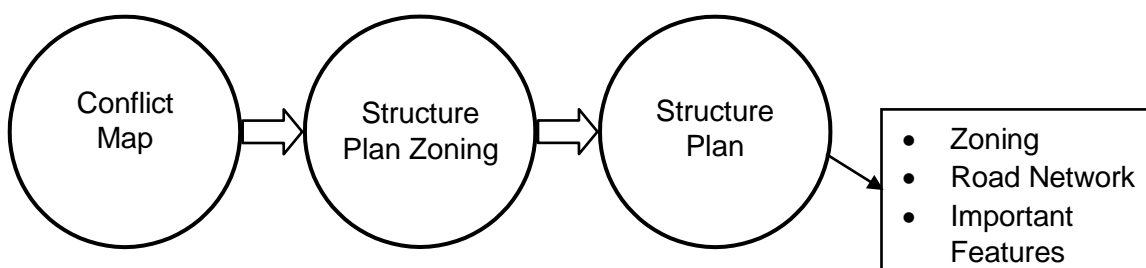


Figure 6.5: Flow Chart of Structure Plan Process

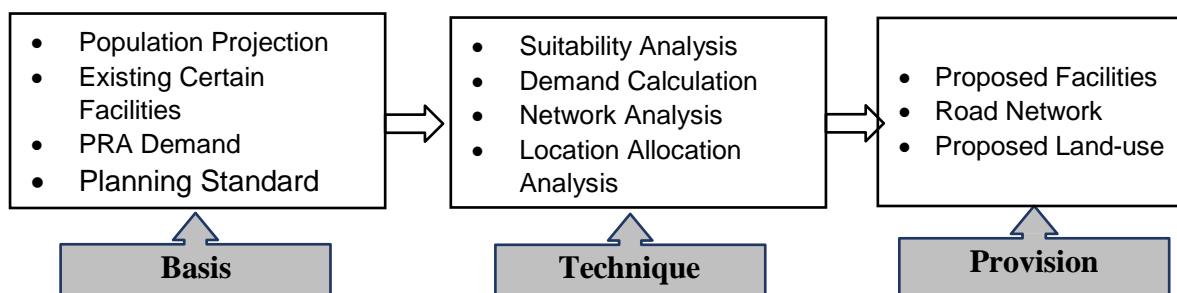


Figure 6.6: Flow Chart of Urban and Rural Area Plan Process

6.3 Formulation of Thematic Maps

During the survey stage, 11 types survey had conducted. These were PRA, Socio-Economic survey, Formal-Informal survey, Agricultural survey, Transportation survey, Physical Feature survey, Land use survey, Topographic survey, Geological & Geo-physical survey and Hydrological survey. Each survey has distinct output. These outputs are presented in the form of thematic maps. The main components of thematic scenario is presented in **Figure 6.7**.

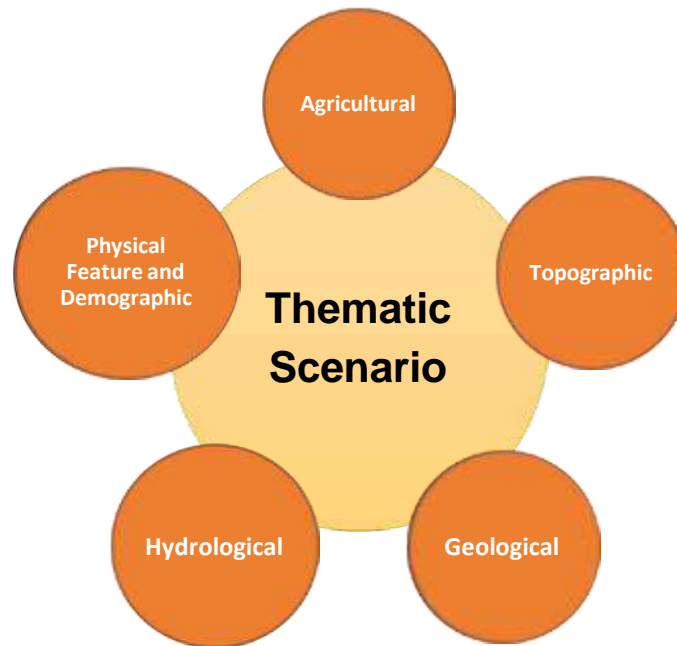


Figure 6.7: Thematic Scenario

Here is a major list of thematic maps:

- Topographic Survey
 - Slope
 - DEM
 - Contour
- Geological&Geo-physical Survey
 - PGA
 - Shear wave
 - Foundation depth
 - Micro zonation map
- Land UseSurvey
 - Existing land usemap
 - Ecological map
- Physical-Feature Survey
 - Existing road network in terms of type
 - Existing road network in terms of width
 - Connectivity map
- Agricultural Survey
 - Cropping intensity map

- Hydrological Survey
 - Flooding scenario map
 - Main and Sub flood flow zone map
- Density
 - Union-wise population density
 - Ward-wise population density

6.3.1 Connectivity

Rangunia Upazila is bounded by Chandanaish Upazila on the south; Patiya Upazila, Boalkhali Upazila, Raozan Upazila & Kawkhali Upazila of Rangamati District on the west; Kawkhali Upazila of Rangamati District on the north and Kaptai Upazila & Rajasthali Upazila of Rangamati District and Bandarban Sadar Upazila on the east. The connectivity map of Rangunia Upazila is presented in **Map 6.1**.

6.3.2 Density

Population density is midyear population divided by land area in square kilometres. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. Land area is a country's total area, excluding area under inland water bodies, national claims to continental shelf, and exclusive economic zones. Here population density map has been prepared according to the population density of 2011 of Rangunia Upazila and projected density in 2033 respectively.

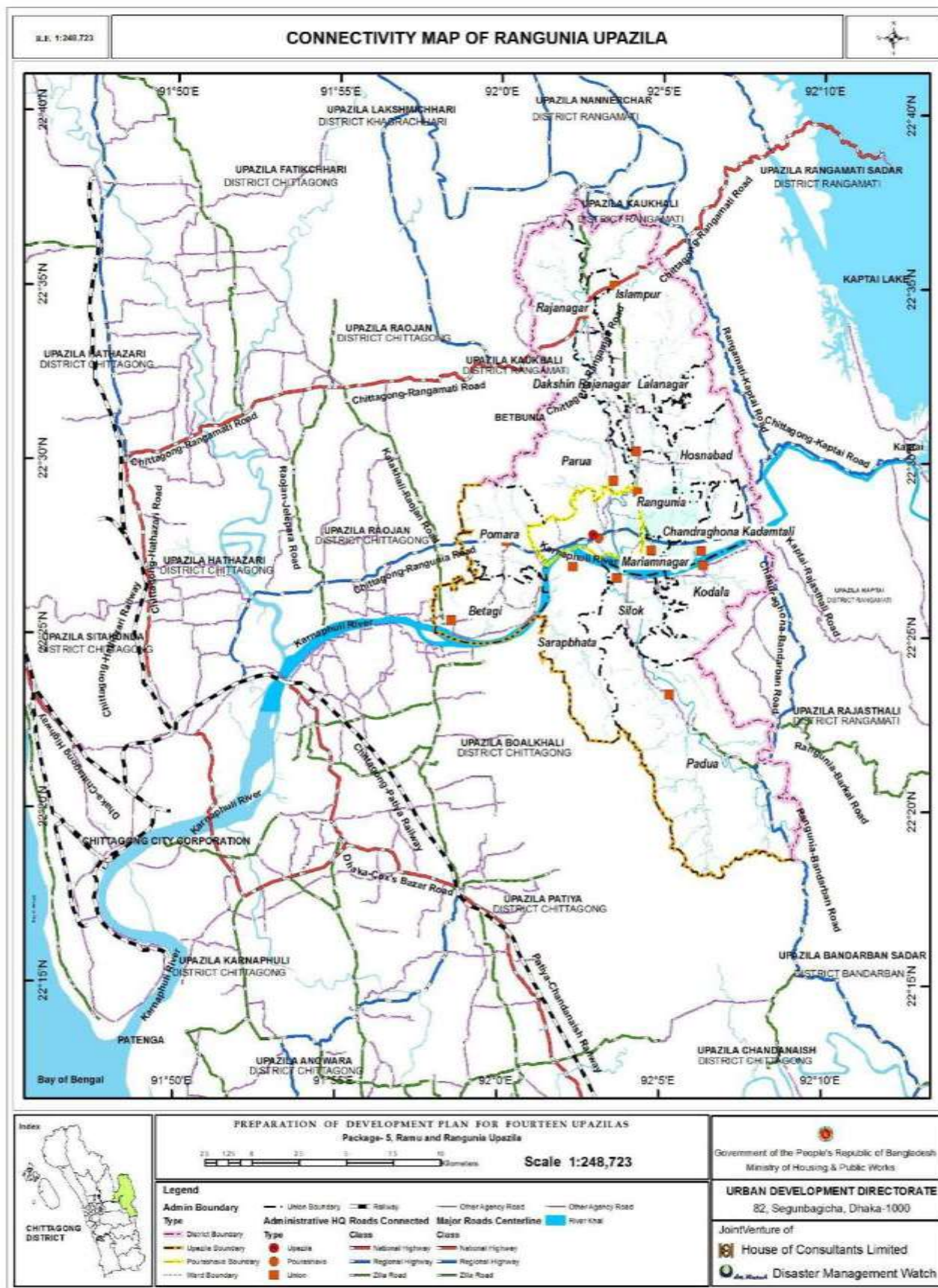
6.3.2.1 Density Map Union wise

According to the population density of 2011 of Rangunia Upazila, four unions are densely populated in comparison with others. Pomara, Mariamnagar, Chandroghona Kadamtoli and Dakshin Rajanagar unions have highest density compares to others. The range of population per acre of these unions varies from 4.657 to 21.58. From this outcome, it is visible that in future these four unions will be dominating as urban area. The results is presented in **Map 6.2** for base year 2011.

6.3.2.2 Density Map Ward wise

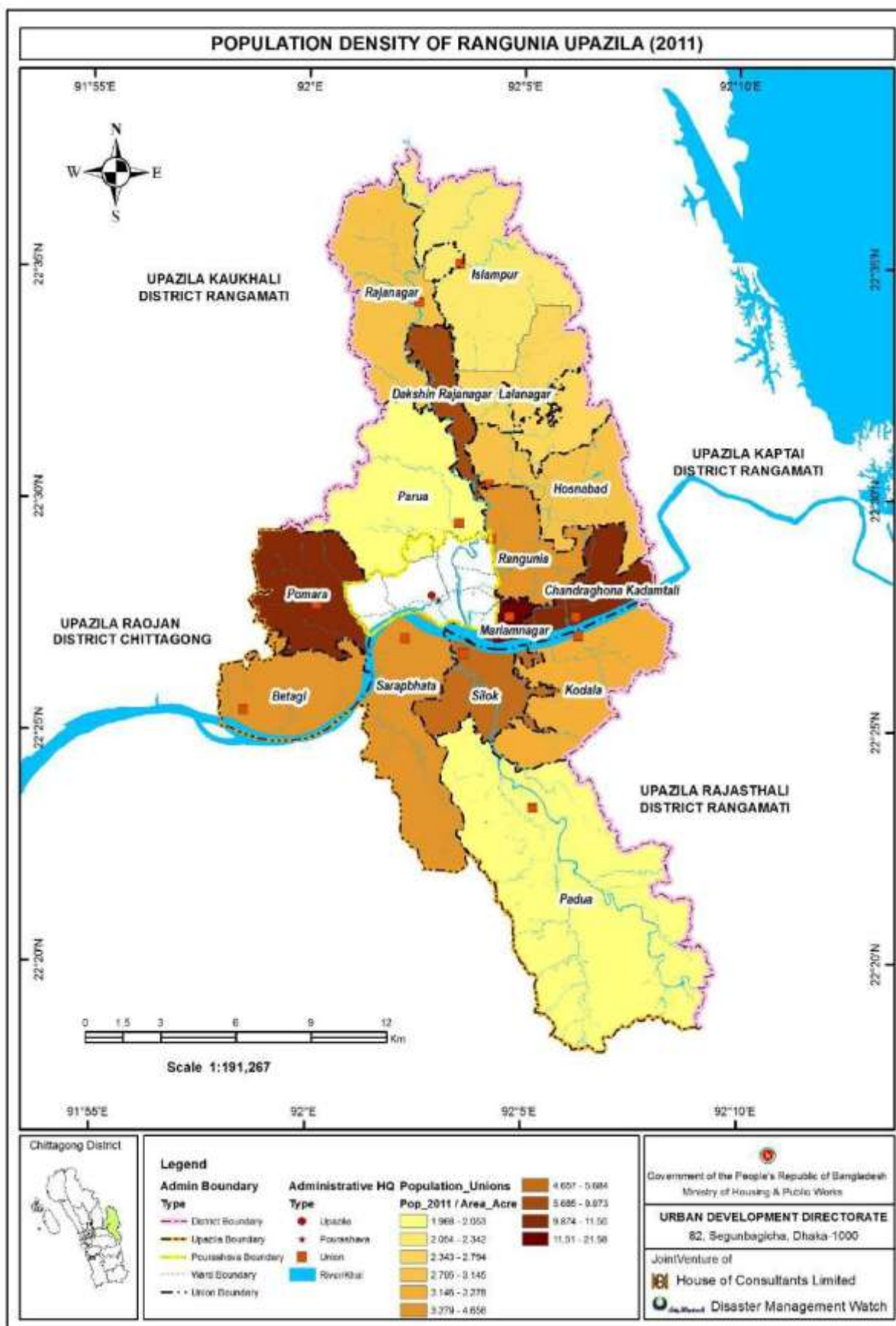
In Rangunia Paurashava, ward no 7, 8 and 9 have densely populated. Ward no 1 and 3 contain low density. On the other hand, ward no 2, 4, 5 and 6 contain moderately high density than the ward 1 and 3.

Population projection had done for 20 years. From the projected population the projected density calculated. As the projection it is visible that Pomara, Mariamnagar, Chandroghona Kadmatoli, Dakshin Rajanagar and Rajanagar unions have the high density comparatively. Density of population of Rangunia Paurashava in Ward wise is presented in **Map 6.3** and Unions wise is presented in **Map 6.4** for the base year 2011 respectively. Moreover, Projected Population for 2033 has shown ward wise in **Map 6.5**.



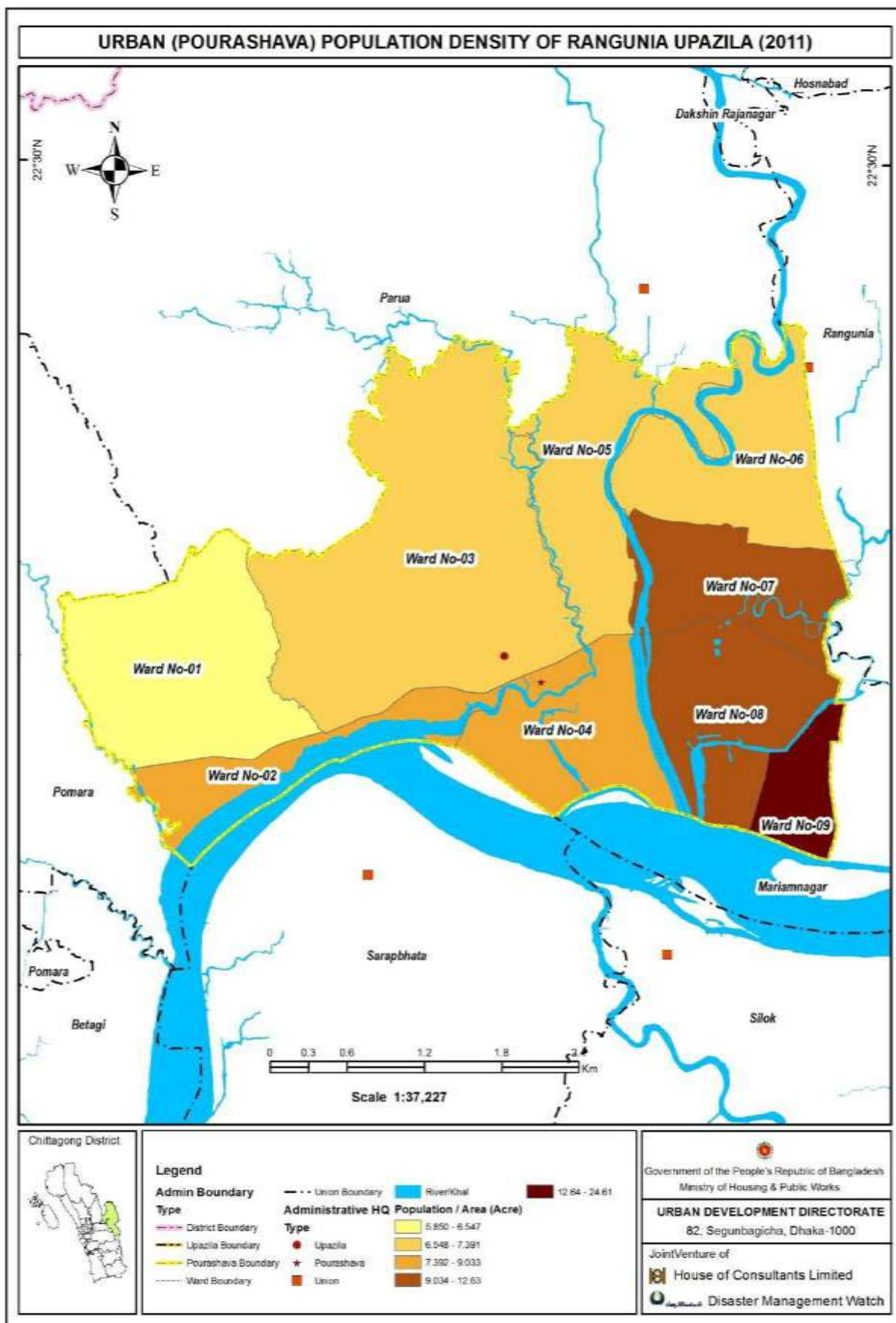
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.1: Connectivity Map of Rangunia Upazila



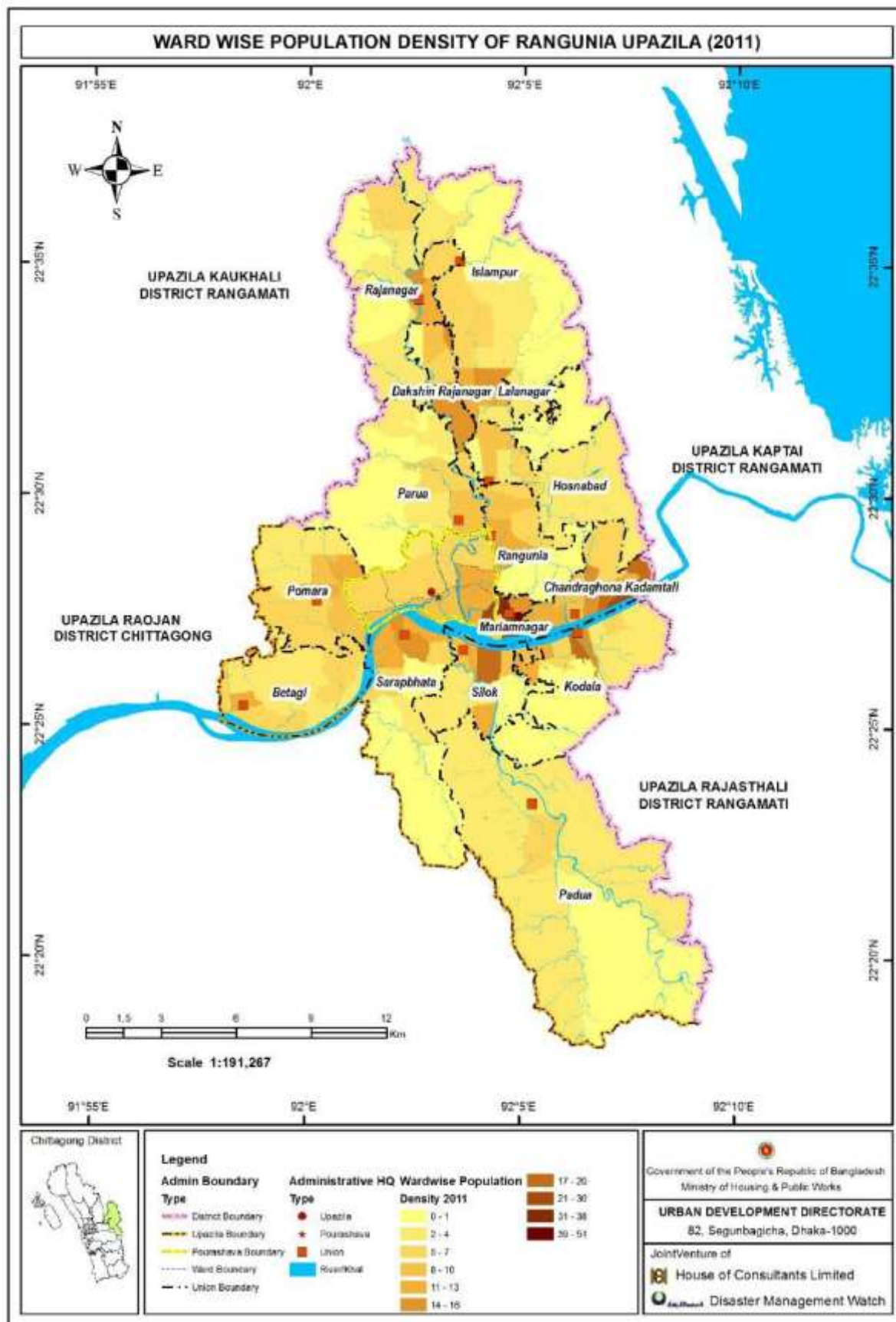
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.2: Union wise Population Density in Rangunia Upazila (2011)



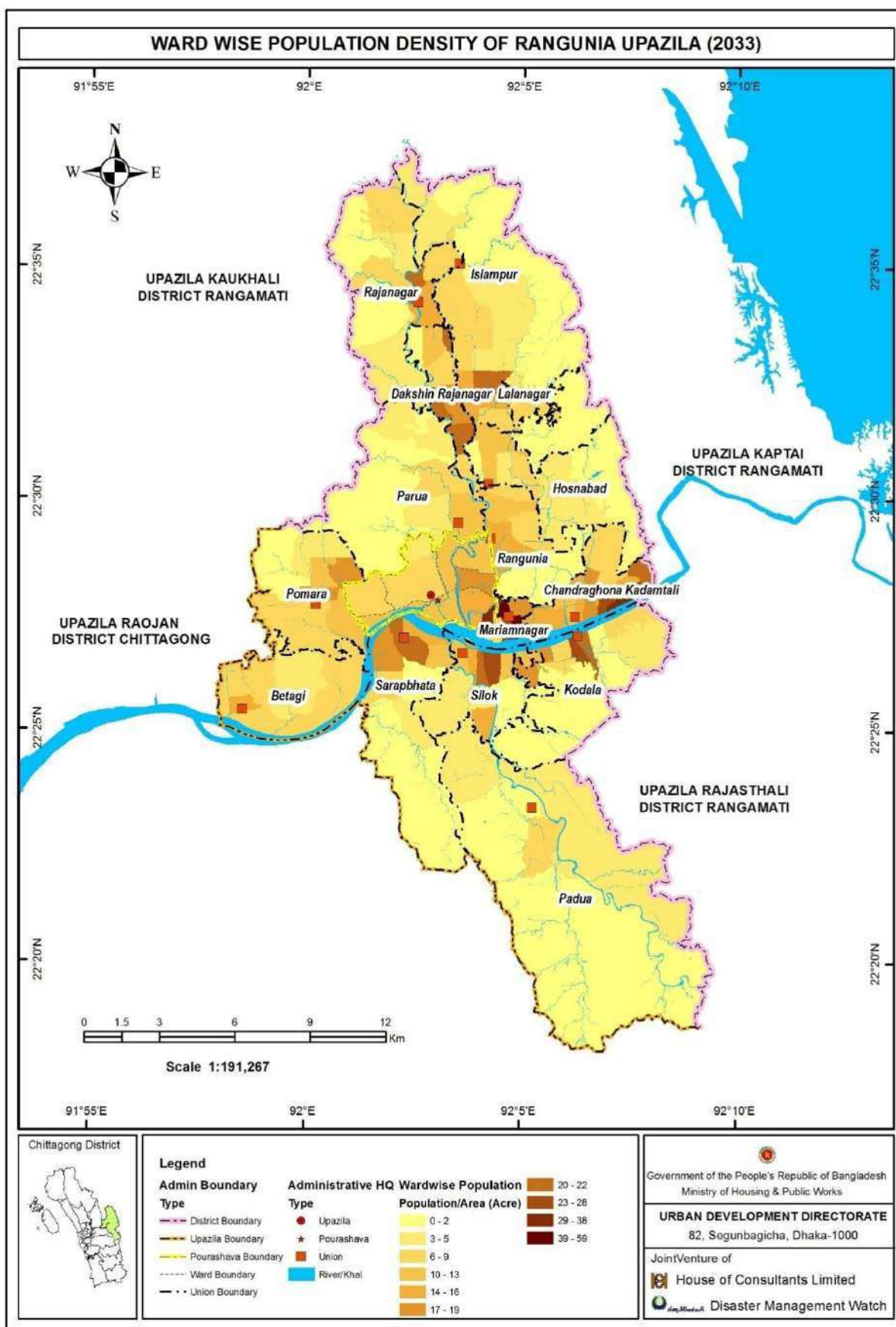
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.3: Urban Population Density in Rangunia Upazila (2011)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.4: Ward Wise Population Density in Rangunia Upazila (2011)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.5: Ward Wise Population Density in Rangunia Upazila (2033)

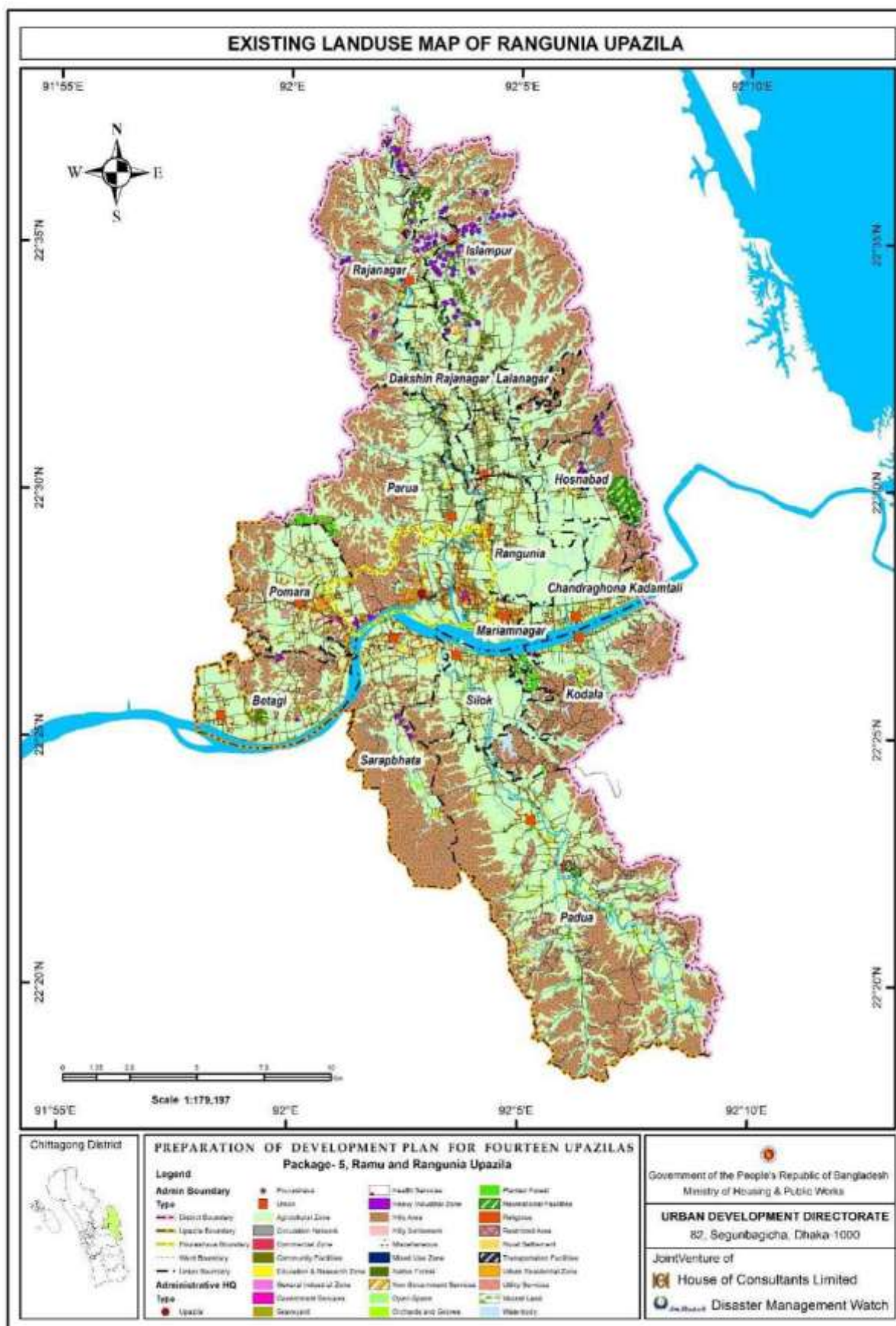
6.3.3 Existing Land Use

For a planned development land use is an important part. From the survey the land use of Rangunia Upazila has been enlisted with all details. 25 kinds of land uses have been enlisted. From the table below, it is visible that in this Upazila agriculture and hilly area are covering a huge amount of land which is 151.54 sq.km and 123.945 sq.km respectively. The rural settlement and urban residential zone only cover 4.627% and 0.973% of the total area. From the present scenario of land use, it can be concluded that the Upazila is an agro-based and hilly area. The existing land use statistics of Rangunia Upazila has summarized and presented in **Table 6.1** and the existing land use map is presented in **Figure 6.6**.

Table 6.1: Existing Land Use of Rangunia Upazila

Landuse	Area (sq.m)	Area (sq.km)	Area (acre)	Percentage
Agricultural Zone	151263296.000	151.2633057	37377.97685	43.481388
Circulation Network	3564722.750	3.564722776	880.8621815	1.02469726
Commercial Zone	898578.438	0.898578405	222.0435596	0.25830082
Community Facilities	71033.586	0.071033582	17.5527804	0.02041896
Education & Research Zone	495086.281	0.495	122.338	0.1423
General Industrial Zone	32416.533	0.032	8.010	0.0093
Government Services	302572.594	0.303	74.767	0.0870
Graveyard	348808.969	0.349	86.193	0.1003
Health Services	23416.123	0.023	5.786	0.0067
Heavy Industrial Zone	2297998.500	2.298	567.848	0.6606
Hilly Area	123944560.000	123.945	30627.369	35.6285
Hilly Settlement	3147167.750	3.147	777.682	0.9047
Miscellaneous	2527.594	0.003	0.625	0.0007
Mixed Use Zone	220559.203	0.221	54.501	0.0634
Native Forest	5662628.000	5.663	1399.266	1.6278
Non-Government Services	933.270	0.001	0.231	0.0003
Open Space	140234.641	0.140	34.653	0.0403
Orchards and Groves	7605362.000	7.605	1879.326	2.1862
Planted Forest	1340279.750	1.340	331.190	0.3853
Recreational Facilities	1561020.625	1.561	385.737	0.4487
Religious	462240.219	0.462	114.222	0.1329
Restricted Area	32569.637	0.033	8.048	0.0094
Rural Settlement	16098702.000	16.099	3978.076	4.6277
Transportation Facilities	6392.374	0.006	1.580	0.0018
Urban Residential Zone	3386408.000	3.386	836.800	0.9734
Utility Services	152613.563	0.153	37.712	0.0439
Vacant Land	588042.125	0.588	145.308	0.1690
Waterbody	24230398.000	24.230	5987.461	6.9651
Total	347880568.524	347.881	85963.164	100

Source: Field Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.6: Land Use of Rangunia Upazila

6.3.4 Existing Physical Feature

During the physical feature survey existing features such as roads according to type and width, structures of the Upazila has enlisted. A total overview of the Upazila was gathered from the data of existing physical feature survey. This database is the base for the development that will be planned for next 20 years.

6.3.4.1 Road Network according to Type

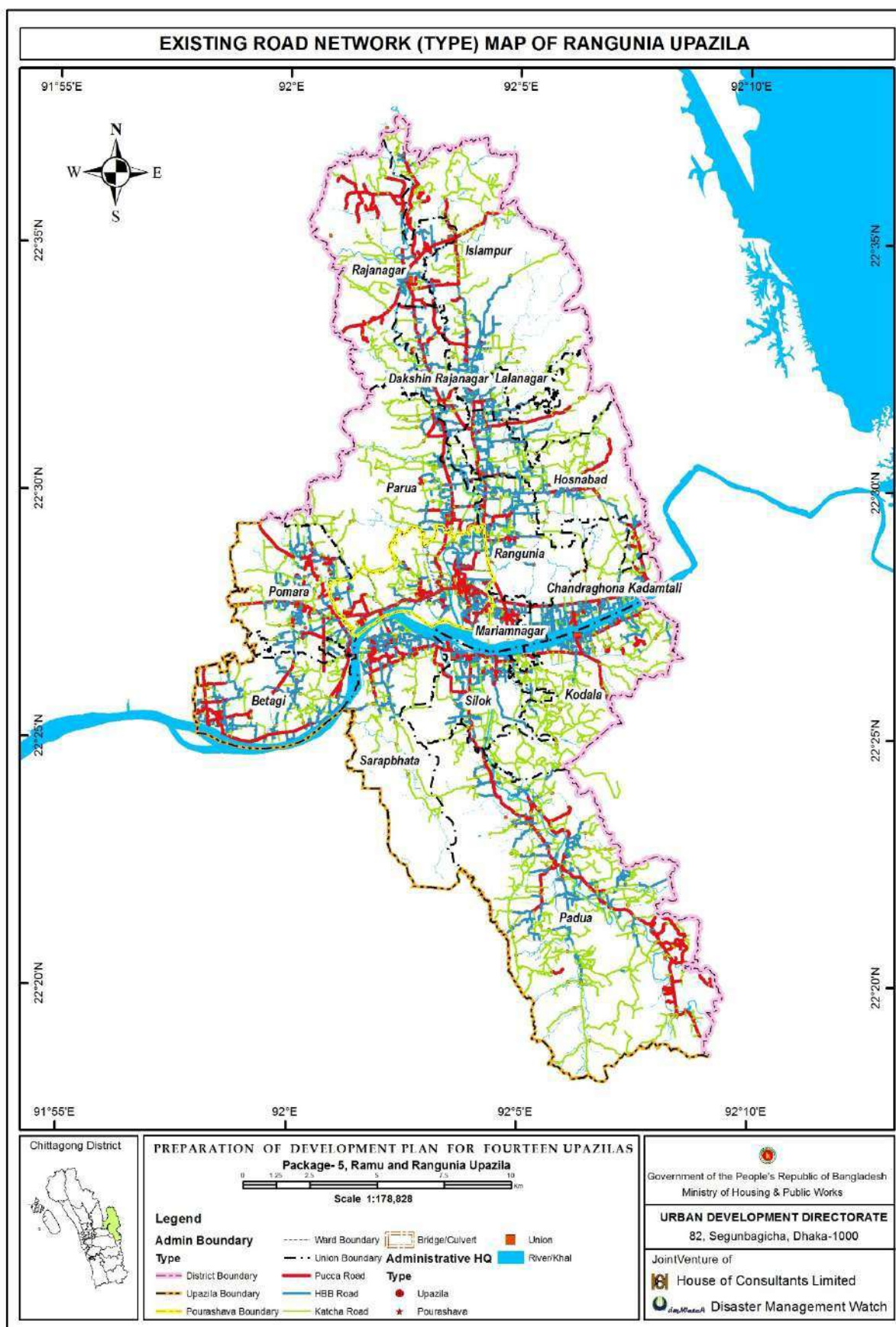
From the Physical feature survey, the road network of the study area has summarized in the **Table 6.2**. From the survey, it is found that the length of Pucca Road is above 245 km which is around 20% of total length of road and the other length of road according to type has been depicted in below table.

Table 6.2: Total Circulation Network of Rangunia Upazila.

Road Type	Length in Meter	Length in kilometre
Pucca Road	245676.4902	245.6764902
HBB Road	384712.0635	384.7120635
Katcha Road	628760.2642	628.7602642
Total	1259148.818	1259.148818

Source: Field Survey, 2016

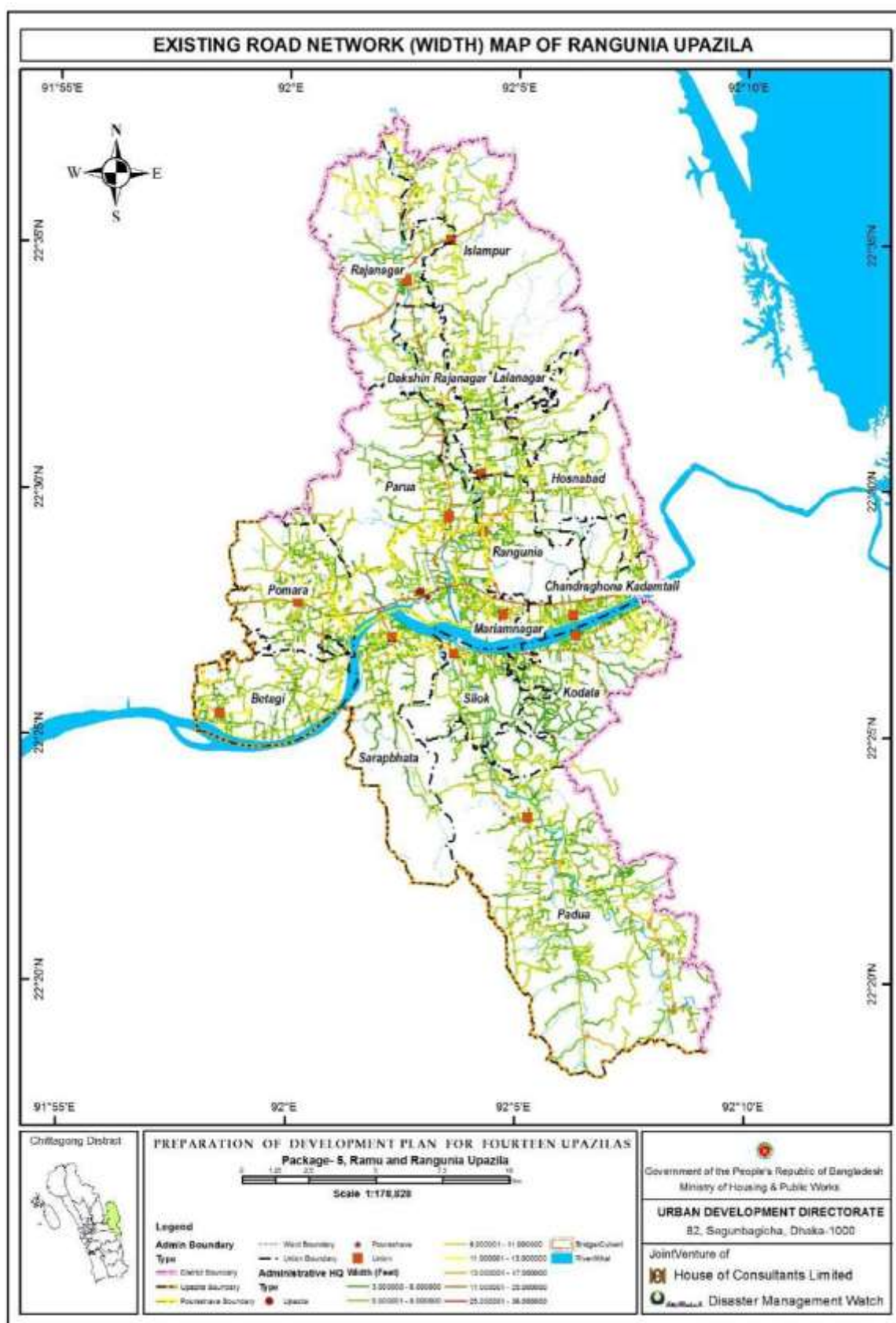
The **Table 6.2** depicted that the total road network system of the Upazila along with type and road length. From the table, it is visible that the length of katcha road is longer than others. That means most of the roads of this area is katcha. Existing road network according to type and width has presented in **Map 6.7 and 6.8**.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.7: Road Network (Type) of Rangunia Upazila

6.3.4.2 Road Network according to Width



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.8: Road Network (Width) of Rangunia Upazila

6.3.4.3 Waterbody

The **Table 6.3** represented the present condition of the waterbody of this area. There is existence of river, pond, ditch, khal in this Upazila. There are 3 major rivers are flowing through this area that are Karnaphully, Silok and Ichamoti. The total area of water body is 24.541 sq.km.

Table 6.3: Existing Water Body in Rangunia Upazila

Waterbody Type	Area (sq.m)	Area (sq.km)	Area (Acre)
Pond	4370817.82	4.37081782	1080.052605
Ditch	75807.92517	0.075807925	18.73254627
Khal	3887424.97	3.88742497	960.60363
River	16207810.25	16.20781025	4005.037134
Total	24541860.96	24.54186096	6064.425915

Source: Field Survey, 2016

6.3.4.4 Structure type

According to the field survey, there were 55041 structures within the Rangunia Upazila. Among them 30327 are katcha, 10509 are pucca and 14205 are semi-pucca. The statistic has been shown in the **Table 6.4**.

Table6.4: Structure Type of Upazila according to the Union and Paurashava Ward

Union/Ward	Type	Frequency
Betagi Union	Pucca	884
	Semi Pucca	867
	Katcha	2441
	Sub Total	4192
Chandraghona Kadamtali Union	Pucca	999
	Semi Pucca	1476
	Katcha	2046
	Sub Total	4521
Dakshin Rajanagar Union	Pucca	363
	Semi Pucca	385
	Katcha	892
	Sub Total	1640
Hosnabad Union	Pucca	758
	Semi Pucca	757
	Katcha	2065
	Sub Total	3580
Islampur Union	Pucca	391
	Semi Pucca	1811
	Katcha	1591
	Sub Total	3793
Kodala Union	Pucca	331
	Semi Pucca	855
	Katcha	1367
	Sub Total	2553
Lalanagar Union	Pucca	317
	Semi Pucca	121

Union/Ward	Type	Frequency
	Katcha	680
	Sub Total	1118
Mariamnagar Union	Pucca	688
	Semi Pucca	665
	Katcha	1338
	Sub Total	2691
Padua Union	Pucca	598
	Semi Pucca	900
	Katcha	4830
	Sub Total	6328
Parua Union	Pucca	451
	Semi Pucca	567
	Katcha	1148
	Sub Total	2166
Pomara Union	Pucca	1159
	Semi Pucca	1109
	Katcha	2847
	Sub Total	5115
Rajanagar Union	Pucca	273
	Semi Pucca	1252
	Katcha	903
	Sub Total	2428
Rangunia Union	Pucca	623
	Semi Pucca	476
	Katcha	1313
	Sub Total	2412
Sarapbhata Union	Pucca	792
	Semi Pucca	857
	Katcha	2229
	Sub Total	3878
Silok Union	Pucca	718
	Semi Pucca	494
	Katcha	1660
	Sub Total	2872
Ward No-01	Pucca	143
	Semi Pucca	127
	Katcha	365
	Sub Total	635
Ward No-02	Pucca	55
	Semi Pucca	144
	Katcha	297
	Sub Total	496
Ward No-03	Pucca	129
	Semi Pucca	254
	Katcha	593
	Sub Total	976
Ward No-04	Pucca	98
	Semi Pucca	165
	Katcha	252
	Sub Total	515
Ward No-05	Pucca	113

Union/Ward	Type	Frequency
	Semi Pucca	203
	Katcha	238
	Sub Total	554
Ward No-06	Pucca	150
	Semi Pucca	126
	Katcha	260
	Sub Total	536
Ward No-07	Pucca	164
	Semi Pucca	175
	Katcha	322
	Sub Total	661
Ward No-08	Pucca	210
	Semi Pucca	288
	Katcha	428
	Sub Total	926
Ward No-09	Pucca	102
	Semi Pucca	131
	Katcha	222
	Sub Total	455

Source: Field Survey, 2016

The above **Table 6.4** depicted that the structure type exist in unions and wards in Rangunia Upazila. From the data, it can be concluded that the number of katcha structure is significant in every unions and wards. Structure condition could be an indicator to understand economic condition of the inhabitants of this Upazila. If the data of each Upazila is compared with other it is visible that Pomara, Chandraghona Kadamtali and Betagi union contain the highest number of pucca structure that indicated the economic or financial condition of these four unions and it is better than others. On the other hand, in case of paurashava area katcha and semi pucca structure also exist. It also can be concluded that ward no. 4, 6, 7 and 8 contained the highest number of pucca structure than other wards.

6.3.5 Agriculture

The existing land use of this Upazila depicted that the most of its land are occupied by the agricultural use. Different types of crops are planted in the agricultural land. Through the agricultural survey the cropping pattern and intensity has recorded. From the survey it implied that three types of cropping intensity exist in this area.

6.3.5.1 Cropping Intensity

Single, double and triple cropped land are enlisted in Rangunia Upazila. From the **Table 6.5**, it is visible that double cropped land is the highest in this Upazila. The area of double cropped and triple cropped land is 65.34% and 23.63% respectively.

Table 6.5: Cropping Intensity of Rangunia

Cropping Intensity	Area (sq. m)	Area (sq. km)	Area (acre)	Percentage
Single Cropping	16668570.72	16.66857072	4118.893526	11.01957
Double Cropping	98836278.79	98.83627879	24422.97637	65.34055
Triple Cropping	35758450.5	35.7584505	8836.10555	23.63987
Total	151263300	151.2633	37377.97545	100

Source: Field Survey, 2016

6.3.6 Vegetation

The vegetation scenario of Rangunia Upazila has summarized in the **Table 6.6** where percentage are shown in respect of whole Rangunia Upazila.

Table 6.6: Vegetation Scenario of Rangunia Upazila

Vegetation	Area (Sq.m)	Area (Acre)	Percentage
Natural Forest	95534007.36	23606.96	27.46
Planted Forest	52293.85	12.92	0.02
Orchards and Groves	906103.62	223.90	0.26

Source: Field Survey, 2016

As it has shown previously in the **Table 6.5** that most of the land are double and triple cropped land. The **Map 6.9** also visualized the same scenario. The map shows that Gumaibeel is a huge area that is occupied by double cropped land. It represents that the agricultural land is not limited in a fixed area, it is widely distributed throughout the Upazila. In **Map 6.10** represented a scenario of vegetation of this Upazila. The purpose of this vegetation map is to represent the vegetal land of the area. In this map three types of vegetal land are highlighted that are natural forest, planted forest and orchards and groves.

6.3.7 Ecology

Map 6.11 represented the agricultural zone, hilly area, recreational area, waterbody and natural forest. It covered almost most of the areas of the Upazila. These areas should be preserved to maintain environmental balance of this Upazila.

6.3.8 Hydrology-Flooding Scenario

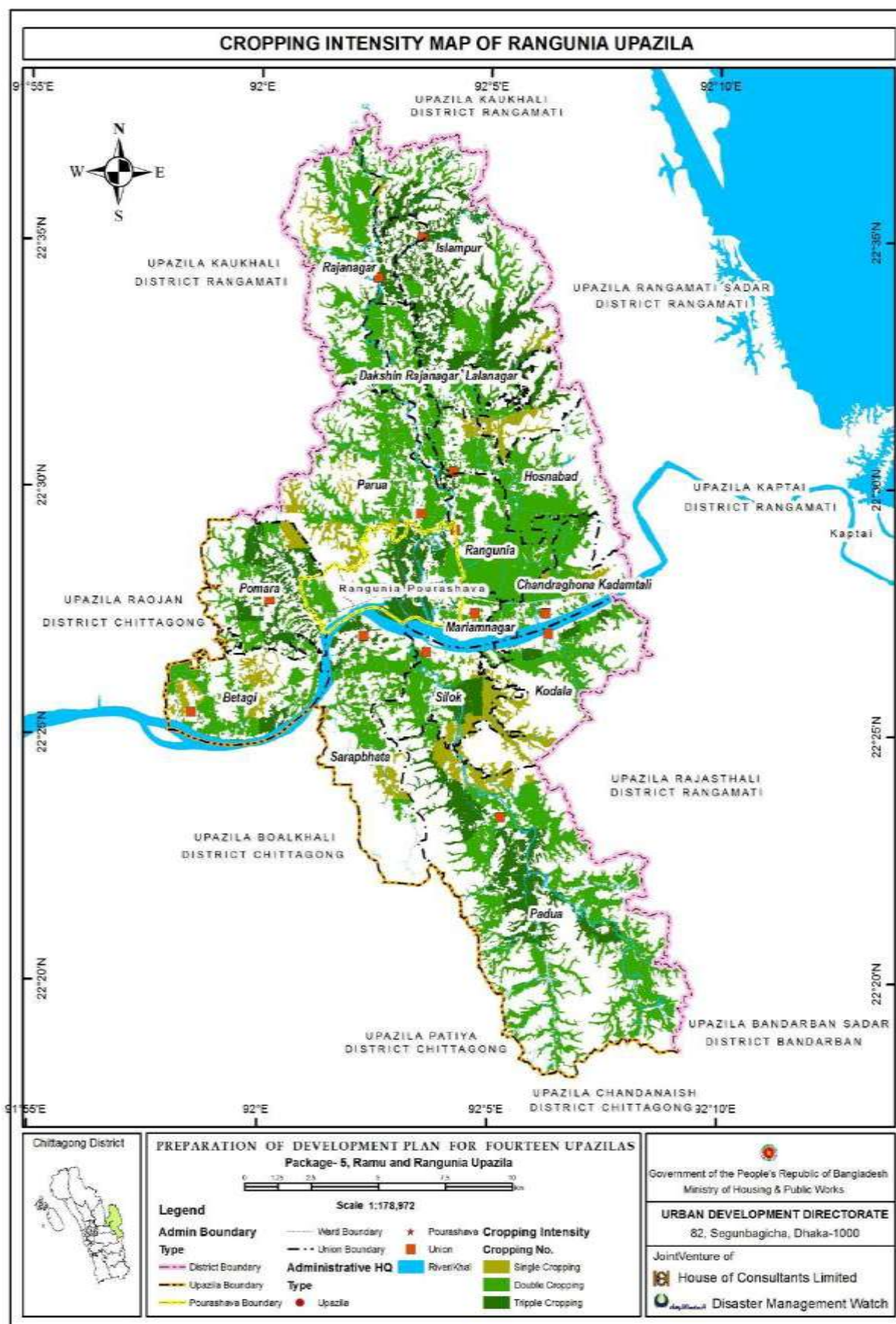
The project area has divided into five categories depending on the flooding scenario that are 1st degree flooded area, 2nd degree flooded area, 3rd degree flooded area, 4th degree flooded area and 5th degree flooded area. The statistics has summarized in below **Table 6.7**.

Table 6.7: Different Flooding Scenario

Flooded Land Category	Water Depth (m)	Area (sq. m)	Area (sq.km)	Area (Acre)	Percentage	Remarks
1st Degree Flooded area	0-0.3	400	0.00	0.10	0.0003	
2nd Degree Flooded area	0.3-0.9	21406500	21.41	5289.66	18.5132	
3rd Degree Flooded area	0.9-1.8	35062500	35.06	8664.13	30.3234	
4th Degree Flooded area	1.8-3.6	35367100	35.37	8739.40	30.5868	Sub Flood Flow Zone
5th Degree Flooded area	>3.6	23792000	23.79	5879.13	20.5762	Main Flood Flow Zone
Total		115628500	115.63	28572.42	100.00	

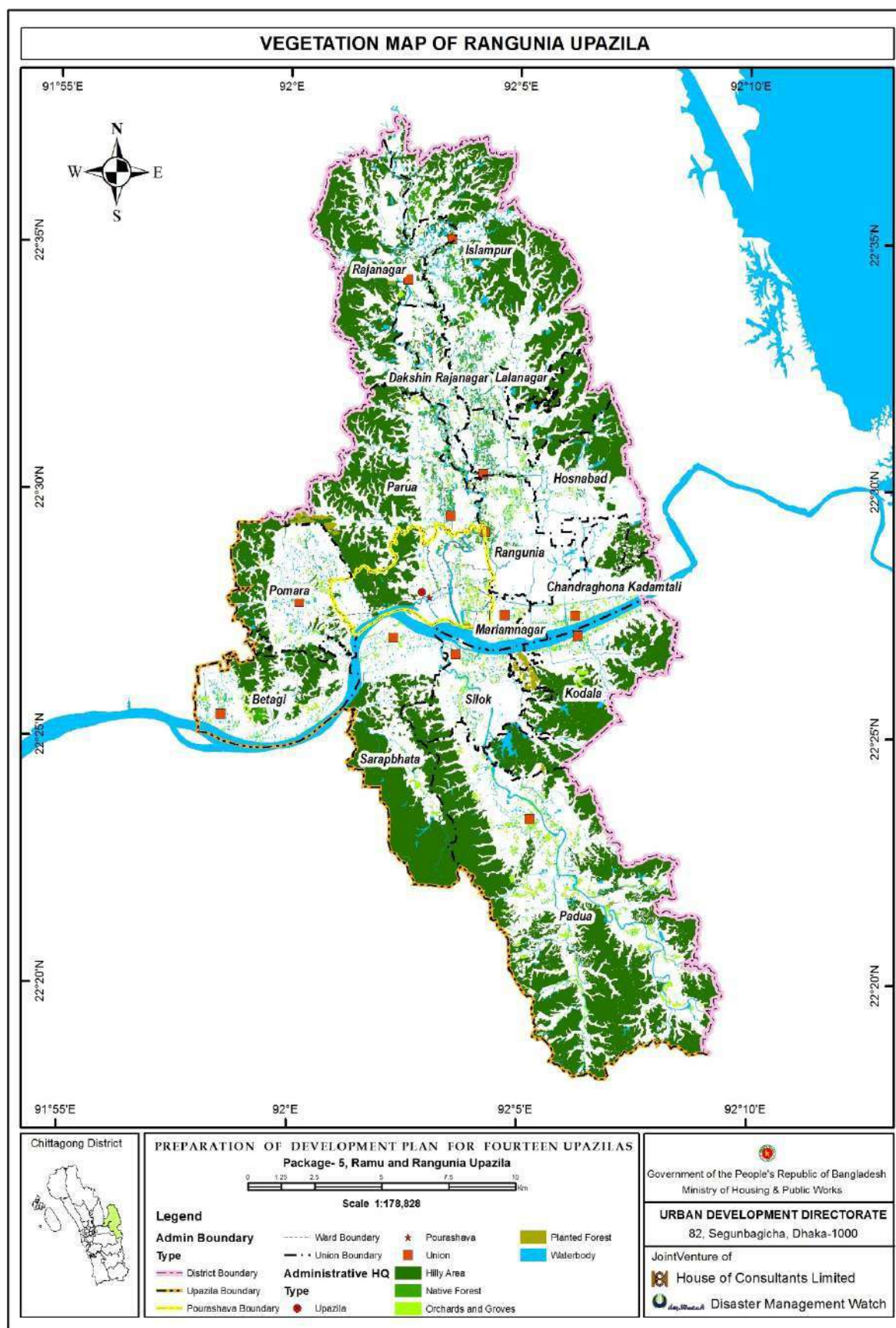
Source: Field Survey, 2016

The flood scenario **Map 6.12** provided a visualization of flooded land of Rangunia Upazila. During the flooding period which areas will be flooded can be identified through this map. Five types of land have been shown depending on the water depth. 4th and 5th degree flooded areas are termed as sub flood flow zone and main flood flow zone respectively.



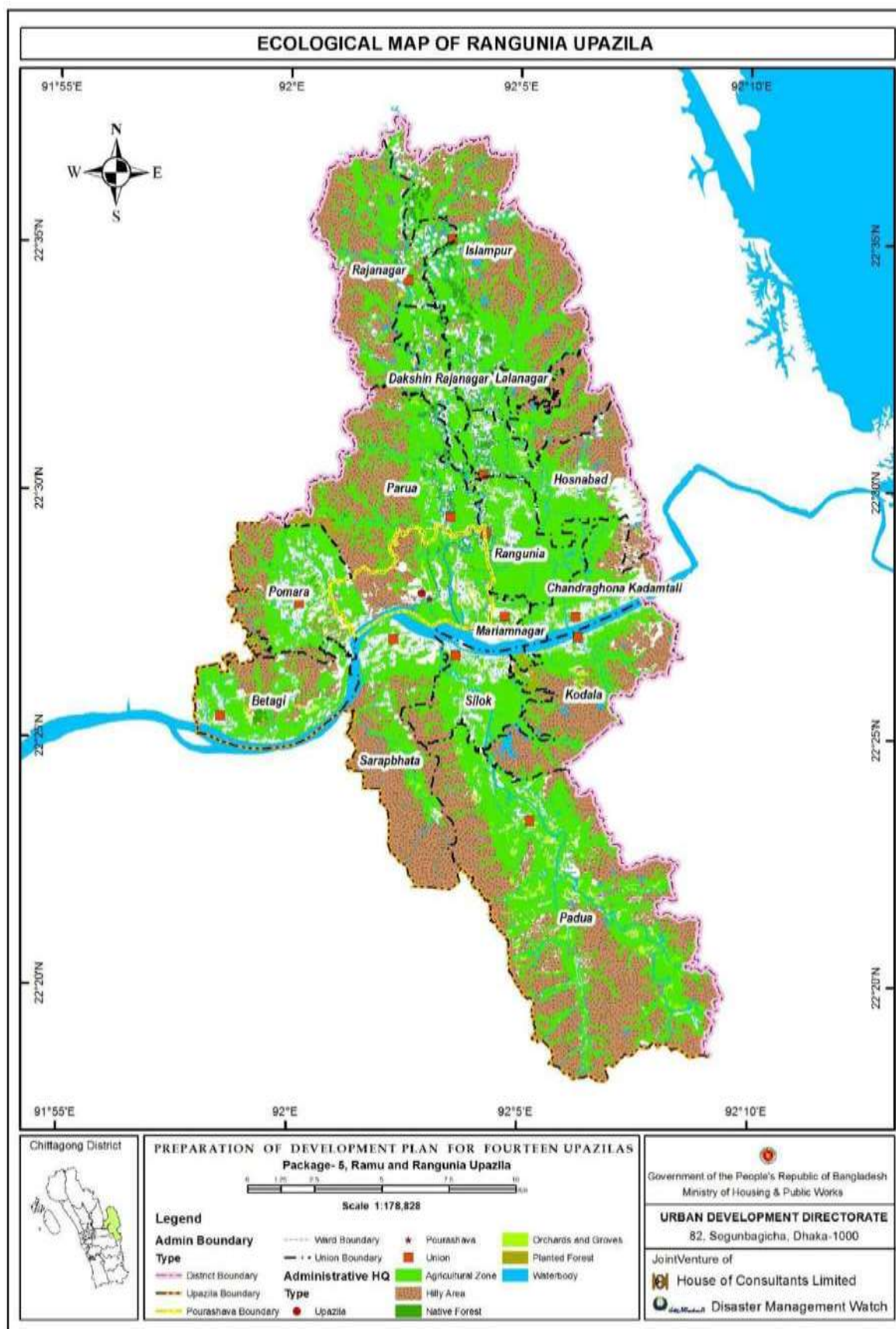
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.9: Cropping Intensity in Rangunia Upazila



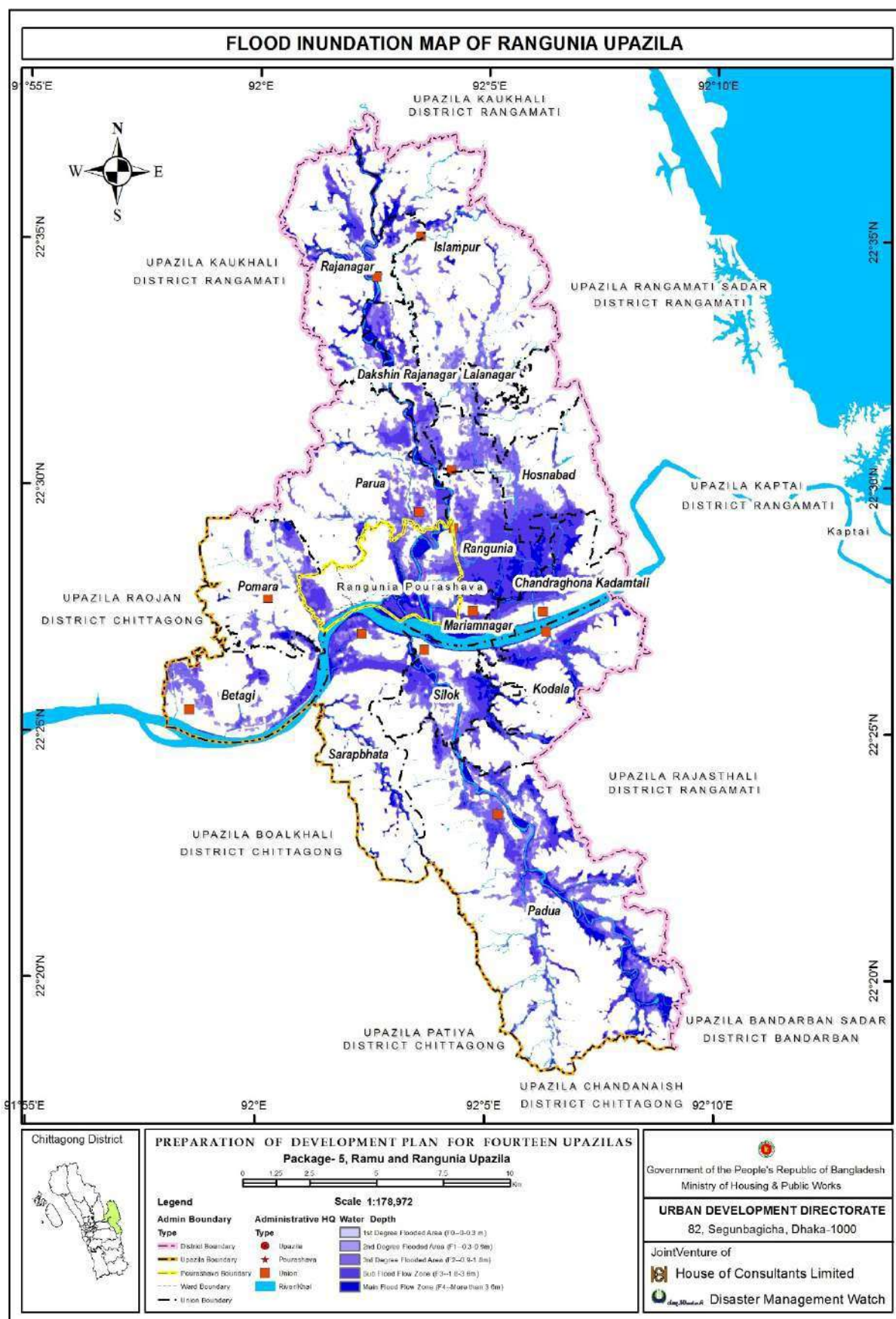
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.10: Vegetation Map of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.11: Ecological Map of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.12: Flood Inundation Map of Rangunia Upazila

6.3.9 Geology

About Foundation

The structural elements that connect buildings, bridges, and other structures to the ground are called foundations. These elements are very important, because the safety and serviceability of the structure depends on the performance of its foundations. Suitable engineering layer identification may reduce the both natural (Earthquake) and anthropogenic (Building Collapse) disaster risk. Geotechnical engineers are routinely involved in both the design and construction of foundations. The main objective of this part of the report is to suggest and help planners based on the bearing capacity and subsoil stratification. It is noteworthy that the bearing capacity results and zoning based on the results are solely for use during planning stage of the project. Before design and construction of any structure within the project area, detail subsoil investigation must be carried out for foundation and structural design of any structure. Based on the geological and geo-physical investigation and study, it is recommended the suitability of foundation depth for the multi-storied structure with respect to land area in Rangunia Upazila is presented in **Table 6.8**.

Table 6.8: Foundation Depth of Rangunia Upazila

Category	Area (sq.m)	Area (sq. km)	Area (acre)	Percentage
Very Poor	15625000	15.625	3861.022	8.036
Poor	6062500	6.063	1498.076	3.118
Moderate	4375000	4.375	1081.086	2.250
Good	11875000	11.875	2934.376	6.107
Very Good	156500000	156.500	38671.992	80.489
Total	194437500	194.438	48046.553	100

Source: Field Survey, 2016

Seismic Hazard Assessment

Seismic hazard is a broad term used in a general sense to refer to the potentially damaging phenomena associated with earthquakes, such as ground shaking, liquefaction, landslides, and tsunamis. In the specific sense, seismic hazard is the likelihood or probability of experiencing a specified intensity of any damaging phenomenon at a particular site or over a region in some period of interest. The methodology for assessing the probability of seismic hazards grew out of an engineering need for better designs in the context of structural reliability (Cornell, 1968; Cornell, 1969), since such assessments are frequently made for the purpose of guiding decisions related to mitigating risk. However, the probabilistic method has also proven to be a compelling, structured framework for the explicit quantification of scientific uncertainties involved in the hazard estimation process. Uncertainty is inherent in the estimation of earthquake occurrence and the associated hazards of damaging ground motion, permanent ground displacements, and in some cases, seiche and tsunamis.

The process begins with the characterization of earthquake occurrence using two sources of data: observed seismicity (historical and instrumental) and geologic. The occurrence information is combined with data on the transmission of seismic shaking to form the seismo-tectonic model. Since uncertainty is inherent in the earthquake process, the

parameters of the seismo-tectonic model are systematically varied via logic trees, Monte Carlo simulation, and other techniques, to provide the probabilistic seismic hazard model's results. The results may be disaggregated (also known as degradation) to identify specific contributory parameters to the overall results. The results must also consider the site-specific soil properties.

The final outcome of seismic hazard assessment in this project is a seismic micro-zoning map or hazard map of the area, in which incorporated are characterized seismic sites, constrained from the aforementioned simulations of earthquake ground motion. The mapped hazard refers to an estimate of the probability of exceeding a certain amount of ground shaking, or ground motion, in 50 years. This map can be used to create building code at the area to help establish construction requirements necessary to preserve public safety. Based on the geological and geo-physical investigation and study, it is observed the area of land that is suitable against shear wave during earth quake for the multi-storied structure in Rangunia Upazila is presented in **Table 6.9**.

Table 6.9: Shear Wave of Rangunia Upazila

Category	Area (sq.m)	Area (sq. km)	Area (acre)	Percentage
Very Poor	9750000	9.75	2409.277	5.014
Poor	79500000	79.5	19644.878	40.887
Moderate	51125000	51.125	12633.263	26.294
Good	40375000	40.375	9976.880	20.765
Very Good	13687500	13.6875	3382.255	7.040
Total	194437500	194.4375	48046.552	100

Source: Field Survey, 2016

Ground Motion Parameters (PGA, SA 0.2s and SA 1s)

Peak ground acceleration (PGA) is experienced by a particle on the ground, and spectral acceleration (SA) is approximately experienced by a building, as modelled by a particle mass on a mass less vertical rod having the same natural period of vibration as the building. SA would also be a good index to hazard to buildings and is more closely related to the building behaviour than peak ground motion parameters. PGA is normally used to define earthquake intensity and SA is used for safe building design, considering earthquake intensity.

Peak ground acceleration (PGA) is equal to the maximum ground acceleration that occurred during earthquake shaking at a location. PGA is equal to the amplitude of the largest absolute acceleration recorded on an accelerogram at a site during a particular earthquake and Spectral Acceleration (SA) for 0.2 sec and 1 sec were measured to identify comparative suitable land for low and high rise building respectively. Suitable land can be identified using following equation.

$$F = ma \dots \dots \dots (5.8)$$

Here, F is the applied force due to measure earthquake intensity from PGA value in a grid; m is the mass of the structure and a is the Spectral Acceleration.

The Peak Ground Acceleration (PGA) during earth quake in Rangunia Upazila is presented in the **Table 6.10**.

Table 6.10: PGA of Rangunia Upazila

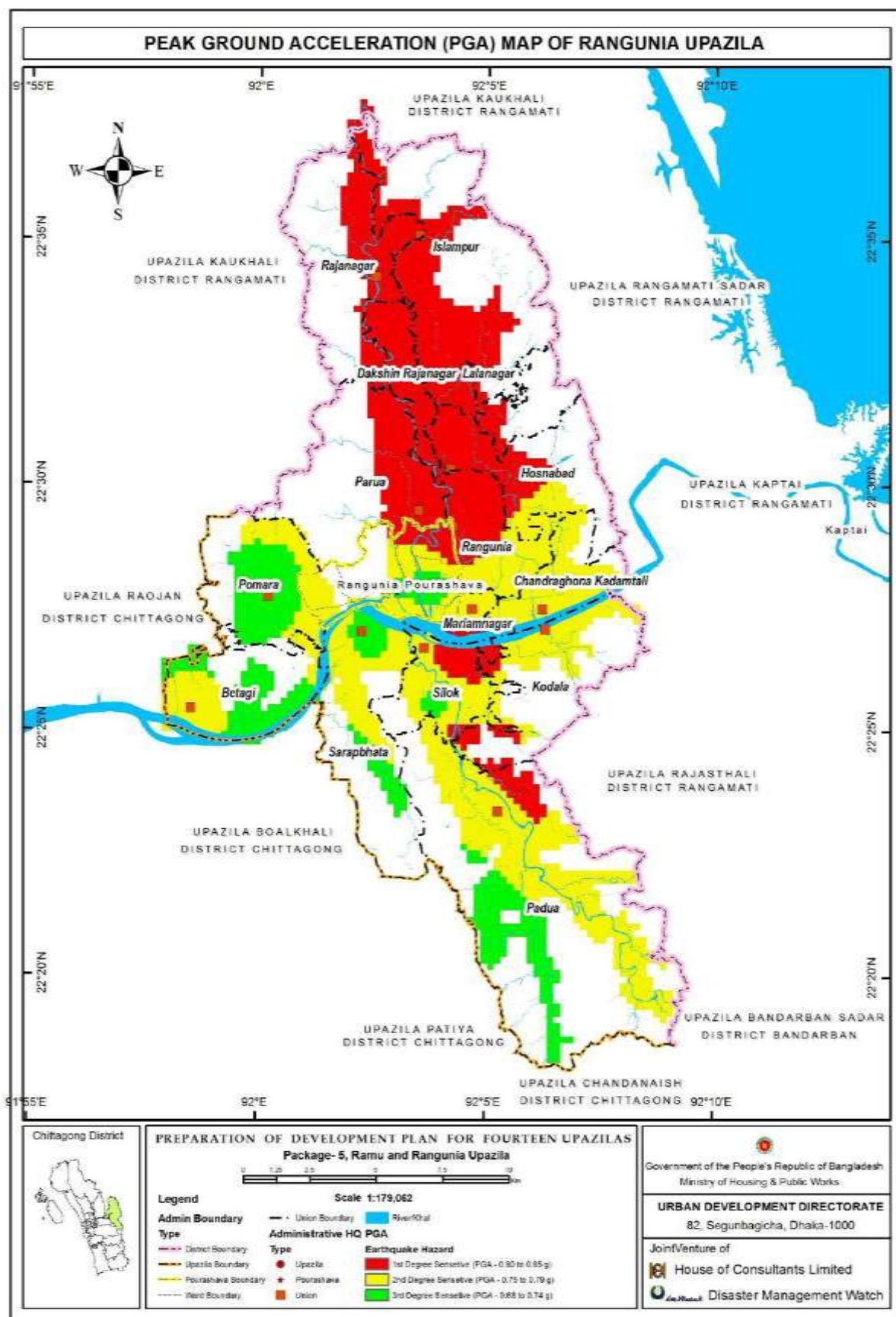
Category	Area (sq.m)	Area (sq. km)	Area (acre)	Percentage
1st Degree Sensitive	75000000	75.000	18532.904	38.573
2nd Degree Sensitive	87375000	87.375	21590.833	44.937
3rd Degree Sensitive	32062500	32.063	7922.816	16.490
Total	194437500	194.4375	48046.55	100

Source: Field Survey, 2016

The **Map 6.13** represented peak ground acceleration condition of Rangunia Upazila. It is an important part of geology and as well as development. Three types areas have been shown in the map depending on the sensitivity of PGA which are 1st degree sensitive, 2nd degree and 3rd degree sensitive. It is shown that most of the area is 2nd degree sensitive which includes Chandraghona Kadamtali union, Mariamnagar Union, Silok, Betagi, Rangunia Paurashava and Pomara union. The **Map 6.14** represented the Shear Wave in the soil of Rangunia Upazila. According to the **Map 6.14**, it is divided into five categories of land depending on the shear wave. These are very poor, poor, moderate, good and very good. In the category of very good only a few areas are identified which are in Pomara Union, some in Silok, Srapbhata and in Rangunia Paurashava. The foundation depth is an important factor of geology for infrastructure development that is presented in **Map 6.15**. Depending on the soil quality, the area can be selected for high rise buildings for construction with economically. Foundation depth of the soil of this Upazila can be distributed into five categories which are very poor, poor, moderate, good and very good. From the map it is visible that foundation depth of this area is more or less of very good category.

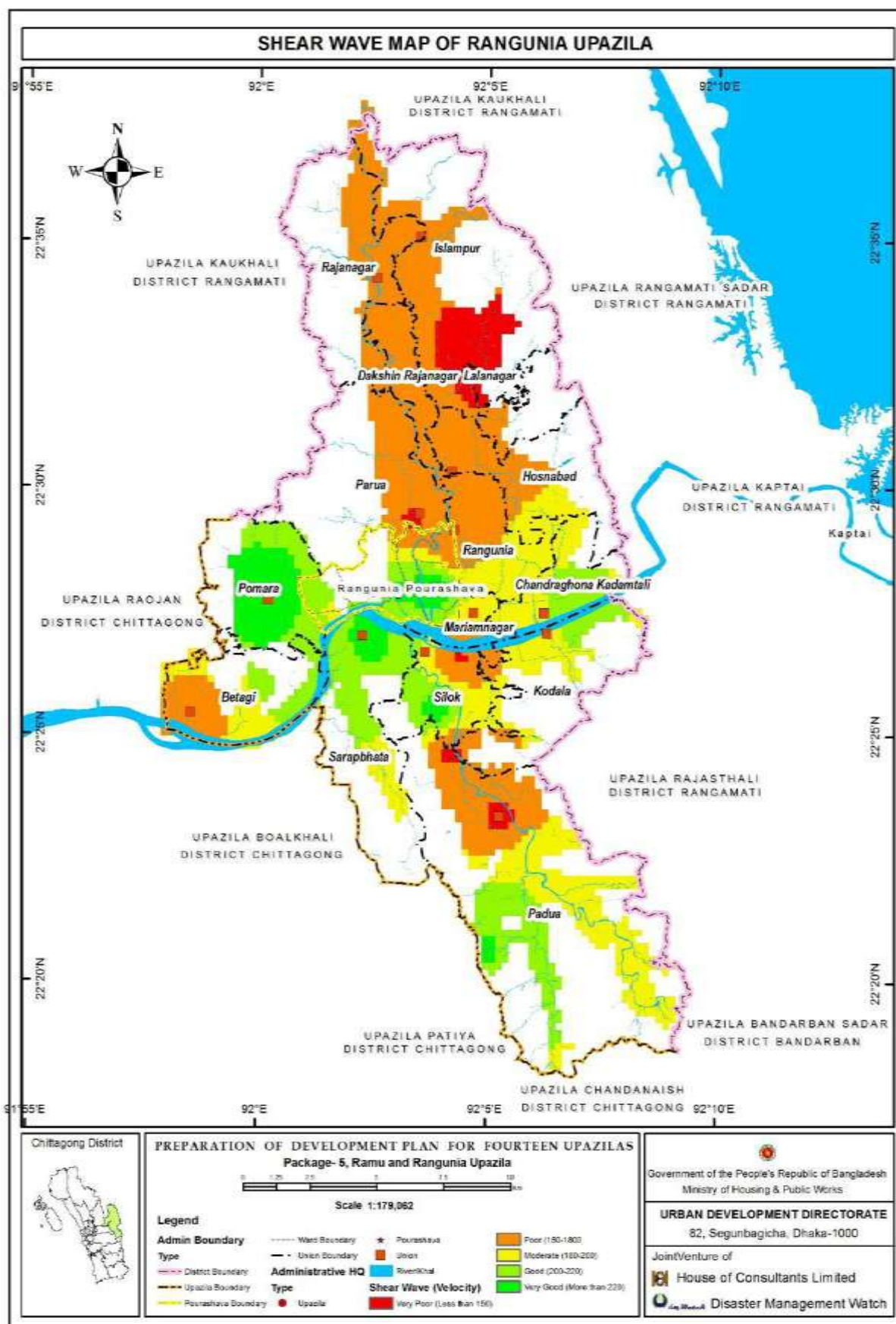
Micro Zonation

Micro zonation **Map 6.16** represented the character of the soil that is the combined result of different geological survey that has described earlier. Seismic micro zonation is defined as the process of subdividing a potential seismic or earthquake prone area into zones with respect to some geological and geophysical characteristics of the sites. From the map it is visible that Dakshin Rajanagar, Rajanagar, Parua, Hosnabad unions are sensitive to earthquake.



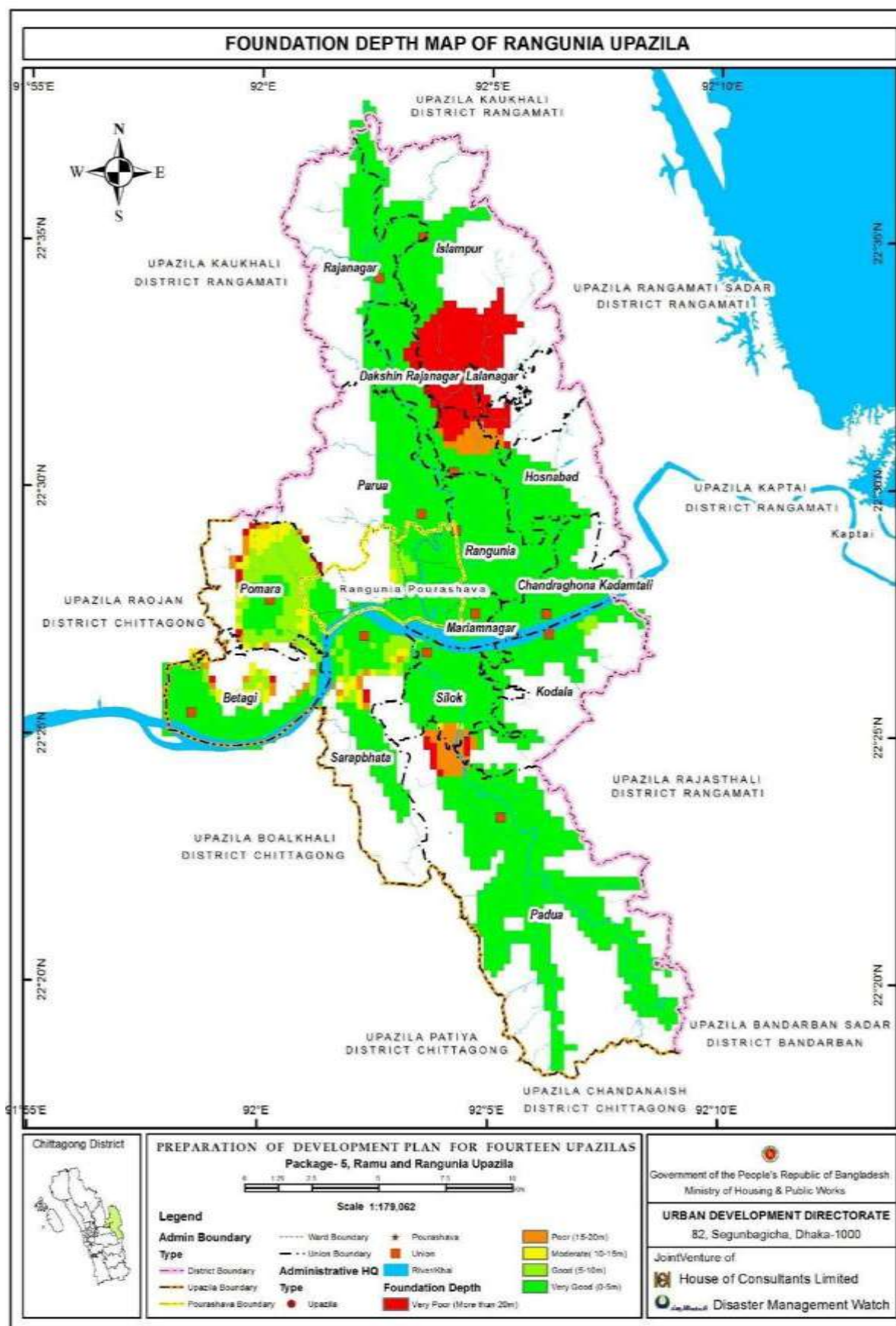
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.13: Geology (PGA) of Rangunia Upazila



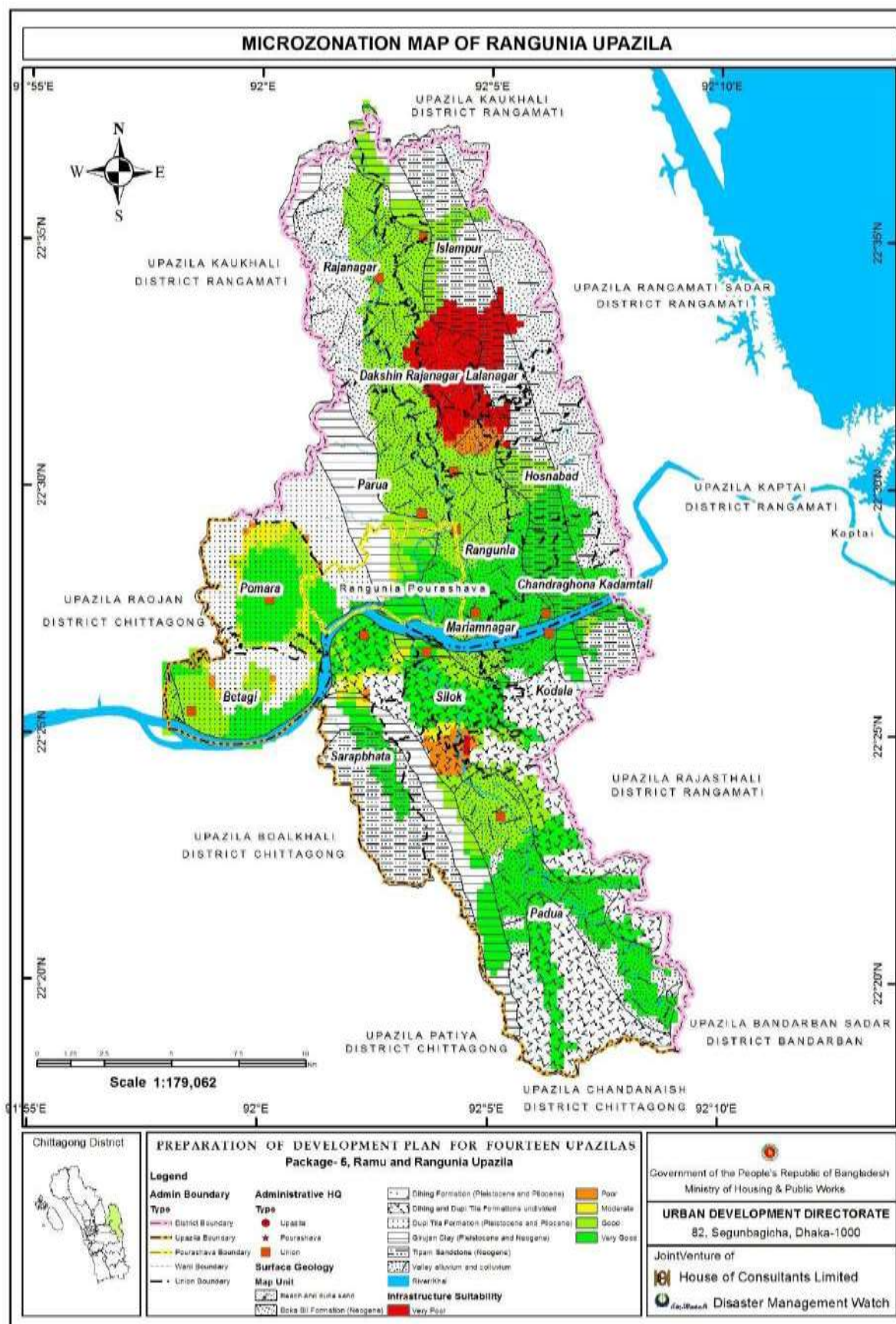
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.14: Geology (Shear Wave) of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.15: Geology (Foundation Depth) of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.16: Micro Zonation Map of Rangunia Upazila

According to the Geological and Geophysical Survey, the recommendation stated in the **Table 6.11** could be drawn for Rangunia Upazila.

Table 6.11: Overview of the Infrastructure Suitability Classes

Infrastructure Suitability	Subsurface Sediments	Foundation Layer (m)	Average Elevation msl	Shear Wave Velocity, Vs (m/s)	Peak Ground Acceleration (PGA) SEISMICITY	Infrastructure foundation suitability	Suggested land use suitability
Very Good	Dupi Tila Formation (Pleistocene and Pliocene)	0-5	15 above	>220	3rd Degree Sensitive (PGA 0.443g to 0.529g)	4-6 story light infrastructure is suitable with a foundation depth of up to 2 m. Large and tall infrastructure requires pile foundation placed on Soil layer no 4 or 7.	Commercial area Residential area Industrial zone
Good	Dihing and Dupi Tila Formations undivided	5-10	10 - 15	200-220	3rd Degree Sensitive (PGA 0.443g to 0.529g)	4-6 story light infrastructure is suitable in Dupitila Formation. General foundation depth is within 5 m, at places higher Large and tall infrastructure requires pile foundation placed on layer no 4 or 7	Commercial area Residential area Industrial zone
Moderate	Dihing Formation (Pleistocene and Pliocene)	10-15	7-10	180-200	2nd Degree Sensitive (PGA 0.528g to 0.583g)	4-6 story light infrastructure requires on-site subsoil investigation and proper foundation design. Deep pile foundation is needed for large and tall infrastructure	Industrial zone Residential area Commercial area Agricultural Zone Park and Recreation

Infrastructure Suitability	Subsurface Sediments	Foundation Layer (m)	Average Elevation msl	Shear Wave Velocity, Vs (m/s)	Peak Ground Acceleration (PGA) SEISMICITY	Infrastructure foundation suitability	Suggested land use suitability
Poor	Girujan Clay (Pleistocene and Neogene)	15-20	6-7	150-180	1st Degree Sensitive (PGA 0.584g to 0.651g)	Detail subsoil investigation and proper foundation design is required for all types of infrastructure, due to low bearing capacity with hazard potential.	Agricultural zone Flood flow zone Wetland Rural settlement Park and Recreation
Very Poor	Valley alluvium and colluviums. Mainly silty clay, with alternate layers of Organic clay and peat. Thickness is more than 10 m. In low floodplain areas less organic layers can be expected.	>20	5-7	<150	1st Degree Sensitive (PGA 0.584g to 0.651g)	Detail subsoil investigation for deep pile foundation is essential, due to very low bearing capacity and high hazard potential. Shallow foundation is not preferred.	Agricultural zone Flood flow zone Wetland Rural settlement Park and Recreation

Source: Field Survey, 2016

6.3.10 DEM (Digital Elevation Model)

DEM refers the digital representation of topography that creates cell based with a single elevation representing the entire area of the cell. In a word, A digital elevation model (DEM) is a digital file consisting of terrain elevations for ground positions at regularly spaced horizontal intervals. It determines the following characteristics of terrain:

- Slope, aspect
- Watersheds
- Drainage networks

Map 6.17 presented the Digital Elevation Model that enables to understand the land type of this area whether it is plain or undulated. According to the existing land use 35.82% of the total area is hill. From the map it is visible that the Upazila is surrounded by hilly area which value in meter is from 28 to 100. The land below 28 is relatively flat land. The deeper area in the map is the river.

6.3.11 Contour

A contour line connects a series of points of equal elevation & is used to illustrate relief on a map. For example, numerous contour lines that are close to one another show hilly or mountainous terrain; when far apart, they indicate a gentler slope.

Contour has been created for Rangunia Upazila at 30 m interval. In the **Map 6.18**, Contour interval has shown in 10 categories. From the map, it is clear that urban area has divided into two categories as flat land and hilly area where flat land ranges within 5m and hilly area has varied from 30 to 40 m interval.

6.3.12 Slope

Slope is the steepness of a line as it moves from left to right. Therefore, Slope is the ratio of the rise, the vertical change, to the run, the horizontal change of a line. Slope is measured by calculating the difference in the elevation from one point to another divided by the lateral distance between those points.

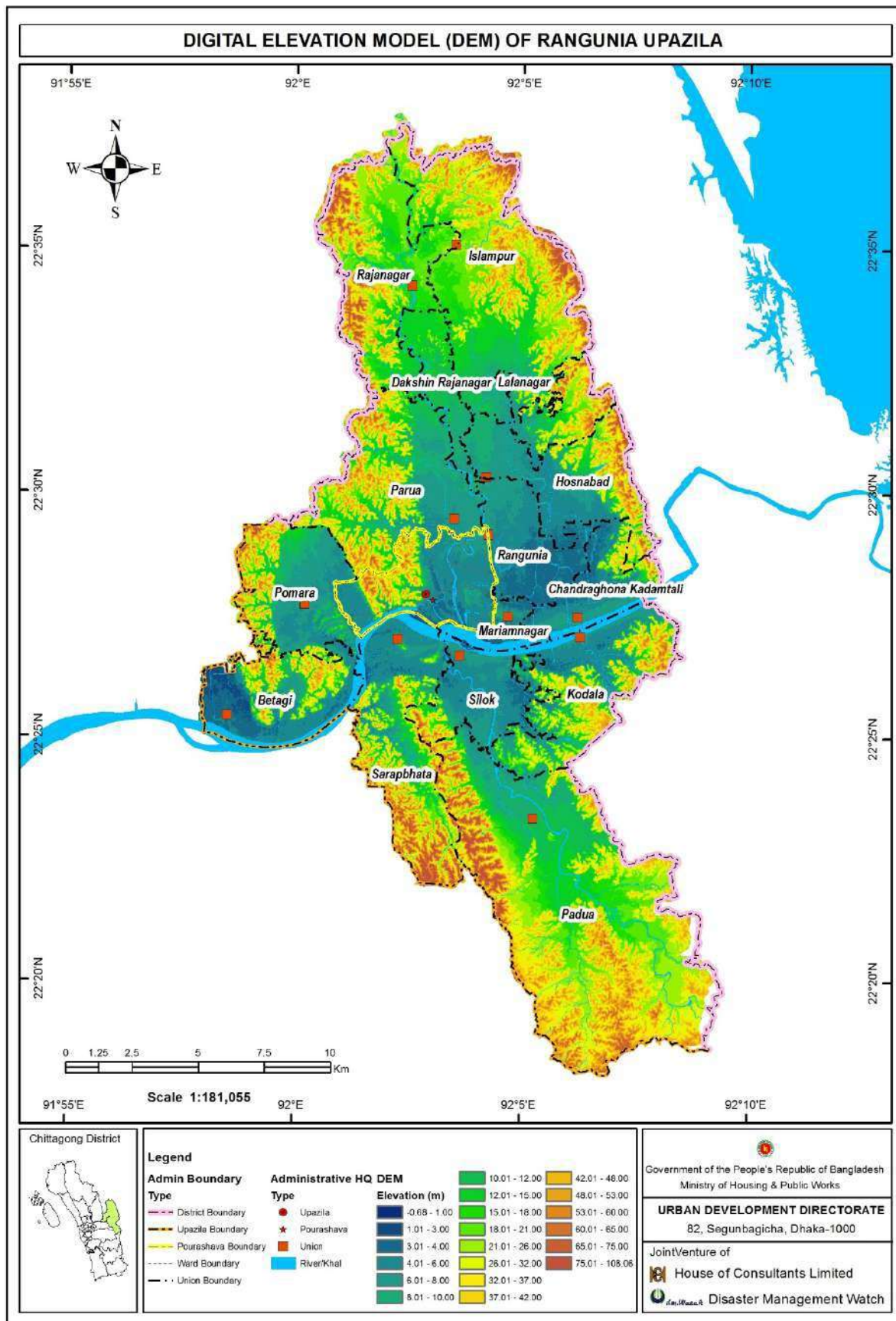
Slope can be categorized into different interval depending on purpose. For the planning of project area, slope map has been done in following interval:

Table 6.12: Slope Categories

Categories	Percentages
Nearly Level	0-1
Very Gently Sloping	1-3
Gently Sloping	3-5
Moderately Sloping	5-10
Strongly Sloping	10-15
Moderately Steep	15-25
Steep	25-33
Very Steep	33-50
Very Very Steep (More than 50)	More than 50

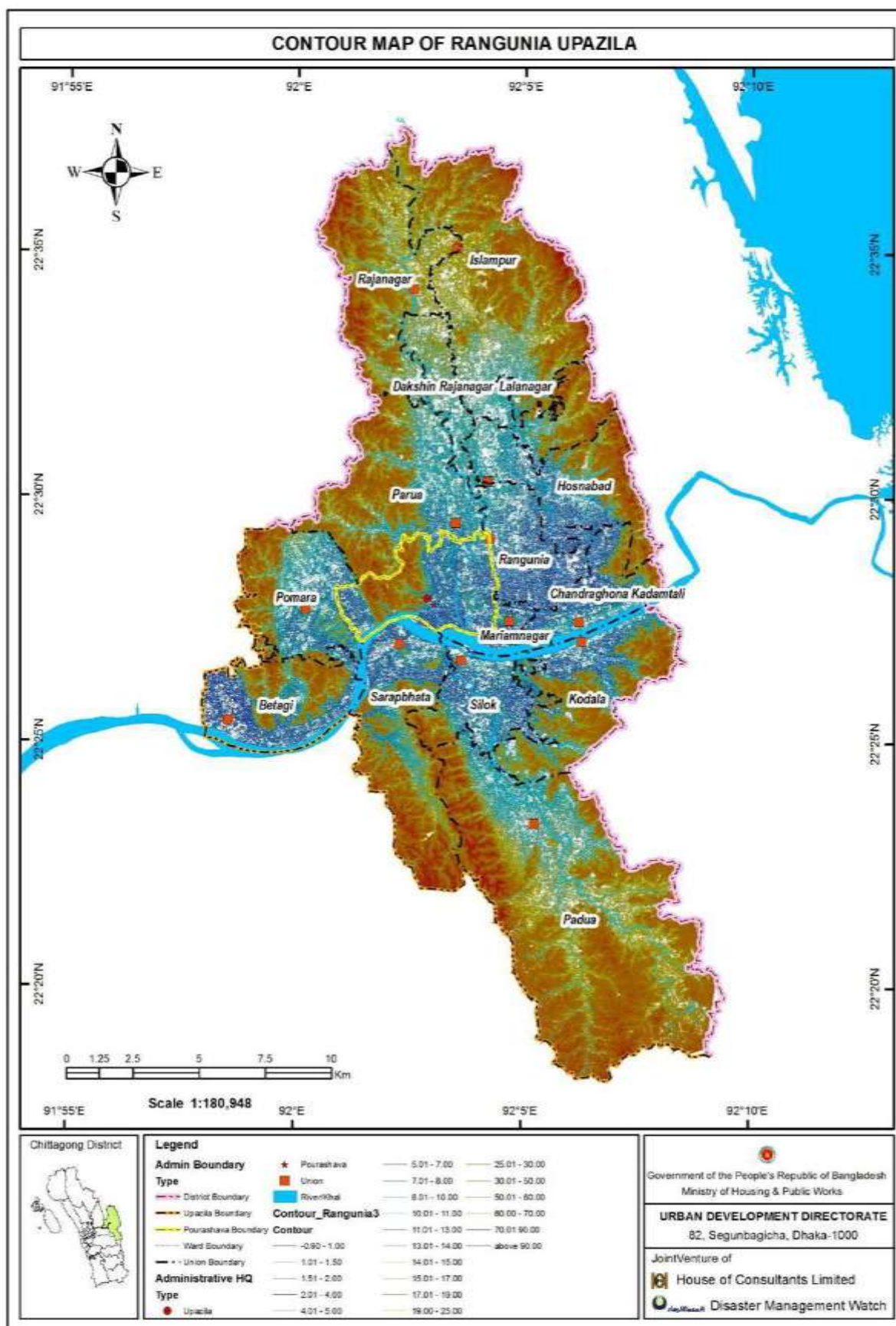
Source: Developed by Consultants

From the **Map 6.19**, it is clear that the allowable development area ranges from nearly level to gentle sloping and other areas like more than 5% is not feasible for development in perspective of planning.



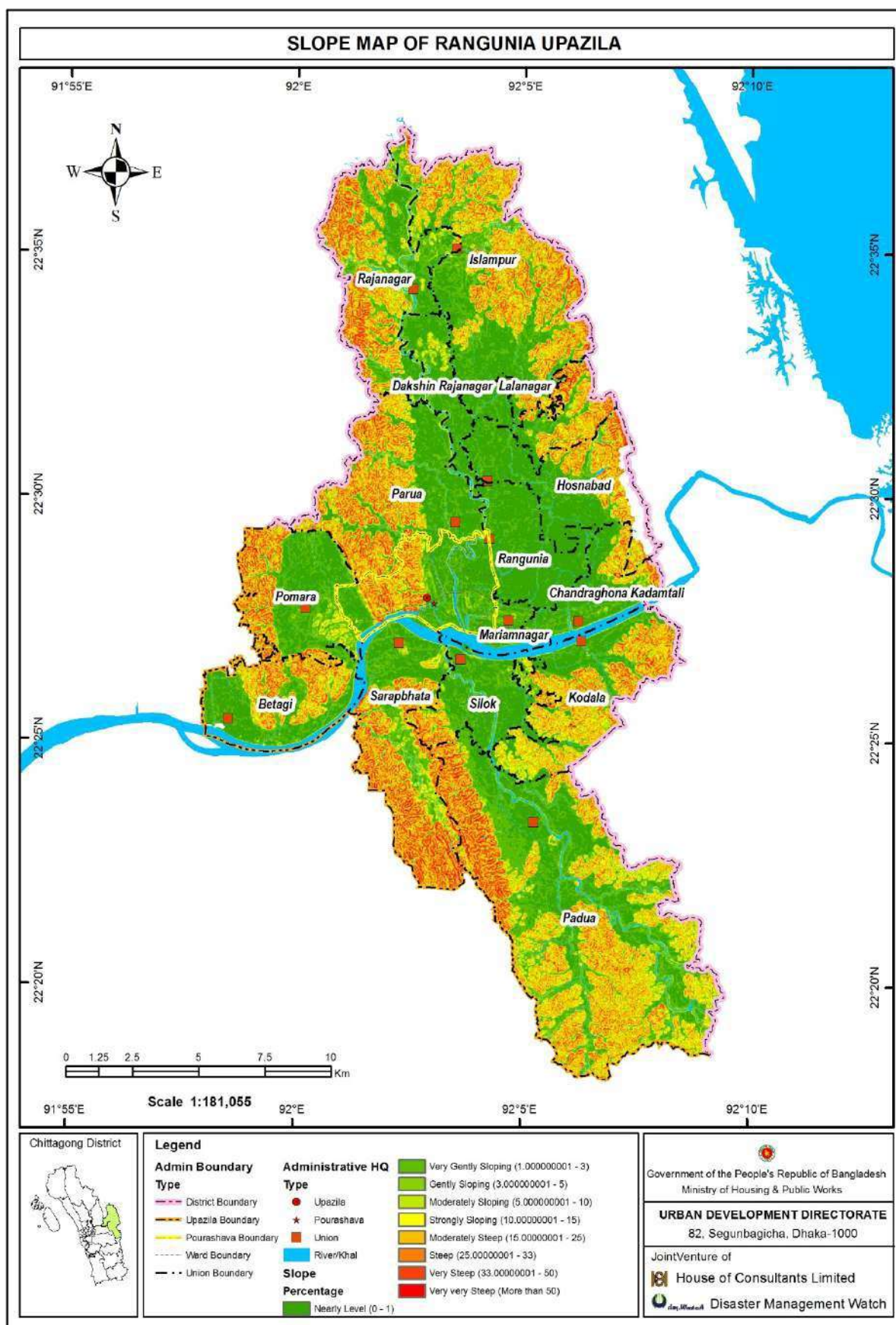
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.17: Digital Elevation Model (DEM) of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.18: Contour Map of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.19: Slope Map of Rangunia Upazila

6.4 Suitability Analysis

For the plan preparation of Rangunia Upazila suitability analysis is an essential step. Through this analysis suitable area for agriculture, urban and infrastructure development have been identified for planning. In this step firstly undesirable area, the area with slope more than 5% has delineated for Rangunia Upazila. The factors were considered in the suitability analysis is presented in **Figure 6.8**.

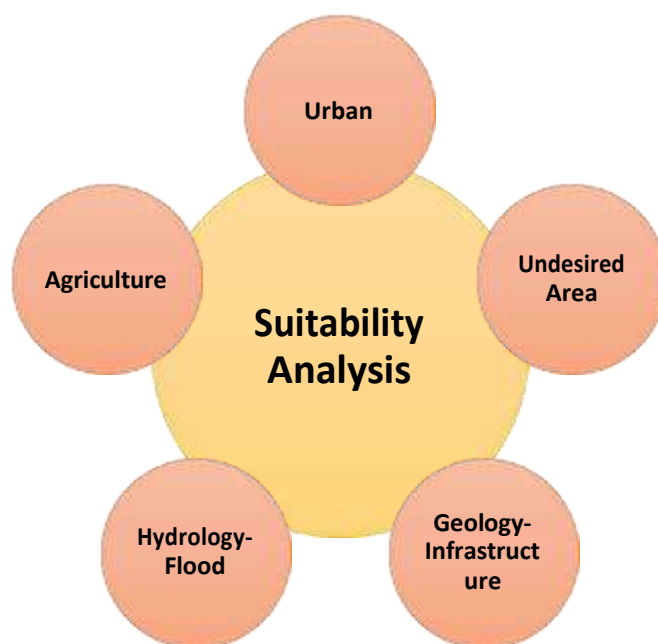


Figure 6.8: Diagram of Suitability Analysis

6.4.1 Agricultural Suitability

Suitability analysis is a GIS-based multi-criteria decision-making process. To identify the best suitable area for agriculture an analysis has been done. It is derived from the data of water depth, slope and cropping intensity. For agricultural suitability analysis, the weightages according to criteria are given below:

Table 6.13: Criteria for Agriculture Suitability

Criteria	Weightage
Cropping Intensity	50
Water Depth	30
DEM	20

Source: Developed by Consultants

It is derived from the data of water depth, slope and cropping intensity as stated in **Table 6.13**. The main reason of this analysis is to identify the most suitable agricultural land for conservation. The statistic has given in the **Table 6.14**.

Table 6.14: Agricultural Suitability

Category	Area (sq. m)	Area (sq. km)	Area (acre)	Percentage
Very Good	26800	0.027	6.622	0.036
Good	9312400	9.312	2301.144	12.437
Moderate	45067500	45.068	11136.422	60.188
Poor	20471200	20.471	5058.544	27.339
Total	74877900	74.878	18502.732	100

Source: Field Survey, 2016

The **Map 6.20** depicted the derived result from the analysis. Agriculture suitability represents the suitable areas for agricultural activities. It also provides a guideline in order to preserve the agriculture land. Depending on this which land should be preserved for agriculture and which will be used for future development decision can be taken. This analysis divides the agriculture land of this Upazila into four categories which are very good, good, moderate and poor. Gumai beel contains most of the very good land of this area so this gumai beel should be preserved as agriculture land. Most of the area of this Upazila is very much suitable for agriculture.

6.4.2 Urban Suitability

For the identification of the urban suitable area some criteria have fixed based on the slope less than or equal to 5%, DEM, geological suitability and major roads. In which areas these four criteria have met the consideration those areas are the urban suitable areas. According to criteria and weightages are presented in the **Table 6.15**.

Table 6.15: Criteria for Urban Suitability

Criteria	Weightage
DEM	35
Major Roads	25
Infrastructure Suitability	20
1/Hydrological Suitability	10
1/Agricultural Suitability	10

Source: Developed by Consultants

Criteria are the main basis in which weightages are given according to priority basis and then suitability analysis has been done. So here DEM, major roads and infrastructure suitability have given higher weightage. The **Table 6.16** showed the best suitable urban area of the Upazila.

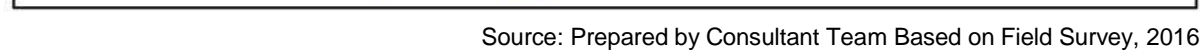
Table 6.16: Urban Suitability

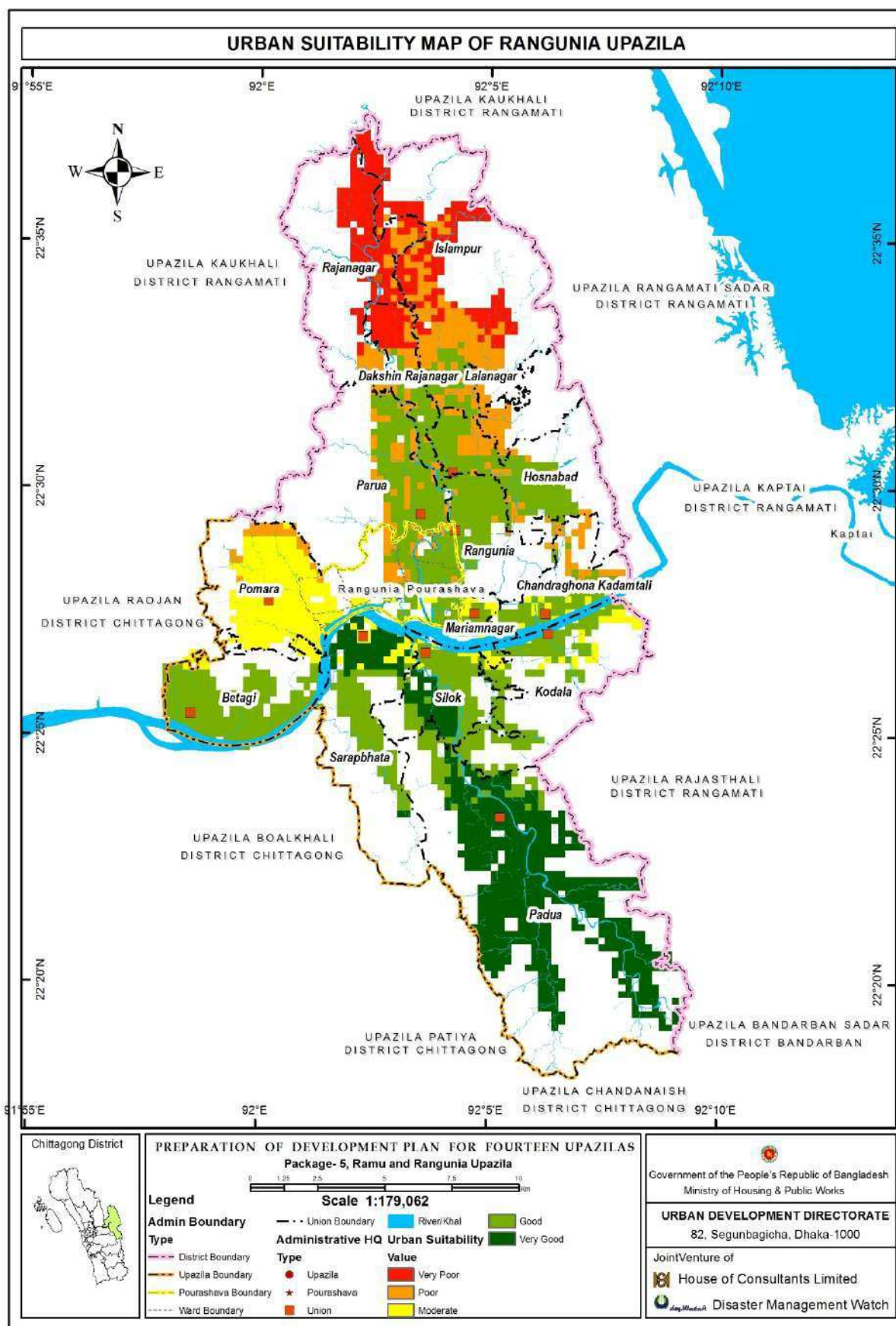
Category	Area (sq. m)	Area (Acre)	Percentage
Poor	312500	77.22	0.09
Moderate	7312500	1806.96	2.10
Good	34750000	8586.91	9.99
Very Good	68562500	16942.16	19.71

Source: Field Survey, 2016

The results revealed that approximately 19.71 % of land of the study area is highly suitable for urban development, whereas 2.10% of land is moderately suitable. From the analysis it is found that 31.89% of the project area are urban suitable.

Map 6.21 presented the urban suitable area in this Upazila that is divided into five categories which are very poor, poor, moderate, good and very good. In this situation, Very Good area will be used for future urban development.





Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.21: Urban Suitability of Rangunia Upazila

6.4.3 Infrastructure Suitability

Infrastructure Suitability is the process of identifying the most and least suitable areas of the Upazila. In order to identify the area for zoning an analysis has been carried out. For this analysis the criteria are shear wave, PGA and foundation layer. The weightages according to the criteria are presented in the **Table 6.17**.

Table 6.17: Criteria for Infrastructure Suitability

Criteria	Weightage
PGA	30
Foundation Depth	40
Shear Wave	30

Source: Developed by Consultants

From this analysis, the most and least suitable areas for infrastructure has identified that will help for further development in the project area and presented in the **Table 6.18**.

Table 6.18: Infrastructure Suitability

Category	Area (sq. m)	Area (sq. km)	Area (acre)	Percentage
Very Good	14437500	14.438	3567.584	7.425
Good	4687500	4.688	1158.306	2.411
Moderate	5437500	5.438	1343.636	2.797
Poor	79312500	79.313	19598.546	40.791
Very Poor	90562500	90.563	22378.481	46.577
Total	194437500	194.438	48046.553	100

Source: Field Survey, 2016

The results revealed that approximately 40.79% of land of the study area is highly suitable for infrastructure development, whereas 46.58% of land is less suitable which is presented in **Map 6.22**. Infrastructure suitability is the most important part of infrastructure development. The area is divided into five categories which are very good, good, moderate, poor and very poor. This analysis will enable to take decision where to build high rise buildings and industries or residential buildings.

6.4.4 Undesired Area for Planning

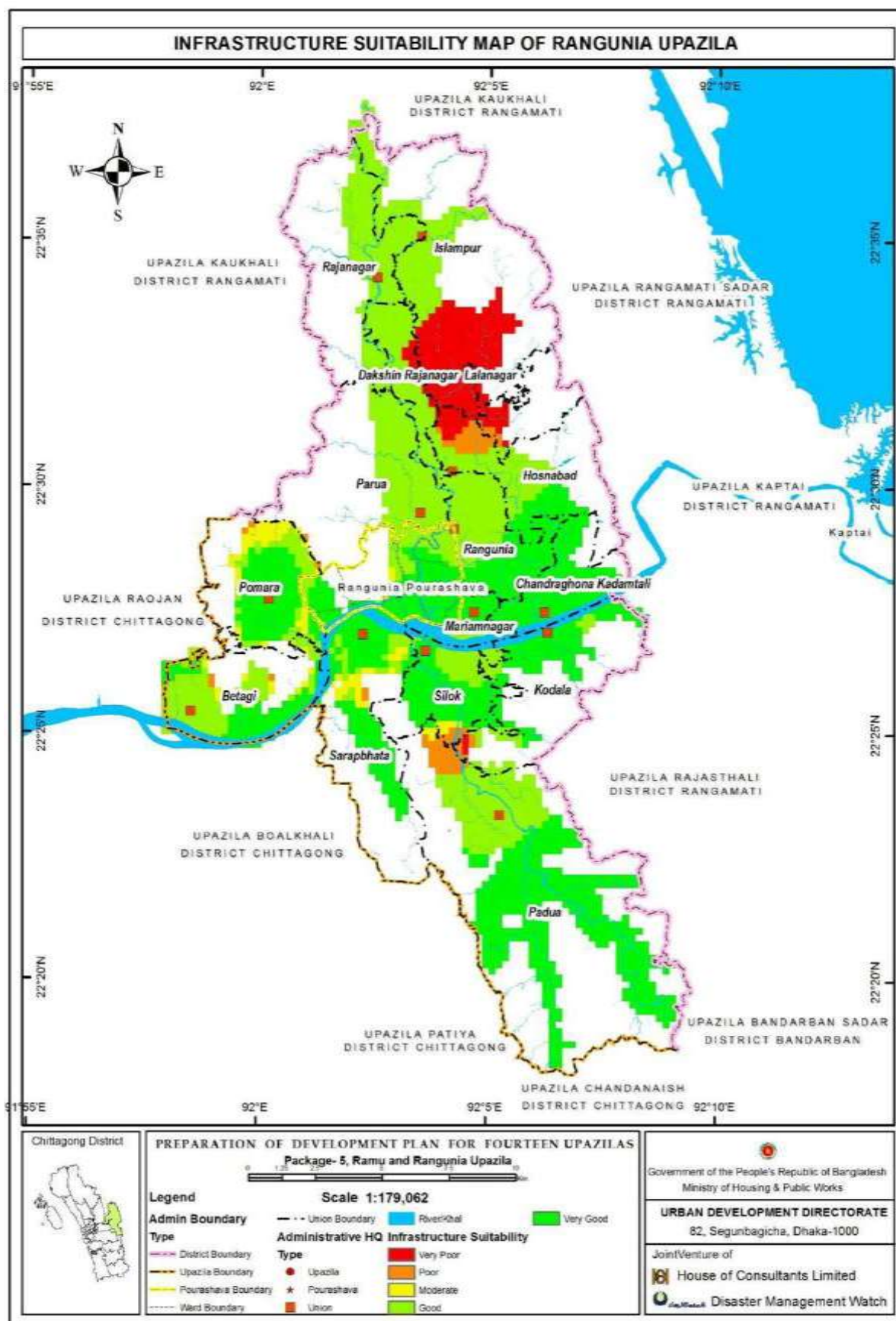
There are some affecting factors to plan the Rangunia Upazila. The factors are slope more than 5%, main flood flow zone and sub-flood flow zone. In these three types of areas development cannot take place. But these areas can be used for other purposes such as agriculture, afforestation, water retention area etc. Any kind of development is prohibited in this 63.48% area which comprises slope more than 5 %, main and Sub-flood flow zone. The factors that affected the area for planning is listed and presented in the **Table 6.19**.

Table 6.19: Affecting Factors for Planning

Factors	Area(sq.m)	Area (Acre)	Percentage
Slope more than 5%	161649700	39944.51	46.47
Main Flood Flow Zone	23792000	5879.13	6.84
Sub Flood Flow Zone	35367100	8739.40	10.17

Source: Field Survey, 2016

Map 6.23 showed the undesired area for planning where land slope is above 5%. From planning consideration land with slope above 5% will be prohibited for the development.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.22: Infrastructure Suitability of Rangunia Upazila

6.4.5 Prime Flood Affected Area

Flood is an important phenomenon in this Upazila. Without considering this factor planning cannot take place. This map mainly shows the sub flood flow zone and main flood flow zone of this Upazila. Sub flood flow zone area is submerged in water occasionally. Flood inundation map of RanguniaUpazila is presented in **Map 6.24**.

6.4.6 Water Supply Protection Zone

Water supply protection zone comprises river, canal/chara/khal. 50-meter buffer from the edge of the rivers, 10-meter buffer from the chara/khal will be preserved for water supply protection zoneand presented in the **Map 6.25**. It has done according to the Water Act, 2013. The dominating parts of water supply protection zone has summarized in below **Table 6.20**.

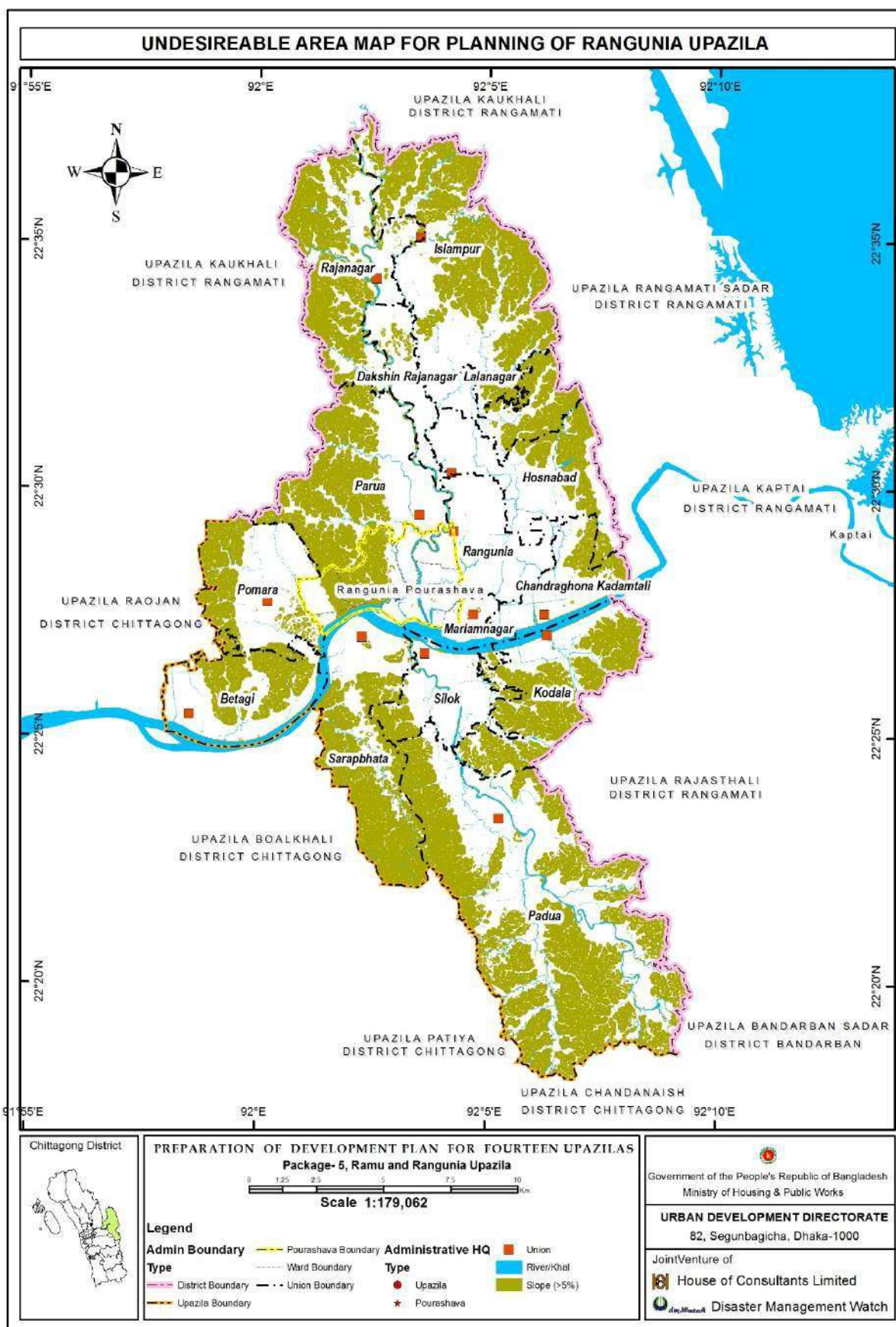
Table 6.20: Water Supply Protection Zone

Water Supply Protection Zone	Area (sq.m)	Area (sq.km)
Canal/Chara	13519843.361	13.520
Karnaphuli River	15560991.645	15.561
Shilok River	3293932.925	3.294
Ichhamati River	4821180.816	4.821

Source: Field Survey, 2016

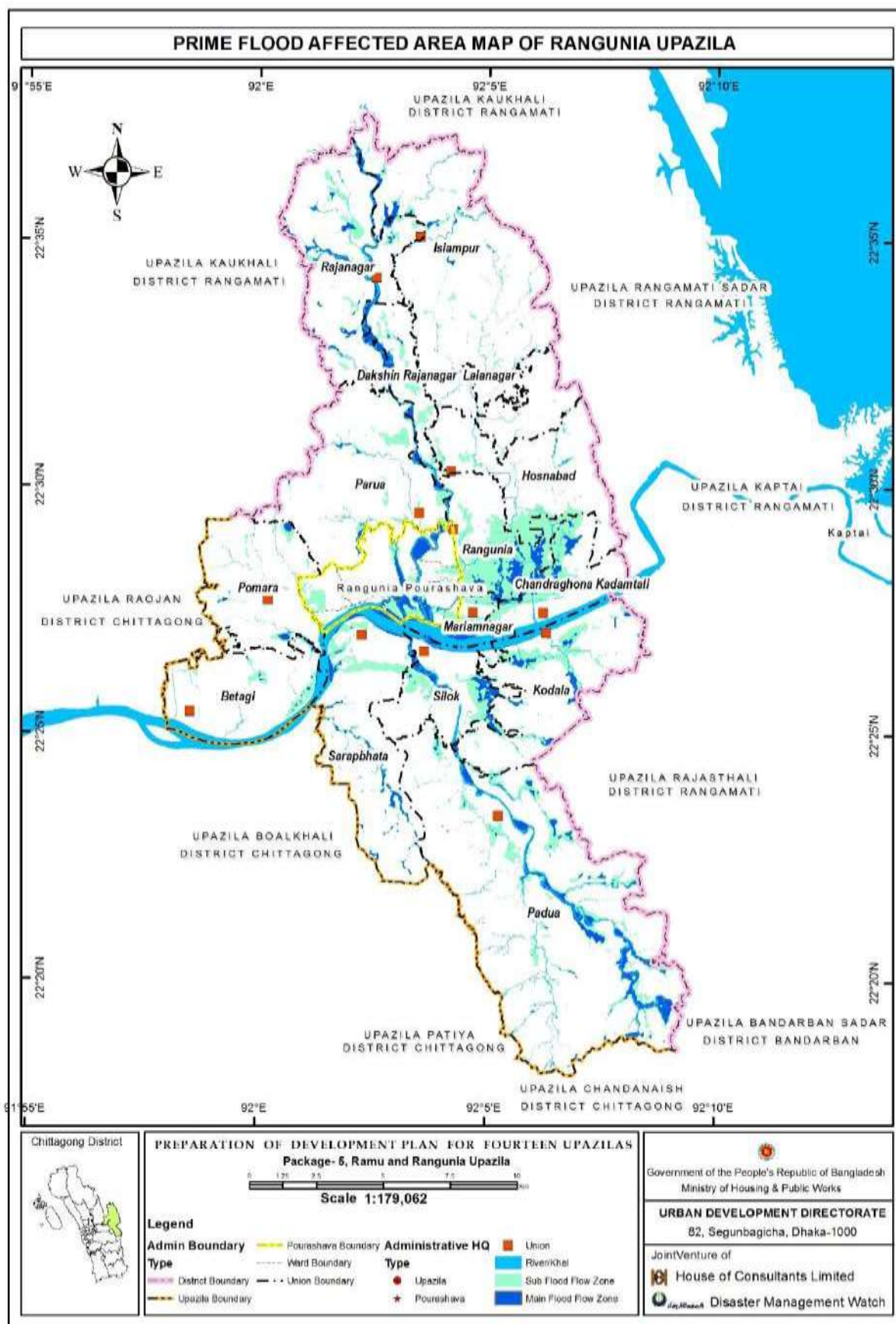
6.4.7 Conflict Map

After the identification of suitable areas, a conflict map has derived by compiling agricultural suitable area, urban suitable area, infrastructure suitable area as well as the prime flood affected areas and undesirable area for planning. This conflict map is the base for structure plan preparation of Rangunia Upazila that helps to develop of zoning.Conflict **Map 6.26** represented that the results of the suitability analysis have conflict with each other. In this map reserved agriculture, urban suitability, main flood flow zone, sub flood flow zone and slope more than 5% have been incorporated. From this map decision will be taken which part of the area will be used for which purpose.



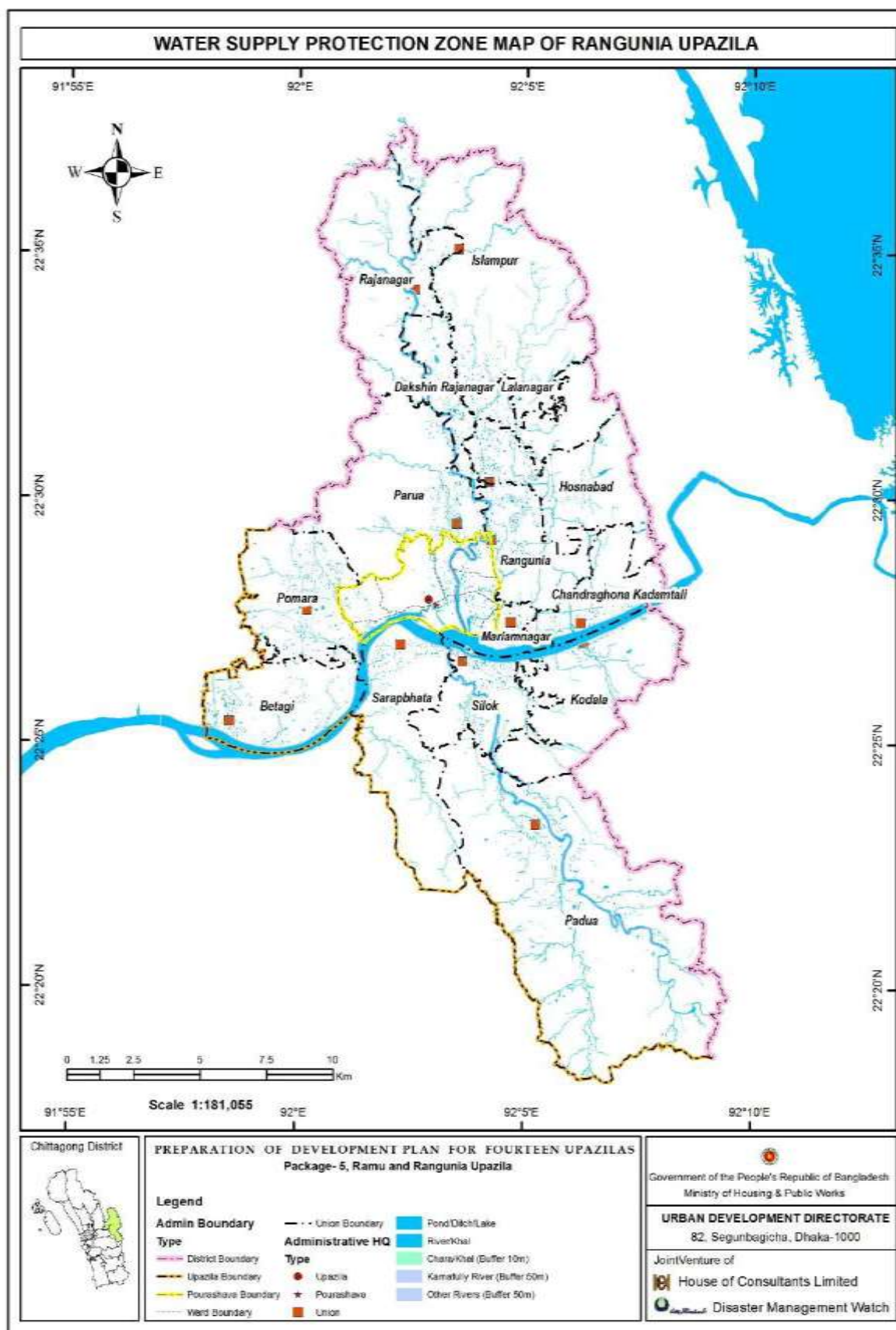
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.23: Undesirable Area for Planning in Rangunia Upazila



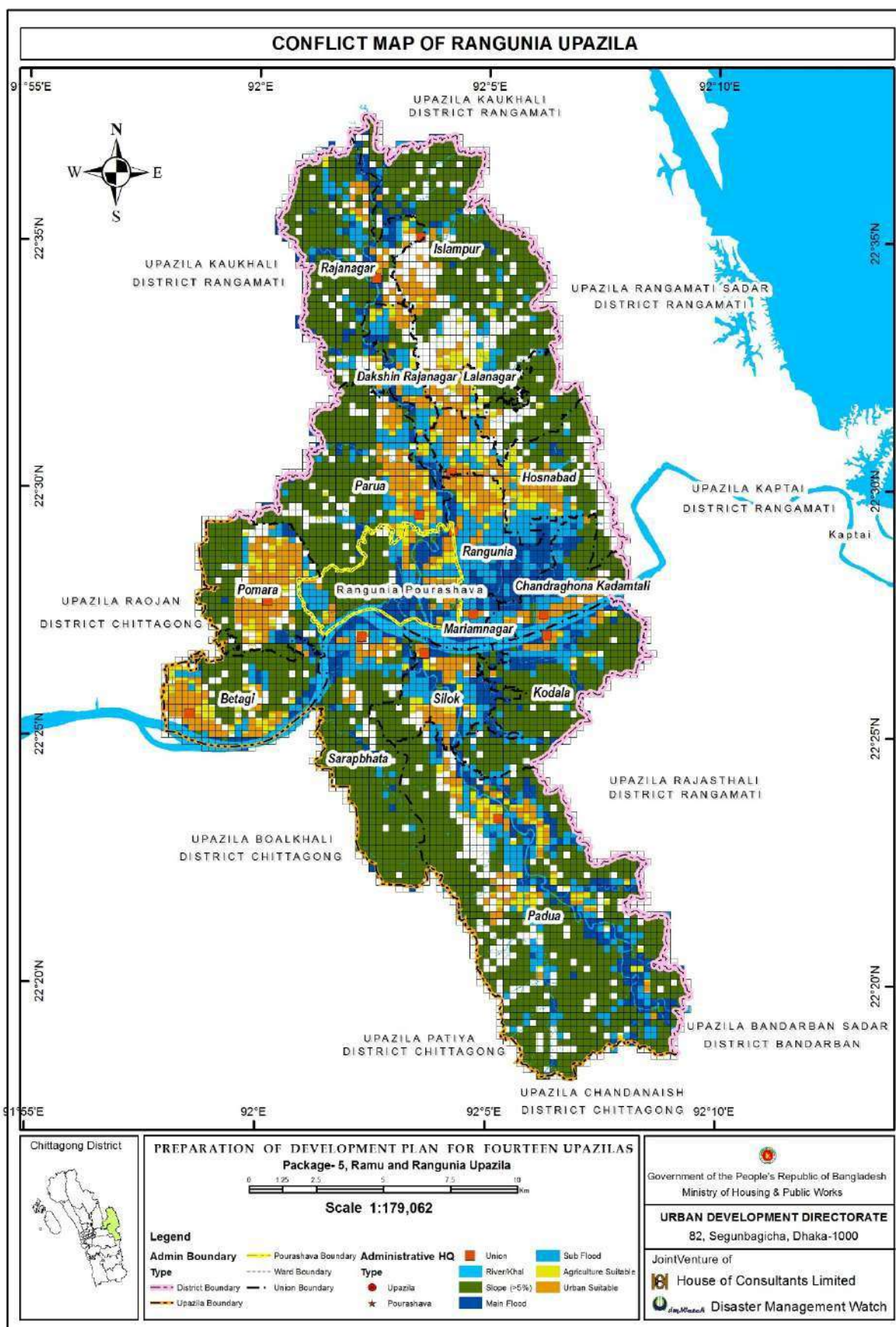
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.24: Prime Flood Affected Area of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.25: Water Supply Protection Zone Map of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.26: Conflict Map of Rangunia Upazila

6.5 Future Urban Area Demand Calculation

Development Plan has been prepared on the basis of projection forecasting 20 years as 2033 where existing population and projected population have been analysed to ascertain the future demand for projected population. The calculation is done by a chronological order are as follows:

- Existing Population and Household
- Projected Population and Household
- Household Demand
- Existing Building Footprint and Plot Area
- Future Residential Plot Area
- Ward wise Population and Structure Density

The total existing population of Rangunia Paurashava is 32641 and projected population in 2033 is 43542. The household size of paurashava in 2011 and 2033 are respectively 6528 and 8708. The household demand has been calculated by subtracting present household size from projected household size which is 2180. Existing building foot print has been calculated from the total residential structures area divided by the number of residential structures which is 1010 sq. ft. It is assumed that the structure area covers 60% of the total area. By adjusting the area, the total plot area has been calculated as 1683 sq. ft. For considering the future extension, existing residential plot area has been multiplied by 2 which is 3367 sq. ft or 169 acres. Moreover, the present ward wise population and projected ward wise population has been observed. The present number of structures in each ward has been identified and the pucca structures has been targeted for future extension. The existing building footprint of these pucca structures has been calculated along with the existing settlement area. After that it has been assumed that the existing area is sufficient to serve the future population. Apart from this a planned residential area of 127 acre has been proposed for urban area.

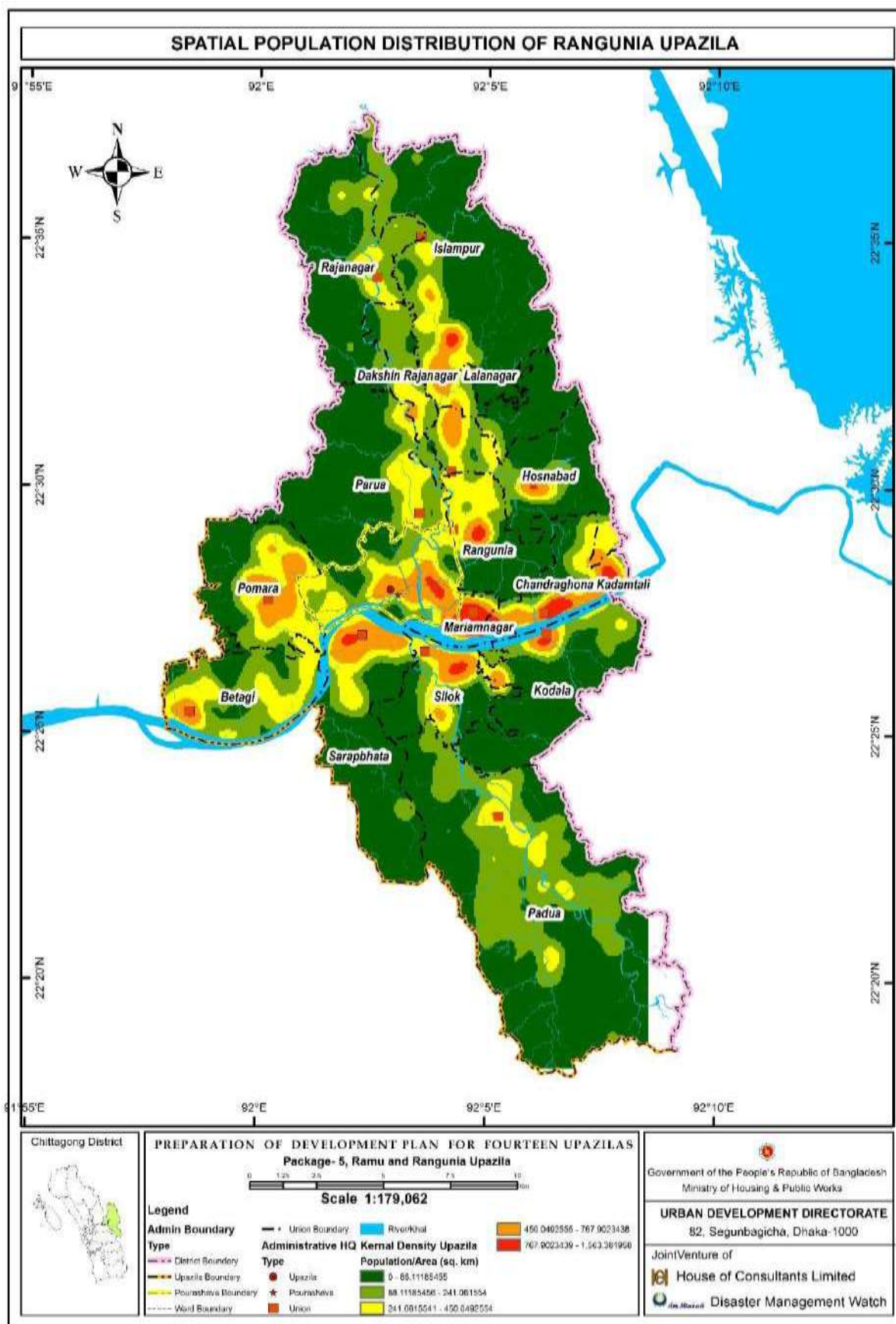
Urban Area Declaration

For urban area declaration, Kernel Density Tool through GIS has been applied in which population density and administrative boundary of an area are required. Through this tool the population concentration in different areas of Upazila can easily observed. This spatial analysis helps to understand the future growth of population. Besides this tool, the following phenomena has been observed to declare the urban area. (**Map 6.27** represents Spatial Population Distribution)

- Administrative Body (Upazila Parishad, Pourashava, Upzila Hospital, Fire Service, Police Station)
- Population Size
- Population Density
- Economic Function (Growth Center)
- Urban Characteristics (Paved Streets, Electric Lights, Sewerage, Water Supply Line)

In Rangunia Upazila, Urban Area has been categorized in 4 types such as

1. Core Urban Area
2. Fringe Urban Area
3. Potential Urban Area
4. Urban Deferred



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6.27: Spatial Population Distribution of RanguniaUpazila

6.6 Location Allocation Analysis

Location Allocation Analysis is a tool in the ArcGIS Network Analyst extension determines an optimal location for one or more facilities that will serve demand from the surrounding population.

To analyse with this tool the following data has required:

- **Facilities**-If we want to provide a primary school in an area, first we need the existing primary school data of that area.
- **Demand Points**-Projected Population is the demand points, that's why we need the projected population of certain area
- **Road Network**

To provide facilities in Urban and Rural area, first we have to calculate the future demand of the area. Therefore, Population projection has been done for 2033. On the basis of this data, future demand for certain facilities have been calculated (presented in **Appendix C and Appendix D**).

The road network has been analysed through Network Analysis. Network analysis is the shortest path analysis which is used to find the shortest routes between an origin and a destination. It helps to find closest facility, evaluating allocation and solving location allocation problems.

To run the location allocation analysis, we have to set parameter for providing a facility, such as we want to provide a primary school; a primary school will serve for 5000 population and distance will be within 500 meters. Such kind of parameters have been established in Planning Standard (presented in **Chapter 5**).

By using the existing facilities data, network analysis and future demand of certain facilities; several proposals have been made for Urban and Rural area which has outlined in **Chapter 7**. The proposals allow the optimal distance and well served facilities provisions for an area as it has determined through location allocation analysis.

6.7 Drainage Network Analysis

For deriving the drainage network, watershed analysis has been done. Defined by topographic divides, a watershed is an area that drains surface water to a common outlet. A watershed is a hydrologic unit that is often used for the management and planning of natural resources. Watershed Analysis refers to the process of using of DEM and raster data operations to delineate watersheds and to derive topographic features such as stream networks. The total analysis has been incorporated through using Hydrology Tool in ArcGIS where Fill, Flow Direction, Flow Accumulation, Stream Network, Stream Links has performed. On the basis of analysis, Primary drain, Secondary Drain and Possible outlets have been determined in Drainage Network Analysis (presented in **Chapter 7**).

6.8 Landslide Scenario Analysis

6.8.1 Generalization

Landslide is a common phenomenon especially in hilly region. It happened in the many hilly areas of the different countries. Many researchers are involved to find out the reasons of the hill slope landslide. Hundreds of people were died in the different countries over the long tenure due to hill slope landslide where habitation exist. Generally, it is caused due to geological, morphological, physical reasons and human intervention. Hill slope landslide due to only human intervention could be minimized by providing appropriate measure based on the topography, hydro-geology and nature of human intervention. Hill slopes are normally steep that are not suitable for habitation especially if they are formed by fine silt-mica or similar nature of soil. Hills are naturally formed and act as an anchor of the earth through balancing the weight of the earth. Therefore, human interventions and habitation tendency should be kept as minimum considering soil properties of the hilly areas.

6.8.2 Causes of Failure of Hill Slope

The causes of landslides of hill slopes are usually related to instabilities in slopes. It is usually possible to identify one or more landslide causes and one landslide trigger. The difference between these two concepts is subtle but important. The landslide causes are the reasons that a landslide occurred in that location and at that time climate condition. Landslide causes are based on geological factors, morphological factors, physical factors and factors associated with human activity. Causes may be considered to be factors that made the slope vulnerable to failure, that predispose the slope to becoming unstable. The trigger is the single event that finally initiated the landslide. Thus, causes combine to make a slope vulnerable to failure, and the trigger finally initiates the movement. Landslides can have many causes but can only have one trigger as shown in the next figure. Usually, it is relatively easy to determine the trigger after the landslide has occurred. Although it is generally very difficult to determine the exact nature of landslide triggers ahead of a movement event. The trigger was in fact a slow but steady decrease in material strength associated with the weather. At some point the material becomes so weak that failure must occur. Hence the trigger is the weathering process, but this is not detectable externally. In most cases, it is apprehended that a trigger as an external stimulus that induces an immediate or near-immediate response in the slope, in this case in the form of the movement of the landslide. Generally, this movement is induced either by the altered stresses in the slope, perhaps by increasing shear stress or decreasing the effective normal stress or by reducing the resistance to the movement perhaps by decreasing the shear strength of the materials within the hill slope.

The factors are induced in the hill side landslide failure caused in Ramu and Rangunia are as below:

- a. Physical causes:
 - i) Topography:
 - Slope aspects and gradient
 - Discontinuity factors
 - ii) Hydrogeological Factors:
 - Intense rainfall and thunderbolt
 - Prolonged rainfall
 - Soil pore water pressure
 - Surface runoff
- b. Human causes:
 - i) Deforestation
 - ii) Excavation
 - iii) Land use (construction of house, road etc.)

In the majority of cases the main trigger of landslides is heavy or prolonged rainfall. Generally this takes the form of either an exceptional short lived event, such as the passage of a tropical cyclone or even the rainfall associated with a particularly intense thunderstorm or of a long duration rainfall event with lower intensity, such as the cumulative effect of monsoon rainfall in Bangladesh. It is usually required to have very high rainfall intensities or moderate intensity of rainfall - it is the duration and existing pore water pressure conditions that are important. Principally this is because the rainfall drives an increase in pore water pressure within the soil. The **Figure-6.9** illustrated the forces acting on an unstable block on a slope. Movement is driven by shear stress, which is generated by the mass of the block acting under gravity down the slope. Resistance to movement is the result of the normal load. When the slope fills with water, the fluid pressure provides the block with buoyancy, reducing the resistance to movement. In addition, in some cases fluid pressures can act down the slope as a result of ground water flow to provide a hydraulic push to the landslide that further decreases the stability. **Figure-6.9** and **Figure-6.10** illustrated clearly an artificial situation that the mechanics are essentially involved as per a real landslide. The location of landslide in Rangunia Upazila is presented in **Table 6.21** and the pictorial views are presented in **Picture 01** and **Picture 02** respectively.

Many Researchers found that storm with a total precipitation of 100–200 mm, about 14 mm of rain per hour for several hours, or 2–3 mm of rain per hour for about 100 hours can trigger landslides in that environment. Rainfall of short duration (about 1 hour) intensities or greater than 36 mm/h were required to trigger landslides. On the other hand, for long rainfall durations, low average intensities of about 3 mm/h appeared to be sufficient to cause land sliding as the storm duration approached approximately 100 hours. A rainfall threshold of around 190 mm in 24 h initiated failures whereas more than 300 mm in 24–48 h is needed to cause widespread shallow land sliding. With antecedent rain, moderate intensity precipitation of at least 40 mm in 24 h reactivated mudslides and both rotational and translational slides affecting clayey and silty-clayey formations. In this case, several weeks and 200 mm of precipitation were needed to cause landslide reactivation. A similar approach was found that if the 24-hour antecedent rainfall exceeded 200 mm then the rainfall threshold for a large landslide event was 70 mm·h⁻¹.

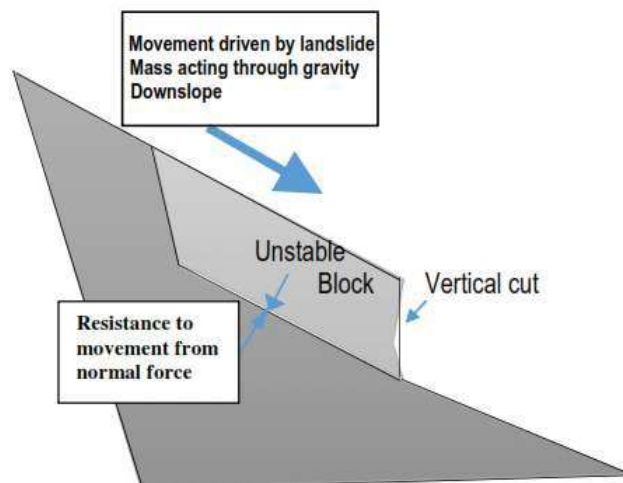


Figure 6.9: Diagram Illustrating the Resistance to, and causes of Movement in a Slope System consisting of an Unstable Block

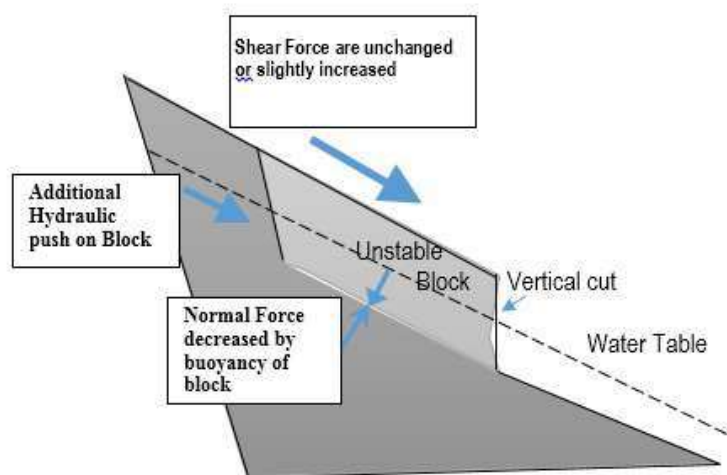


Figure 6.10: Diagram Illustrating the Resistance to, and causes of Movement in a Slope System consisting of an Unstable Block

Table 6.21: Landslide Location in Rangunia Upazila

Rangunia Upazila						
Location	Area	Victims	Loss	Elevation of Hill TOP (Where the hill has fallen)	Elevation of Hill TOE (Where the debris has settled)	Horizontal Distance
Islampur Union, Rangunia Upazila	Moghaichari	Nur Box	House vandalized (Habitants were in outside during occurrence unintentionally)	39.8774 meter	27.1637 meter	95.42 feet
	Moghaichari	Mofiz and Dil Mohammed	8 people within 2 families have died	54.1713 meter	27.2727 meter	323.19feet



Picture 01: Nur Box's House



Picture 02: Mofiz and Dil Mohammed's House

6.8.3 Recommendation

Hills are natural environmental beauty due to its undulation shape and size, and top is covered by green trees. Many fruits, herbs, wood etc. grow on the hill. Because these hills made of silty-clay based soil. It is also a source of surface water that supply water even round the year towards rivers through charas/channels. It anchored the earth through maintaining the balance of weight of earth. Therefore, preservation of hill is utmost essential to save the nature as well as human lives. Specially, it plays a vital role on climate change. The following issues shall be considered during development and formulation of policy for hilly areas.

- a. No habitation will be considered on the hill slope by cutting the hill. Since the hill slopes are generally more than 5% which is not at all favourable for habitation.
- b. Sufficient protection measures shall be considered to protect the soil in the upper side to continue the uninterrupted road/rail transport communication, sometimes some hills or hill slopes may require to cut. In that case, sufficient protection measures shall be considered to protect the soil in the upper side. At the same time, sufficient weep holes with graded filter material inside the hill will be provided to release the pore water pressure. Adequate drainage facility will be provided to catch surface runoff from hill top. After study the hill nature, gradient of surface, physical and mechanical properties of soil of the hill, above precaution measure shall be taken.
- c. Hills those are nearby urban area, 50m to 100m buffer zone will be kept based on the parameters of hill. Long rooted trees can be planted within the buffer zone that can be reduced the velocity of landslide mass of hill.
- d. Hills nearby urban area containing steep slopes and weak in soil properties, toe of hill shall be protected as stated in b.
- e. If the slope of the hills nearby urban area is in weaker formation then upper layers of soil can be reinforced by providing adequate geo-textile laying underneath the soil.

CHAPTER 7

APPROACH OF DEVELOPMENT PLAN

7.1 Sub-Regional Plan

Sub Regional Plan determines a long-term vision for the development of an area where the area is going over the next several years as say 20 years, how it's going to there and how it will know if it got there or not.

7.1.1 Conceptualization of Sub-Regional Plan

Sub Regional Plan includes the clear goal envisioning the future growth and developments which will be directed with country's development activities and different policies of the country.

7.1.2 Extent and Nature of Sub-Regional Plan

I) Strategic Plan at Sub-Regional Level

Country's development systems can be enhanced by developing a clear vision, objectives, strategies and detailed actions plans. It enables a global sense of purpose and direction capable of guiding implementers in making everyday choices what actions should be taken to produce the expected results. Strategic plan identifies the following steps:

- Assesses needs and resources;
- Defines a target audience and a set of goals and objectives;
- Plans and designs coordinated strategies with evidence of success;
- Logically connects these strategies to needs, assets, and desired outcomes;
- Measures and evaluates the process and outcomes.

Strategic Plan would be prepared for 20 years for Rangunia Upazila according to the guidelines form which will dictate the development plan such policies as National policies, Formulated and Integrated different sectoral strategies at sub regional level, spatially interpreted sectoral strategies at sub regional level, formulated Conservation Plan at sub regional level and formulated Development Plan.

II) Regional Structure Zoning Category

Zoning generally allows the authority to control the use of land and development of land. Zoning is an important tool for guiding the private development, so that land is used in a way that promotes both the best utilization of the land and the prosperity, health and welfare of the residents. Naturally, Zoning is enacted by the law by following respective procedures. Regional Structure Zoning is comprehensive planning process that allows a city or region to develop a plan for creating and maintaining a desirable environment and safe and healthy community. Once a plan is adopted, it guides local officials in making their day to day decisions and becomes a factor in their decision-making process. By creating zoning categories that separate uses, the city assures that adequate space is provided for each use and that a transition area or buffer exists between distinct and incompatible uses. Adequate separation of uses prevents congestion, minimizes fire and other health and safety hazards, and keeps residential areas free of potential commercial and industrial nuisances such as smoke, noise and light.

Regional Structure Zoning can be adopted by ensuring the following mundane purposes:

- ✓ Minimising adverse effect resulting from the inappropriate location or use of sites and structures,
- ✓ Conserving limited land resources and encouraging their efficient use.

To carry out the purposes and provisions of the project within the context of the Regional Structure Plan, the following land zoning category would be followed:

- Main flood flow zone
- Sub flood flow zone
- Forest
- Agricultural land
- Urban area
- Rural settlements
- Industrial moderate hazards
- Industrial low hazards
- Water supply protection zone
- Restricted flood protection reserve
- Restricted military / public safety
- Restricted special

III) Conservation Plan

A conservation plan can be a vision for the future ecological health of an area. It typically includes reference to a natural resources inventory, a description of important features and an action plan to protect these features over a long period of time.

Major land use pressure is heavily depending on the ecosystems and resources of the existing nature. Land-use conflicts and clearly unsustainable uses may be found in planning areas. There is a clear need for broad-based, multi-sectoral and long term development management, including community-based initiatives in sanitation, biomass preservation and collective management of natural resources, including more detailed priorities such as ecosystem preservation of fisheries habitat, maintenance of biological diversity and productivity, forestry management, containment of saltwater intrusion and population risk management. Also needed are institutional and regulatory actions.

Contrary to some current impressions, conservation and economic development are not conflicting ideas. In fact, well-planned conservation-oriented development will add to the general economic and social prosperity of a coastal community, while bad development will sooner or later have a negative effect. With innovative management based upon sustainable use, communities may be able to achieve a desirable balance without serious sacrifice to either short-term development progress or longer-term conservation needs. In broad sense, Conservation Plan would cover ecology and environment, land forms: forest, wetland, rivers and agricultural land, Major infrastructures, area of archaeological/ anthropological interest. Conservation plan will derive the following issues:

- ✓ Articulate the most important natural features within the Geographic Area.
- ✓ Flourish conservation of these important natural features.
- ✓ Dictate local government or private voluntary to develop land conservation planning
- ✓ Document conservation priorities and recommend policies in Upazila Development Plan Suggest viable regulatory process for some resources and features.

7.1.3 Objectives

The objectives of Sub Regional Plan have been outlined below:

- ✓ Control unauthorized development throughout the city.
- ✓ Providing suitable economic base for future growth of the city.
- ✓ To provide a rational land use pattern in order to protect and conserve agricultural land and other unproductive land as well as the water bodies.
- ✓ To develop selected areas with infrastructural facilities.
- ✓ Ensuring sustainability without violating the environmental concerns.

7.1.4 Area Coverage under Sub-Regional Plan

In sub-regional plan the main focus was to make Rangunia Upazila well-connected in terms of communication with the surrounding upazilas of Ranguni Upazila. Rangunia Upazila is an agro-based upazila. The communication among the surrounding upazila will help to grow the economy of this area. Rangunia is surrounded by Kaptai and Bandarban on the east which are very famous tourist spots. It is bounded by Kawkhali on the north, Dhandanaish, Patiya and Boalkhali on the south.

7.1.5 Development Strategies and Policies

Components of Sub-regional Plan

1. Connectivity and Transportation Network
2. Biodiversity and Nature Conservation
3. Community Resilience through Disaster Management

Policies for Sub-regional Planning

Connectivity and Transportation Network

Policy 1: Prioritize inter- (Zila-Upazila/Upazila-Upazila) and intra- (Urban-Rural-GC) regional connectivity. Connectivity and transportation network are pre-requisite for all kinds of development. Connectivity between zila to upazila , upazila to upazila as well as urban-rural is very much essential. Development of local transportation network will help build up improved internal road and waterway transport system within the Upazila. This will connect

all parts of the Upazila with the regional and national transportation system and help transportation of goods and services between the Upazila and many other potential regional and national centres.

Policy 2: Accelerate high standard road links through widening of primary and secondary and construction of new tertiary roads. At present, all the Union Parishads are not directly connected by roads between each other and some of them are also not directly connected to the Upazila Parishad. To fasten the communication among urban and rural areas the road should be linked properly. The primary and secondary roads need to be widened according to the future demand.

Policy 3: Build an integrated (land, rail and water) transportation network.

Railway connectivity enables strong communication network. It will be a great initiative if a railway platform can be developed in this upazila. It will be a great achievement for the local people if the communication system developed. So, establishment of a Railway platform is a crying need for the betterment of connectivity in the whole upazila.

Biodiversity and Nature Conservation

Policy 1: Conserve natural/environmental resources like hills, reserve forests and water bodies. A healthy natural environment contributes directly to a City's quality of life. Conservation is the optimum rational use of natural resources and the environment, having regard to the various demands made upon them and the need to safeguard and maintain them for the future. It is the protection, improvement and use of natural resources according to principles that will assure their highest economic or social benefits.

Policy 2: Conserve ecosystem through the delineation or demarcation of eco-sensitive zones. In ecology, conservation includes those measures concerned with the preservation restoration, beneficiation, maximization, reutilization, substitution, allocation and integration of natural resources. The concern for wildlife is, however, the concern for man himself. All forms of life -- human, animal and plant are so closely interlinked that disturbance in one give rise to imbalance in the others. In Rangunia upazila Gumai beel is an eco-sensitive area. This area must be conserved for the betterment of future.

Policy 3: Execute land use planning for the enhancement of ecosystem and species diversity. Preserving, protecting and developing the natural resource are the main tools for sustainable development. As such promoting participatory, community based environmental resource management and environmental protection. Producers, consumers and decomposers are linked together in food chains. Disruption of any particular link in the chain may lead to imbalance which may threaten the existence of man himself. Nature maintains this vast diversity of animals and plants in a complex organization in which various life processes of production, consumption and disposal of waste are maintained in well balanced cycles.

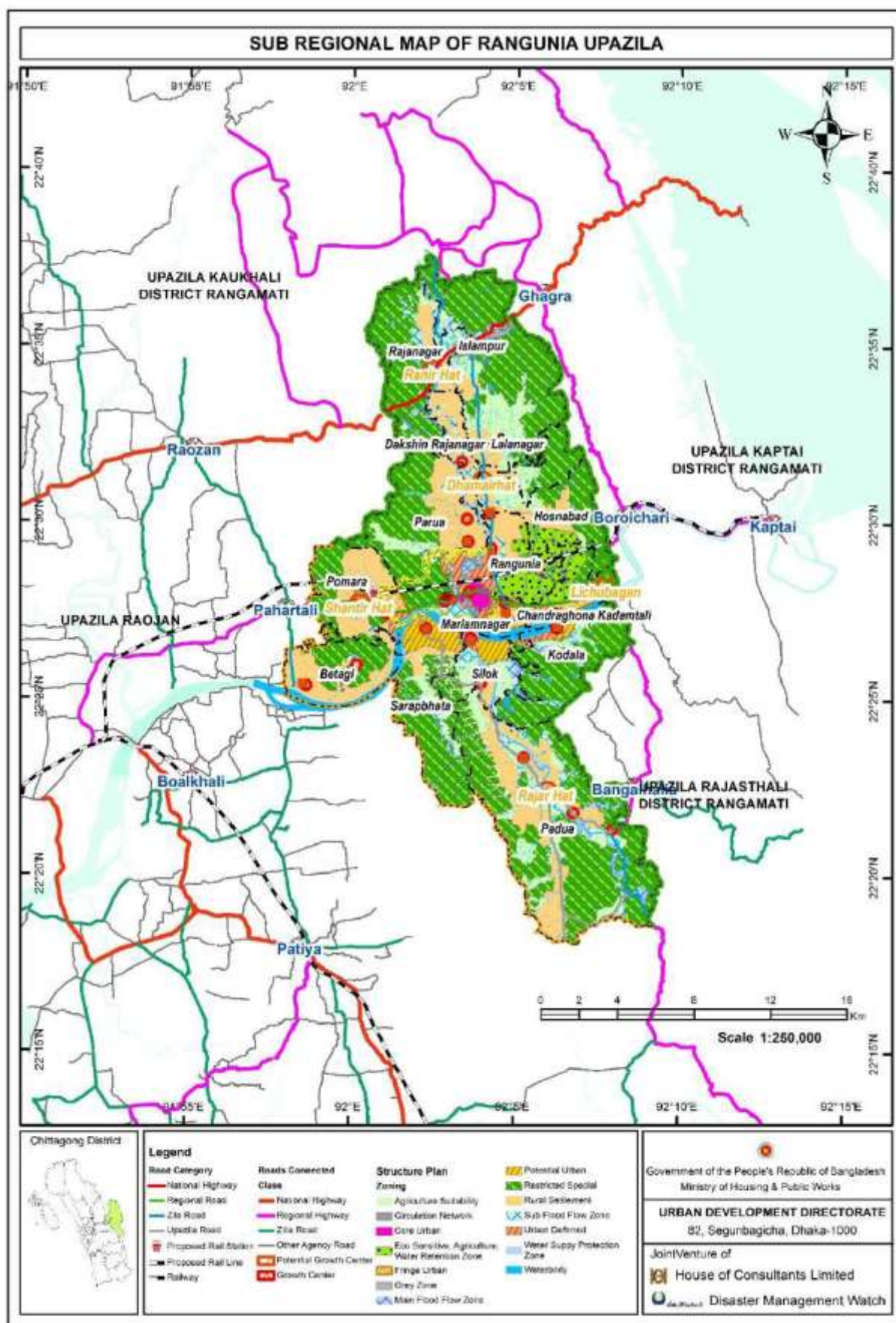
Community Resilience through Disaster Management

Policy 1: Identification of seismic hazard prone zones. To attain this goal geological surveys has been conducted. Which will enable to understand which portion of area is seismic hazard prone. Depending on this mitigation strategies can be adopted.

Policy 2: Identification of flood hazard prone zones and river erosion areas. To take proper mitigation measurement flood prone areas have to be identified.

Policy 3: Provision and implementation of a risk sensitive land use planning.

Rail Line promotes smooth connectivity between Upazilas. As Rangunia stands beside Kaptai Upazila under Rangamati Hill Tracts. Therefore, Rail Line has been proposed which will connect Regional Upazilas like Hathazari, Raozan, Kaptai. Rail line has flown from Chittagong Railway Station to Dohazari and Rangunia Upazila can be benefitted through Rail Line from Raster Matha of Kaptai Road. A Proposed Tentative Rail Line has been collected from concerned consultants through Railway Authority which will start from Raster Matha and ends to Kaptai Upazila. As it will go through Rangunia upazila, the consultant has proposed Rail Junction in Ward 06, Rangunia Pourashava. The Sub-Regional plan has presented in **Map 7.1**.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.1: Sub Regional Plan of Rangunia Upazila

7.2 Structure Plan

Structure plan typically shows how broad scale development or change in a Geographical area will be physical organized on the ground.

7.2.1 Conceptualization of Structure Plan

It provides long term statutory framework to guide the development and redevelopment of land which contains a development concept and policies by establishing the general pattern for land use, densities, major roads and utilities with the goal of ensuring that subdivision or development occur in an orderly, economic and efficient manner. The Structure Plan consists of a report and plans that comprises of a broad policy guideline. The report is supported by a number of maps.

The term Structure Plan is derived from British planning practice but has been internationally adopted. The principal components of such a plan are:

- ✓ An inventory of existing physical, demographic, economic, social and infrastructure features.
- ✓ An analysis of the major existing problems.
- ✓ An estimation of trends and changes likely in future (for the next 20 years).
- ✓ The identification of the major constraints on and opportunities for development.
- ✓ Consideration of the major development options and policies.
- ✓ An indication of the most suitable areas for such development.
- ✓ The identification of the priorities in each sector and the major activities needed to implement the development strategy.

The structure plan concentrates on the broad structure of the Upazila and is not concerned with the details of physical layout or individual development details which cannot be implemented until the later stages of the planning period. In those areas and sectors where action is anticipated or proposed within a relatively short time however, more detail may be needed than is provided in the structure plan. Such appropriate level of detail is provided in the action plan.

7.2.2 Extent and Nature of Structure Plan

Structure Plan for Rangunia Upazila would be prepared for 20 years which would cover up to 2033 with the content and meaning of the development policy of Planning Commission and guidelines laid in the Poverty Reduction Strategy Paper (PRSP), National Water Management Plan (NWMP), Disaster Management Plan, Wetland Protection Act, Environmental Laws, etc. This will bridge the gap between National level policy and local level plan.

The Structure Plan would include the following studies on:

- ✓ Hydrological study on the of the Upazila and connecting rivers (Hydrodynamic characteristics, Morphological characteristics, Geomorphologic development, Dominant Hydrodynamic and Morphologic process)
- ✓ Disaster management: Flood, water logging, drainage congestion,
- ✓ Water Resource Management

- ✓ Lands Study: Change in Land Use
- ✓ Livelihood Study
- ✓ Settlement Pattern
- ✓ Population Study
- ✓ Housing, Water supply and sanitation
- ✓ Communication, energy, education and health
- ✓ Agriculture and fisheries
- ✓ Transport system (road and water)
- ✓ Ecology and Environment

These sectoral studies would provide planning guidelines for land use and physical infrastructure. There is a need for a legal instrument in order to regulate land use in a manner that would encourage orderly urban and rural settlements in accordance with the strategic policies of the Structure Plan. Zoning regulations in Sub Regional Plan will be applied for the delineation of the Structure Plan.

The Structure Plan consists of a report and plans that comprises of a broad policy guideline. The report is supported by a number of maps of 1: 10000 scales illustrating various plan proposals. As such, at they are broad b rush and indicative and are developed and elaborated in the Urban Area Plan and Action Area Plan. The boundary of Structure Plan will coincide the future jurisdiction of Rangunia upazila as the future expansion has duly been considered during preparation of Structure Plan.

7.2.3 Objectives

The objectives of Structure Plan have been outlined below:

- (i) The main objective of Structure Plan is to demarcate the future growth areas and set a strategy for future development of Rangunia Upazila.
- (ii) To identify the urban areas and different rural centres of the upazila; and determine the planning requirements for the urban area, rural centres and rural area.
- (iii) Identification of urban growth area based on analysis of patterns and trends of development, and projection of population, land use and economic activities for next 20 years
- (iv) Formulation and Integration of different sectoral strategies for the Upazila.

7.2.4 Area Coverage Under Structure Plan

The total area of Rangunia Upazila is 347.87 sq.km. The total area is under structure plan coverage. The area has re-structured into some planning zones.

Restricted Special

Any kind of development is prohibited in the hilly areas whose slope is more than 5 %. These areas will be declared as reserved forest. Restricted special zone comprises the reserved forest and the eco-park.

Urban Settlements

Depending on the urban suitability analysis a future urban settlement zone has been identified. This area will be identified as urban settlement zone. In future this area will be developed as an urban area where different types of development works will take place for the betterment of the project area. Urban settlement has been divided into four category which are core urban, fringe urban, potential urban and urban deferred.

Rural Settlements

The areas where the density of population is relatively low and located outside the Pourashava area are declared as rural settlement. These areas are included agricultural lands as well.

Agriculture Suitability

From the agricultural suitability analysis, the most suitable area for agriculture has been identified and those areas are declared as agriculture zone. The agricultural land has been re-organized under different zones as well as with the agricultural zone.

Existing Circulation Network

The existing circulation network of Rangunia Upazila has been identified. The total percentage of the circulation network has been calculated.

Proposed Circulation Network

Depending on the existing roads new circulation network has been proposed. The proposed circulation network is divided according to the road hierarchy of LGED and RHD. These roads have been proposed in order to save some prime areas of structure plan zoning. These roads serve the major areas of the project area.

Main Flood Flow Zone

After the hydrology analysis it is derived that areas where water depth from the surface above 1.8 meter or 5.9 feet are declared as main flood flow zone.

Eco Sensitive, Agriculture, Water Retention Zone

Under this zone Gumai beel, eco parks, wildlife sanctuary, agricultural land and 50-meter buffered rivers and 10-meter buffered chara have been categorized.

Water Supply Protection Zone

Water supply protection zone comprises river, canal/chara/khal. 50-meter buffer from the edge of the rivers, 10-meter buffer from the chara/khal will be preserved for water supply protection zone.

Grey Zone

An industrial low hazard zone has been declared on the basis of its existing land use and circulation network. This zone does not meet the requirements of the suitability analysis. Different types of low hazard industries can be development on this zone.

Water Body

The water bodies which area is more than 0.25 acre are shown in the structure plan.

Sub Flood Flow Zone

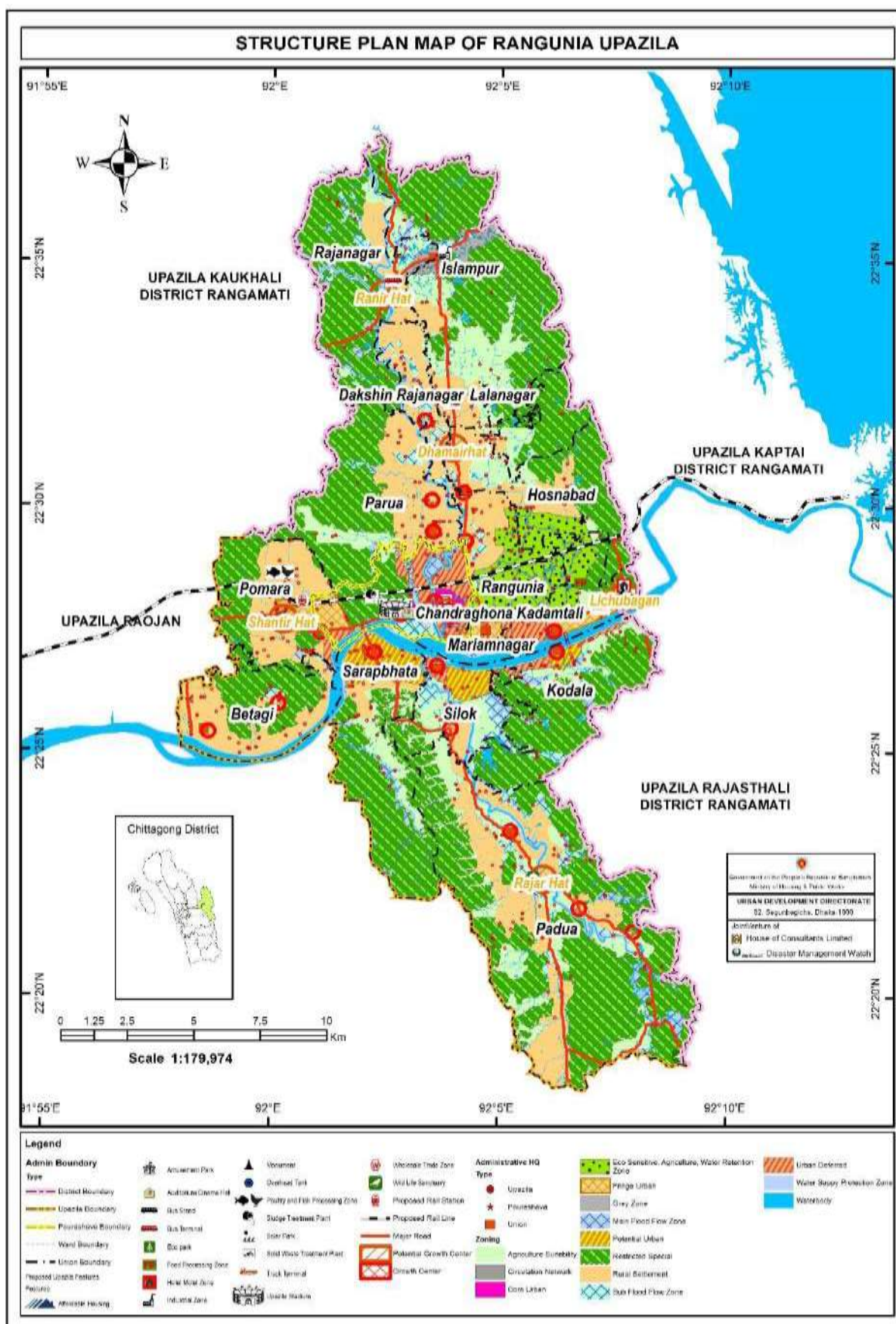
After the hydrology analysis it is derived that areas where water depth from the surface 0.9 meter to 1.8 meter or 2.9 feet to 5.9 feet are declared as sub flood flow zone.

The statistics after formulation of zoning of Rangunia upazila has presented in **Table 7.1** and in **Map 7.2**.

Table 7.1: Structure Plan Zoning of Rangunia Upazila

Zoning	Area Sq. m	Area Sq.km	Area Acre	Percentage
Agriculture Suitability	37366209.967	37.366	9233.392	10.741
Circulation Network	1097112.156	1.097	271.102	0.315
Core Urban	1533939.813	1.534	379.045	0.441
Eco Sensitive, Agriculture, Water Retention Zone	13304930.611	13.305	3287.720	3.825
Fringe Urban	6838597.926	6.839	1689.854	1.966
Grey Zone	2450526.287	2.451	605.538	0.704
Main Flood Flow Zone	5621307.574	5.621	1389.055	1.616
Potential Urban	6365193.074	6.365	1572.873	1.830
Restricted Special	160250709.281	160.251	39598.813	46.065
Rural Settlement	65121339.845	65.121	16091.834	18.719
Sub Flood Flow Zone	8457243.356	8.457	2089.830	2.431
Urban Deferred	8276442.036	8.276	2045.153	2.379
Water Supply Protection Zone	25345745.604	25.346	6263.070	7.286
Waterbody	5851270.970	5.851	1445.881	1.682
Total	347880568.500	347.881	85963.161	100.000

Source: Prepared by Consultant Team based on Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.2: Structure Plan of Rangunia Upazila

7.2.5 Policies for Planning Zones

1. Components of Structure Plan
2. Restricted Special
3. Urban Settlements
4. Rural Settlements
5. Agriculture
6. Circulation Network
7. Flood Flow, Water Body and Water Supply Protection Zone
8. Industrial Low Hazard Zone
9. Geology
10. Tourism Development
11. Economic Development

Restricted Special

Policy 1: Protect and preserve available hilly area.

Policy 2: Protect and preserved forest on the hilly area.

Urban Settlements

Policy 1: Promote urban area to buildable lands.

Policy 2: Restrict urban growth in seismic and flood prone zones.

Policy 3: Provide better transportation connectivity throughout urban areas linking rural hinterlands.

Policy 4: Provision of appropriate infrastructure and service facilities (road, drain, bridge, culvert, water supply, sewerage and sanitation, garbage disposal, energy, education and health etc) with equity to the urban dwellers.

Rural Settlements

Policy 1: Save agriculture lands in rural areas by encouraging nucleated/clustered villages.

Policy 2: Provision of better infrastructure and service facilities to the rural dwellers.

Policy 3: Promote integrated rural development connecting growth centres and villages.

Agriculture

Policy 1: Save and protect at least double and triple cropped agriculture lands.

No encroachment of other uses will be allowed in the agricultural zones. To save the agricultural land for food security in the country, it is necessary that further loss of agricultural land is prevented.

Policy 2: Keep suitable agriculture lands free from any kind of encroachments particularly from human settlements.

Bangladesh is an agricultural country. Its economy is mostly dependent on agriculture. But in order to provide housing, most of the agricultural lands are converting to residential areas. As a result of expansion of residential areas, the total amount of agricultural lands is decreasing day by day which is harmful for future food production. So it is the demand of the time to discourage residential expansion in the agricultural land and Keep suitable agriculture lands free from any kind of encroachments.

Policy 3: Ensure surface water irrigation keeping water bodies (canals and rivers) active for the sustainable agriculture development.

Policy 4: Protect existing agricultural set-up keeping production uninterrupted in the project area.

Promotion of agriculture would help raising income and savings to employment. The main objectives of agriculture sector to increased production and simultaneously ensure value addition. Surplus from agriculture will help development of agro-based industries and investment in other productive sectors.

Circulation Network

Policy 1: Connect union headquarters, market places, growth centres and hats/bazars through better transportation network.

Policy 2: Establishment of hierarchy among primary, secondary and tertiary roads.

Policy 3: Encourage development of sidewalk and bicycle lane/route.

Policy 4: Ensure integration of bus, rail and water transportation networks.

Flood Flow, Water Body and Water Supply Protection Zone

Policy 1: Protect main flood flow zone from encroachment.

Policy 2: Discourage development on the influence area of main flood flow zone.

Policy 3: Protect existing and newly buildable urban growth from river erosion.

Policy 4: Ensure utilization of surface water for irrigation and supply of water to the urban residents.

Industrial Low Hazard Zone

Policy 1: Protect grey area for alternative use (low hazard industry) rather than agriculture or settlements.

Policy 2: Prohibit polluting or high hazard creating establishments/industries from this zone.

Policy 3: Encourage better transportation circulation to and from this zone to other regions connected with Rangunia.

Geology

Policy 1: Discourage development of urban and industrial agglomeration, headquarters, market place and growth centres in seismic hazard prone zone.

Policy 2: Promote and ensure alternation utilization (e.g. agriculture, forestry) in geologically vulnerable zone.

Tourism Development

Policy 1: Promote tourism as a mean of economic development.

Policy 2: Encourage creation of tourist spots such as eco-park (Sheikh Russel Aviary and Khurusia Eco-Park), wild-life sanctuary (Ghumai Beel and Dudh Pukuria) and safari park (Sukh Bilash) without disturbing nature.

Economic Development

Policy 1: Promote technology-driven agriculture practices for intensive and extensive cultivation.

Policy 2: Encourage agro-based industries through agricultural development.

Policy 3: Develop advanced rural marketing mechanism for the quick shipment of agri-products.

Policy 4: Ensure proper utilization of grey zone so as to generate employment opportunity to the local people.

7.3 Urban and Rural Area Plan

7.3.1 Conceptualization of Urban and Rural Area Plan

Urban Area Plan is concerned with the planned sustainable development of the urban area of a town or settlement and the protection of its environs. In establishing the limits of the urban area, this Plan is complacent of existing development, projects approved for development but not yet built, and of development in progress. Urban Area Plan includes those areas which require economic, physical and social renewal and for areas likely to be subject to large scale development over the lifetime of the plan.

Rural Area Plan enables planning policies in rural areas that are below the strategic level of Development Plan and are more local in nature. It also includes those rural areas which require economic, physical and social renewal and for areas likely to be subject to large scale development over the lifetime of the plan.

7.3.2 Extent and Nature of Urban and Rural Area Plan

Urban Area Plan (UAP) provides an interim mid-term strategy for 10 years and covers for the development of urban areas within the project area. Generally, UAP contains an explanatory report, resource maps, interim management report, planning rules, urban area plan and a multi-sectoral investment program. The Urban Area Plan has been comprised as follows:

1. Existing Land Use Survey
2. Survey of Development Activities
3. Population Survey
4. Traffic and Transportation Survey
5. Industrial Surveys
6. Recreational and Open Space
7. Utility Facilities
8. Growth of the Town
9. Health Facilities
10. Educational Facilities
11. Shopping
12. Municipal Budget
13. Municipal Achievements
14. Disposal Services
15. Physical Feature Surveys

Urban Area Plan is included Transport Network, Drainage Plan and Future Facilities. In this chapter, Future Demand has been calculated as per derived planning standard and proposal has been made based on existing facilities (Please See **Appendix-C**). The future service allocation proposals have been outlined in this chapter.

7.3.3 Purpose of Urban and Rural Area Plan

Urban Area Plan and rural area plan is a statutory planning document to guide future development of Urban and rural up to 2033. The plan will play an important role of enabling upazila parishad to play greater role as a facilitator for promoting private sector development

initiatives. These plans guidance to how it can develop the roles i.e. to promote development, to co-ordinate development and to control development.

7.3.4 Area Coverage Under Urban and Rural Area Plan

On the basis of existing landuse and population projection, the future urban area has been identified. As Rangunia Upazila has 15 Unions along with one Pourashava the future extended urban areas are Mariamnagar union, Chandroghona Kadamtoli Union and some portion of Pomra union. Except these unions the other unions are declared as rural area.

7.3.5 Urban and Rural Area Plan Proposals

Depending on existing facilities, projected population for 20 years and demand from PRA the urban and rural facilities are distributed. The circulation network and drainage network has been given top priority. Other facilities like schools, health clinics, neighbourhood markets, eco- park, bus terminal, CNG stand and many more have been proposed.

7.3.6 Plan for Road Network Development

Road network development plans are taken on the basis of existing scenario of road network. The existing road network condition has been described in total and also according to the union and ward wise.

7.3.6.1 Existing Road Networks

The **Table 7.2** describes the present road network condition of the Pourashava area. The outcome of the table implies that every road is dominating in Pourashava and the total length of Pucca, HBB and Katcha road is respectively 32.18, 31.47 and 27.96 kilometer.

Table 7.2: Existing Circulation Network of Pourashava

Ward	Road Type	Length in Meter	Length in Kilometer
Ward No-01	HBB	4308.49	4.31
	Katcha	2636.67	2.64
	Pucca	4568.62	4.57
Ward No-02	HBB	465.22	0.47
	Katcha	1297.71	1.30
	Pucca	1504.03	1.50
Ward No-03	HBB	3012.25	3.01
	Katcha	11580.82	11.58
	Pucca	5082.23	5.08
Ward No-04	HBB	3273.40	3.27
	Katcha	1442.53	1.44
	Pucca	730.98	0.73
Ward No-05	HBB	2019.38	2.02
	Katcha	4767.19	4.77
	Pucca	3354.03	3.35
Ward No-06	HBB	5614.27	5.61
	Katcha	1299.60	1.30
	Pucca	2349.28	2.35

Ward	Road Type	Length in Meter	Length in Kilometer
Ward No-07	HBB	3047.01	3.05
	Katcha	1234.11	1.23
	Pucca	6543.59	6.54
Ward No-08	HBB	7342.81	7.34
	Katcha	3003.46	3.00
	Pucca	5506.12	5.51
Ward No-09	HBB	2389.91	2.39
	Katcha	702.27	0.70
	Pucca	2541.16	2.54

Source: Field Survey, 2016

The **Table 7.3** depicts that the condition of road network in unions as compared with Pourashava is different. In Pourashava the pucca road is mostly visible but in unions katcha road is prominently visible. For example, if one union is taken such as Silok union it is visible that the length of Pucca road is 11.50 km whereas the length of HBB and Katcha road are respectively 25.09 km and 25.94 km.

Table 7.3: Existing Circulation Network of Union

Union	Road Type	Length in Meter	Length in Kilometer
Betagi	HBB	31021.30	31.02
	Katcha	29751.22	29.75
	Pucca	18587.84	18.59
Chandraghona Kadamtali	HBB	27004.51	27.00
	Katcha	17979.16	17.98
	Pucca	10085.47	10.09
Dakshin Rajanagar	HBB	15301.48	15.30
	Katcha	9601.18	9.60
	Pucca	9527.23	9.53
Hosnabad	HBB	29554.33	29.55
	Katcha	43558.66	43.56
	Pucca	13798.00	13.80
Islampur	HBB	15900.10	15.90
	Katcha	50041.35	50.04
	Pucca	19765.41	19.77
Kodala	HBB	19833.97	19.83
	Katcha	87638.01	87.64
	Pucca	10650.57	10.65
Lalanagar	HBB	26009.08	26.01
	Katcha	28036.69	28.04
	Pucca	7550.31	7.55
Mariamnagar	HBB	11147.14	11.15
	Katcha	2816.60	2.82
	Pucca	9255.60	9.26
Padua	HBB	40046.98	40.05
	Katcha	139986.75	139.99
	Pucca	33885.43	33.89
Parua	HBB	18420.27	18.42
	Katcha	55005.92	55.01
	Pucca	9662.15	9.66

Union	Road Type	Length in Meter	Length in Kilometer
Pomara	HBB	32771.97	32.77
	Katcha	29599.59	29.60
	Pucca	18631.16	18.63
Rajanagar	HBB	7993.71	7.99
	Katcha	33918.66	33.92
	Pucca	20925.88	20.93
Rangunia	HBB	26287.35	26.29
	Katcha	16771.66	16.77
	Pucca	8277.57	8.28
Sarapbhata	HBB	26860.04	26.86
	Katcha	30150.05	30.15
	Pucca	11391.85	11.39
Silok	HBB	25087.09	25.09
	Katcha	25940.42	25.94
	Pucca	11501.99	11.50

Source: Field Survey, 2016

7.3.6.2 Proposed Road Network

PRA survey has been done throughout the Upazila. During the session and survey most of the people demanded for road network improvement. Road network hierarchy has been developed for the proposed roads of this Upazila according to the LGED and RHD. National highway and Regional highway has been proposed to upgraded into four lane roads. The significant roads inside the Upazila has been proposed to make pucca. The following cross section and proposed road width have to maintain during road construction. In **Table 7.4** description of the types, agencies who are responsible are given and in **Table 7.5** road cross-section standards have been presented. **Table 7.6** depicts the proposed roads according to width along with lane.

Table 7.4: Description of the Types, Definitions and Definitions and Agencies Responsible for various Roads of the Country (2003)

Sl. No.	Type	Definition	Ownership and Responsibility
1	National Highways	Highways connecting National Capital with Divisional HQ/s or seaports or land ports or Asian Highways.	RHD*
2	Regional Highways	Highways connecting District HQ/s or main river or land ports or with each other not connected by National Highways.	RHD
3	Zila Road	Roads connecting District HQ/s with Upazila HQ/s or connecting one Upazila HQ to another Upazila HQ by a single main connection with National/Regional Highway, through shortest distance/route.	RHD
4	Upazila Road	Roads connecting Upazila HQ/s with Growth Centers with another Growth Center by a single main connection or connecting Growth Center to Higher Road System**, through shortest distance / route.	LGED*/LGI*
5	Union Road	Roads connecting Union HQ/s with Upazila HQ/s, Growth Centers or Local Markets or with each other.	LGED*/LGI*
6	Village Road	a) Roads connecting Villages with Union HQ/s, local markets, farms and ghats or with each other. b) Roads within a Village.	LGED*/LGI*

Source: LGED, 2005

Design Classes

Roads in Bangladesh are divided into the following six design types. The figures of cross-sections are presented in **Figure 7.1, Figure 7.2, Figure 7.3, Figure 7.4, Figure 7.5 and Figure 7.6**

Table 7.5: Road Cross-Section Standards

Design Type	Design year traffic volume PCU/peak hour (typical MV AADT)	Cross-section widths in metres			Indicative Road Classification		
		Crest Width(meter)	Carriageway (no. of lanes)	Paved shoulders			
1	4500 - 8500 (19,000-36,000)	36.2	2x 11 (6)	1.8	National	Regional	Feeder
2	2100-4500 (7,000- 19,000)	21.6	2x7.3 (4)	1.8			
3	1600-2100 (5,000-7,000)	16.3	7.3 (2)	1.5			
4	800- 1600 (1,000-5,000)	12.1	6.2 (2)	1.5			
5	400 - 800 (500 -1,000)	9.8	5.5 (2)	1.2			
6	<400 (<500)	9.8	3.7 (1)	1.2			

Source: RHD2004

Table 7.6: Proposed Road Width

Sl. No.	Road Category	Buffer Width (meter)	Lane	Design Type
1	National Highways	21.6	4	Type 2
2	Regional Highways	16.3	2	Type 3
3	Zila Road	12.1	2	Type 4
4	Upazila Road	7.3	1	
5	Union Road	5.5	1	
6	Village Road	4.8	1	

Source: RHD2004

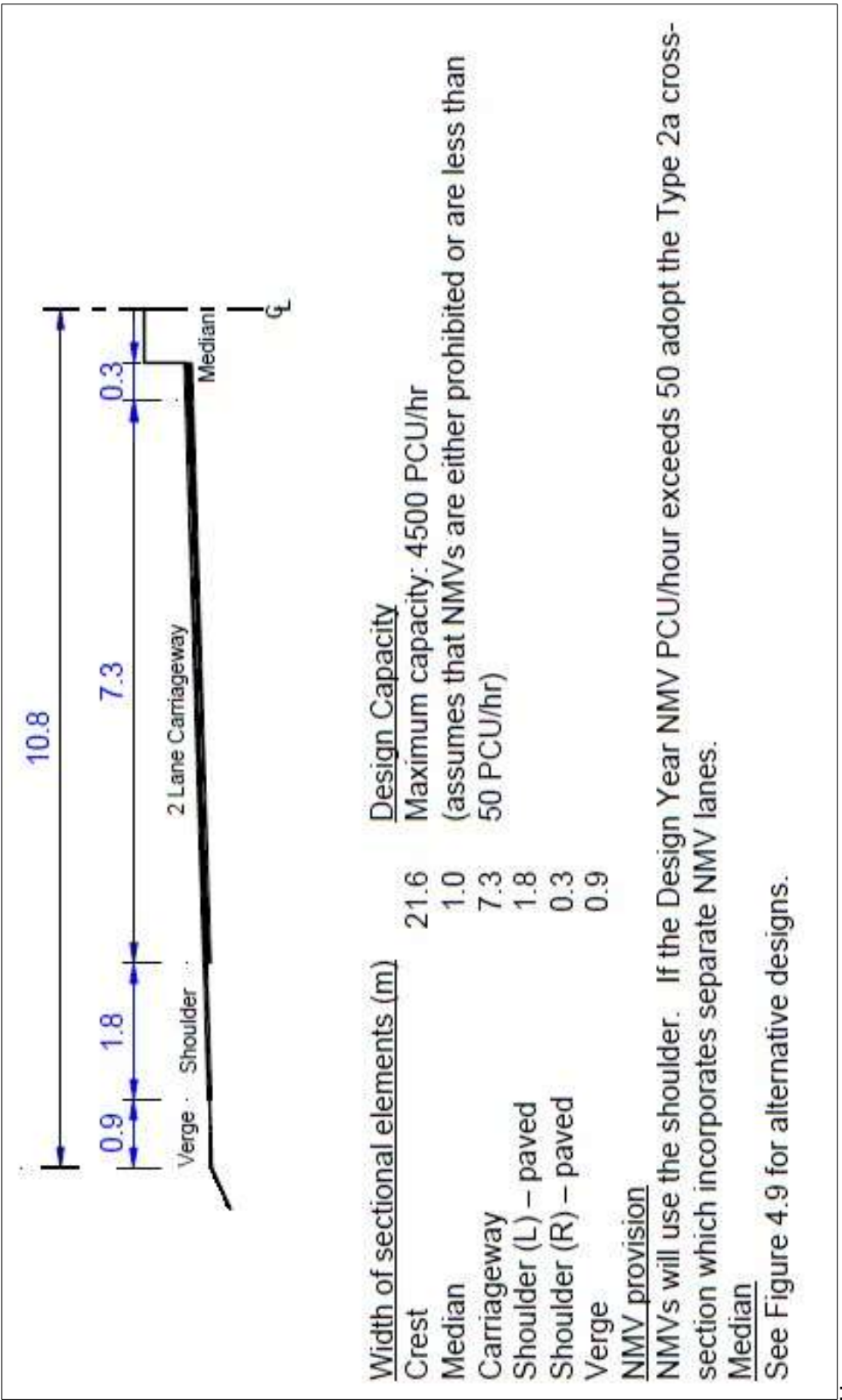
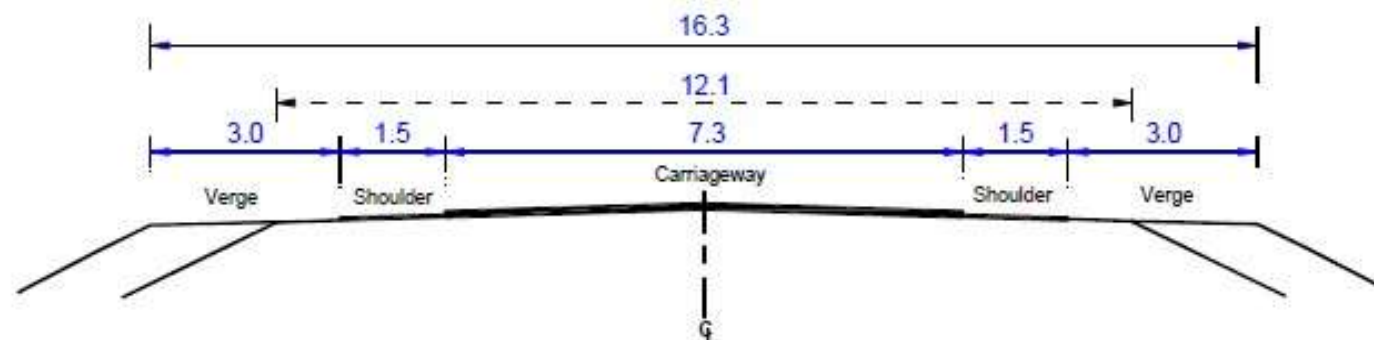


Figure 7.1: Design Type 2, Dual 2 lane; 7.3m carriageway (RHD, 2004)



Width of sectional elements (m)

Crest	16.3
Carriageway	7.3
Shoulder – paved	1.5
Verge	3.0

Design Capacity

Maximum capacity: 2100 PCU/hr
(assumed NMV/MV ratio of 0.2)

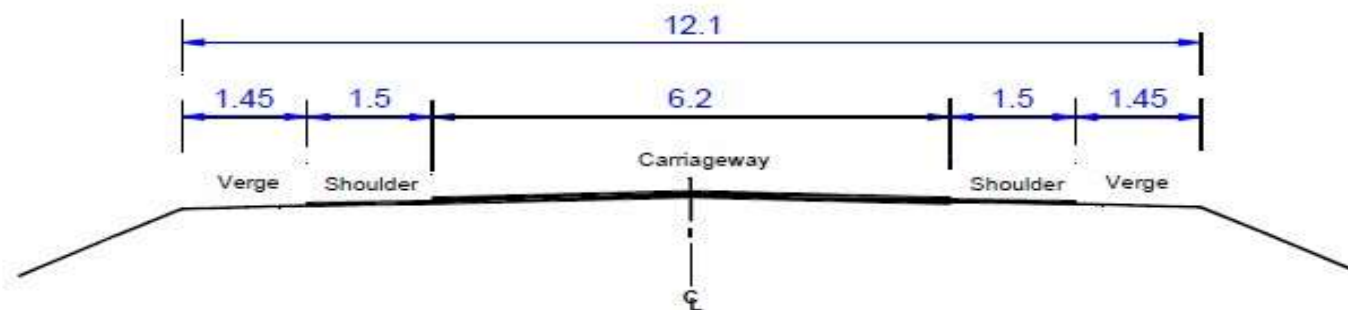
NMV provision

NMVs will use the paved shoulder. Consider providing separate NMV lanes (Type 3a cross-section) if the DY NMV PCU/hr exceeds 400 – see Figure 4.8.

Crest width

The extra-wide embankment permits the future addition of NMV lanes. If it is unlikely that these will ever be needed the verge need only be 0.9m wide, making the crest width 12.1m.

Figure 7.2: Design Type 3; 7.3m carriageway (RHD, 2004)



Width of sectional elements (m)

Crest	12.1
Carriageway	6.2
Shoulder – paved	1.5
Verge	1.45

Design Capacity

Maximum capacity: 1600 PCU/hr
(assumed NMV/MV ratio of 0.14)

NMV provision

Where DY NMV PCU/hr exceeds 400 consider providing separate NMV lanes (Type 4a cross-section) – see Figure 4.8.

Upgrading

The extra-wide embankment permits upgrading to Type 3 standard.

Figure 7.3: Design Type 4; 6.2m carriageway (RHD, 2004)

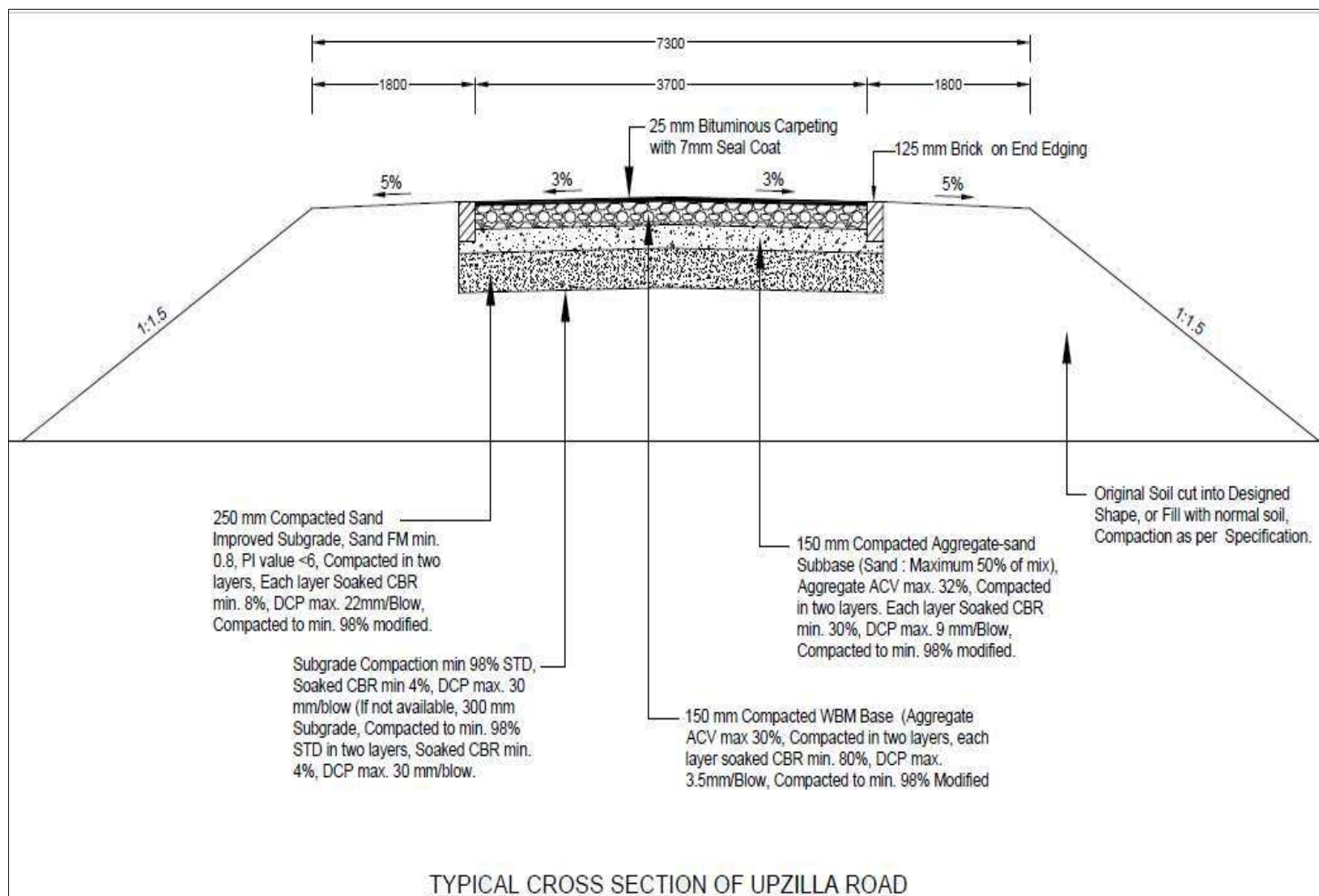


Figure 7.4: Typical Cross Section of Upazila Road (LGED, 2005)

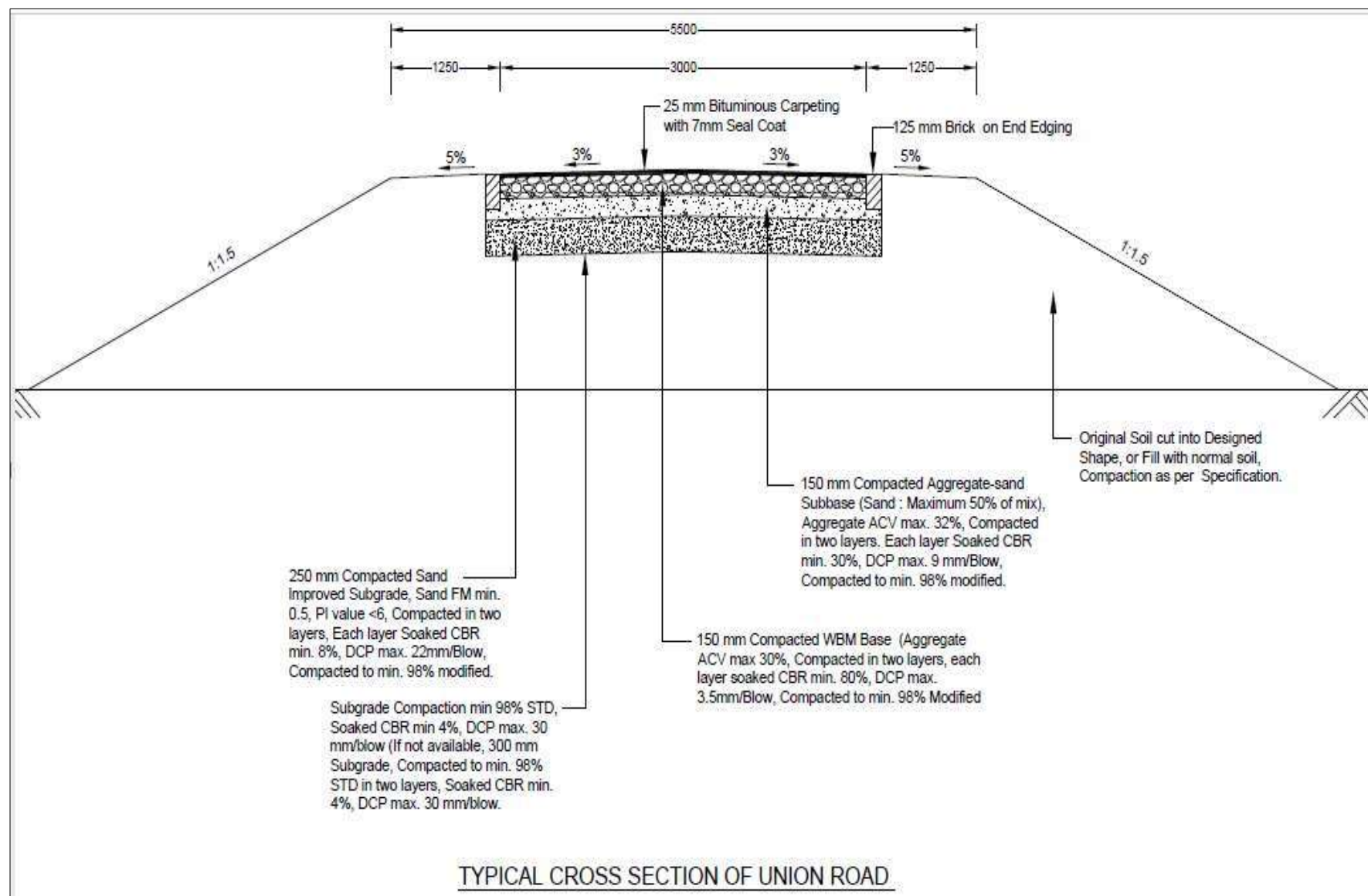


Figure 7.5: Typical Cross Section of Union Road (LGED, 2005)

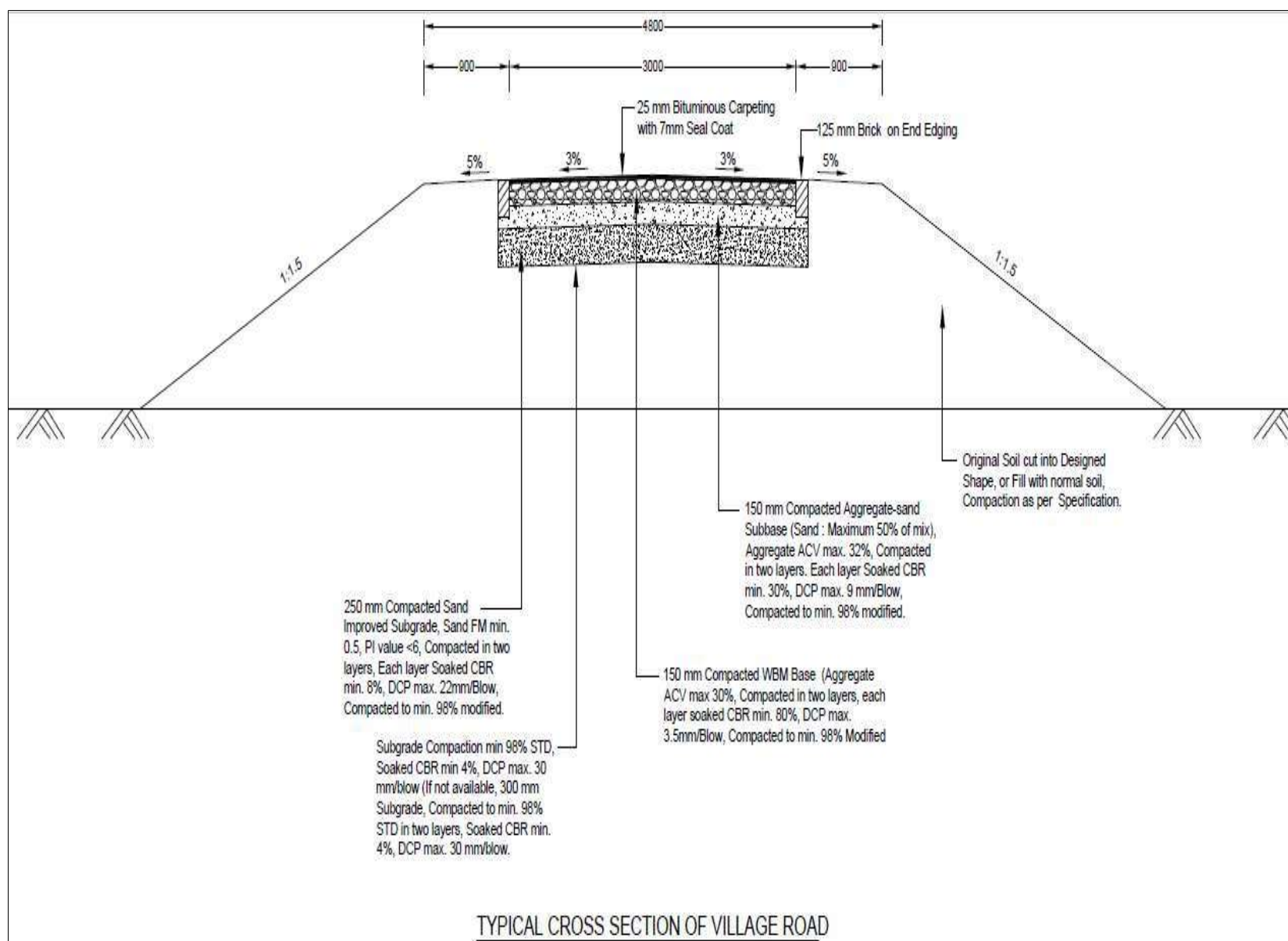


Figure 7.6: Typical Cross Section of Village Road (LGED, 2005)

Road Network has been proposed depending on the missing links and requirement of the upgradation of existing road. Roads have been proposed on the basis of concerned authority and 6 types of road have been propose for Rangunia Upazila (**Map 7.3**). In total, 572.17 km road has been proposed for Rangunia Upazila which incorporates existing road and new roads based on missing links. Thee detail length of road has been outlined in **Table 7.7**.

Table 7.7: Proposed Road Network

Road Category	Lane	Road Width (m)	Length(m)	Length(km)
National Highway	4	21.6	16925.67	16.93
Regional Road	2	16.3	25859.31	25.86
Zila Road	2	12.1	28742.20	28.74
Upazila Road	1	7.3	62199.99	62.20
Pourashava Road	1	5.5	53636.99	53.64
Union Road	1	5.5	63575.03	63.58
Village-A	1	4.8	109030.20	109.03
Village-B	1	4.8	212200.11	212.20
Total			572169.50	572.17

Source: Prepared by Consultant Team based on Survey, 2016

The below **Table 7.8** has shown the statistics of differences between existing road network and the proposed road network. the total circulation network of the Upazila has been increased. Almost 1.6% area covers the road network of the total area.

Table 7.8: Comparison Between Existing & Proposed Circulation Network

Circulation Network	Length (km)	Area (sq. km)	Area in Percentage	Remarks
Existing	1259.15	3.565	1.025	According to Existing Land use
Proposed	572.17	1.842	0.529	According to Structure Plan

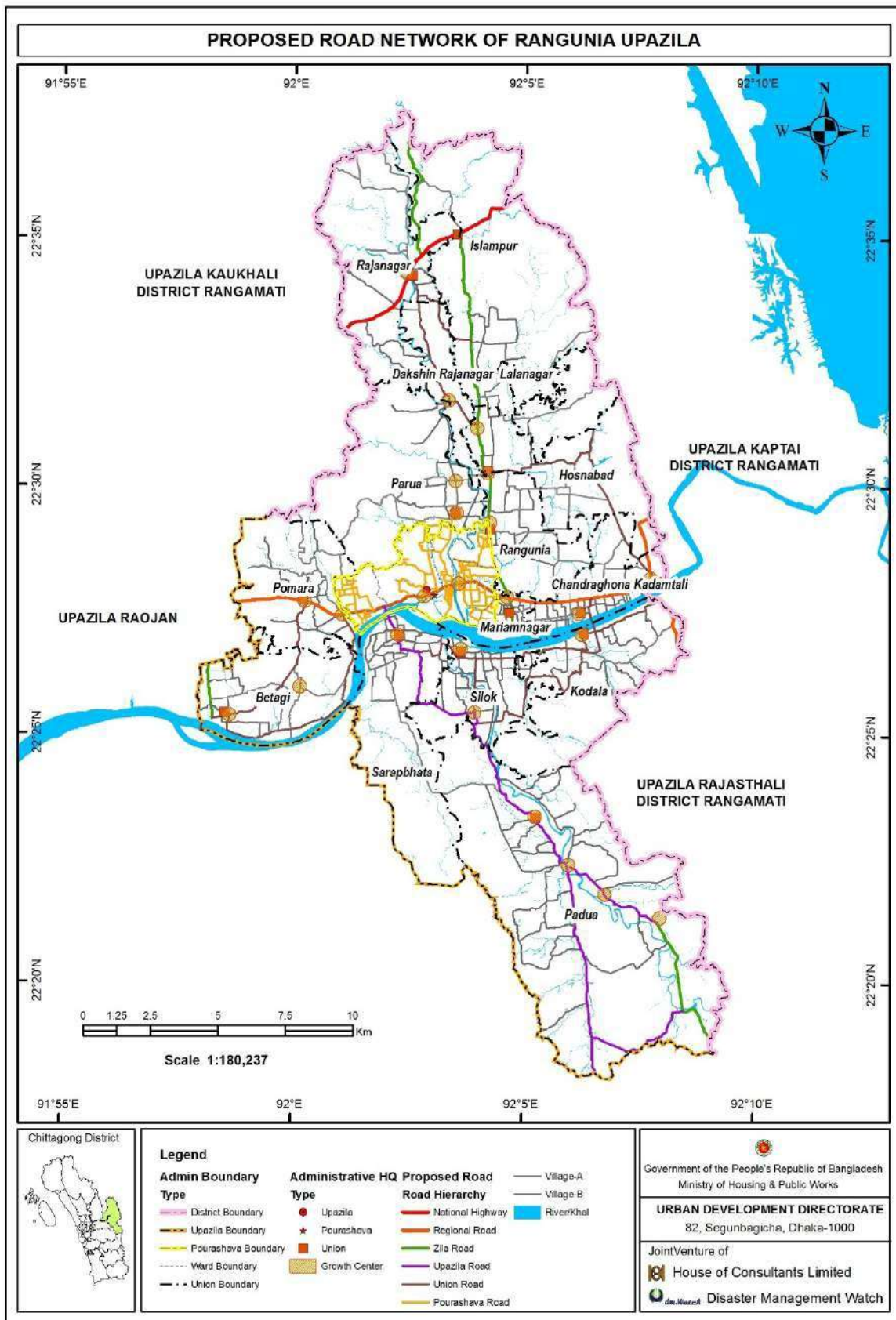
Source: Prepared by Consultant Team based on Survey, 2016

7.3.7 Drainage Network

The existing drainage system has been observed of this area. Depending on the existing condition drainage network has been proposed for unions and urban area.

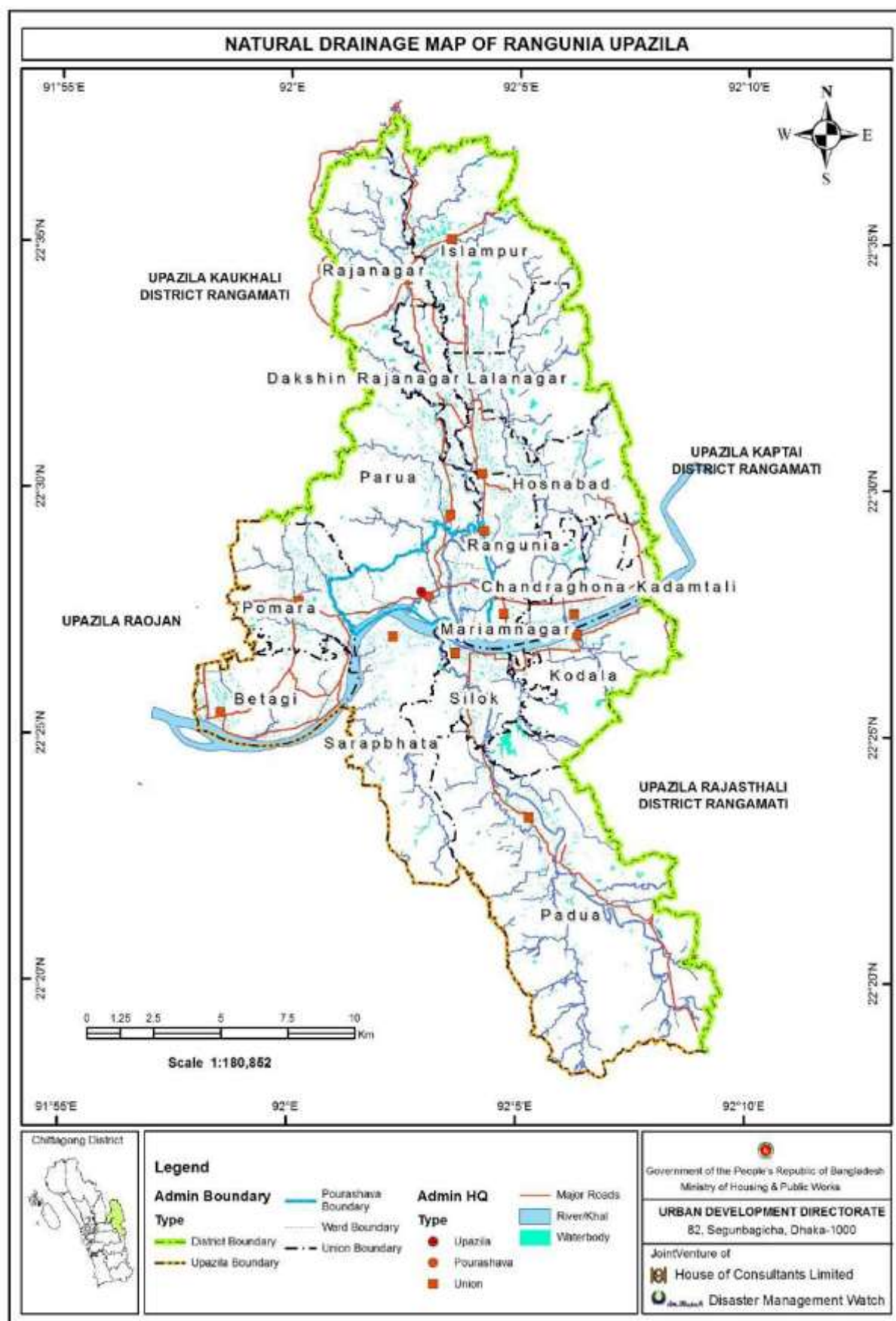
7.3.7.1 Existing Drainage Network

During the physical feature survey, it was detected that only the existing pourashava area has a drainage system. Though the existing drainage system is not well designed. There are some manmade drains and natural drainage networks. The natural drainage network is mainly the three rivers namely Shilok, ichamati and Karnafhuli and numerous numbers of channels are passing through this Upazila. The **Map 7.4** represents the existing drainage network of Rangunia Upazila.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.3: Proposed Road Network Plan of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.4: Existing Natural Drainage Map of Rangunia Upazila

7.3.7.2 Proposed Drainage Network

According to the road alignment a drainage network has been proposed for the urban area. Outfalls of these manmade drainages have been identified. In case of rural areas, the existing natural channels need to keep navigable for the passing of water. From the existing natural drainage network, the direction of flow can be easily recognisable. Proposed drainage network has done in two parts. First one for the total drainage network of Rangunia Upazila. The **Map 7.5** depicts the flow of water and their outfalls to respective rivers and chara. The total length of primary drainage is 329.035 km. The next **Map 7.6** represents the man-made drainage system which has been proposed for urban area with designated outfalls. The length of secondary drainage is 43.418 km. 42 outfalls have been proposed in Pourashava.

7.3.8 Plan for Urban and Rural Facilities and Services

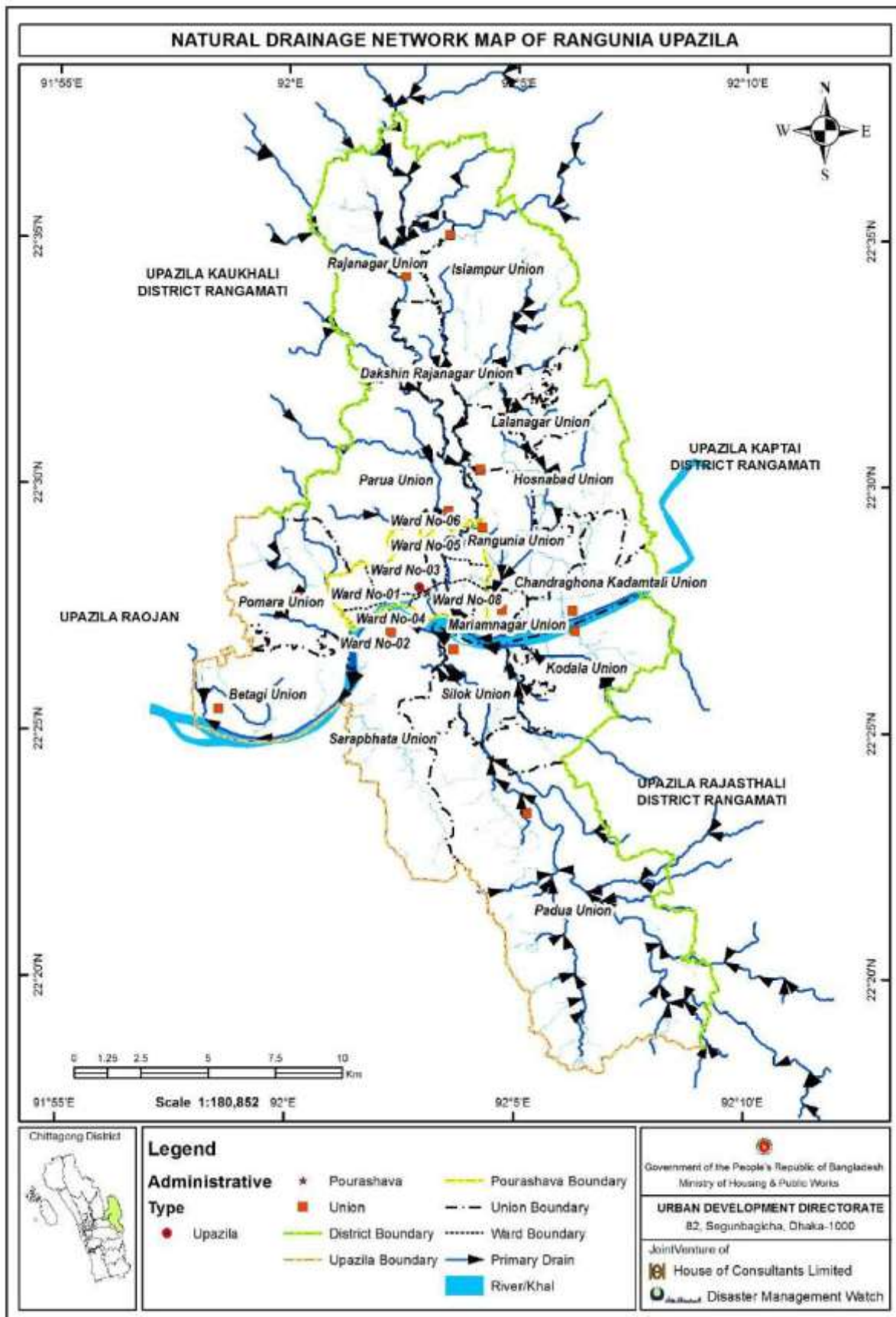
7.3.8.1 Existing Facilities and Services

On the basis of existing facilities, population projection and PRA demand different features have been proposed which are important for the development of this Upazila in near future. **Table 7.9** represents the existing facilities and services.

Table 7.9: Existing Facilities and Services

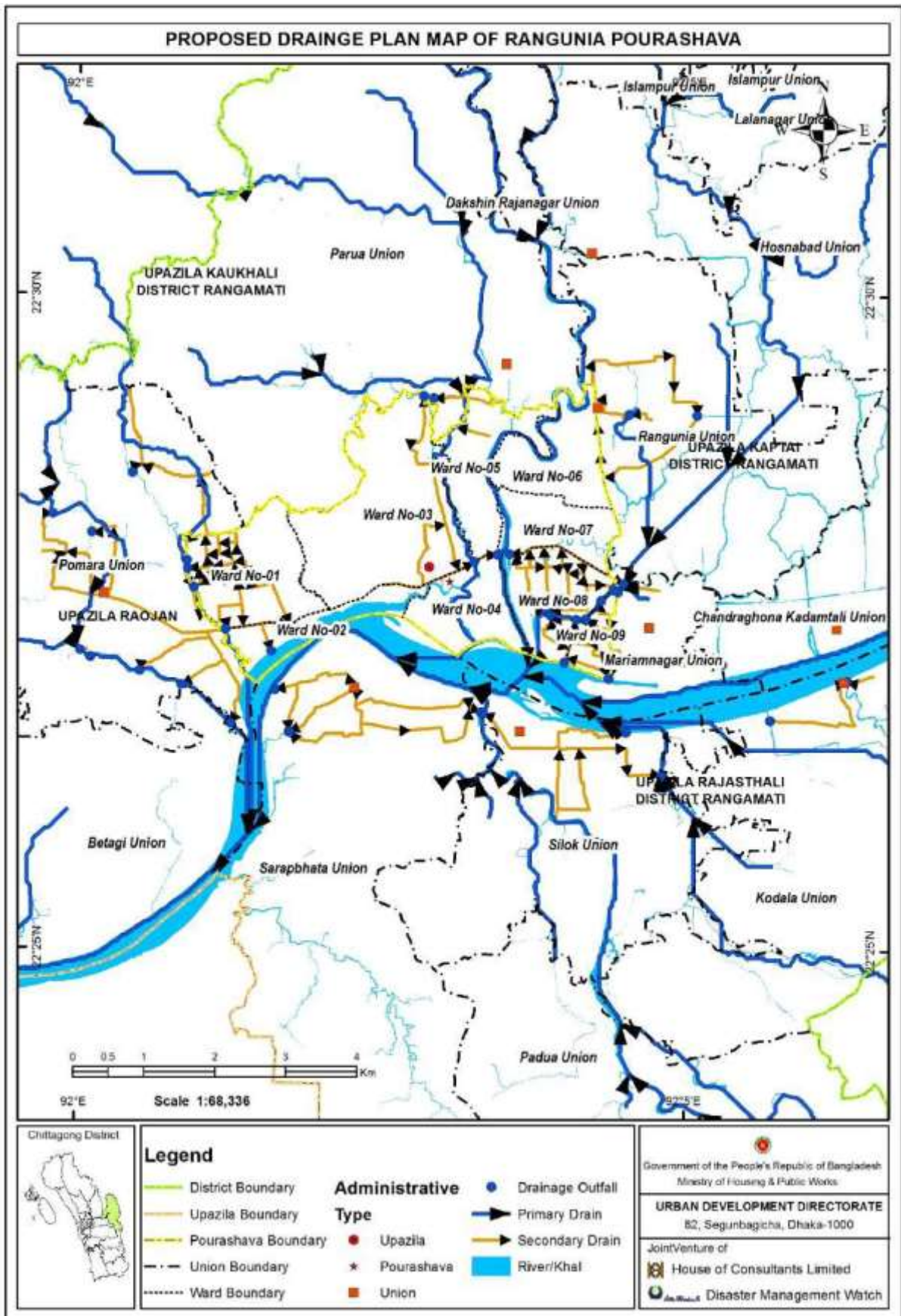
Important Features	Frequency	Important Features	Frequency
Auditorium	1	Kindergarten	4
Buddhist Temple	11	Madrasa	101
Clinic	3	Mazar	8
Club	6	Mosque	260
College	9	Pagoda	11
Crematory	7	Police Station	1
Dustbin	1	Post Office	7
Fire Service	1	Primary School	107
Gas Station	1	Refueling Station	1
Government Services	23	Bus Stand	1
Health Facilities/Clinic	25	Sohid Minar	1
High School	33	Temple	8
Hindu Temple	89	Transfer Station	1
Industry	5	Union Health Complex	1

Source: Prepared by Consultant Team Based on Field Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.5: Proposed Drainage Network of Rangunia Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.6: Proposed Drainage Plan for Urban area

For deriving the proposed features and facilities, a model features for an Upazila has been made in below **Table 7.10**.

Table 7.10: Proposed Urban /Rural and Upazila Features

Rural/Union	Urban/Built up Area	Upazila
<ul style="list-style-type: none"> ➤ Growth Center ✓ Wholesale Market ✓ Retail Market ✓ CNG/Tempo/Auto Rickshaw /Rickshaw Stand ➤ Primary School/Kindergarten ➤ High School ➤ Health Center/Maternity Clinic ➤ Play Ground/Field ➤ Eidgah ➤ Graveyard ➤ Mosque/Pagoda/ Temple ➤ Community Center ➤ Post Office ➤ Electric Substation ➤ Small Scale Industry 	<ul style="list-style-type: none"> ➤ Primary School/Kindergarten ➤ High School ➤ College ➤ Neighborhood Park ➤ Play Ground/Field ➤ Health Center/Maternity Clinic ➤ Mosque/Pagoda/ Temple ➤ Eidgah ➤ Graveyard ➤ Community Center ➤ Post Office ➤ Water Reservoir ➤ Waste Secondary Transfer Station ➤ Electric Substation ➤ Wholesale Market ➤ Retail Market ➤ Overhead Tank 	<ul style="list-style-type: none"> • Retail Trade Zone • Wholesale Trade Zone • Dairy Food Zone • Fruit processing Zone • Hi Tech Park • Hotel Motel Zone • Economic Zone • Poultry and Fish Processing Zone • Amusement park • IT Park • Low Income/Landless Affordable Housing • Stadium • Water Treatment Plant • Textile and Sweetmeat Zone • Bus Stand • Truck Stand and Freight Zone • Solid Waste Disposal • Botanical Garden • Tourist Zone • Eco Park • Auditorium/Cinema Hall • Monument

Source: Prepared by Consultant Team

7.3.8.2 Proposed Upazila Features

The above table depicts the proposed urban, rural and upazila features which are needed in this area depending on the existing facilities as well as from planning perspective. The table only represents the features and the description along with locations are given in the **Table 7.11. (Appendix-M)**

Table 7.11: Proposed Upazila Features Plot wise

Proposed Features	Union & Pourashava
Wild Life Sanctuary	Padua Union
Eco park	Padua Union
Retail Trade Zone	Rangunia Pourashava
Auditorium/Cinema Hall	Rangunia Pourashava
Truck Terminal	Chandraghona Kadamtali Union
Bus Stand	Rangunia Pourashava
Truck Stand	Rangunia Pourashava
Upazila Stadium	Rangunia Pourashava
Amusement Park	Rangunia Pourashava
Affordable Housing	Chandraghona Kadamtali Union
Wholesale Trade Zone	Chandraghona Kadamtali Union
Bus Stand	Chandraghona Kadamtali Union
Food Processing Zone	Chandraghona Kadamtali Union
Poultry and Fish Processing Zone	Pomara Union
Hotel Motel Zone	Chandraghona Kadamtali Union
Sludge Treatment Plant	Parua Union
Bus Terminal	Lalanagar Union
	Rajanagar Union
	Padua Union
	Chandraghona Kadamtali Union
Industrial Zone	Islampur Union
Water Treatment Plant	Rajanagar Union
Overhead Tank	Rangunia Pourashava
Monument	Rangunia Pourashava
	Rangunia Pourashava
	Chandraghona Kadamtali Union
	Hosnabad Union

Source: Prepared by Consultant Team

The proposed Upazila features have been indicated in the above table along with their mouza and plot number. According to the needs of the inhabitants that have been identified through PRA and different survey and also from planning perspective the features have been proposed for the specific areas. Water Treatment plant has been proposed for the urban area. In urban area an overhead tank also has been proposed. It will ensure water supply in the urban area.

7.3.8.3 Proposed Primary School

In Rangunia Upazila 2 primary schools has been proposed. The location has been given in the **Table 7.12** below. From the survey 107 primary schools have been identified in Rangunia Upazila. According to the PRA and for future demand 2 primary schools have been provided. It has been proposed on the basis of population projection and the public demand. 107 schools are sufficient to serve the present population as well as the future. But according to the scenario the areas which are seemed to be less served by the existing schools 2 primary schools are proposed for them. As the time period of the development plan is 20 years each school should be constructed after 10 years. **(Appendix-M)**

Table 7.12: Proposed Primary School

Existing Primary School	Proposed Primary School	Union	Ward No.
107	2	Betagi	2
		Mariamnagar	1

Source: Prepared by Consultant Team Based on Field Survey, 2016

7.3.8.4 Proposed High School

To ensure education facility for every inhabitants of this area 8 high schools have been provided. At present 33 high schools are existed in this area which is sufficient to serve the present population and also for future population. But on the basis of PRA and population projection for 20 years 8 high schools have been proposed and these schools should be constructed according to the population projection which has been done for 5 years interval. **Table 7.13** presents the description of the proposed schools. **(Appendix-M)**

Table 7.13: Proposed High School

Existing High School	Proposed High School	Union	Ward No.
33	8	Betagi	3
		ChandraGhona	2
		Mariamnagar	5
		Parua	2
		Rajanagar	8
		Shilok	6
		Dakshin Rajanagar	2
		Hosnabad	1

Source: Prepared by Consultant Team Based on Field Survey, 2016

7.3.8.5 Proposed Health Facilities/Clinic

To ensure access to health facilities to every inhabitants of the upazila 6 clinics has been proposed. The locations have been presented in the **Table 7.14**. Health is the most important issue for every people. Access to health facilities is the basic right of every human being. At present 25 clinic or health facilities are available in this upazila and 6 clinics have been proposed in the distant areas. **(Appendix-M)**

Table 7.14: Proposed Health Facilities/Clinic

Existing Clinic/ Health Facilities	Proposed Clinic	Union	Ward No.	Mouza
25	6	Padua	4	Podua
		Parua	4	Parua
		Pomra	7	Chi Rangunia Pomra
		Rajanagar	7	Madda Ghagra
		Silok	8	Shilok
		Kodala	4	Kodala

Source: Prepared by Consultant Team Based on Field Survey, 2016

7.3.8.6 Proposed CNG Stand

Proposed CNG stand and their locations have been presented in the **Table 7.15**. In Upazila area CNG or tempo is one of the most used transports. For this reason, CNG or tempo stands have been proposed in specific locations. **(Appendix-M)**

Table 7.15: Proposed CNG Stand

Proposed Feature	Union	Ward No.
Tempo CNG Stand	Betagi	3
	Sorapbhata	8
	Mariamnagar	9
	Padua	5
	Padua	8
	Parua	9
	Parua	9
	Pomara	6
	Pomra	8
	Rajanagar	8
	Rangunia_	6
	Silok	4
	Dakshin Rajanagar	6
	Islampur	4
	Kodala	5
	Lalanagar	2

Source: Prepared by Consultant Team Based on Field Survey, 2016

7.3.8.7 Proposed Neighbourhood Market

Neighbourhood market has been proposed specially for urban area. 3 neighbourhood markets have been proposed and their locations have been indicated in the **Table 7.16**. **(Appendix-M)**

Table 7.16: Proposed Neighbourhood Market

Proposed Feature	Ward No
Neighborhood Market	7
	1
	4

Source: Prepared by Consultant Team Based on Field Survey, 2016

7.3.8.8 Proposed RSSC Feature

Rural Sales and Service Centres have been proposed for rural areas. As Rangunia Upazila is an agro-based area most of the people are engaged in agricultural activities. For the marketing purpose of these crops RSSC in rural areas is very much needed. The location of these RSSC are proposed on the basis of unserved rural areas. That means where such types of facilities are not available. **Table 7.17** presents the locations of proposed RSSC. (Appendix-M)

Table 7.17: Proposed RSSC Feature

Proposed Feature	Union	Ward No
RSSC	Betagi	7
	Padua	8
	Parua	9
	Pomra	8
	Dakshin Rajanagar	7
	Islampur	4
	Kodala	5

Source: Prepared by Consultant Team Based on Field Survey, 2016

7.3.8.9 Planned Housing for Middle to High Income Group

Planned housing in Rangunia Upazila can be developed with the intervention of Government bodies. To develop this upazila in a planned way planned housing is an important element. In order to carry out such project a suitable area should be selected for. As the housing scheme will serve the middle to high income people the location should be near the Pourashava as it is the urban area of this upazila. Two housing units (**Map 7.7**) are selected on the basis of road connectivity and distances from Pourashava have been presented in **Table 7.18 and Table 7.19. (Appendix-M)**

Table 7.18: Proposed Planned Housing Unit

Planned Housing	Mouza	JL No.	Sheet No.	Area in Sq.km	Area in Acre
Unit 1	Rangunia	34	3 & 4	0.322	79.790
Unit 2	Rangunia	34	3	0.145	35.975

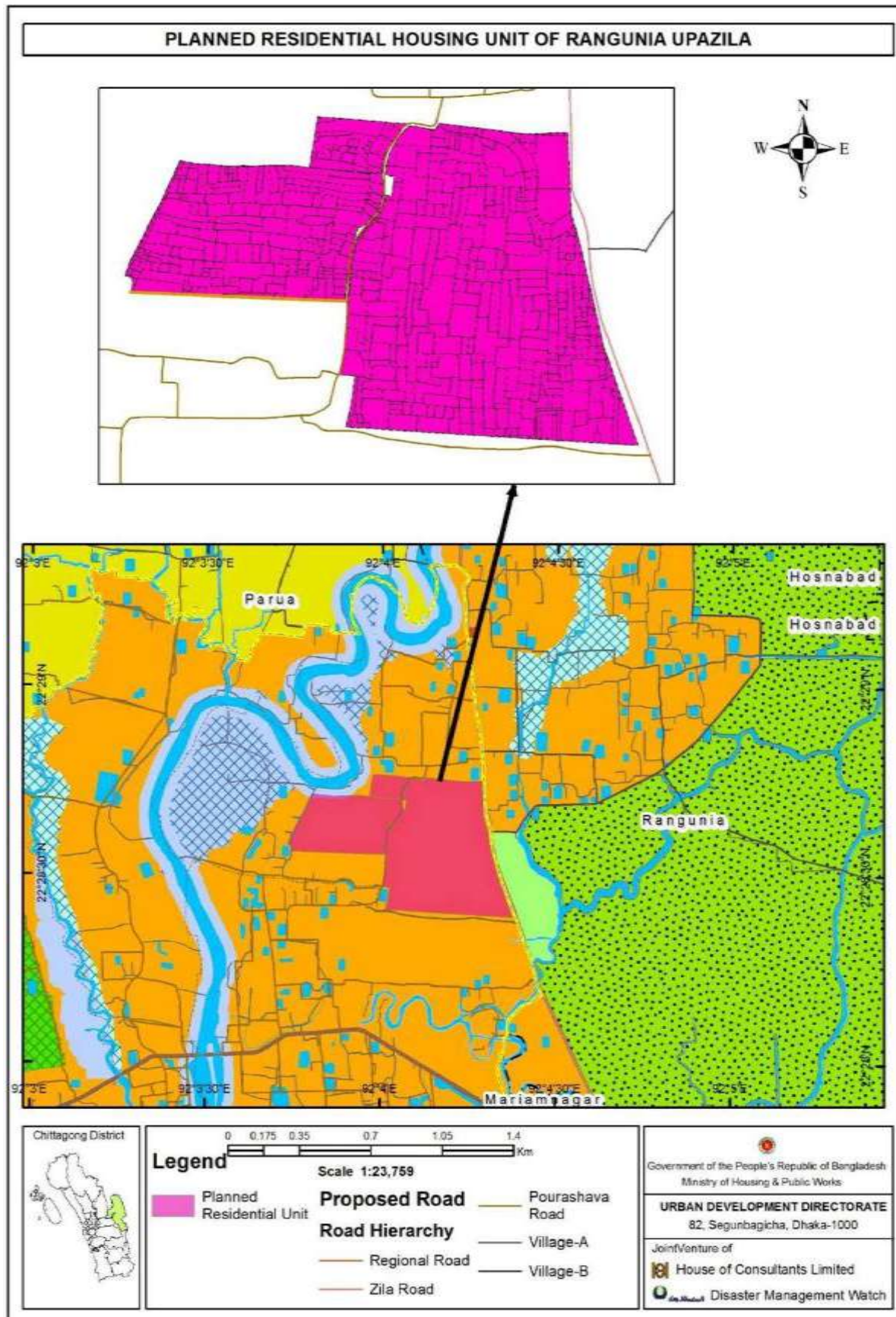
Source: Prepared by Consultant Team Based on Field Survey, 2016

A road has been proposed in the housing unit for the uninterrupted connectivity of the inhabitants.

Table 7.19: Proposed Road

Proposed Road	Length in meter	Length in km
Road	459.151	0.459

Source: Prepared by Consultant Team Based on Field Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.7: Proposed Planned Residential Housing Unit for Urban area

7.3.8.10 Low Cost Housing for the Landless People

Low cost housing unit is for the landless people who needs government help to have a house of their own. For this purpose, a low-cost housing unit has been proposed which has been discussed in the Action Area plan (**Table 7.20 & Figure 7.14**)

Table 7.20: Salient Features for One Low Cost Unit

SALIENT FEATURES: FOR ONE LOW COST	
Total no. of House = 120. Size of each House = 23-3'x 25'-10". Plinth Area of each House = 600. 78 sft. Size of each Plot 40'x 50' = 4.591 decimal.	Area Required for Housing = 6.84 acre. Community Pond = 1 no. (0.69 acre). Community Centre = 1 no. (1363 sft). Play Ground = 1 no. No. of Tube-well =24 nos. Length of HBB Road= 3096 f t. Length of Brick Drain = 3120 ft. Total Area Required for Low Cost Housing 9.31 acre.

Source: Prepared by Consultant Team

7.3.9 Existing and Development Plan

Existing land use data has been prepared for each union and ward. Development plan has been prepared for the Upazila. The area is divided into 12 different zones. The condition of the unions and Pourashava area are presented in the following maps after preparing of the structure plan. As the structure plan has been presented previously the development plan of 15 unions and 9 wards has been presented in maps sequentially.

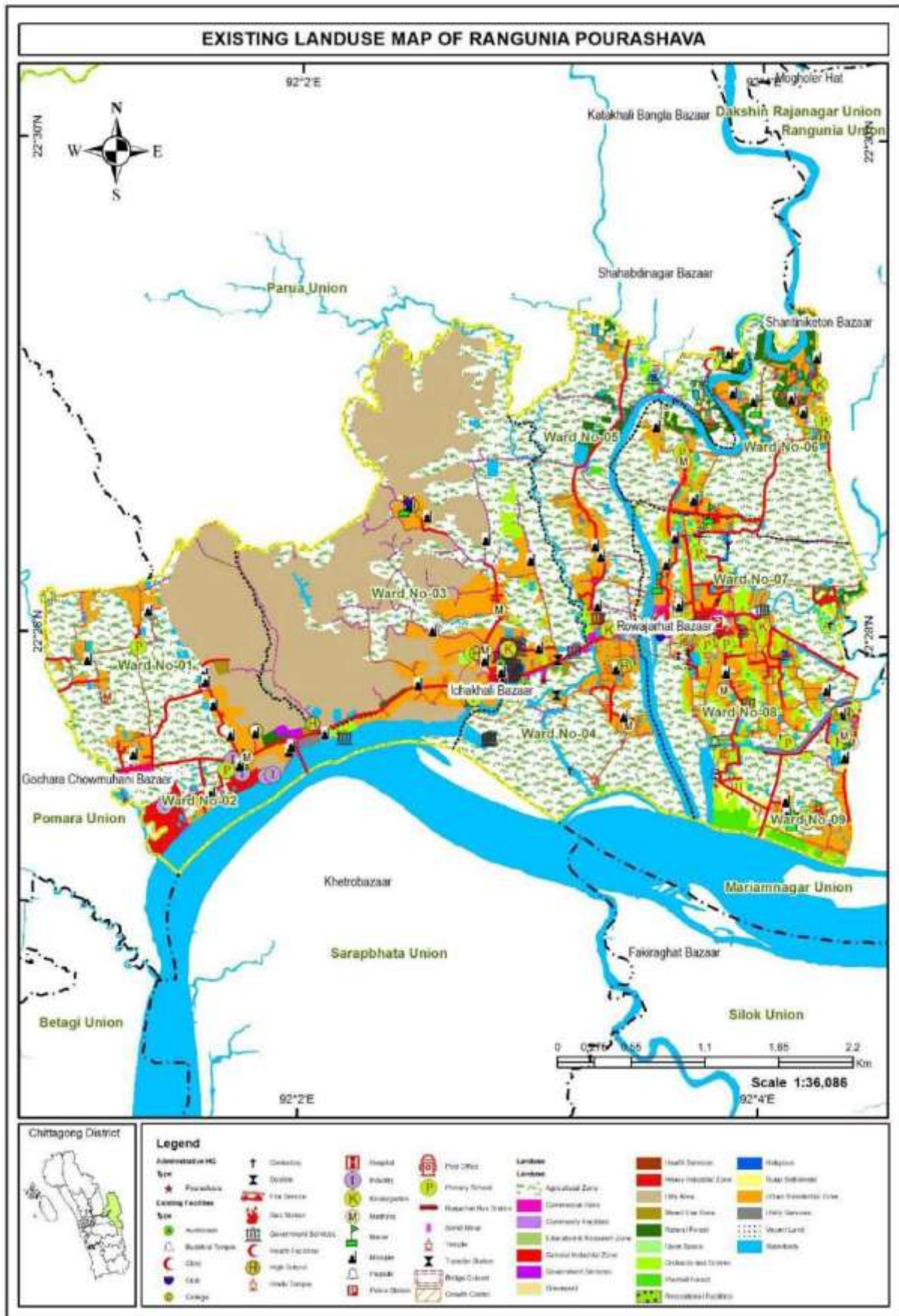
7.3.9.1 Existing and Development Plan of Pourashava (Urban Area)

Statistics has presented in **Table 7.21**. **Map 7.8** presents the existing land use plan of Paurashava and **Map 7.9** implies the development plan.

Table 7.21: Structure Plan Zoning of Rangunia Pourashava

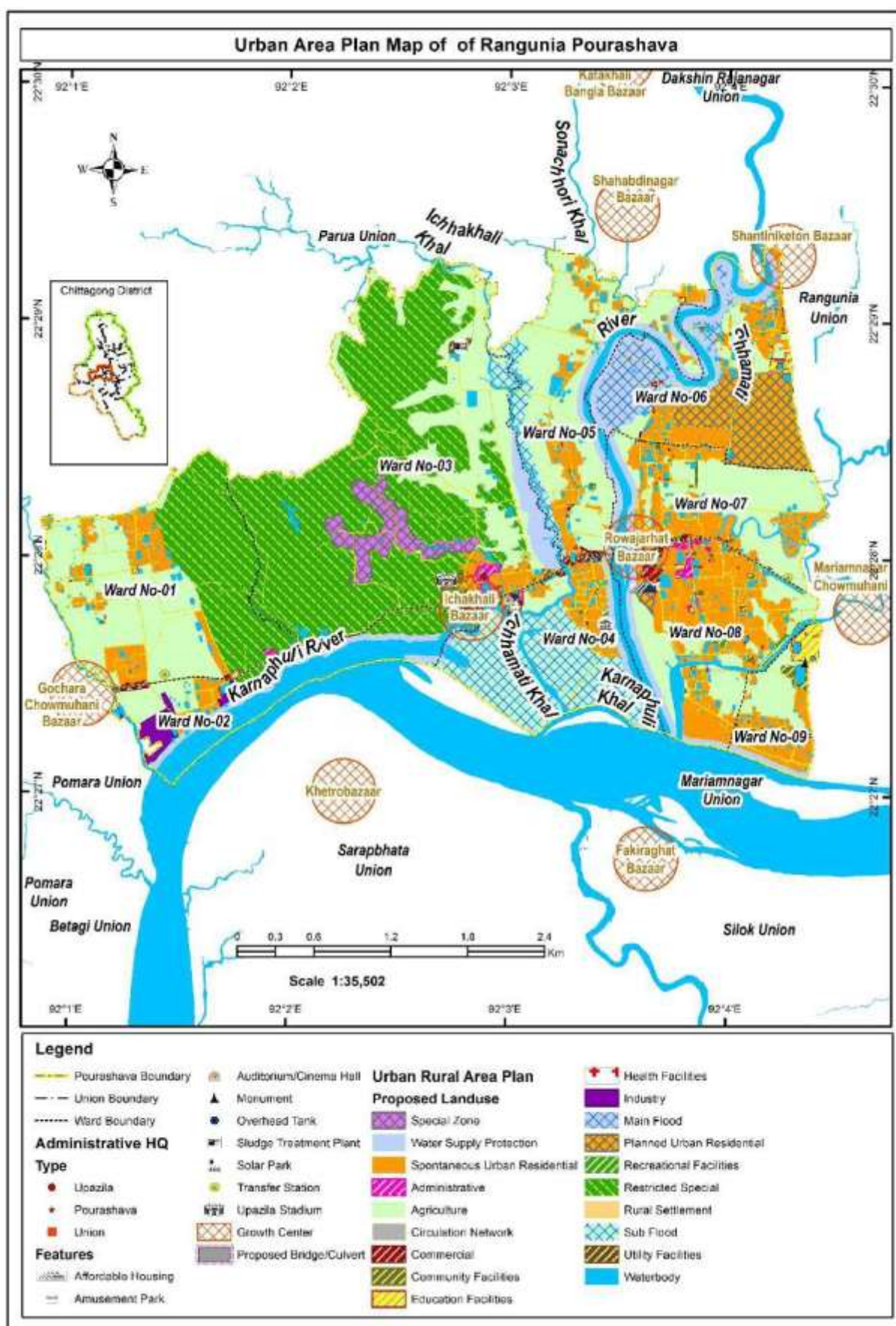
Zoning	Area Sq.m	Area Sq.km	Area Acre
Administrative	73850.306	0.074	18.249
Agriculture	4138779.745	4.139	1022.715
Circulation Network	511028.654	0.511	126.278
Commercial	118014.608	0.118	29.162
Community Facilities	119853.825	0.120	29.617
Education Facilities	99345.596	0.099	24.549
Health Facilities	4669.065	0.005	1.154
Industry	106646.381	0.107	26.353
Main Flood	318347.892	0.318	78.665
Planned Urban Residential	553387.110	0.553	136.745
Recreational Facilities	34328.535	0.034	8.483
Restricted Special	3866108.756	3.866	955.336
Rural Settlement	392.218	0.000	0.097
Special Zone	262117.550	0.262	64.771
Spontaneous Urban Residential	2348064.741	2.348	580.219
Sub Flood	996246.153	0.996	246.178
Utility Facilities	26067.637	0.026	6.441
Water Supply Protection	37545.998	0.038	9.278
Waterbody	1550191.701	1.550	383.061
Total	15164986.470	15.165	3747.350

Source: Prepared by Consultant Team based on Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.8: Existing Landuse Map of Rangunia Pourashava



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.9: Structure Plan of Rangunia Pourashava

Existing Land Use and Development Plan of 9 Wards

The urban area of Rangunia Upazila includes the Pourashava and the extended unions according to the population projection. As it is declared as urban area the predominant zoning of this area is urban settlement. Along with this some portion of restricted special, water supply protection zone and rural settlement are also visible. The map of 9 wards of Pourashava are presented below sequentially. **Table 7.22 & Table 7.23** presents the existing land use statistics of Ward no. 01 and Ward no.02 along with **Map 7.10, Map 7.11 Map 7.12 and Map 7.13.**

Table 7.22: Existing Land Use of Ward No.01

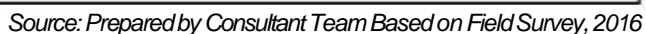
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	1053517.125	1.0535	260.330
Circulation Network	33125.293	0.0331	8.185
Commercial Zone	7357.232	0.0074	1.818
Education & Research Zone	6814.755	0.0068	1.684
Government Services	9507.313	0.0095	2.349
Graveyard	3111.114	0.0031	0.769
Hilly Area	808219.250	0.8082	199.715
Hilly Settlement	98641.328	0.0986	24.375
Mixed Use Zone	8362.085	0.0084	2.066
Native Forest	11007.158	0.0110	2.720
Orchards and Groves	475.316	0.0005	0.117
Planted Forest	1565.068	0.0016	0.387
Religious	1389.249	0.0014	0.343
Rural Settlement	9976.745	0.0100	2.465
Urban Residential Zone	183915.938	0.1839	45.447
Utility Services	272.745	0.0003	0.067
Waterbody	65568.695	0.0656	16.202
Total	2302826.409	2.3028	569.041

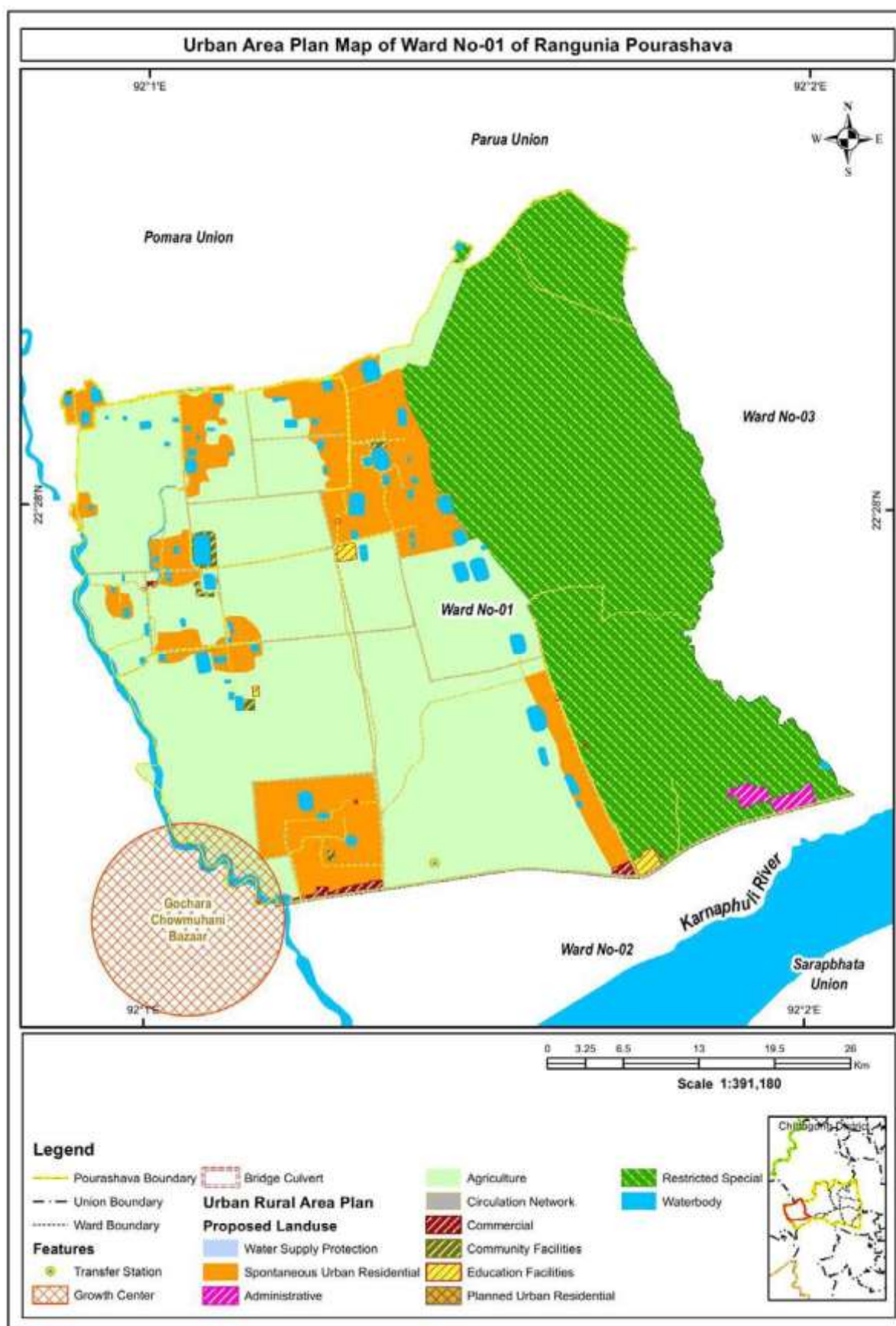
Source: Prepared by Consultant Team Based on Field Survey, 2016

Table 7.23: Existing Land Use of Ward No.02

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	147762.469	0.14776	36.513
Circulation Network	16863.461	0.01686	4.167
Commercial Zone	20324.666	0.02032	5.022
Community Facilities	825.553	0.00083	0.204
Education & Research Zone	1571.002	0.00157	0.388
Government Services	742.627	0.00074	0.184
Heavy Industrial Zone	137006.438	0.13701	33.855
Hilly Area	117964.781	0.11796	29.150
Hilly Settlement	23083.996	0.02308	5.704
Mixed Use Zone	40.580	0.00004	0.010
Orchards and Groves	17151.109	0.01715	4.238
Religious	594.025	0.00059	0.147
Urban Residential Zone	168027.766	0.16803	41.521
Utility Services	12403.591	0.01240	3.065
Vacant Land	38797.762	0.03880	9.587
Waterbody	415559.563	0.41556	102.687
Total	1118719.387	1.11872	276.442

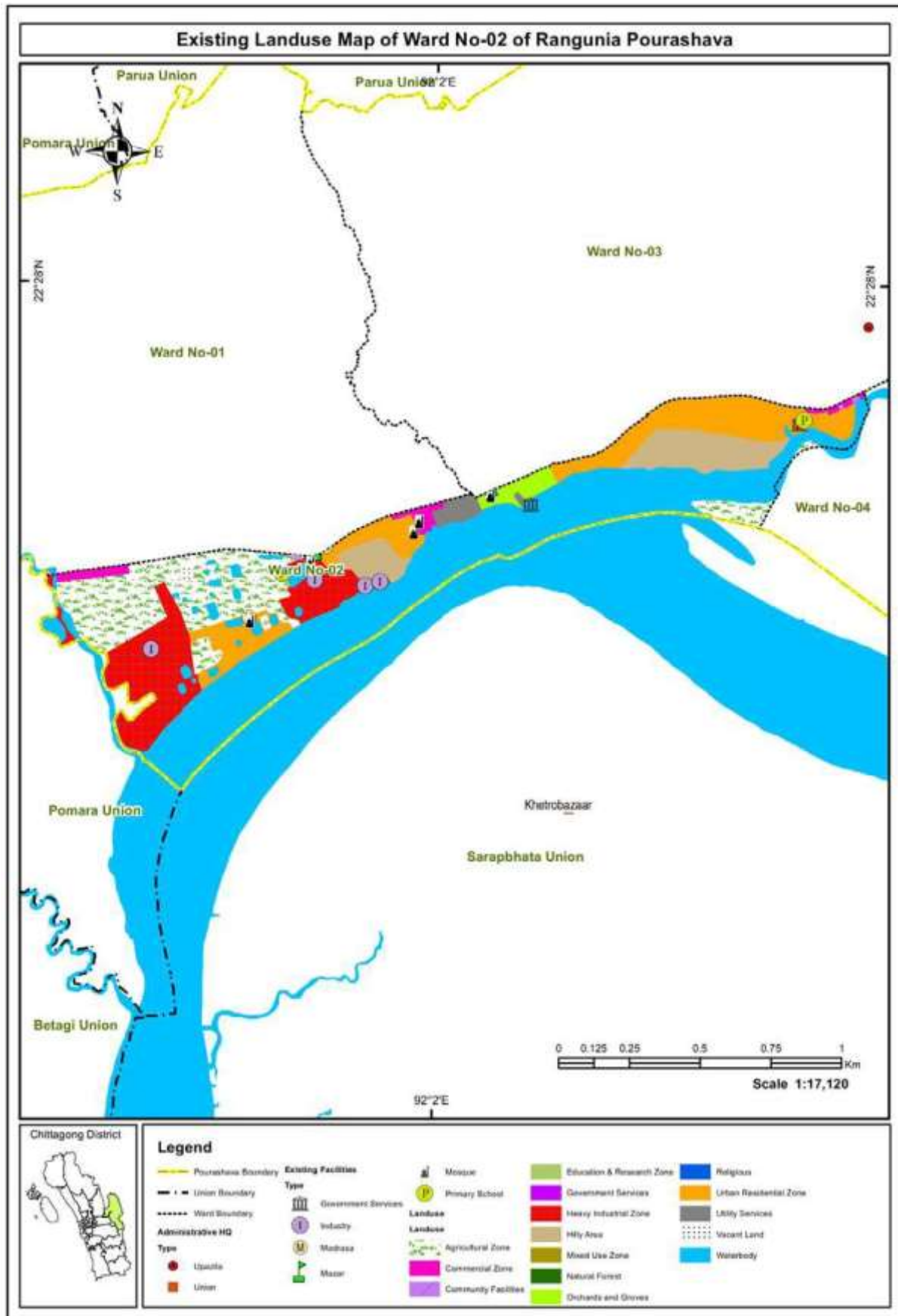
Source: Prepared by Consultant Team Based on Field Survey, 2016





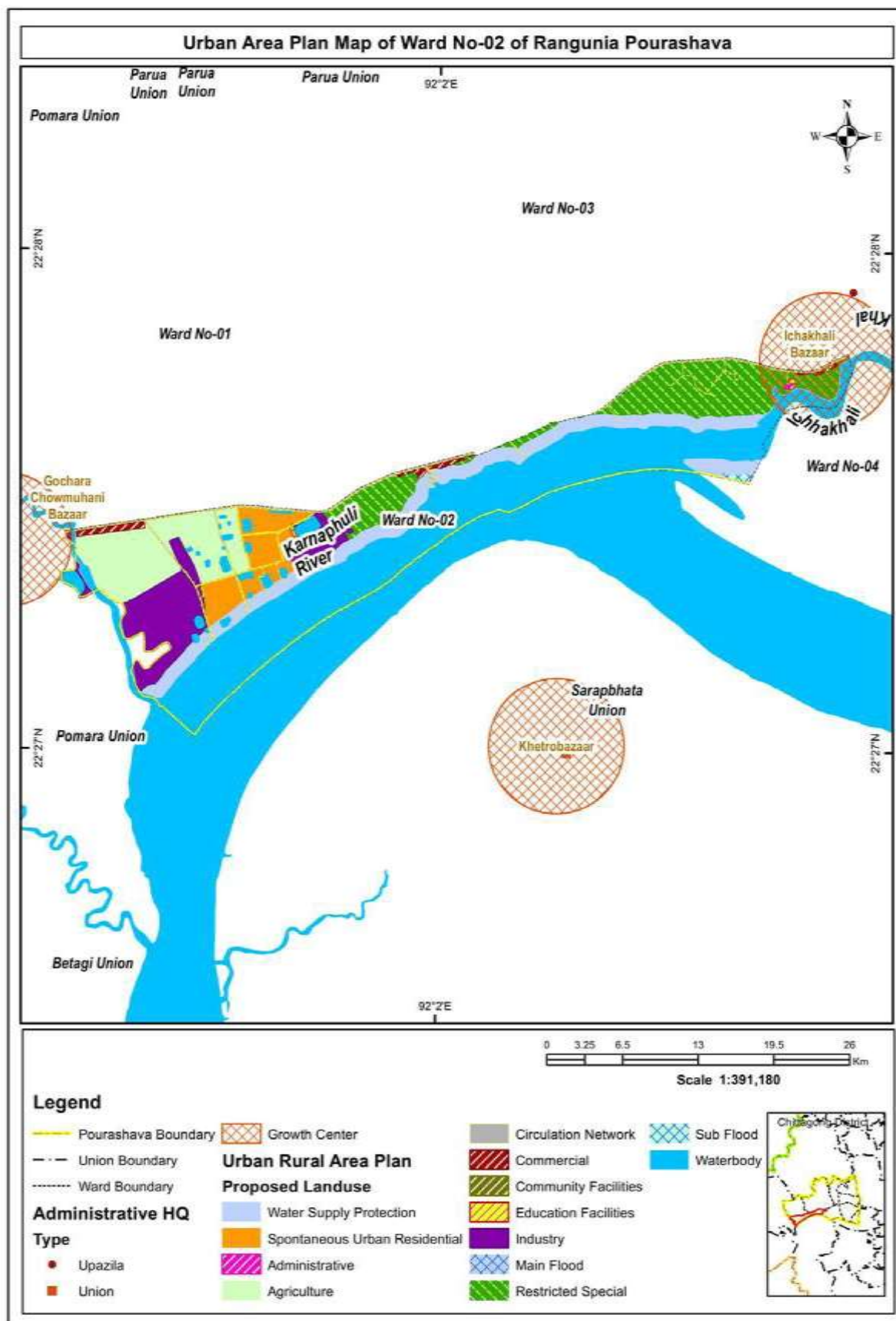
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.11: Urban Area Plan of Ward No-01



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.12: Existing Land Use Plan of Ward No-02



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.13: Urban Area Plan of Ward No-02

Table 7.24 & Table 7.25 presents the existing land use statistics of Ward no. 03 and Ward no.04 along with **Map 7.14, Map 7.15 Map 7.16 and Map 7.17.**

Table 7.24: Existing Land Use of Ward No.03

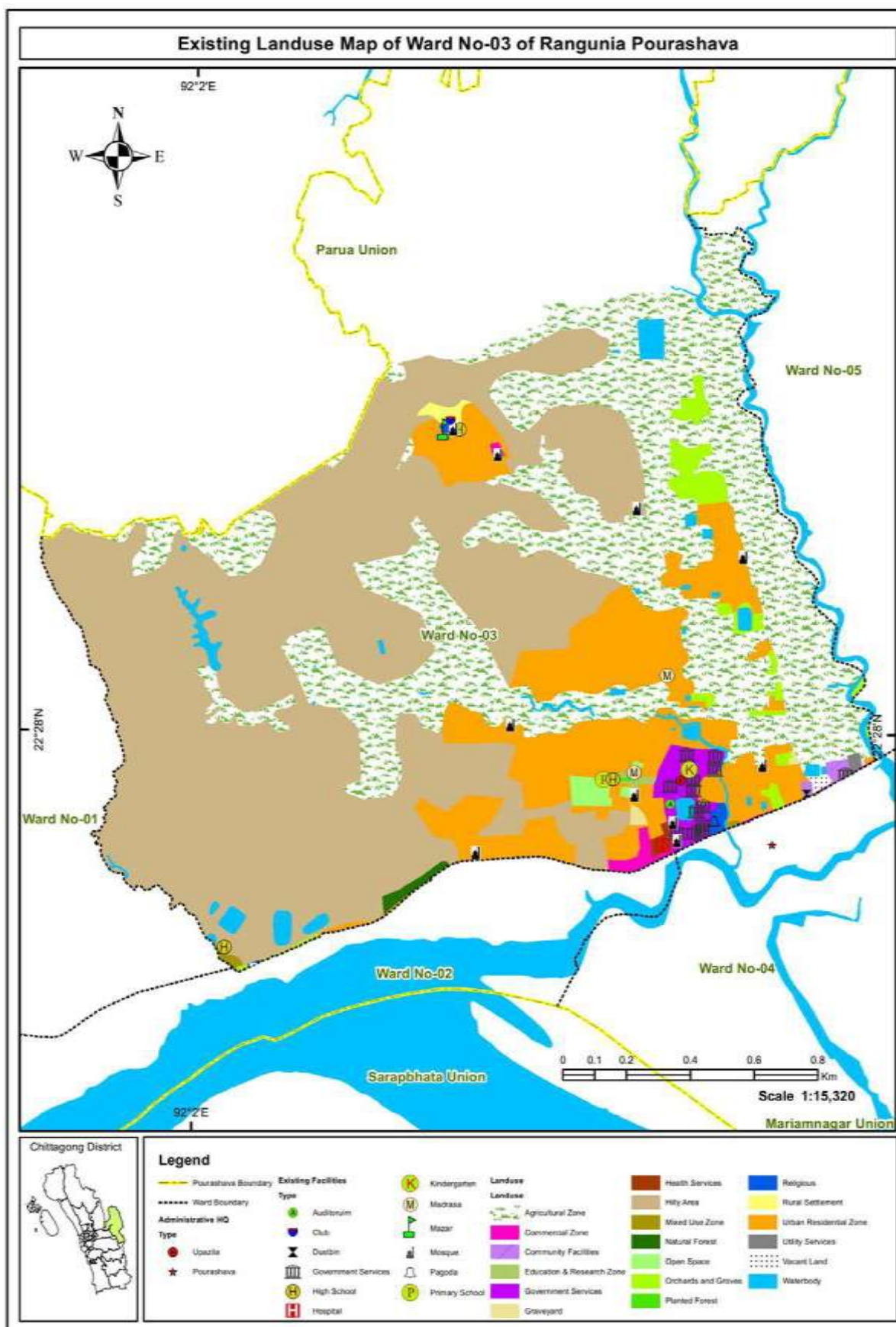
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	1019032.94	1.01903	251.8085
Circulation Network	54128.37	0.05413	13.3754
Commercial Zone	9987.81	0.00999	2.4680
Community Facilities	5348.14	0.00535	1.3216
Education & Research Zone	5651.54	0.00565	1.3965
Government Services	38079.14	0.03808	9.4096
Graveyard	3416.90	0.00342	0.8443
Health Services	4149.63	0.00415	1.0254
Hilly Area	1579219.13	1.57922	390.2336
Hilly Settlement	149356.38	0.14936	36.9068
Mixed Use Zone	2861.31	0.00286	0.7070
Open Space	12192.59	0.01219	3.0129
Orchards and Groves	56853.00	0.05685	14.0487
Planted Forest	342.20	0.00034	0.0846
Religious	6770.54	0.00677	1.6730
Urban Residential Zone	449211.69	0.44921	111.0026
Utility Services	2450.92	0.00245	0.6056
Vacant Land	2843.77	0.00284	0.7027
Waterbody	75160.93	0.07516	18.5727
Total	3477056.91	3.47706	859.1995

Source: Prepared by Consultant Team Based on Field Survey, 2016

Table 7.25: Existing Land Use of Ward No.04

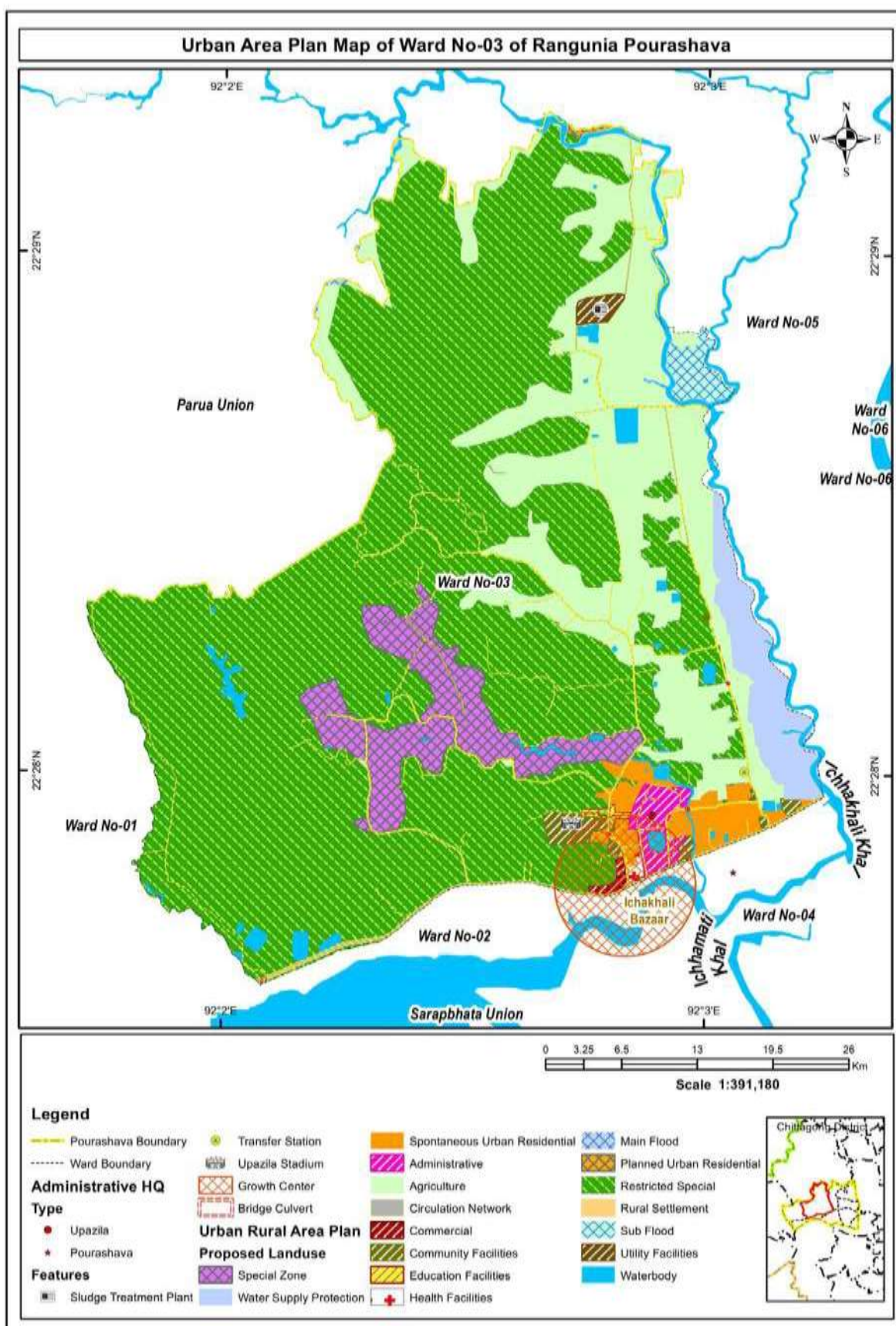
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	1034469.13	1.03446913	255.6229
Circulation Network	17285.23	0.01728523	4.2713
Commercial Zone	19429.07	0.01942907	4.8010
Education & Research Zone	1654.26	0.00165426	0.4088
Government Services	3996.54	0.00399654	0.9876
Graveyard	2444.68	0.00244468	0.6041
Hilly Area	0.04	0.00000004	0.0000
Mixed Use Zone	10826.85	0.01082685	2.6754
Orchards and Groves	845.27	0.00084527	0.2089
Planted Forest	4353.80	0.00435380	1.0758
Recreational Facilities	7580.97	0.00758097	1.8733
Religious	743.37	0.00074337	0.1837
Urban Residential Zone	157220.89	0.15722090	38.8501
Utility Services	440.80	0.00044080	0.1089
Vacant Land	636.91	0.00063691	0.1574
Waterbody	170433.38	0.17043337	42.1150
Total	1432361.19	1.43236120	353.9442

Source: Prepared by Consultant Team Based on Field Survey, 2016



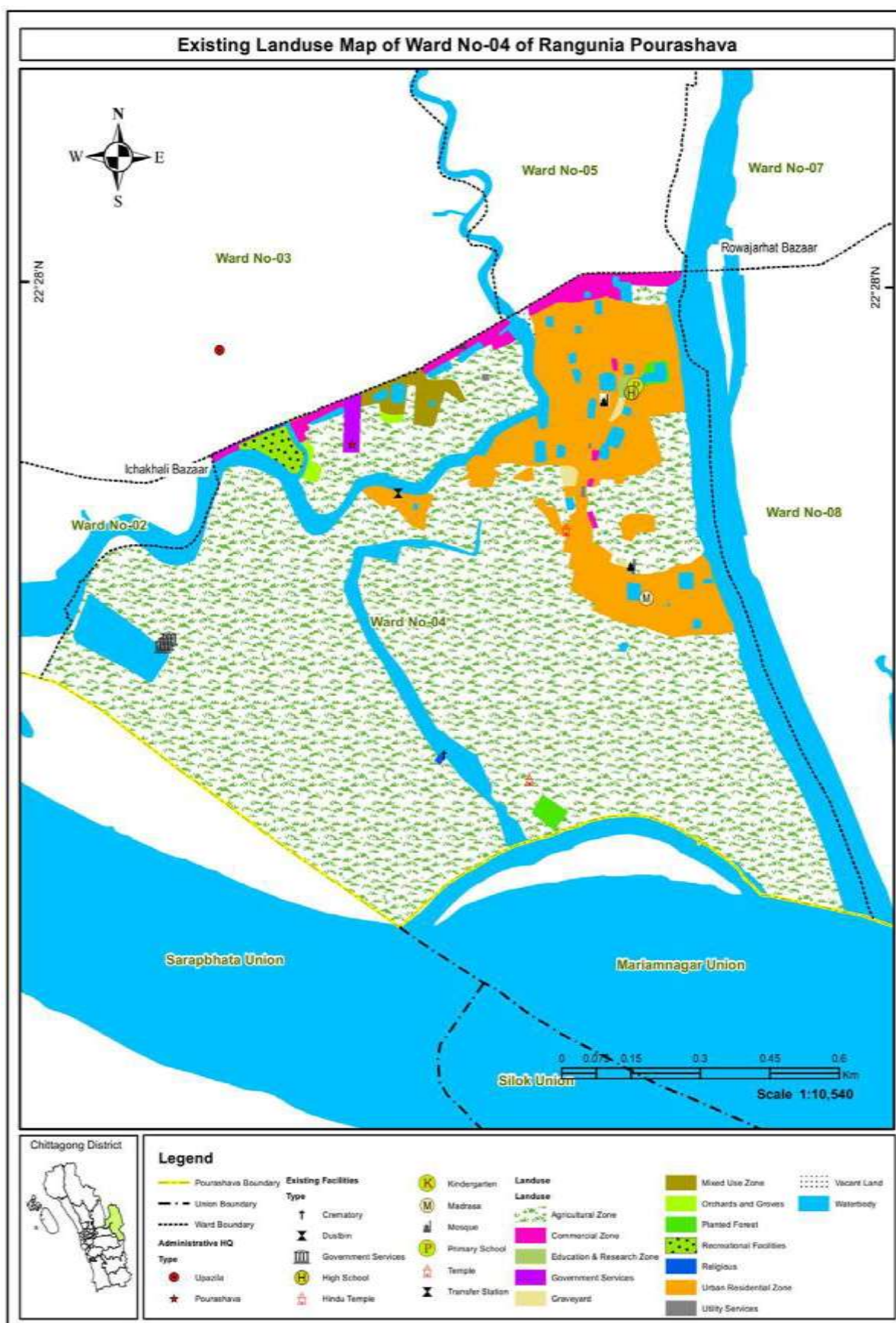
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.14: Existing Land Use Plan of Ward No-03



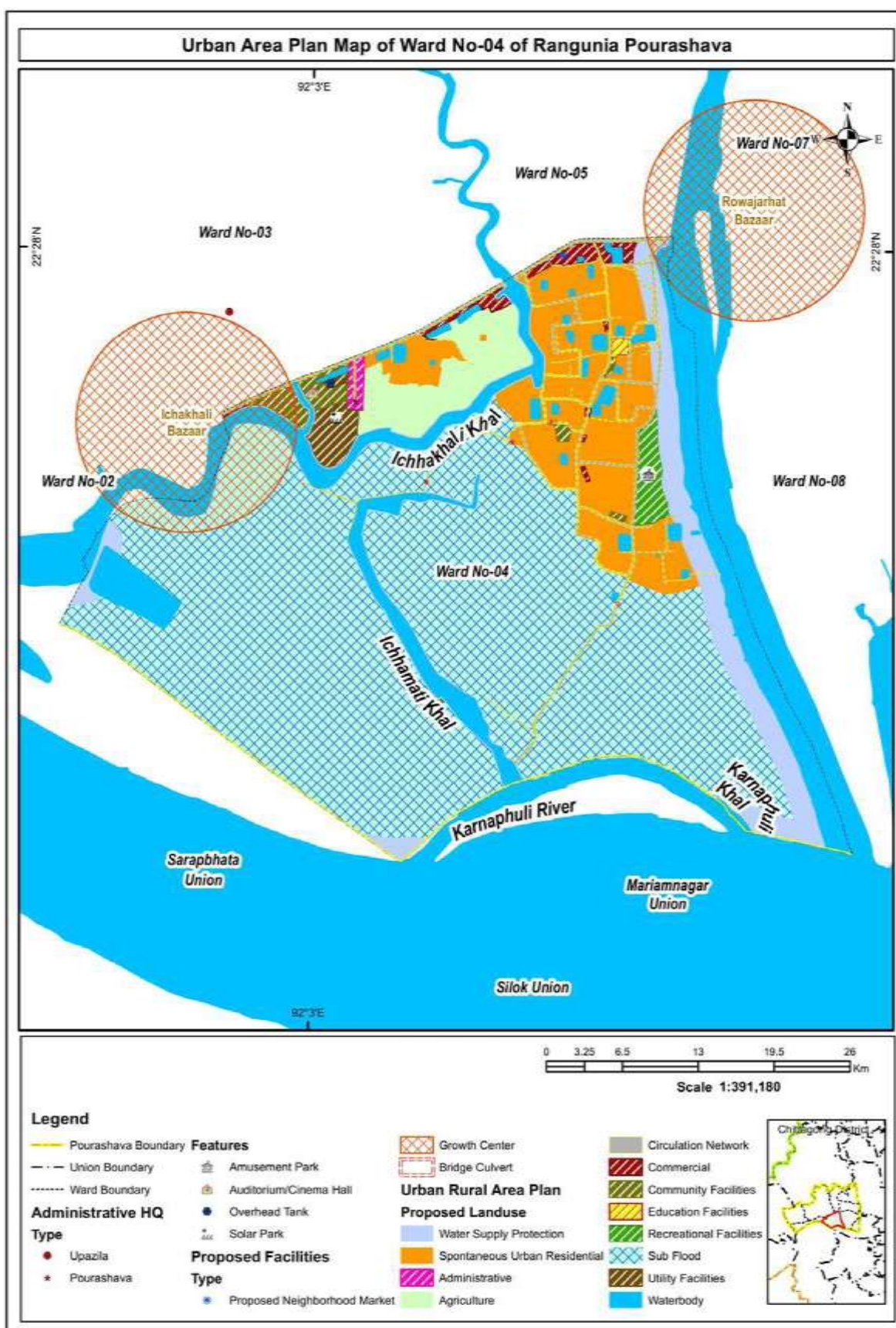
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.15: Urban Area Plan of Ward No-03



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.16: Existing Land Use Plan of Ward No-04



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.17: Urban Area Plan of Ward No-04

Table 7.26 & Table 7.27 presents the existing land use statistics of Ward no. 05 and Ward no.06 along with **Map 7.18, Map 7.19 Map 7.20 and Map 7.21.**

Table 7.26: Existing Land Use of Ward No.05

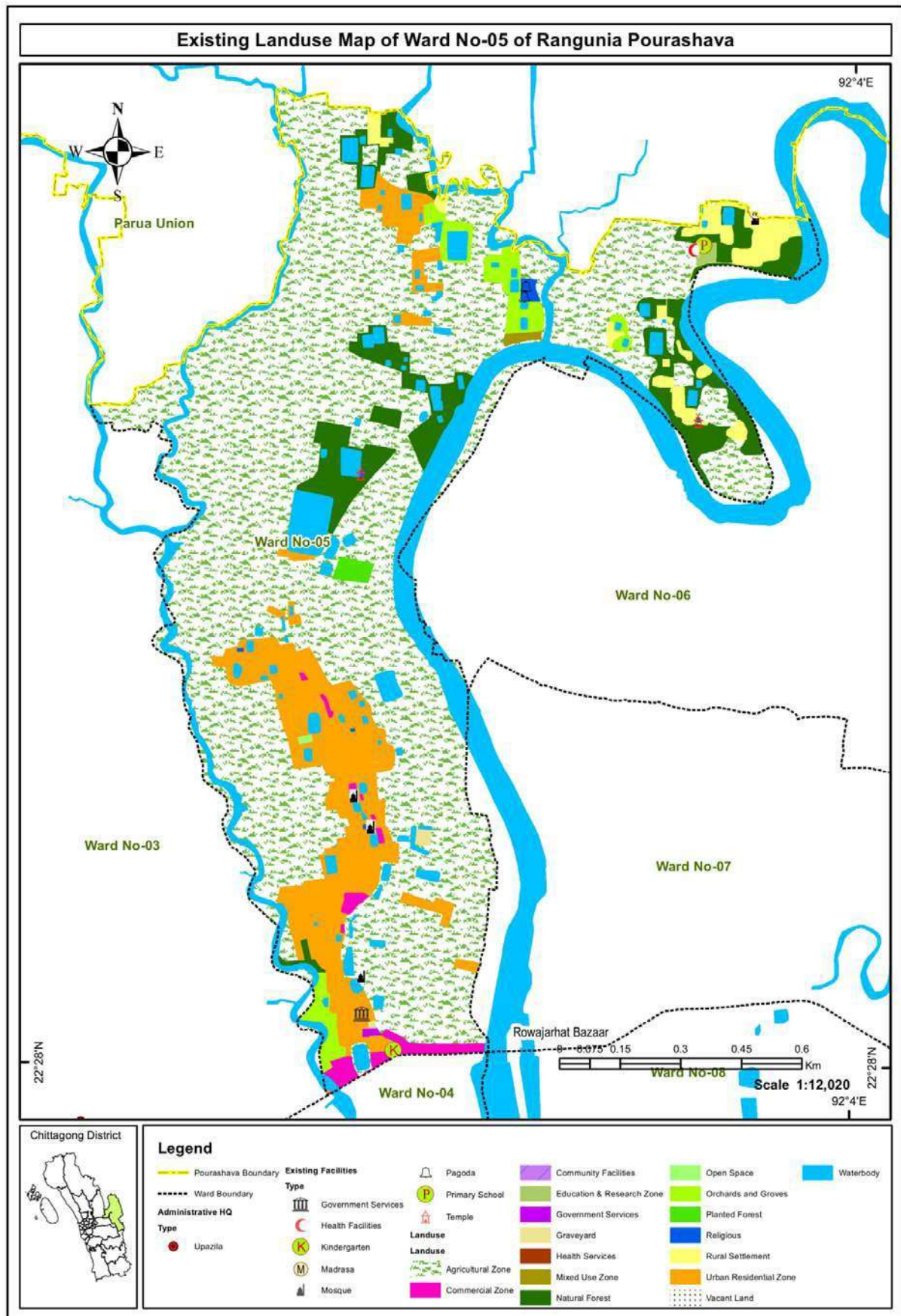
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	1093706.250	1.09371	270.261
Circulation Network	30836.551	0.03084	7.620
Commercial Zone	15016.342	0.01502	3.711
Community Facilities	28.517	0.00003	0.007
Education & Research Zone	3208.630	0.00321	0.793
Government Services	749.258	0.00075	0.185
Graveyard	1868.802	0.00187	0.462
Health Services	320.666	0.00032	0.079
Hilly Area	161.305	0.00016	0.040
Mixed Use Zone	1854.018	0.00185	0.458
Native Forest	107000.602	0.10700	26.440
Open Space	751.871	0.00075	0.186
Orchards and Groves	31779.902	0.03178	7.853
Planted Forest	5006.473	0.00501	1.237
Religious	3617.330	0.00362	0.894
Rural Settlement	34770.496	0.03477	8.592
Urban Residential Zone	169512.047	0.16951	41.887
Vacant Land	2406.236	0.00241	0.595
Waterbody	197732.594	0.19773	48.861
Total	1700327.890	1.70033	420.160

Source: Prepared by Consultant Team Based on Field Survey, 2016

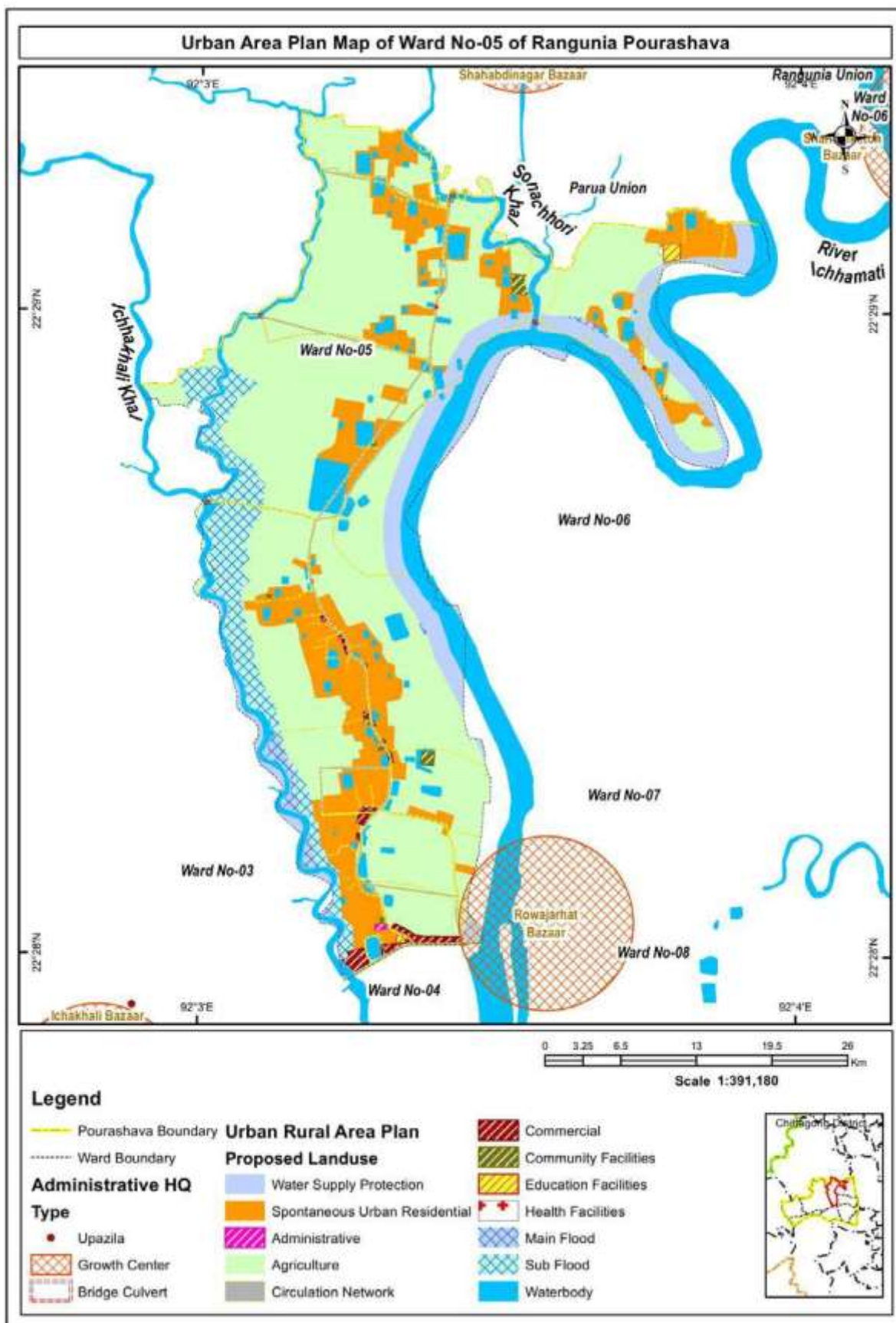
Table 7.27: Existing Land Use of Ward No.06

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	1027675.438	1.0277	253.944
Circulation Network	25938.330	0.0259	6.410
Commercial Zone	11413.100	0.0114	2.820
Community Facilities	1163.402	0.0012	0.287
Education & Research Zone	19627.898	0.0196	4.850
Hilly Area	399.752	0.0004	0.099
Native Forest	156846.938	0.1568	38.758
Open Space	1654.290	0.0017	0.409
Orchards and Groves	36436.609	0.0364	9.004
Religious	6079.583	0.0061	1.502
Rural Settlement	22380.934	0.0224	5.530
Urban Residential Zone	194569.781	0.1946	48.079
Vacant Land	4681.975	0.0047	1.157
Waterbody	185213.953	0.1852	45.767
Total	1694081.982	1.6941	418.617

Source: Prepared by Consultant Team Based on Field Survey, 2016

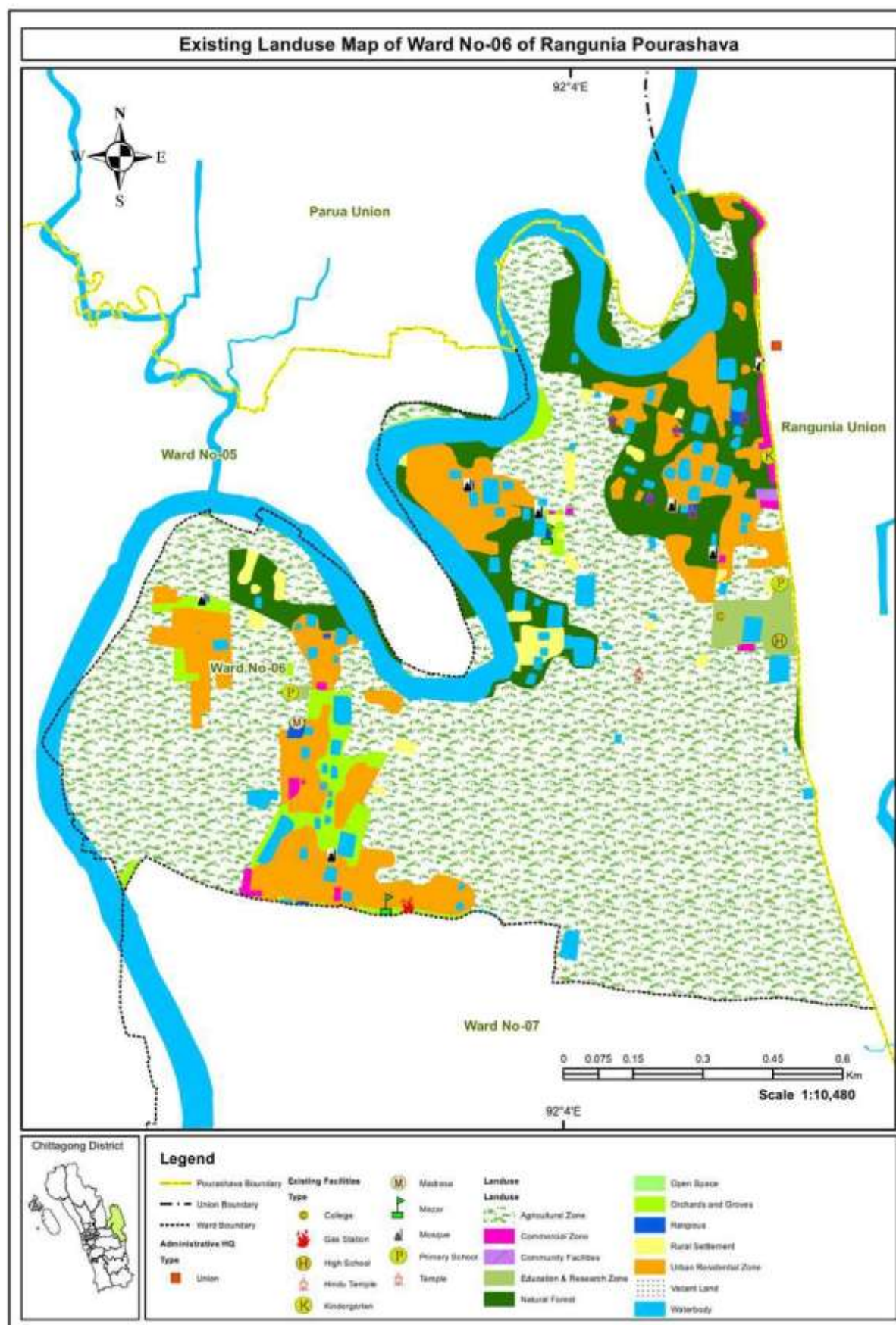


Map 7.18: Existing Land Use Plan of Ward No-05



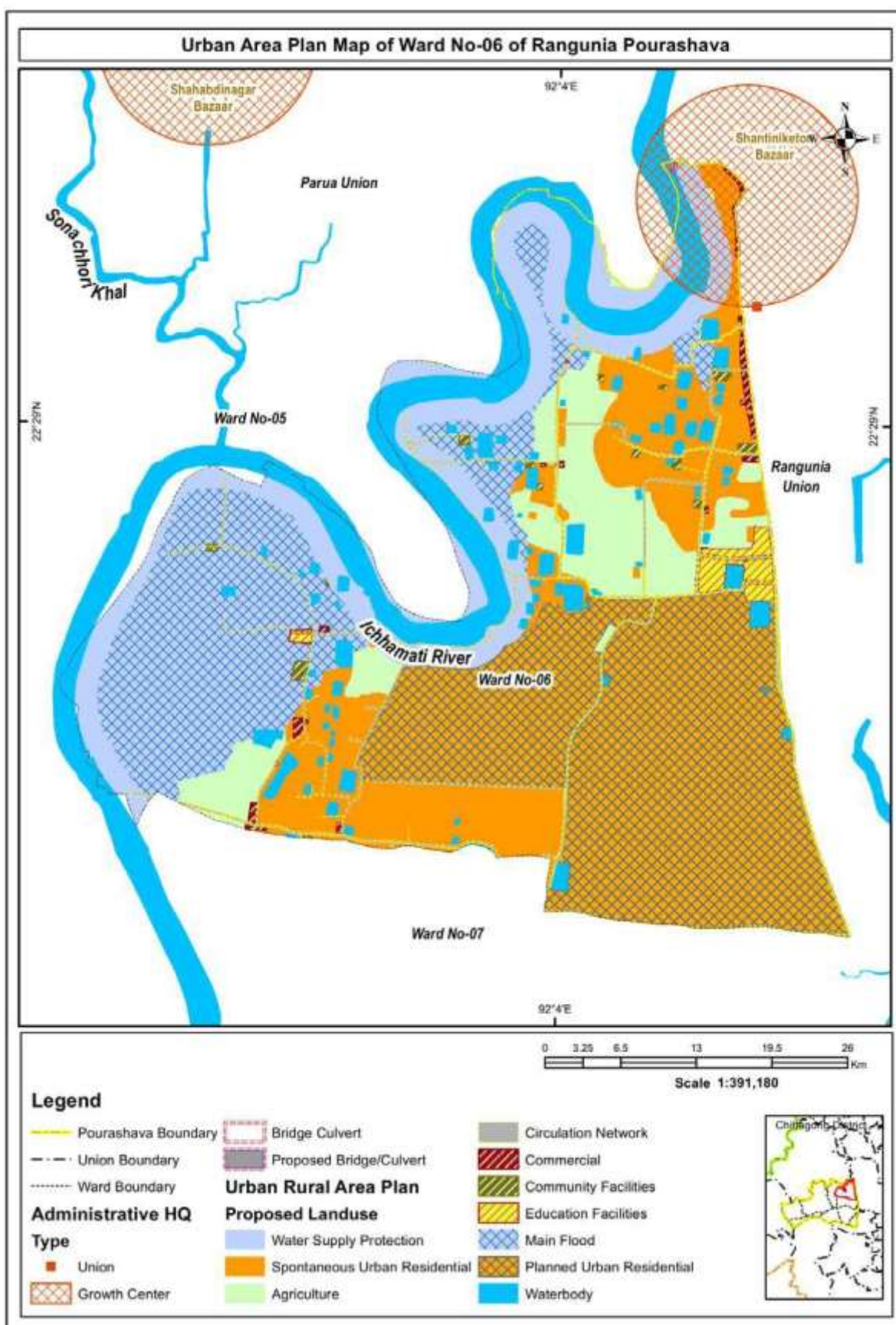
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.19: Urban Area Plan of Ward No-05



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.20: Existing Land Use Plan of ward No-06



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.21: Urban Area Plan of Ward No-06

Table 7.28 & Table 7.29 presents the existing land use statistics of Ward no. 07 and Ward no.08 along with **Map 7.22, Map 7.23 Map 7.24 and Map 7.25.**

Table 7.28: Existing Land Use of Ward No. 07

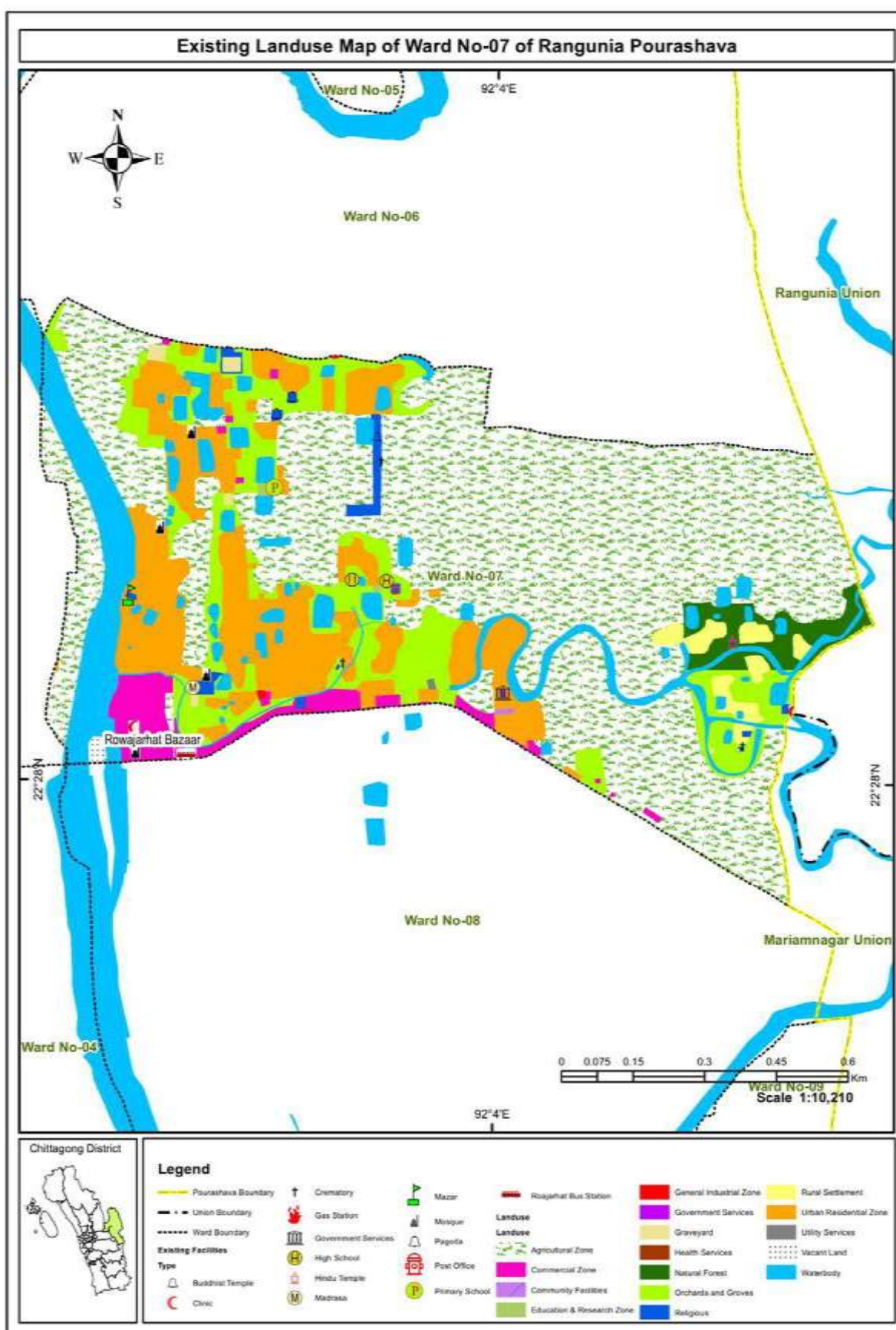
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	695374.688	0.6953747	171.83084
Circulation Network	28810.957	0.0288110	7.11934
Commercial Zone	4428.954	0.0044290	1.09442
Community Facilities	430.196	0.0004302	0.10630
Education & Research Zone	1591.139	0.0015911	0.39318
General Industrial Zone	222.206	0.0002222	0.05491
Government Services	29093.350	0.0290934	7.18912
Graveyard	3436.285	0.0034363	0.84912
Health Services	35.248	0.0000352	0.00871
Hilly Area	0.072	0.0000001	0.00002
Native Forest	23914.346	0.0239143	5.90936
Orchards and Groves	135851.047	0.1358511	33.56953
Religious	11068.624	0.0110686	2.73512
Rural Settlement	17621.408	0.0176214	4.35434
Urban Residential Zone	180198.109	0.1801981	44.52792
Utility Services	345.042	0.0003450	0.08526
Vacant Land	1760.641	0.0017606	0.43506
Waterbody	138600.922	0.1386009	34.24903
Total	1272783.233	1.2727833	314.51160

Source: Prepared by Consultant Team Based on Field Survey, 2016

Table 7.29: Existing Land Use of Ward No. 8

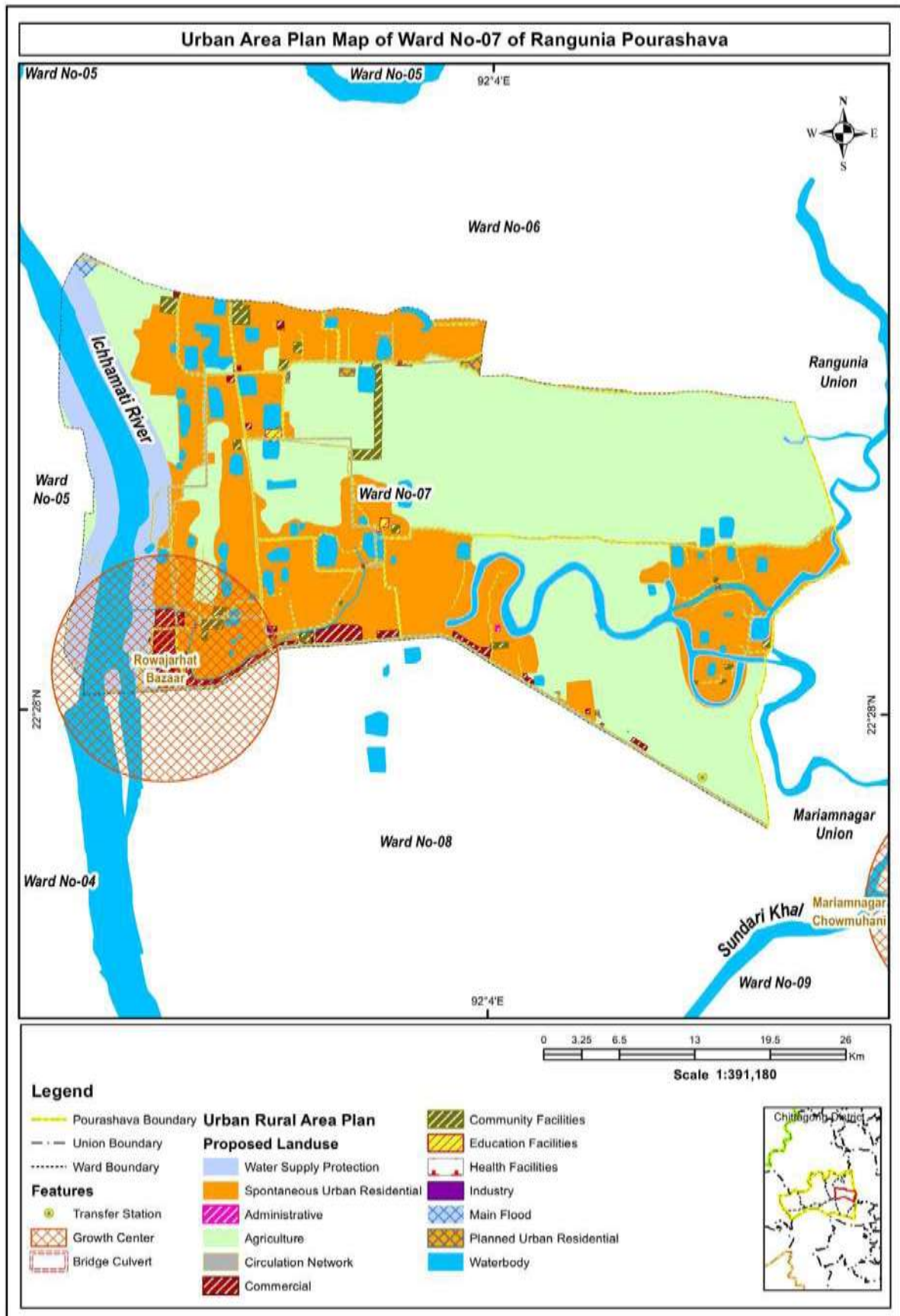
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	542950.313	0.54295033	134.16595
Circulation Network	48445.711	0.04844571	11.97120
Commercial Zone	38630.590	0.03863059	9.54583
Community Facilities	3186.579	0.00318658	0.78742
Education & Research Zone	11107.022	0.01110702	2.74461
Government Services	118780.648	0.11878065	29.35134
Graveyard	5546.620	0.00554662	1.37060
Health Services	319.205	0.00031921	0.07888
Hilly Area	0.040	0.00000004	0.00001
Mixed Use Zone	3484.199	0.00348420	0.86096
Open Space	569.430	0.00056943	0.14071
Orchards and Groves	274404.938	0.27440494	67.80694
Planted Forest	43576.871	0.04357687	10.76808
Religious	11161.392	0.01116139	2.75804
Rural Settlement	65920.883	0.06592088	16.28940
Urban Residential Zone	218130.188	0.21813019	53.90114
Utility Services	308.894	0.00030889	0.07633
Vacant Land	4829.188	0.00482919	1.19332
Waterbody	254013.797	0.25401381	62.76818
Total	1645366.508	1.64536655	406.57893

Source: Prepared by Consultant Team Based on Field Survey, 2016



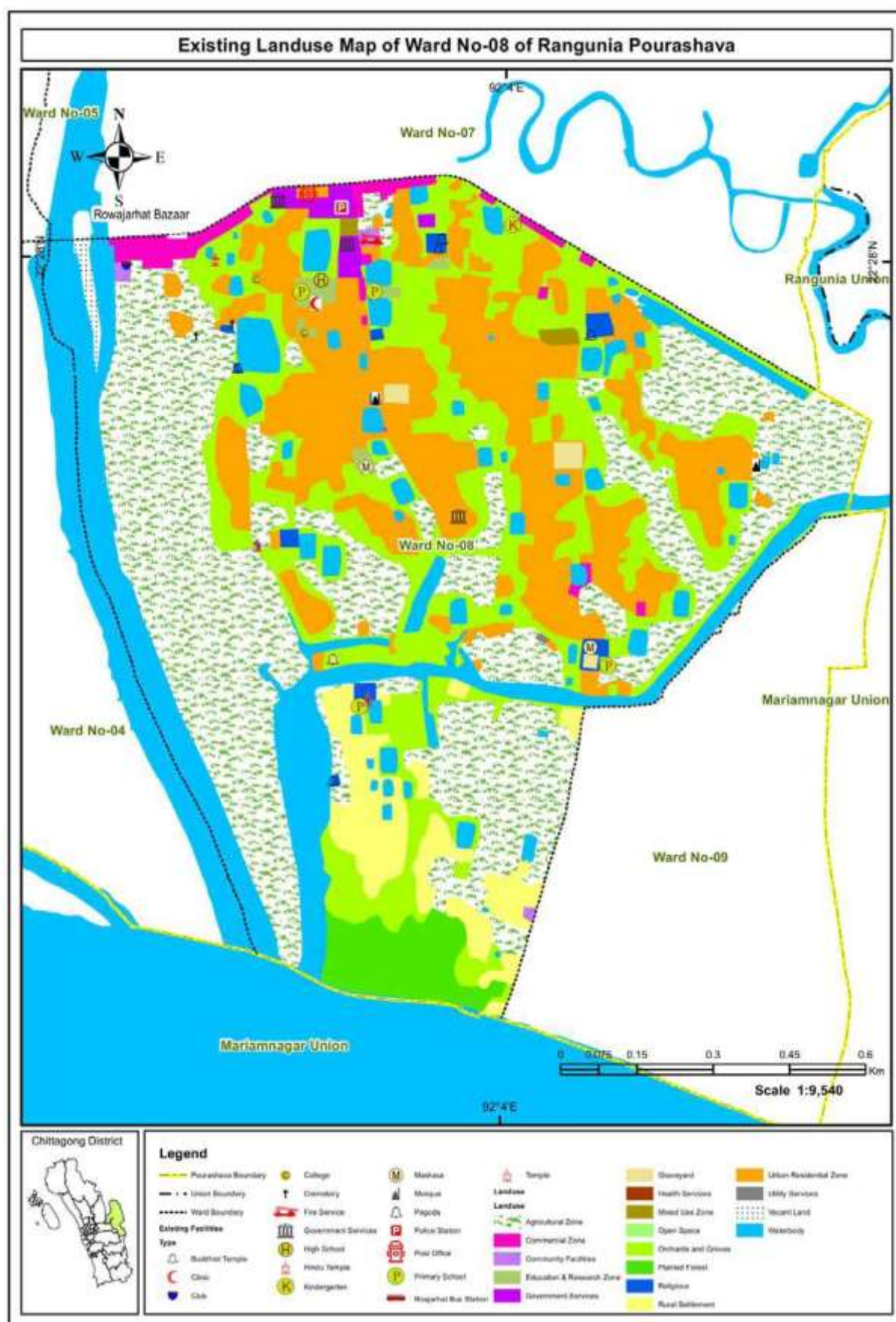
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.22: Existing Land Use Plan of ward No-07



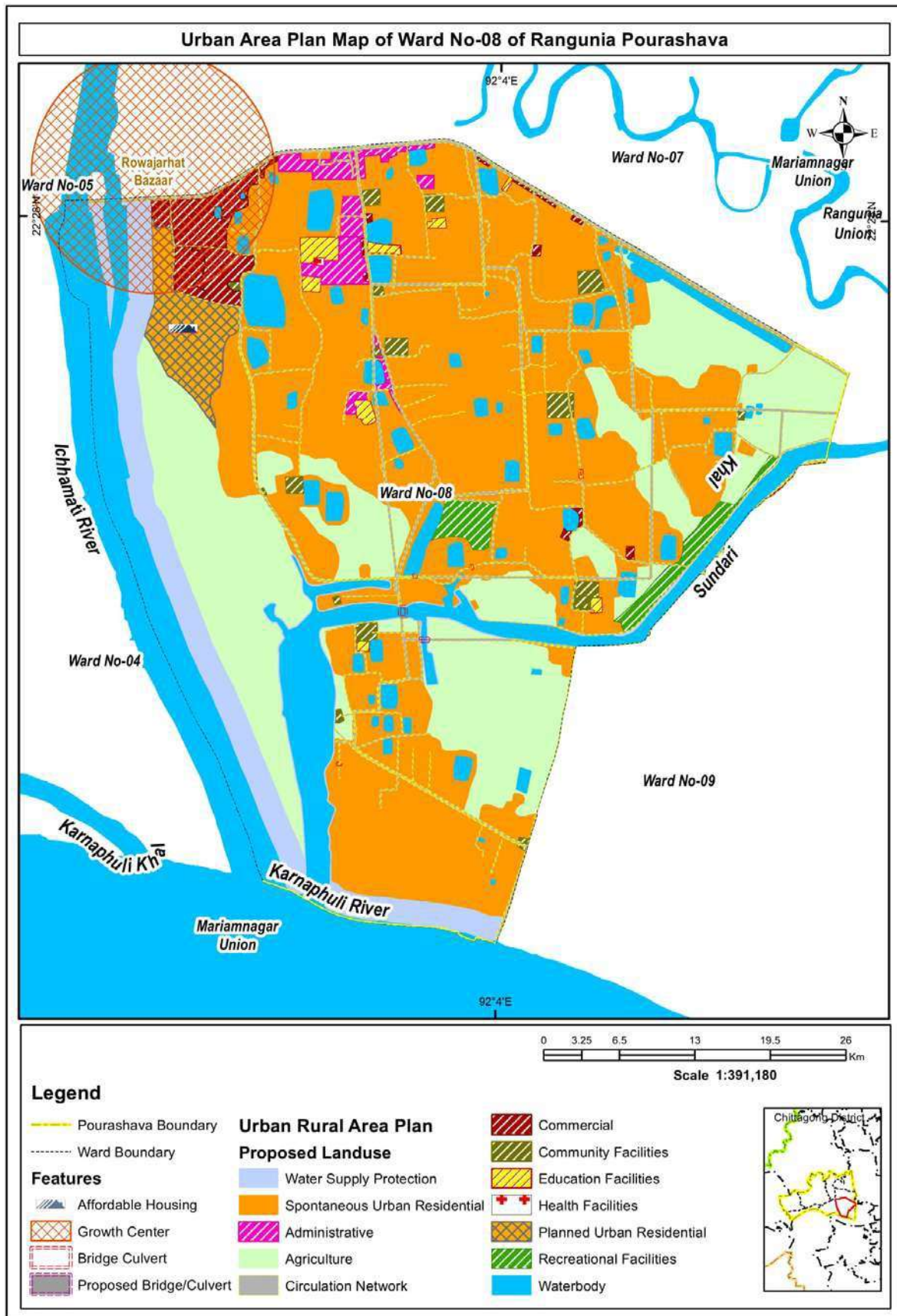
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.23: Urban Area Plan of ward No-07



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.24: Existing Land Use Pan of ward No-08



Source: Prepared by Consultant Team Based on Field Survey, 2016

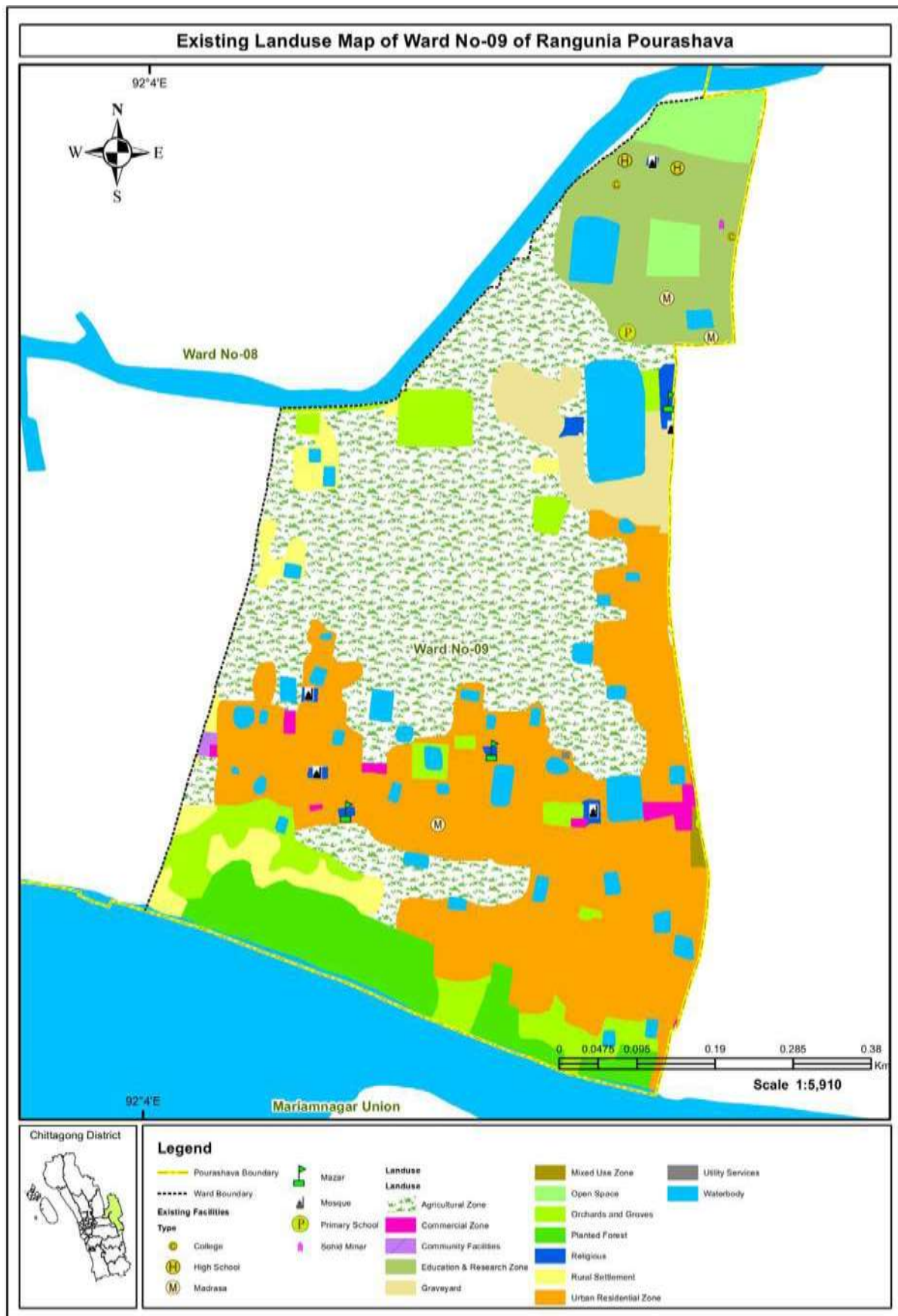
Map 7.25: Urban Area Pan of ward No-08

Table 7.30 presents the existing land use statistics of Ward no. 09 along with **Map 7.26** and **Map 7.27**.

Table 7.30: Existing Land Use of Ward No.09

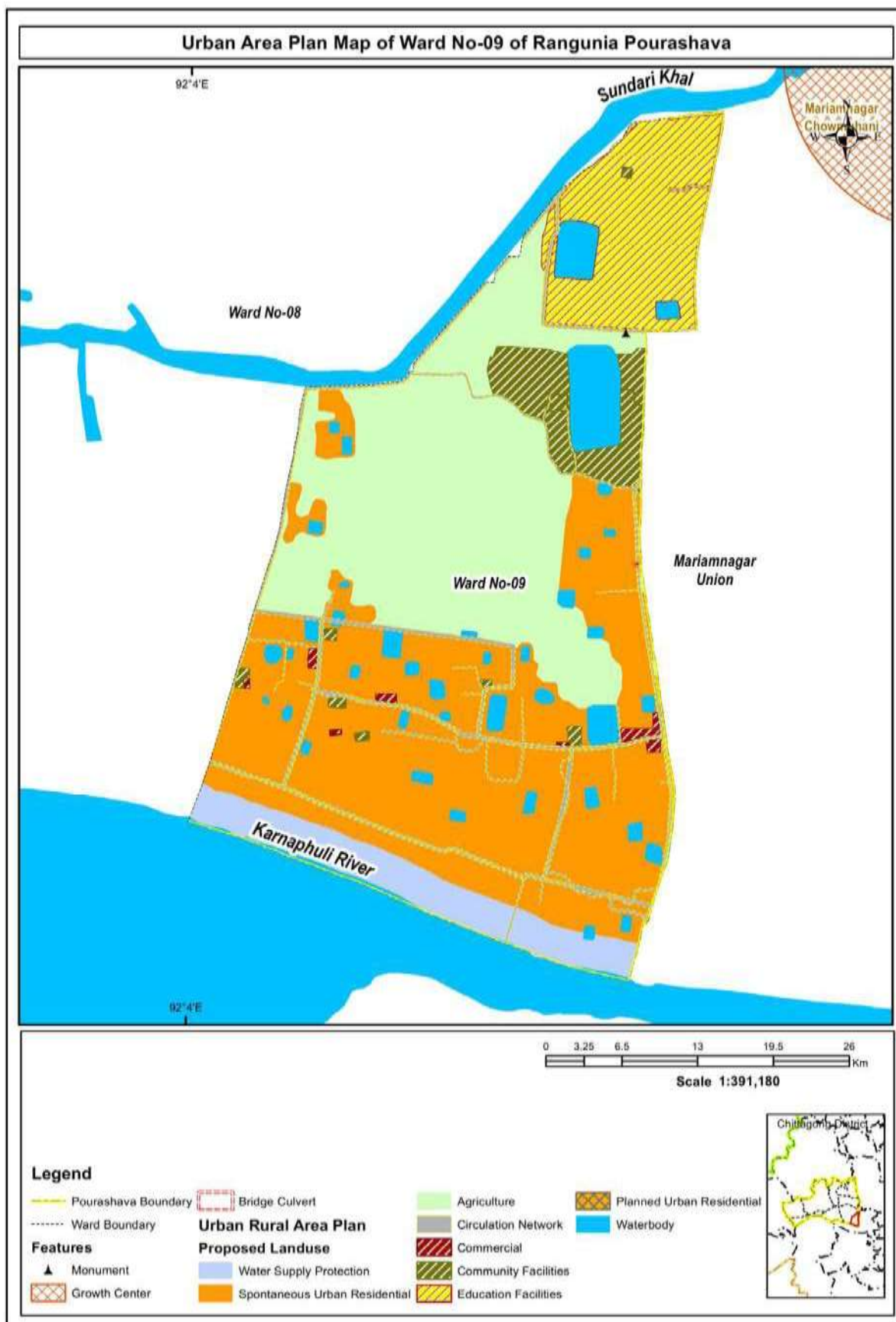
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	179505.875	0.1795059	44.35687
Circulation Network	14727.891	0.0147279	3.63934
Commercial Zone	2896.795	0.0028968	0.71581
Community Facilities	452.583	0.0004526	0.11184
Education & Research Zone	35748.227	0.0357482	8.83358
Graveyard	16449.244	0.0164492	4.06470
Hilly Area	0.069	0.0000001	0.00002
Mixed Use Zone	809.022	0.0008090	0.19991
Open Space	13697.968	0.0136980	3.38484
Orchards and Groves	32242.717	0.0322427	7.96735
Planted Forest	32948.332	0.0329483	8.14171
Religious	3814.029	0.0038140	0.94247
Rural Settlement	17020.607	0.0170206	4.20588
Urban Residential Zone	136039.516	0.1360395	33.61610
Utility Services	86.376	0.0000864	0.02134
Waterbody	35023.645	0.0350236	8.65453
Total	521462.895	0.5214629	128.85629

Source: Prepared by Consultant Team Based on Field Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.26: Existing Land Use Plan of Ward No-09



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.27: Urban Area Plan of Ward No-09

7.3.9.2 Existing Land Use and Development Plan of Union (Rural Area)

Existing Land Use and Development Plan of Betagi Union

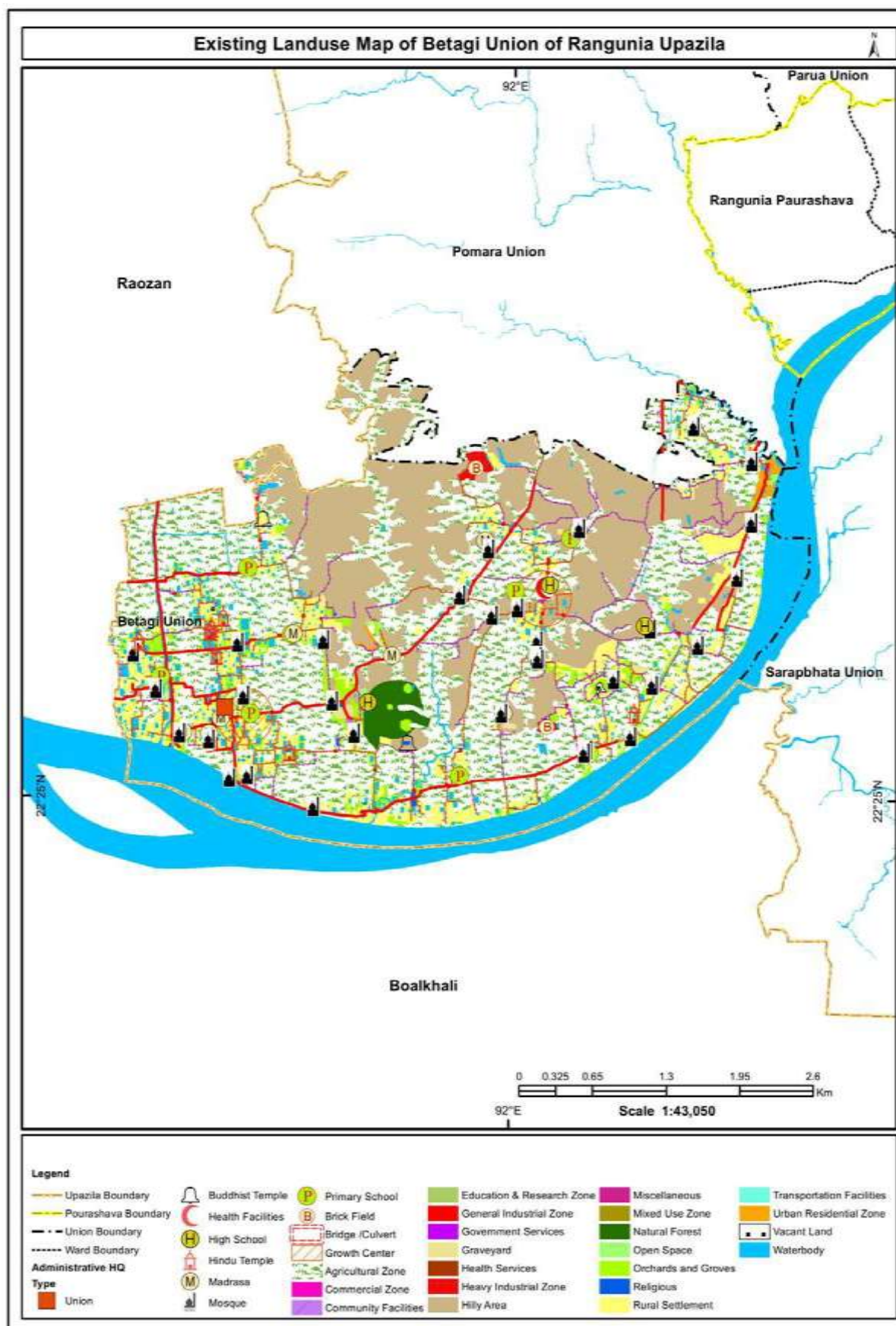
The existing land use of Betagi union has presented in **Table 7.31** along with **Map 7.28**. Total area of this union is 17.828 sq.km. The development plan of this union is presented in **Map 7.29**.

Table 7.31: Existing Land use of Betagi Union

Land use	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	8031016	8.031015396	1984.50712
Circulation Network	218458.6	0.218458578	53.9822902
Commercial Zone	28745.44	0.028745443	7.10315357
Community Facilities	11057.23	0.01105723	2.73230097
Education & Research Zone	29291.59	0.029291589	7.23810923
General Industrial Zone	1756.866	0.001756866	0.43413107
Government Services	3041.921	0.00304192	0.75167492
Graveyard	58840.91	0.058840904	14.5399041
Health Services	1879.233	0.001879233	0.4643686
Heavy Industrial Zone	62219.07	0.062219068	15.3746666
Hilly Area	4120642	4.120641708	1018.23274
Hilly Settlement	57628.96	0.057628959	14.240426
Miscellaneous	1863.982	0.001863982	0.46060006
Mixed Use Zone	3850.732	0.003850732	0.9515366
Native Forest	204348.5	0.204348534	50.4956225
Open Space	18564.01	0.018564012	4.58726724
Orchards and Groves	594219.2	0.594219208	146.834764
Religious	42603.08	0.042603083	10.5274511
Rural Settlement	1930890	1.930890203	477.13336
Transportation Facilities	90.01994	9.00199E-05	0.02224441
Urban Residential Zone	64842.96	0.064842962	16.0230448
Vacant Land	9992.532	0.009992532	2.46920854
Waterbody	2332277	2.33227706	576.318212
Total	17828120	17.82811922	4405.4242

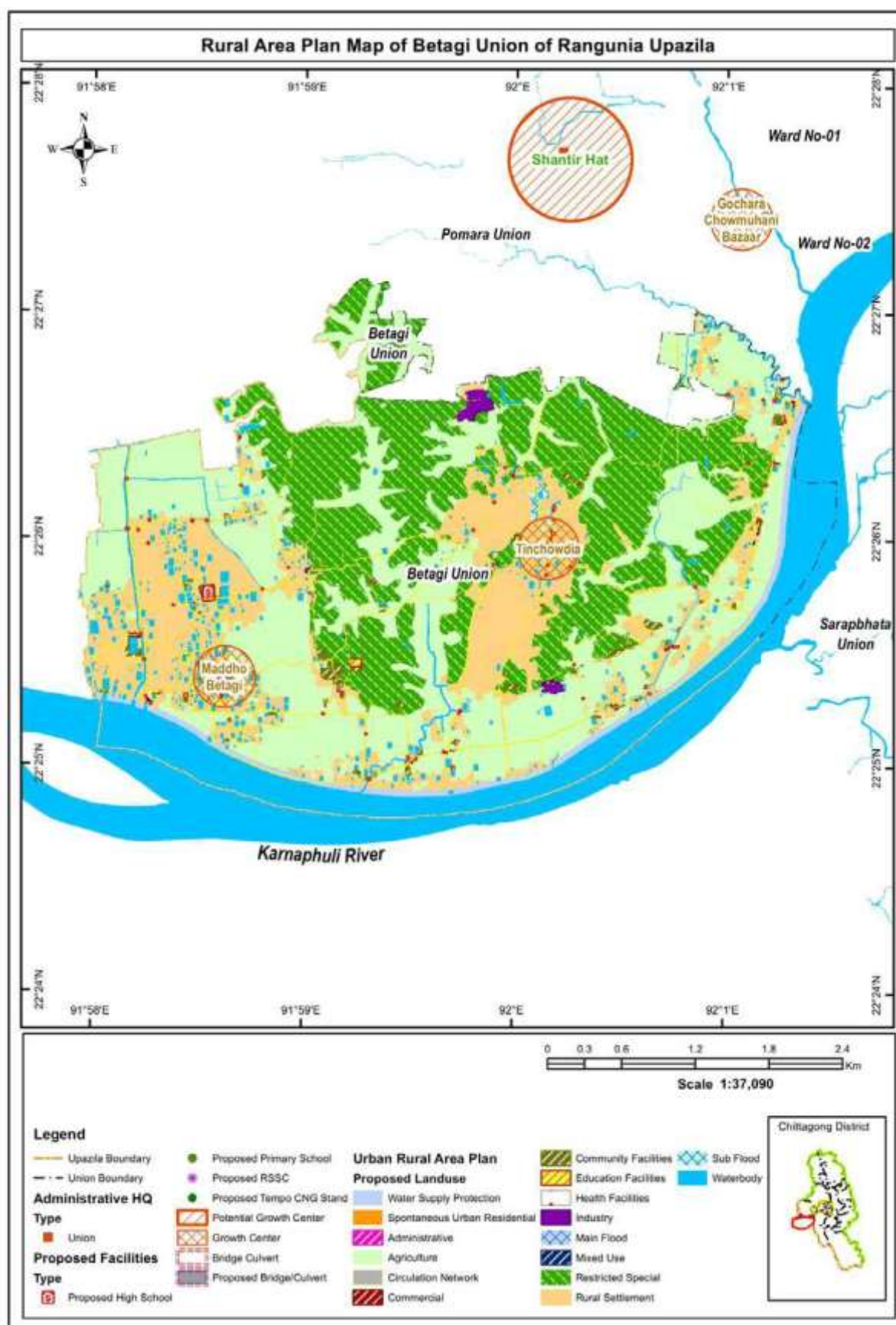
Source: Prepared by Consultant Team Based on Field Survey, 2016

The map (**Map 7.29**) implies that Betagi union is dominantly occupied by rural settlements and restricted special zone. That means in this union two types zoning is visible.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.28: Existing Land use Plan of Betagi Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.29: Rural Area Plan for Betagi Union

Existing Landuse and Development Plan of Chandraghona Kadamtali Union

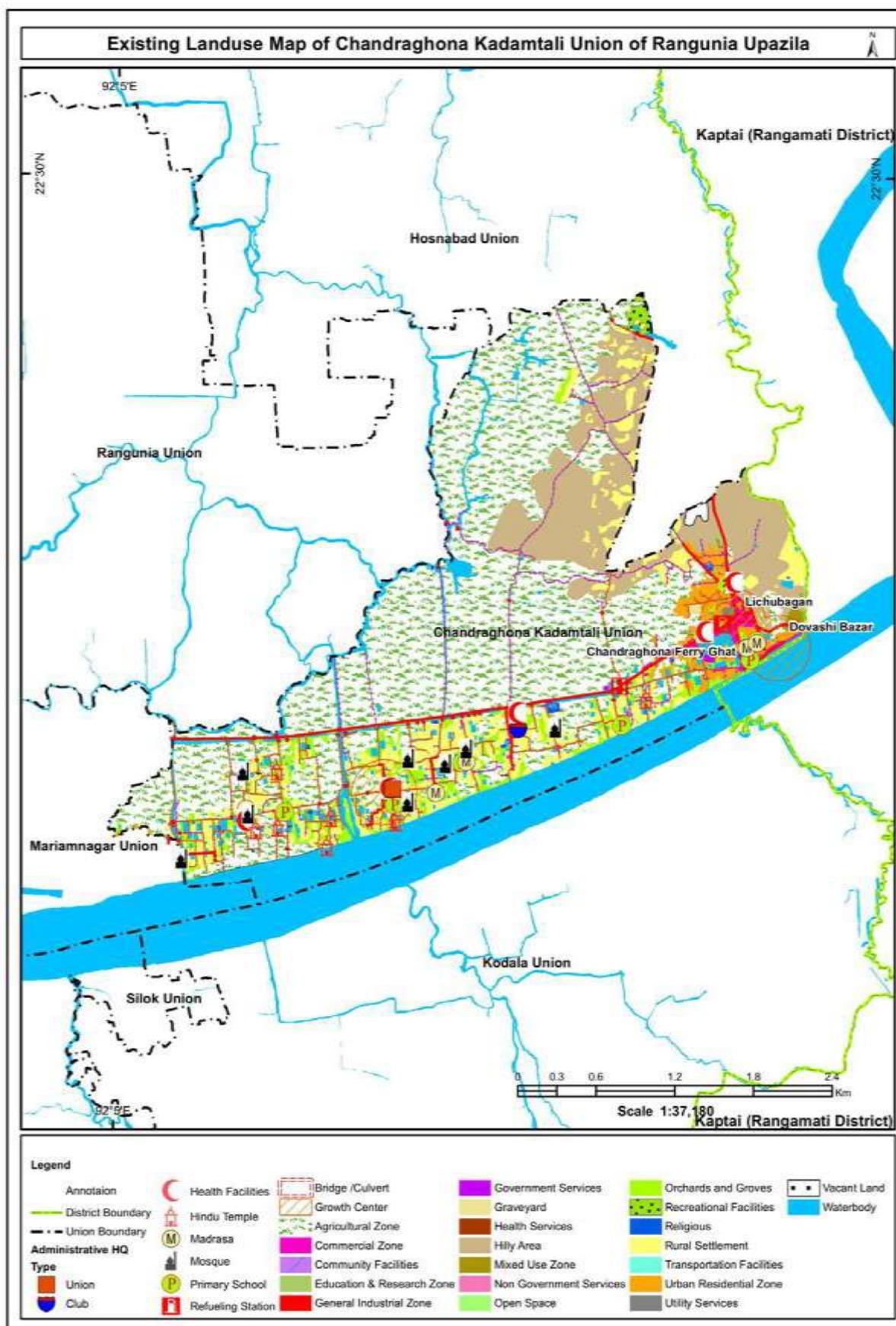
The existing land use of Chandraghona Kadamtali union has presented in **Table 7.32** along with **Map 7.30**. Total area of this union is 10.638 sq.km. The development plan of this union is presented in **Map 7.31**.

Table 7.32: Existing Land Use of Chandraghona Kadamtali Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	5410335	5.4103	1336.923
Circulation Network	164512.9	0.1645	40.652
Commercial Zone	111439.1	0.1114	27.537
Community Facilities	805.2185	0.0008	0.199
Education & Research Zone	33520.2	0.0335	8.283
General Industrial Zone	552.4988	0.0006	0.137
Government Services	10128.61	0.0101	2.503
Graveyard	15606.42	0.0156	3.856
Health Services	4076.664	0.0041	1.007
Hilly Area	1469935	1.4699	363.229
Hilly Settlement	261300	0.2613	64.569
Mixed Use Zone	21410.72	0.0214	5.291
Non-Government Services	62.81213	0.0001	0.016
Open Space	3268.691	0.0033	0.808
Orchards and Groves	457715.8	0.4577	113.104
Recreational Facilities	36117.96	0.0361	8.925
Religious	40192.58	0.0402	9.932
Rural Settlement	926464.9	0.9265	228.934
Transportation Facilities	908.1027	0.0009	0.224
Urban Residential Zone	270230.3	0.2702	66.775
Utility Services	6491.718	0.0065	1.604
Vacant Land	77532.92	0.0775	19.159
Waterbody	1315661	1.3157	325.107
Total	10638268	10.6383	2628.773

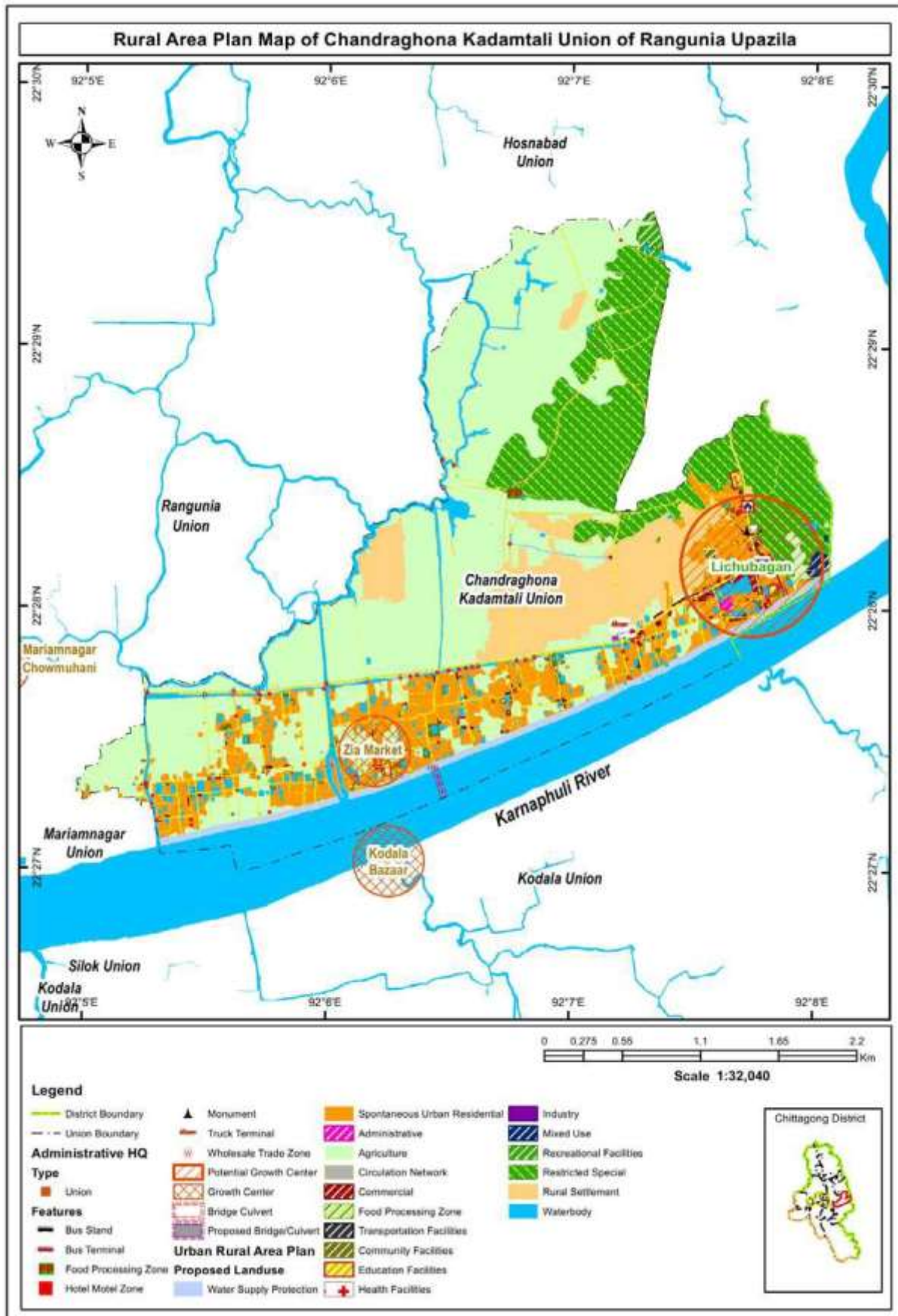
Source: Prepared by Consultant Team Based on Field Survey, 2016

The development plan (**Map 7.31**) of Chandroghona Kadamtali union is different from the previous union. Here four types of zoning are visible which are restricted special, urban area, agriculture zone and eco sensitive zone.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.30: Existing Land Use Plan of Chandraghona Kadamtali Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.31: Rural Area Plan of Chandroghona Kadamtali Union

Existing Land Use and Development Plan of Dakshin Rajanagar Union

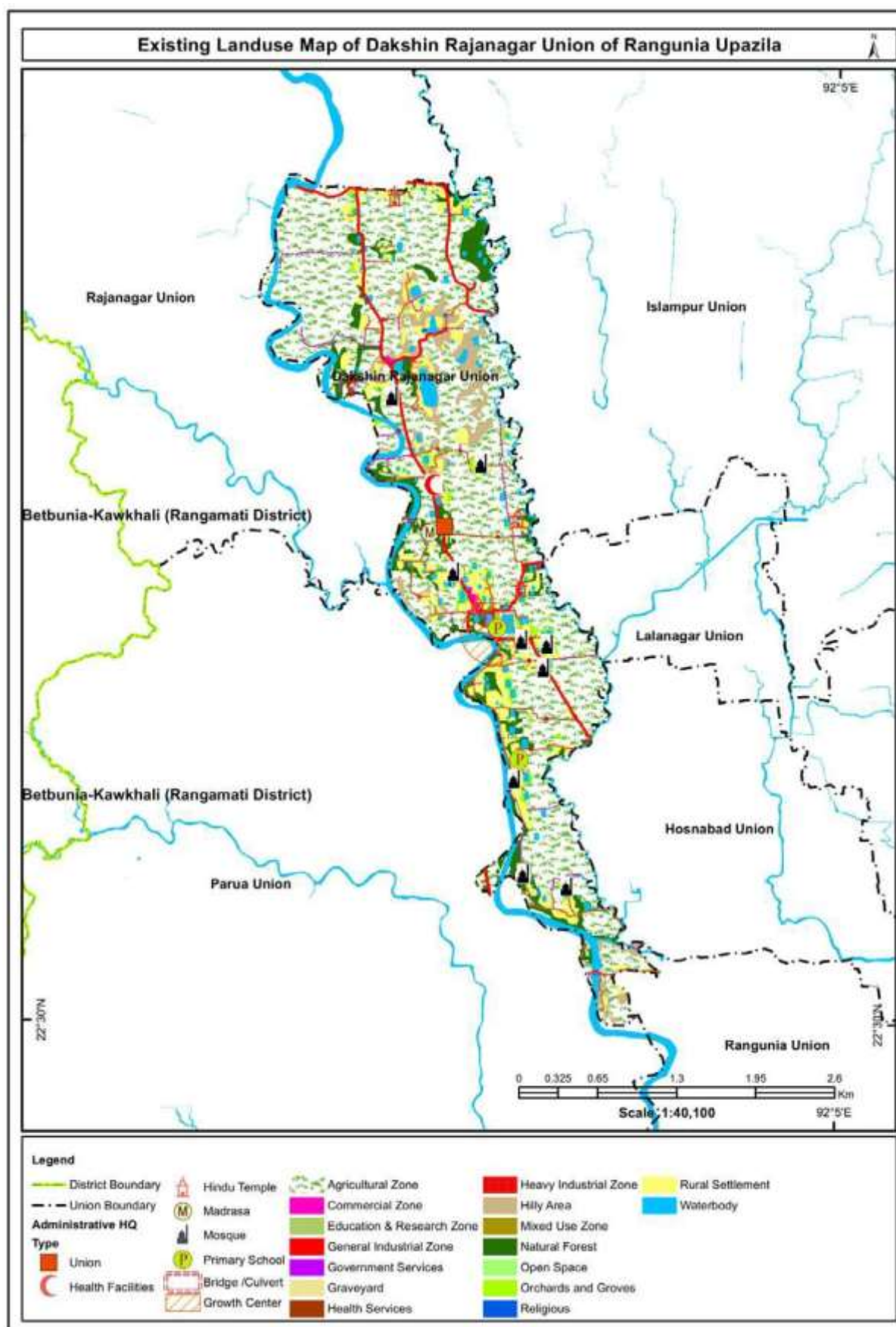
The existing land use of Dakshin Rajanagar union has presented in **Table 7.33** along with **Map 7.32**. Total area of this union is 7.345 sq.km. The development plan of this union is presented in **Map 7.33**.

Table 7.33: Existing Land Use of Dakshin Rajanagar Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	4545645.50	4.5456	1123.254
Circulation Network	106096.05	0.1061	26.217
Commercial Zone	23950.34	0.0240	5.918
Education & Research Zone	17006.20	0.0170	4.202
General Industrial Zone	2347.48	0.0023	0.580
Government Services	1080.21	0.0011	0.267
Graveyard	13896.22	0.0139	3.434
Health Services	2318.46	0.0023	0.573
Heavy Industrial Zone	1178.48	0.0012	0.291
Hilly Area	381738.47	0.3817	94.330
Mixed Use Zone	3929.73	0.0039	0.971
Native Forest	585064.63	0.5851	144.573
Open Space	884.29	0.0009	0.219
Orchards and Groves	147283.38	0.1473	36.395
Religious	17500.73	0.0175	4.325
Rural Settlement	815381.81	0.8154	201.485
Waterbody	680278.38	0.6803	168.100
Total	7345580.34	7.3456	1815.132

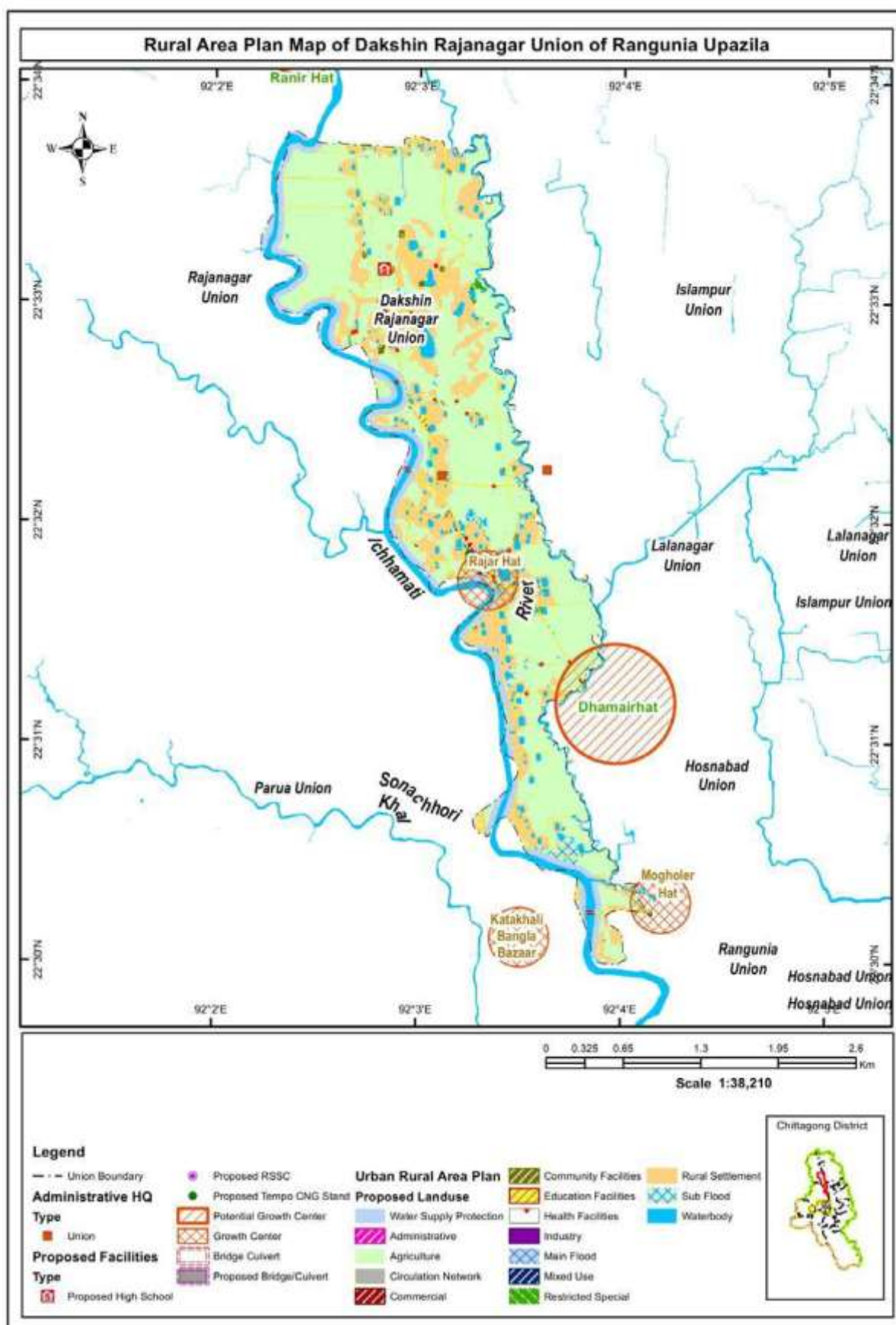
Source: Prepared by Consultant Team Based on Field Survey, 2016

The Development Plan (**Map 7.33**) of Dakshin Rajanagar union comprises only two zoning which are rural settlement and water protection zone.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.32: Existing Land Use Plan of Dakshin Rajanagar Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.33: Rural Area Plan of Dakshin Rajanagar Union

Existing Land Use and Development Plan of Hosnabad Union

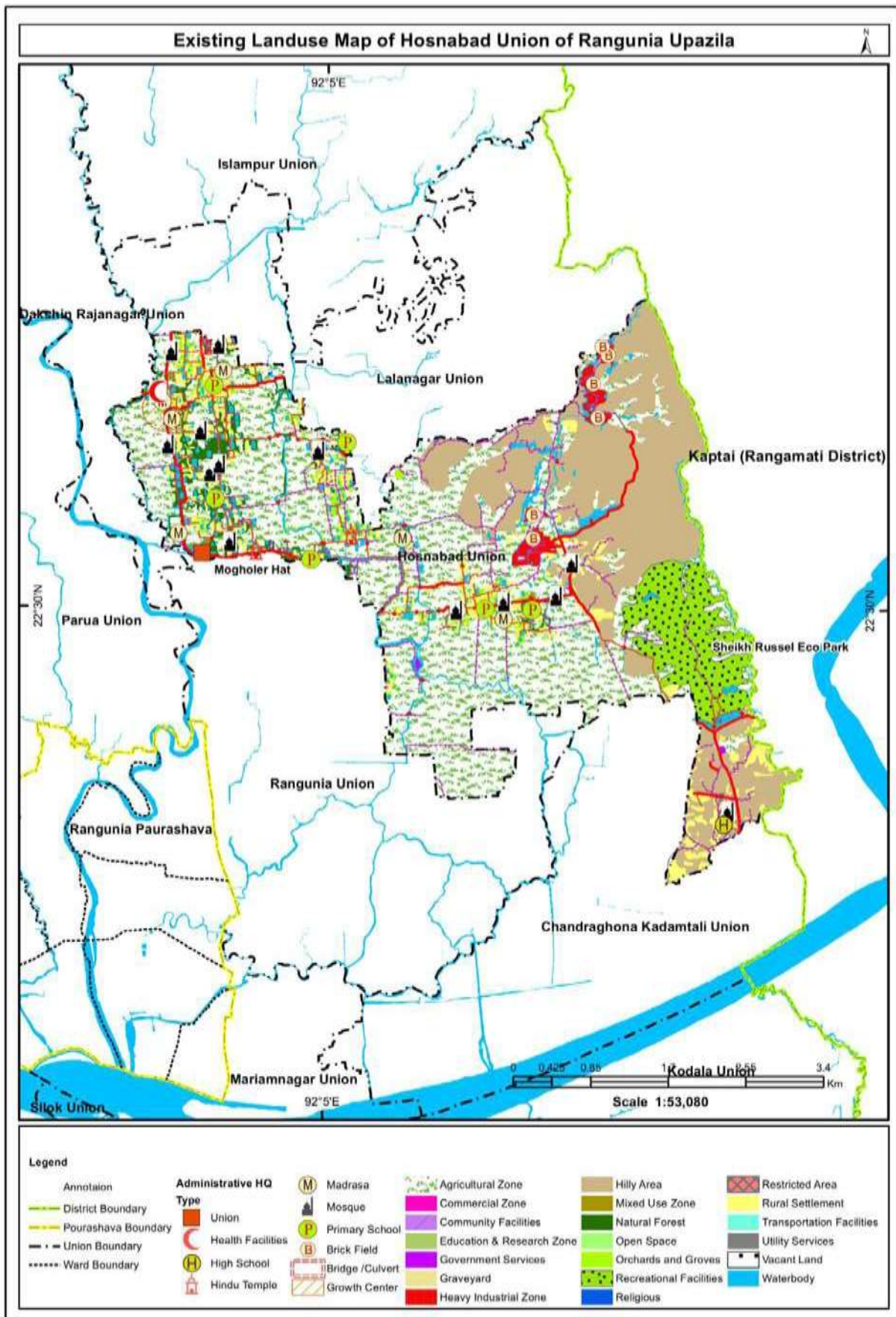
The existing land use of Hosnabad union has presented in **Table 7.34** along with **Map 7.34**. Total area of this union is 19.489 sq.km. The development plan of this union is presented in **Map 7.35**.

Table 7.34: Existing Land Use of Hosnabad Union

Land use	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	8792769	8.792768478	2172.74041
Circulation Network	252772.2	0.252772212	62.4613739
Commercial Zone	28210.105	0.028210105	6.97086885
Community Facilities	485.54242	0.000485542	0.11998015
Education & Research Zone	15945.624	0.015945625	3.94024964
Government Services	13342.308	0.013342307	3.29695585
Graveyard	6262.6084	0.006262608	1.54752422
Heavy Industrial Zone	254406.36	0.254406363	62.8651813
Hilly Area	5122051	5.122050762	1265.68631
Hilly Settlement	410968.97	0.410968989	101.552649
Mixed Use Zone	57918.633	0.057918631	14.3120053
Native Forest	638386.5	0.638386548	157.748751
Open Space	2610.2693	0.002610269	0.64501158
Orchards and Groves	317234.22	0.317234218	78.3902825
Recreational Facilities	1377176.5	1.377176523	340.30773
Religious	19114.51	0.019114511	4.72329855
Restricted Area	1090.8732	0.001090873	0.26956063
Rural Settlement	1121387.8	1.12138772	277.10094
Transportation Facilities	109.37276	0.000109373	0.0270266
Utility Services	6058.1025	0.006058102	1.49698972
Vacant Land	4224.0347	0.004224034	1.04378165
Waterbody	1046597	1.046597004	258.619752
Total	19489121	19.4891208	4815.86663

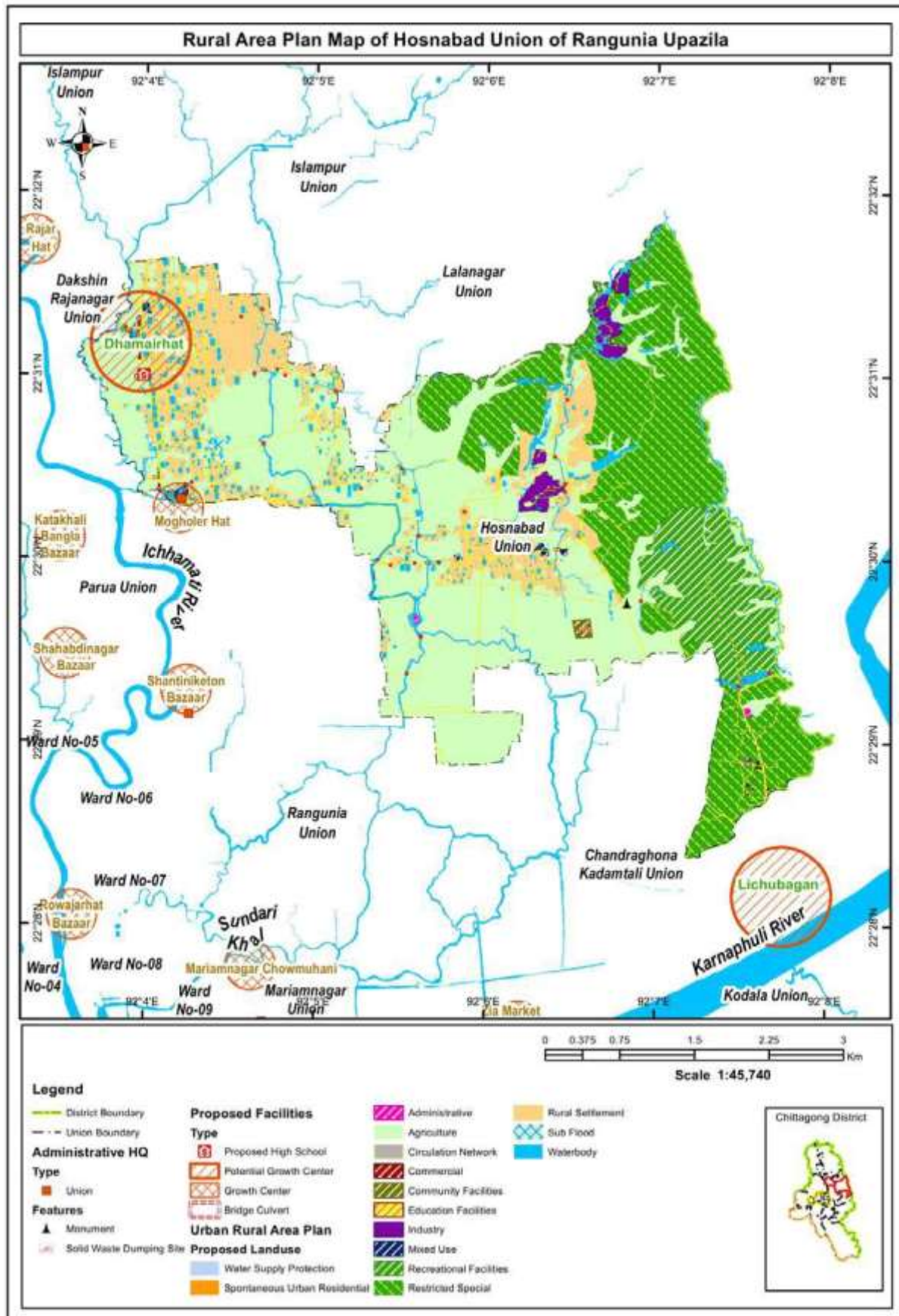
Source: Prepared by Consultant Team Based on Field Survey, 2016

The Development Plan (**Map 7.35**) of Hosnabad union is different from the previous union. Here four types of zoning are visible which are restricted special, urban area, agriculture zone and eco sensitive zone. The scenario of this union is similar with Chandroghona Kadamtali.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.34: Existing Landuse Plan of Hosnabad Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.35: Rural Area Plan of Hosnabad Union

Existing Land Use and Development Plan of Islampur Union

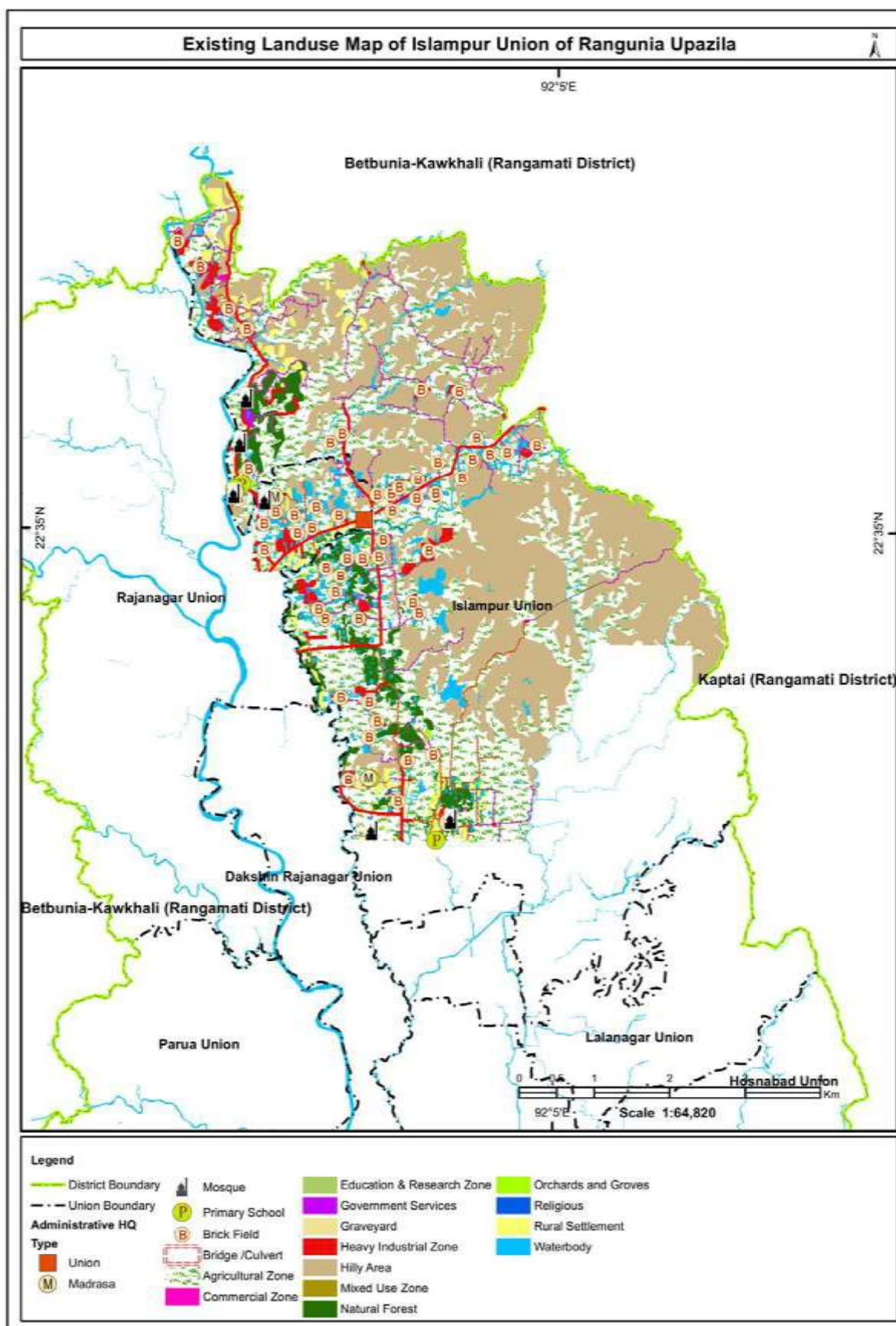
The existing land use of Islampur union has presented in **Table 7.35** along with **Map 7.36**. Total area of this union is 19.489 sq.km. The development plan of this union is presented in **Map 7.37**.

Table 7.35: Existing Land Use of Islampur Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	12705334	12.70533466	3139.55657
Circulation Network	276626.88	0.276626885	68.3559919
Commercial Zone	42417.195	0.042417195	10.4815171
Education & Research Zone	5315.6816	0.005315682	1.31353361
Government Services	24198.529	0.02419853	5.97958705
Graveyard	1934.7902	0.00193479	0.47809703
Heavy Industrial Zone	1467062.5	1.467062473	362.519032
Hilly Area	13854114	13.85411358	3423.42602
Hilly Settlement	343230.38	0.343230397	84.8140781
Mixed Use Zone	10588.655	0.010588655	2.61651369
Native Forest	1504774.9	1.504774928	371.837983
Orchards and Groves	88033.484	0.088033482	21.7535473
Religious	18090.328	0.018090328	4.47021745
Rural Settlement	709296.88	0.709296882	175.271077
Waterbody	1860085.6	1.860085607	459.637163
Total	32911104	32.91110408	8132.51093

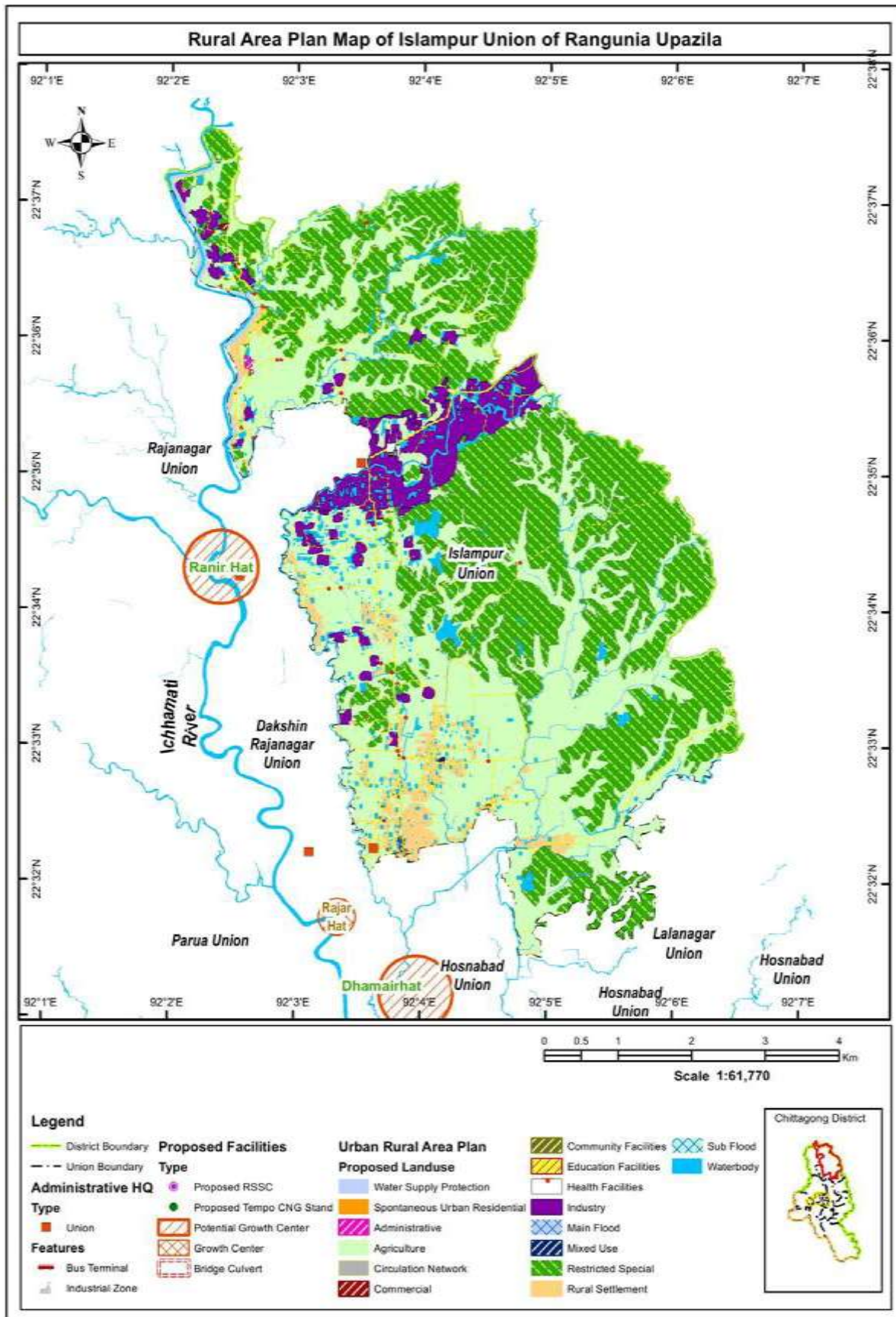
Source: Prepared by Consultant Team Based on Field Survey, 2016

The Development Plan (**Map 7.37**) of Islampur union represents five types of zoning which are restricted special, urban area, agriculture zone and eco sensitive zone and industrial zone. From the map it is visible that most of the areas are considered as restricted special of this union and the only one industrial zone has proposed here because of the road connectivity and type of the land



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.36: Existing Land Use Plan of Islampur Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.37: Rural Area Plan of Islampur Union

Existing Land Use and Development Plan of Kodala Union

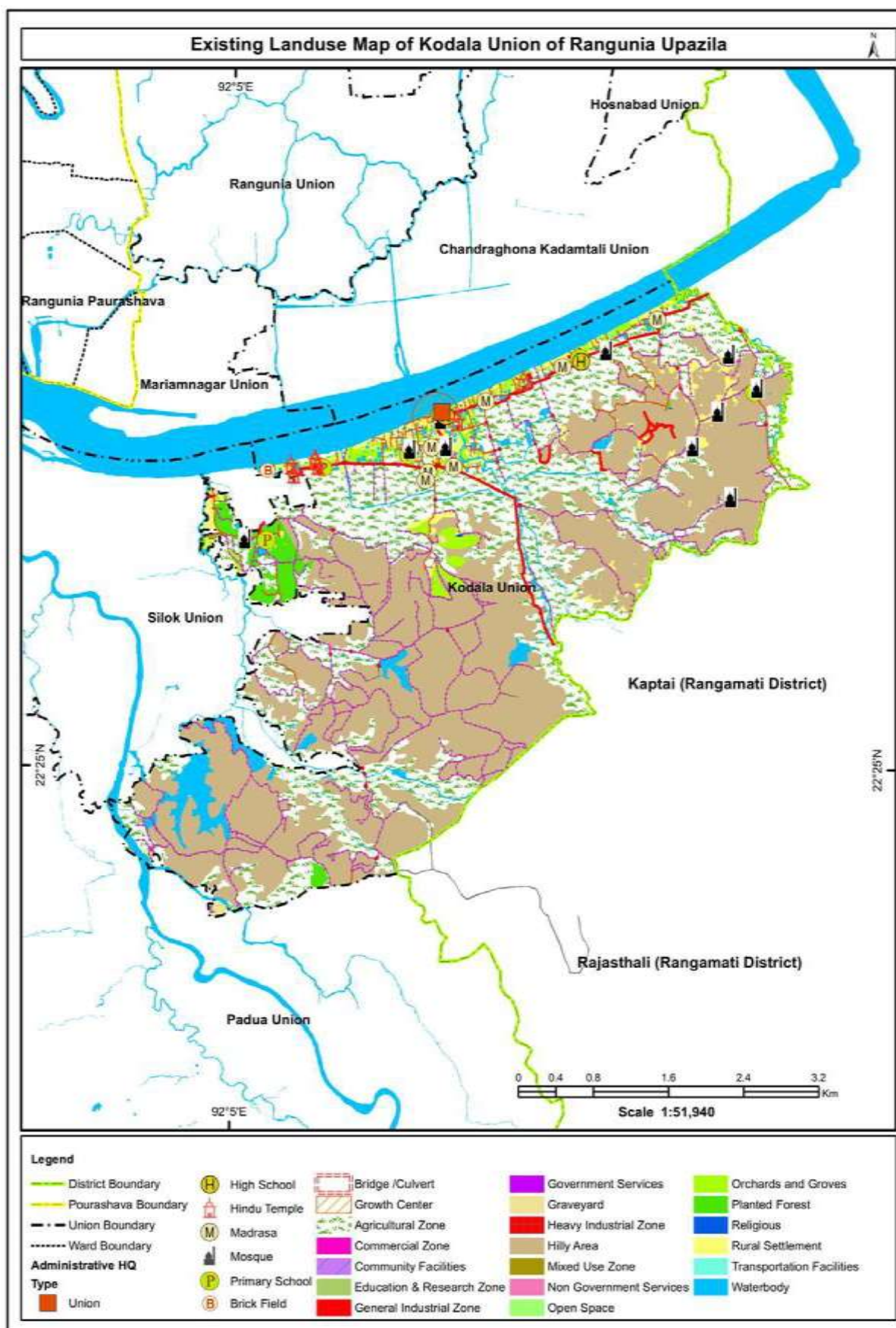
The existing land use of Kodala union has presented in **Table 7.36** along with **Map 7.38**. Total area of this union is 23.411 sq.km. The development plan of this union is presented in **Map 7.39**.

Table 7.36: Existing Land Use of Kodala Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	7511602.500	7.5116	1856.1574
Circulation Network	272562.844	0.2726	67.3517
Commercial Zone	17463.861	0.0175	4.3154
Community Facilities	535.261	0.0005	0.1323
Education & Research Zone	32034.553	0.0320	7.9159
General Industrial Zone	7917.659	0.0079	1.9565
Government Services	970.876	0.0010	0.2399
Graveyard	29096.068	0.0291	7.1898
Heavy Industrial Zone	14343.089	0.0143	3.5443
Hilly Area	11254644.000	11.2546	2781.0830
Hilly Settlement	479427.063	0.4794	118.4690
Mixed Use Zone	2516.062	0.0025	0.6217
Non-Government Services	731.896	0.0007	0.1809
Open Space	15013.779	0.0150	3.7100
Orchards and Groves	518966.938	0.5190	128.2395
Planted Forest	422636.313	0.4226	104.4357
Religious	21880.047	0.0219	5.4067
Rural Settlement	604988.188	0.6050	149.4958
Transportation Facilities	3193.482	0.0032	0.7891
Waterbody	2200923.000	2.2009	543.8599
Total	23411447.478	23.4114	5785.0945

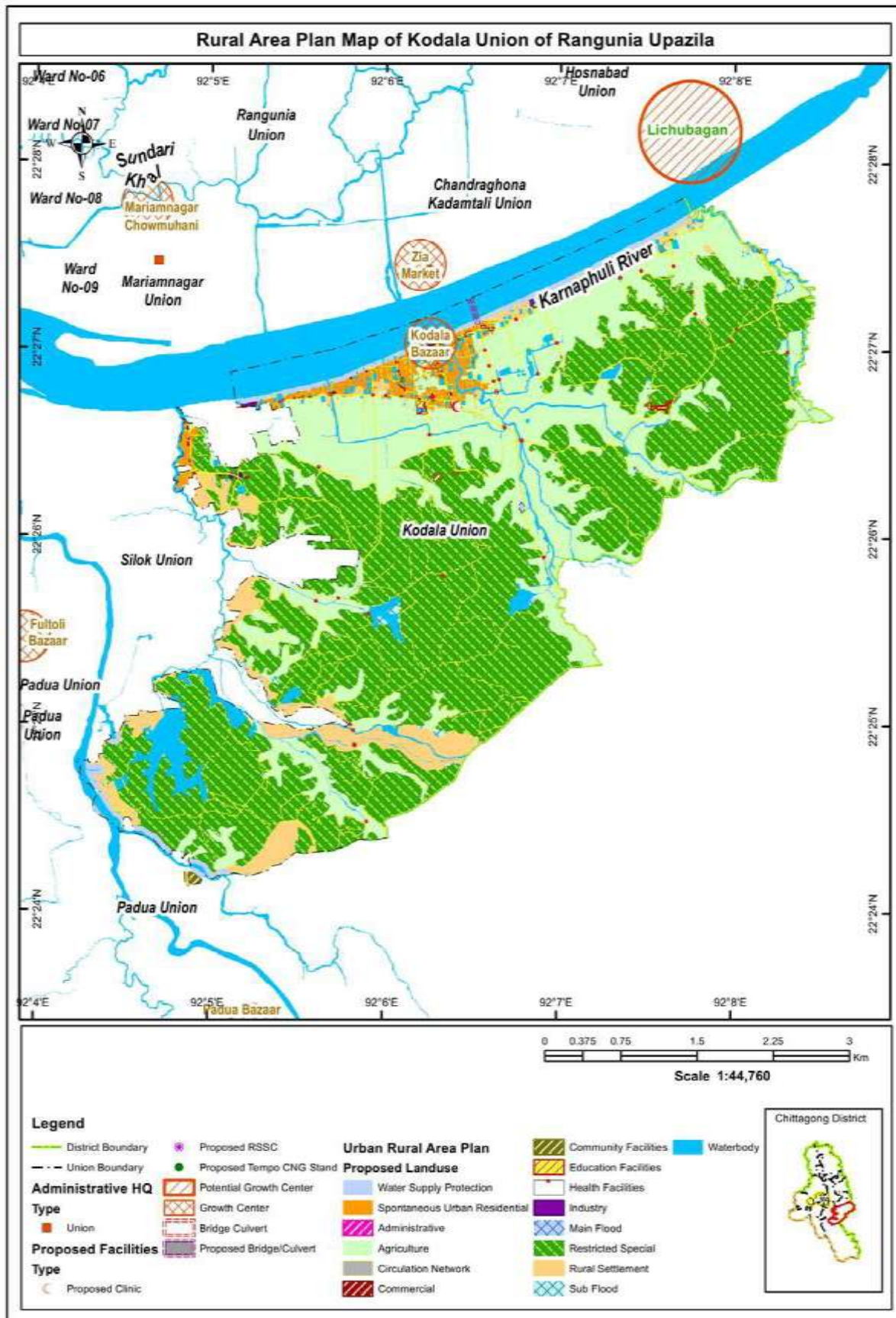
Source: Prepared by Consultant Team Based on Field Survey, 2016

Kodala union comprises of restricted special zone mostly. Along with this agriculture zone is visible in the map (**Map 7.39**). A little portion of rural settlement, urban settlement and water supply protection zone also present in this union.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.38: Existing Land Use Plan of Kodala Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.39: Kodala Plan of Kodala Union

Existing Land Use and Development Plan of Lalanagar Union

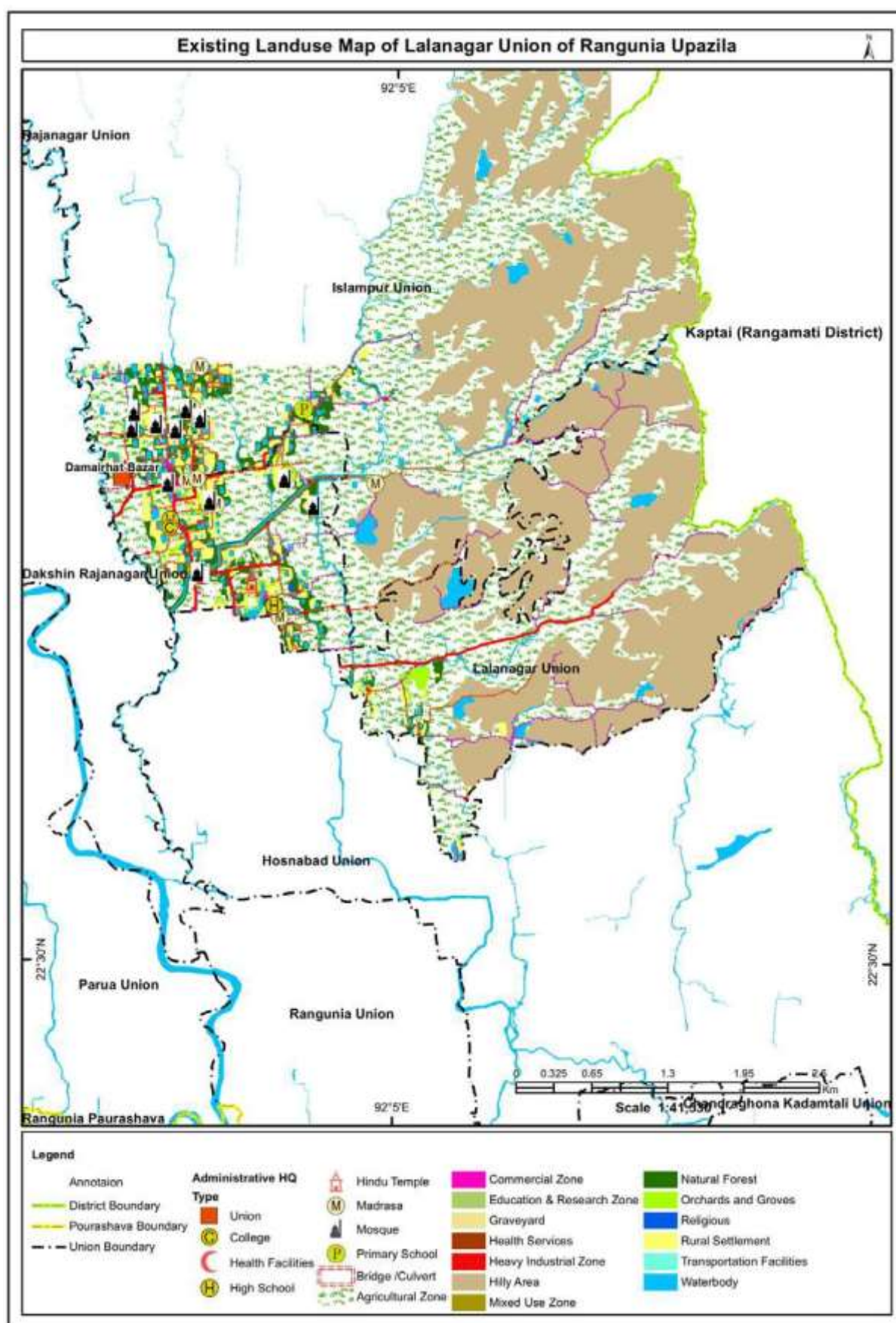
The existing land use of Lalanagar union has presented in **Table 7.37** along with **Map 7.40**. Total area of this union is 21.067 sq.km. The development plan of this union is presented in **Map 7.41**.

Table 7.37: Existing Land Use of Lalanagar Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	9949693.00	9.9497	2458.6226
Circulation Network	174827.17	0.1748	43.2007
Commercial Zone	40448.83	0.0404	9.9951
Education & Research Zone	22536.96	0.0225	5.5690
Graveyard	10866.81	0.0109	2.6852
Health Services	838.44	0.0008	0.2072
Heavy Industrial Zone	1612.45	0.0016	0.3984
Hilly Area	8285460.00	8.2855	2047.3816
Hilly Settlement	8336.37	0.0083	2.0600
Mixed Use Zone	12917.17	0.0129	3.1919
Native Forest	709784.31	0.7098	175.3915
Orchards and Groves	133898.25	0.1339	33.0870
Religious	16694.04	0.0167	4.1252
Rural Settlement	757127.19	0.7571	187.0902
Transportation Facilities	397.36	0.0004	0.0982
Waterbody	941922.00	0.9419	232.7540
Total	21067360.36	21.0674	5205.8579

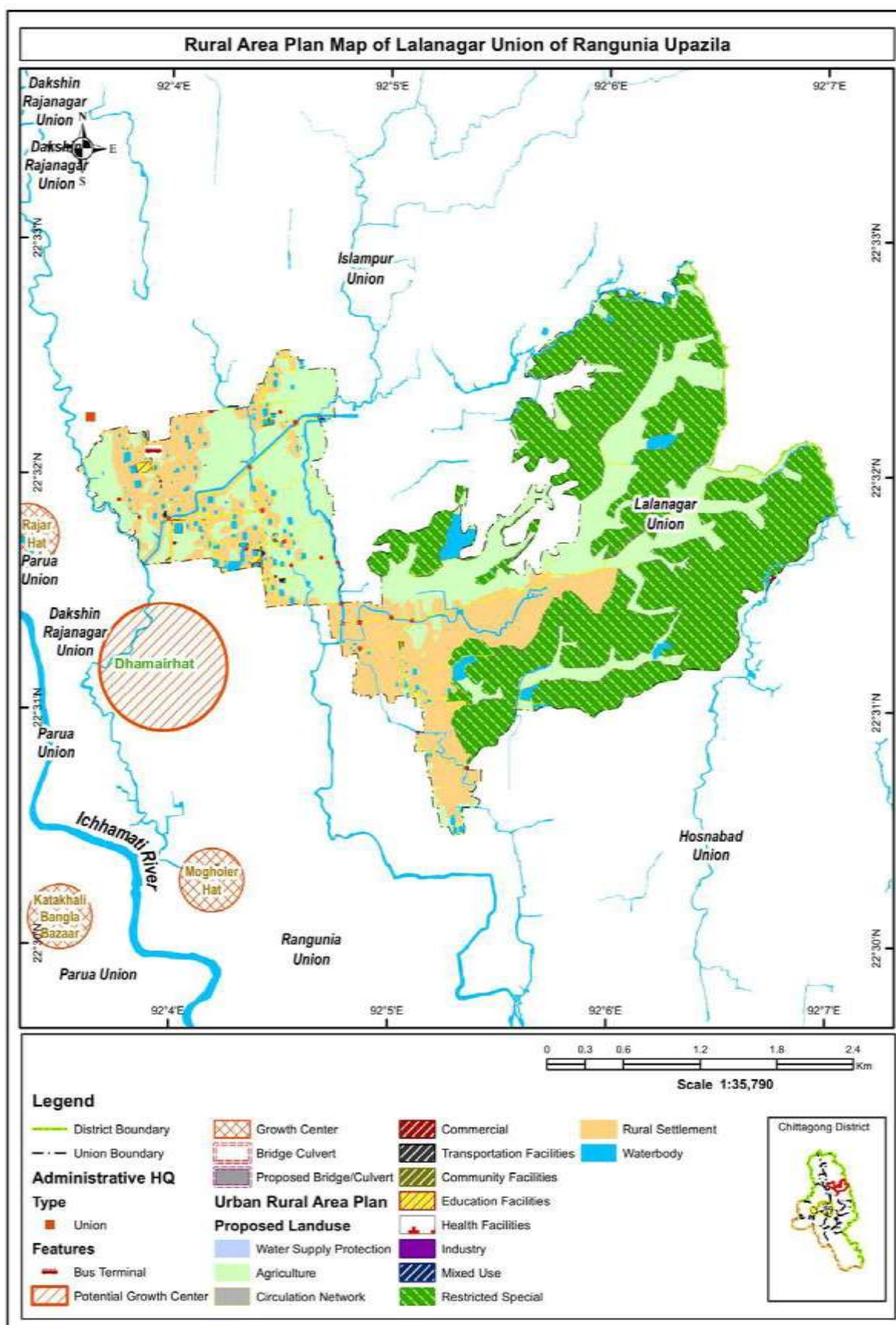
Source: Prepared by Consultant Team Based on Field Survey, 2016

The map (**Map 7.41**) implies that Lalanagar Union is divided into 3 zones which are restricted special zone, agriculture zone and rural settlement.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.40: Existing Land Use Plan of Lalanagar Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.41: Rural Area Plan of Lalanagar Union

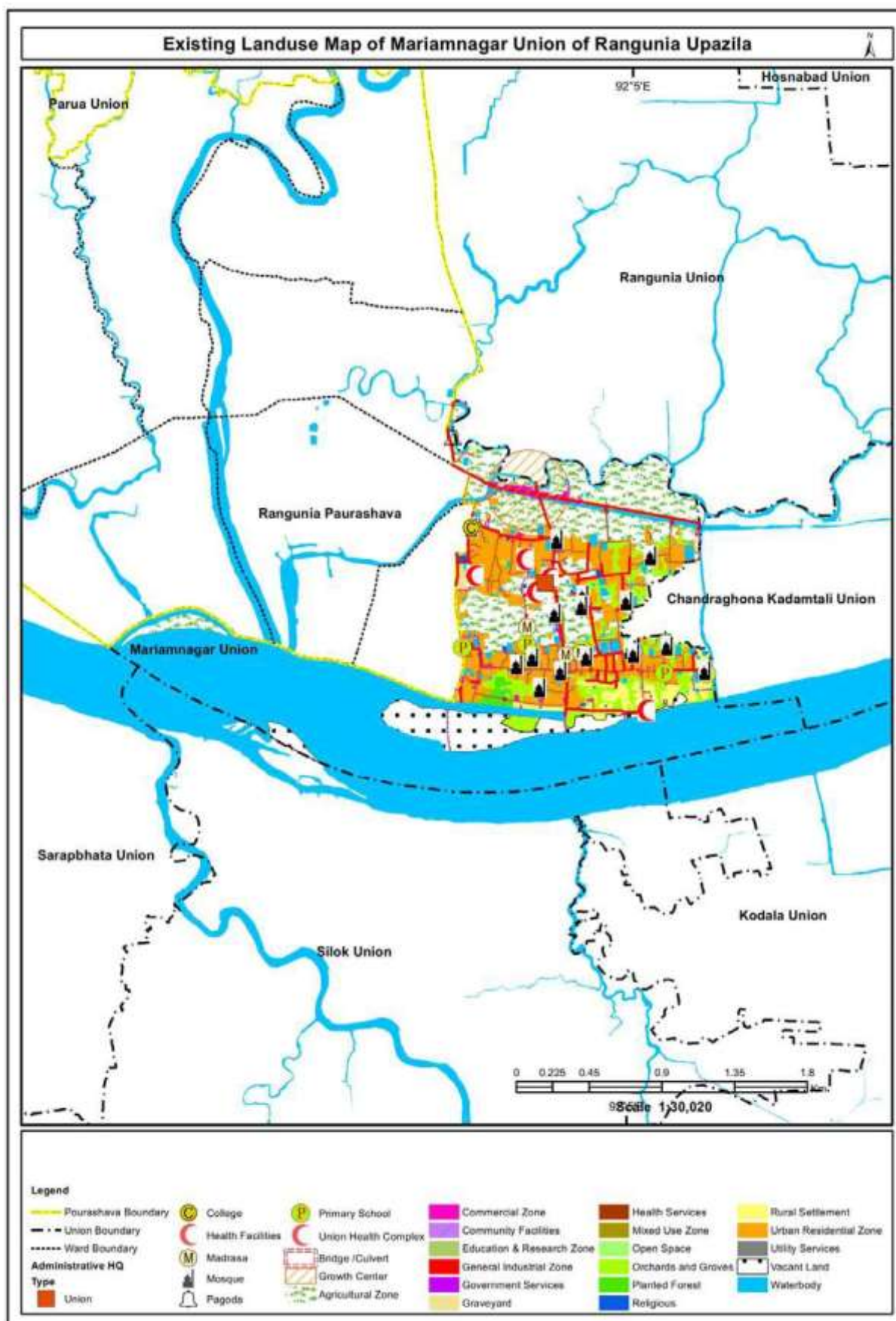
Existing Land Use and Development Plan of Mariamnagar Union

The existing land use of Mariamnagar union has presented in **Table 7.38** along with **Map 7.42**. Total area of this union is 4.014 sq.km. The development plan of this union is presented in **Map 7.43**.

Table 7.38: Existing Land Use of Mariamnagar Union

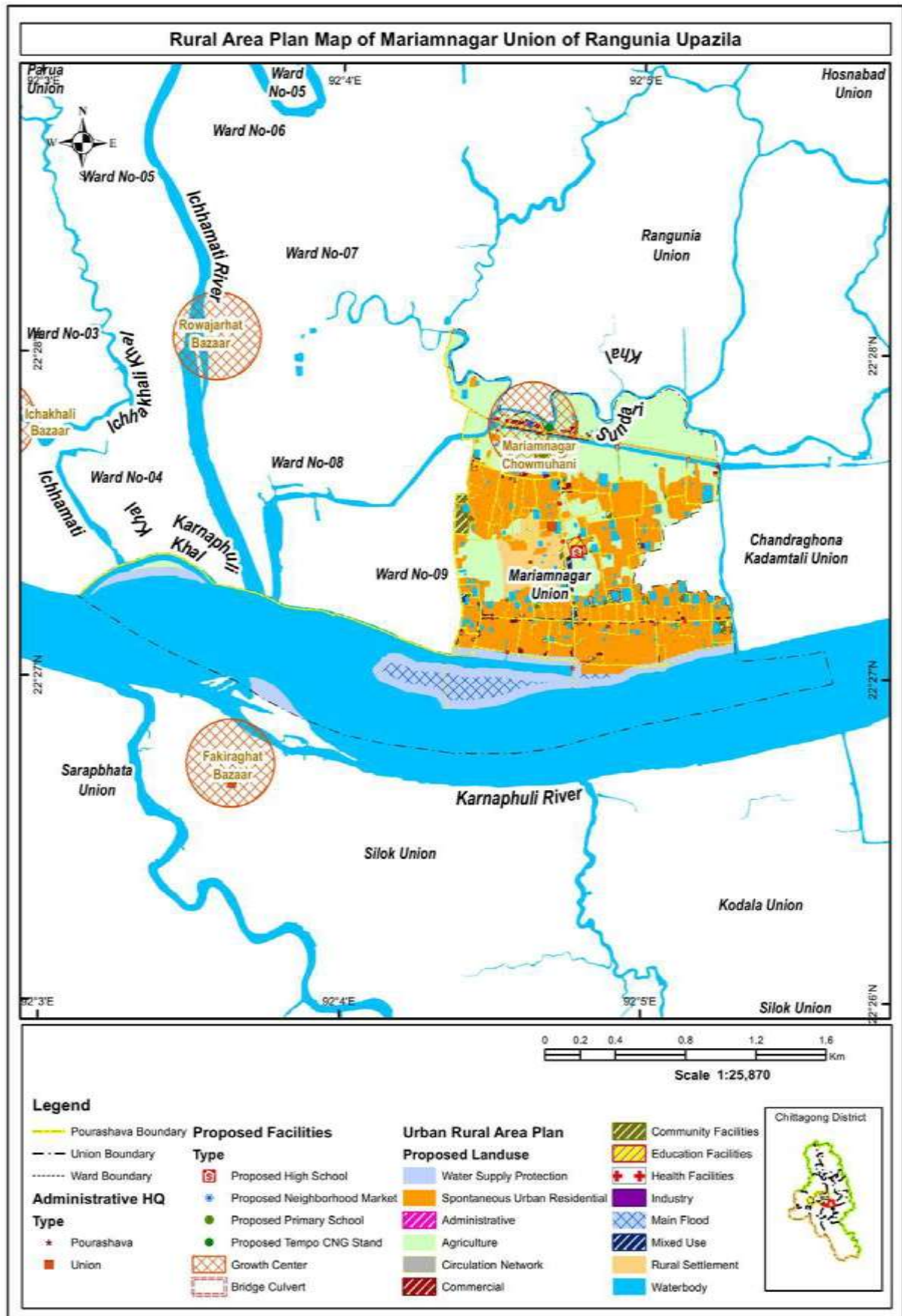
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	817689.875	0.8177	202.0556
Circulation Network	70092.16406	0.0701	17.3202
Commercial Zone	48697.13281	0.0487	12.0333
Community Facilities	2497.609375	0.0025	0.6172
Education & Research Zone	9347.09375	0.0093	2.3097
General Industrial Zone	1254.195557	0.0013	0.3099
Government Services	274.8451843	0.0003	0.0679
Graveyard	14666.92871	0.0147	3.6243
Health Services	488.6177673	0.0005	0.1207
Hilly Area	53.53744888	0.0001	0.0132
Mixed Use Zone	10973.52637	0.0110	2.7116
Open Space	273.1922302	0.0003	0.0675
Orchards and Groves	231293.0625	0.2313	57.1538
Planted Forest	21436.54883	0.0214	5.2971
Religious	23988.65625	0.0240	5.9277
Rural Settlement	106958.4609	0.1070	26.4300
Urban Residential Zone	606890.75	0.6069	149.9660
Utility Services	563.0509033	0.0006	0.1391
Vacant Land	327467.375	0.3275	80.9190
Waterbody	1719837.75	1.7198	424.9812
Total	4014744.373	4.0147	992.0649

Source: Prepared by Consultant Team Based on Field Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.42: Existing Land Use Plan of Mariamnagar Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.43: Rural Area Plan of Mariamnagar Union

Existing Land Use and Development Plan of Padua Union

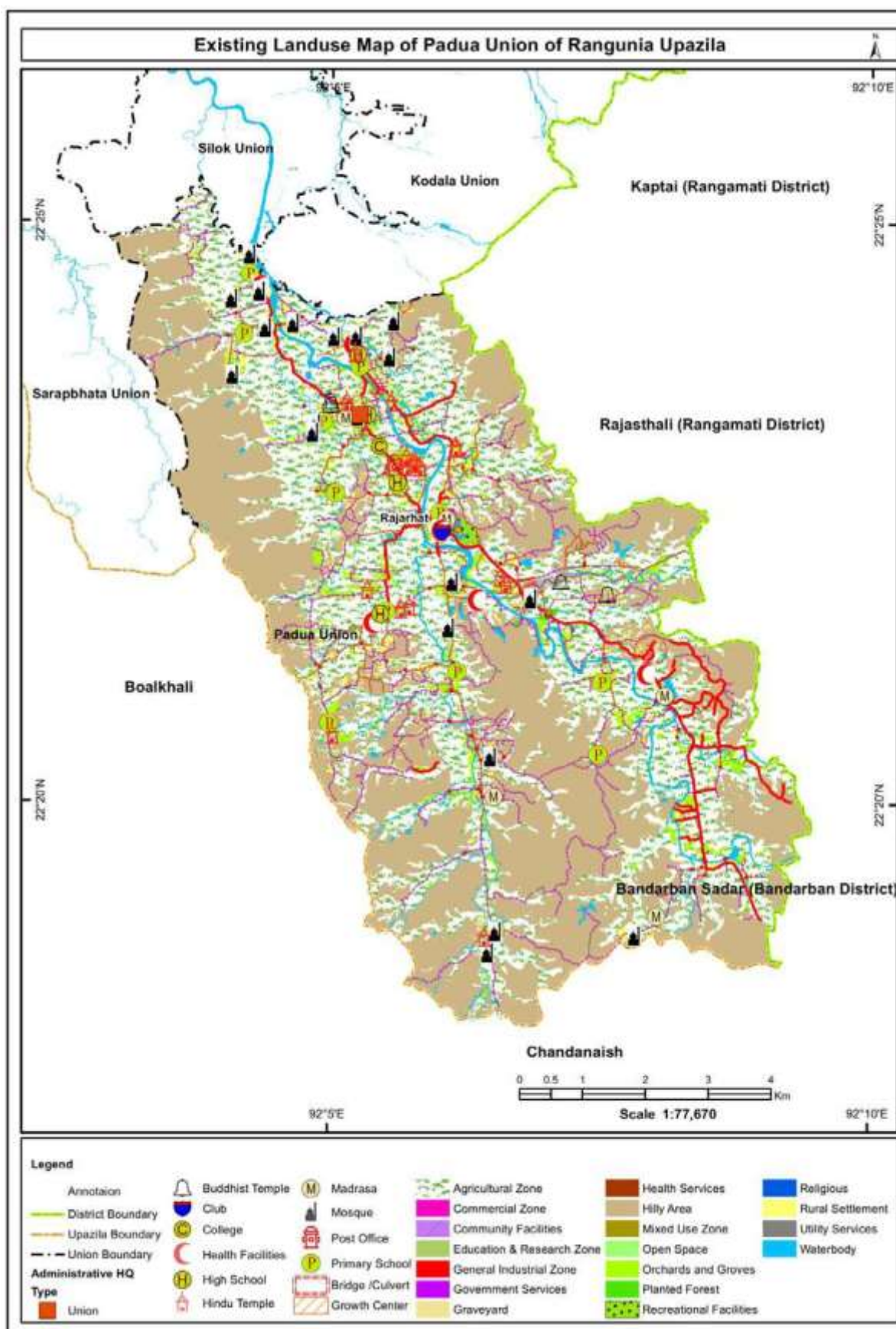
The existing land use of Padua union has presented in **Table 7.39** along with **Map 7.44**. Total area of this union is 73.346 sq.km. The development plan of this union is presented in **Map 7.45**.

Table 7.39: Existing Land Use of Padua Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	30994998	30.9950	7659.0306
Circulation Network	592946.8125	0.5929	146.5204
Commercial Zone	87549.71875	0.0875	21.6340
Community Facilities	1564.626465	0.0016	0.3866
Education & Research Zone	61263.17188	0.0613	15.1385
General Industrial Zone	3455.162354	0.0035	0.8538
Government Services	13876.81152	0.0139	3.4290
Graveyard	41293.95313	0.0413	10.2040
Health Services	5649.235352	0.0056	1.3960
Hilly Area	33529806	33.5298	8285.3960
Hilly Settlement	909524.5625	0.9095	224.7484
Mixed Use Zone	4099.924316	0.0041	1.0131
Open Space	4935.601563	0.0049	1.2196
Orchards and Groves	2551059.5	2.5511	630.3805
Planted Forest	43693.54297	0.0437	10.7969
Recreational Facilities	140145.0938	0.1401	34.6306
Religious	81932.21875	0.0819	20.2459
Rural Settlement	1535418.75	1.5354	379.4102
Utility Services	205.140686	0.0002	0.0507
Waterbody	2742988.25	2.7430	677.8071
Total	73346406.08	73.3464	18124.2919

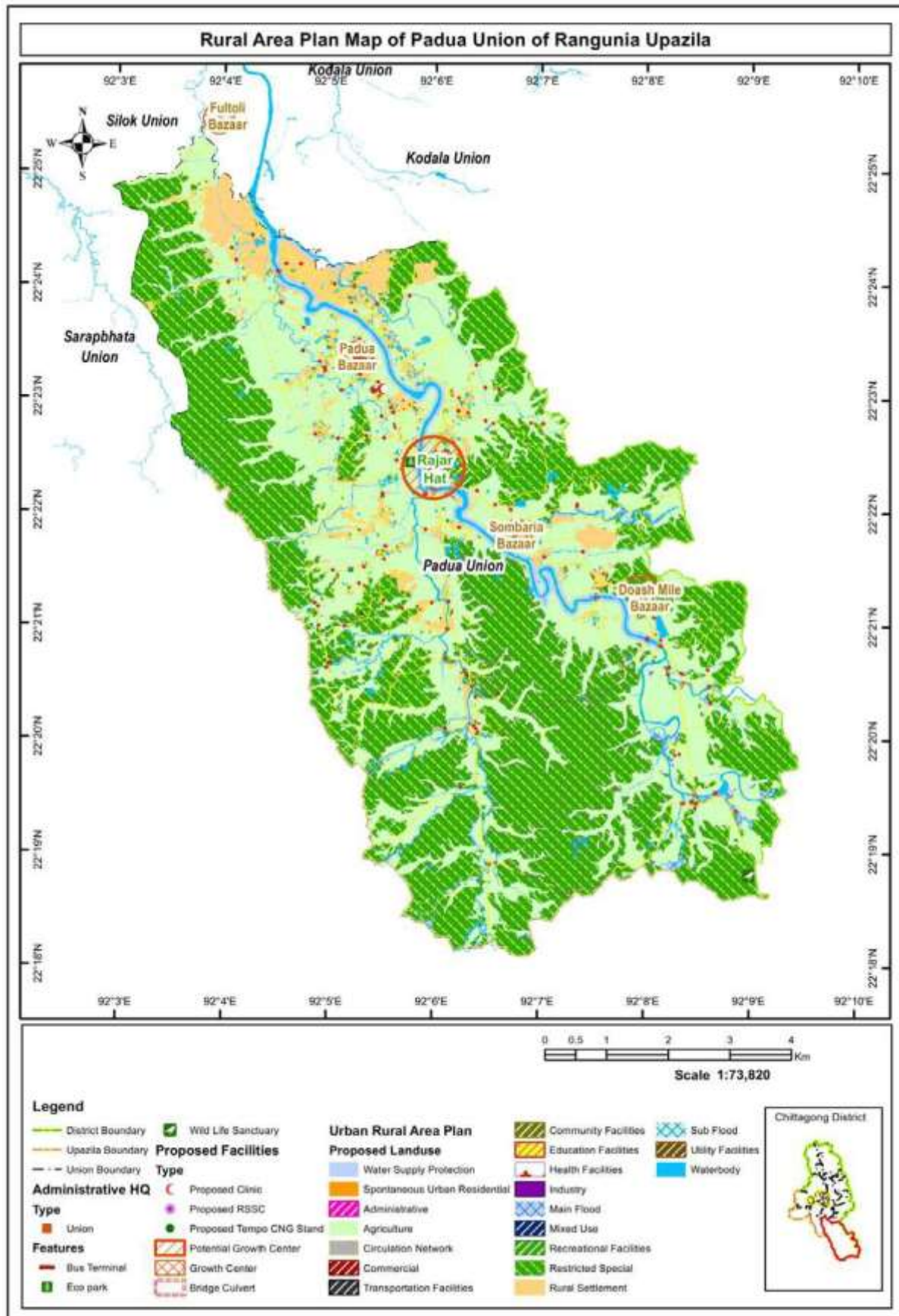
Source: Prepared by Consultant Team Based on Field Survey, 2016

The Development Plan (**Map 7.45**) of Padua union represents four types of zoning which are restricted special, agriculture zone, rural settlement and water supply protection zone. From the map it is visible that most of the areas are considered as restricted special of this union.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.44: Existing Land Use Plan of Padua Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.45: Rural Area Plan of Padua Union

Existing Land Use and Development Plan of Parua Union

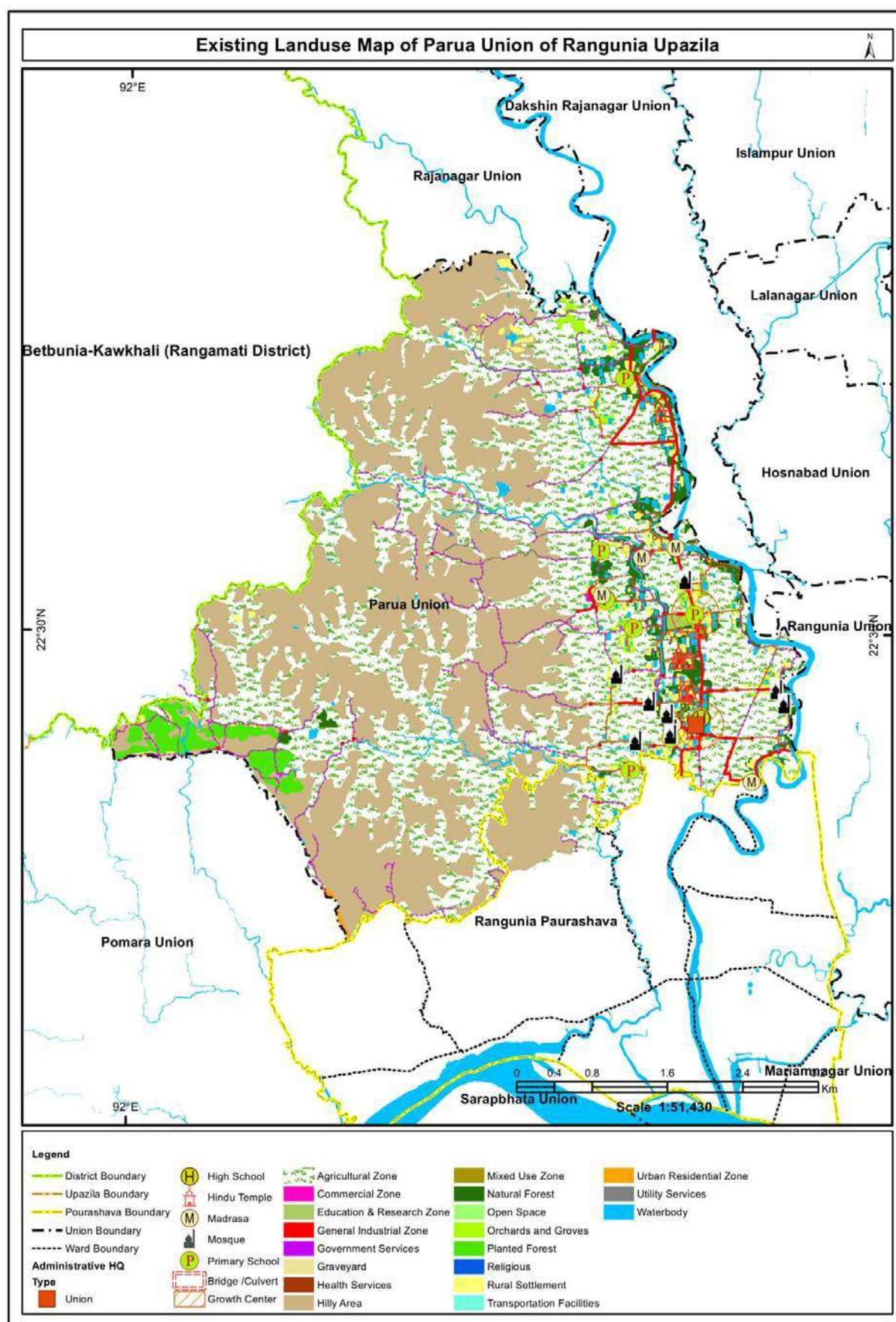
The existing land use of Parua union has presented in **Table 7.40** along with **Map 7.46**. Total area of this union is 28.424 sq.km. The development plan of this union is presented in **Map 7.47**.

Table 7.40: Existing Land Use of Parua Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	12662009	12.6620	3128.8504
Circulation Network	230095.7188	0.2301	56.8579
Commercial Zone	24346.51758	0.0243	6.0162
Education & Research Zone	46652.05078	0.0467	11.5280
General Industrial Zone	1961.870972	0.0020	0.4848
Government Services	858.0747681	0.0009	0.2120
Graveyard	7902.242188	0.0079	1.9527
Health Services	80.79943848	0.0001	0.0200
Hilly Area	11789063	11.7891	2913.1408
Hilly Settlement	76208.51563	0.0762	18.8315
Mixed Use Zone	10685.30469	0.0107	2.6404
Native Forest	890516.875	0.8905	220.0515
Open Space	683.468811	0.0007	0.1689
Orchards and Groves	276779.0625	0.2768	68.3936
Planted Forest	531051.1875	0.5311	131.2256
Religious	19515.2168	0.0195	4.8223
Rural Settlement	733706.0625	0.7337	181.3027
Transportation Facilities	852.9984131	0.0009	0.2108
Urban Residential Zone	23289.16992	0.0233	5.7549
Utility Services	251.9416351	0.0003	0.0623
Waterbody	1098067.125	1.0981	271.3383
Total	28424576.2	28.4246	7023.8655

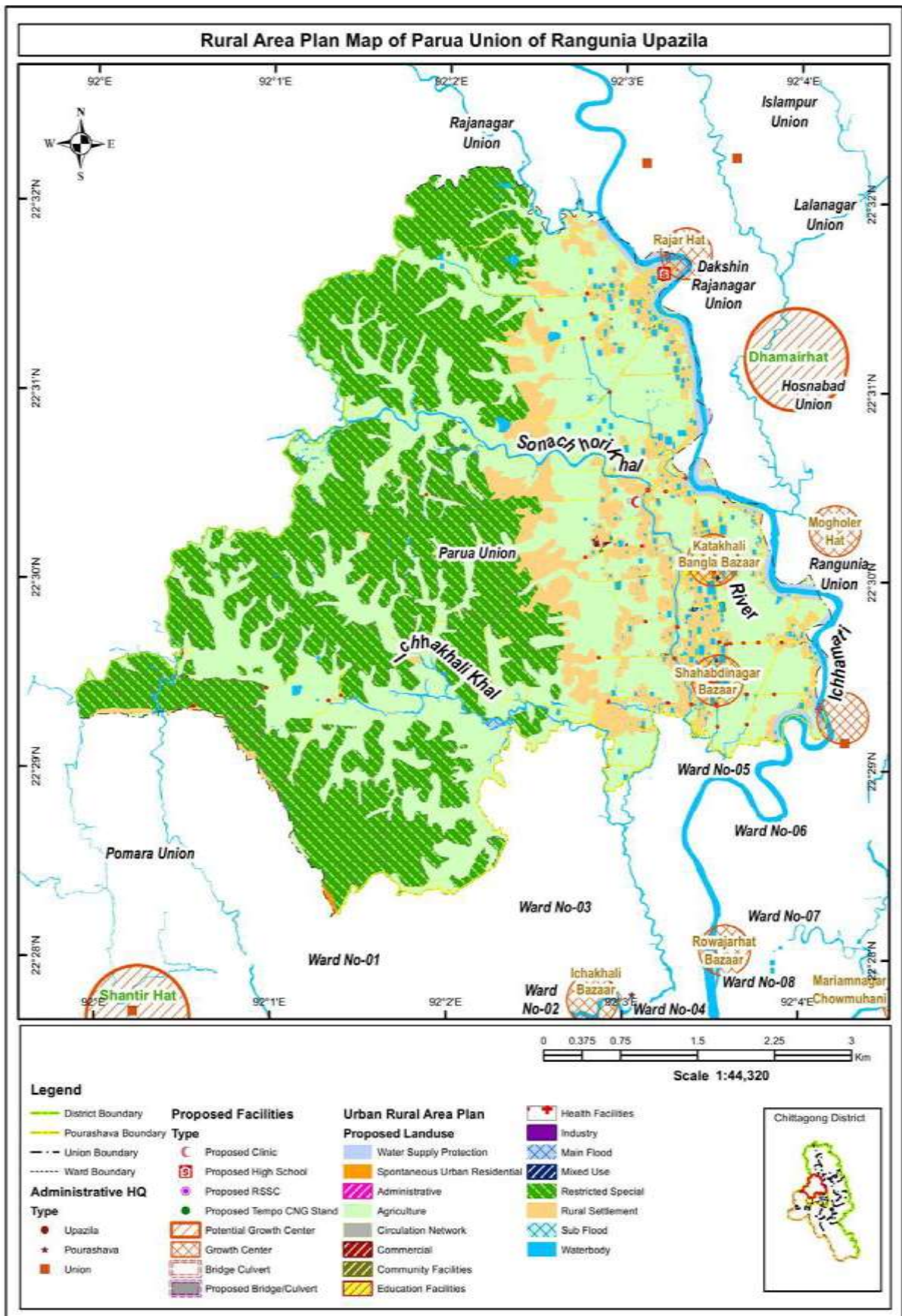
Source: Prepared by Consultant Team Based on Field Survey, 2016

The plan of Parua union (**Map 7.47**) represents mostly 3 types of zoning which are restricted special, agriculture and rural settlement. A very tiny portion of water supply protection zone is also visible here.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.46: Existing Land Use Plan of Parua Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.47: Rural Area Plan of Parua Union

Existing Land Use and Development Plan of Pomara Union

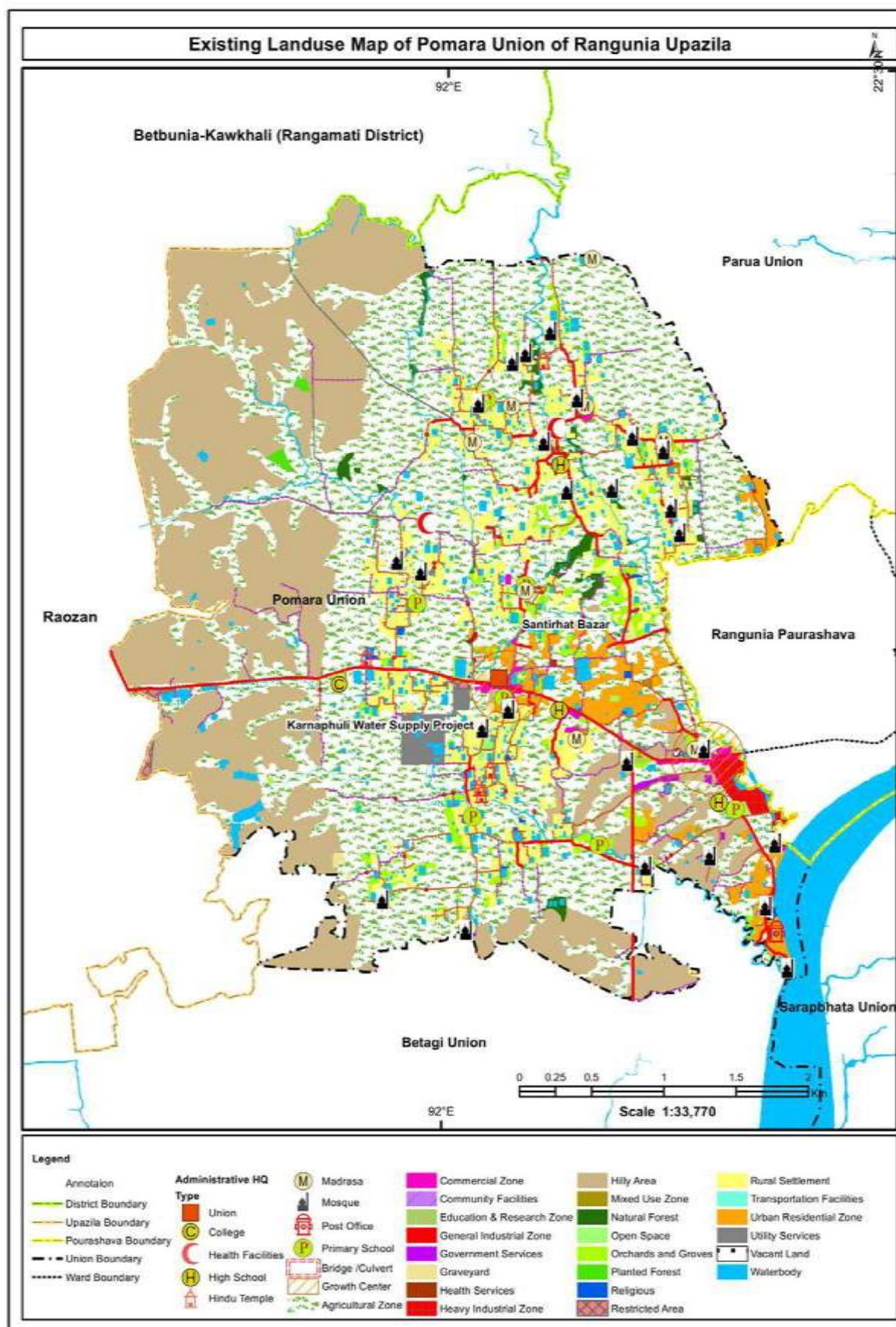
The existing land use of Pomara union has presented in **Table 7.41** along with **Map 7.48**. Total area of this union is 18.259 sq.km. The development plan of this union is presented in **Map 7.49**.

Table 7.41: Existing Land Use of Pomara Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	8659766	8.6598	2139.8746
Circulation Network	237264.9844	0.2373	58.6295
Commercial Zone	86361.80469	0.0864	21.3405
Community Facilities	1838.262085	0.0018	0.4542
Education & Research Zone	46088.85156	0.0461	11.3888
General Industrial Zone	1265.301514	0.0013	0.3127
Government Services	24119.22656	0.0241	5.9600
Graveyard	38488.28906	0.0385	9.5107
Health Services	2411.645996	0.0024	0.5959
Heavy Industrial Zone	71580.89063	0.0716	17.6880
Hilly Area	5051125	5.0511	1248.1602
Hilly Settlement	110354.3438	0.1104	27.2692
Mixed Use Zone	9520.511719	0.0095	2.3526
Native Forest	132969.8594	0.1330	32.8576
Open Space	26424.0332	0.0264	6.5295
Orchards and Groves	380139.7813	0.3801	93.9346
Planted Forest	20732.0625	0.0207	5.1230
Religious	36917.73828	0.0369	9.1226
Restricted Area	31478.76367	0.0315	7.7786
Rural Settlement	1695028.375	1.6950	418.8506
Transportation Facilities	376.1092224	0.0004	0.0929
Urban Residential Zone	518792.6875	0.5188	128.1965
Utility Services	119138.2578	0.1191	29.4397
Vacant Land	7293.899902	0.0073	1.8024
Waterbody	950180.625	0.9502	234.7947
Total	18259657.3	18.2597	4512.0594

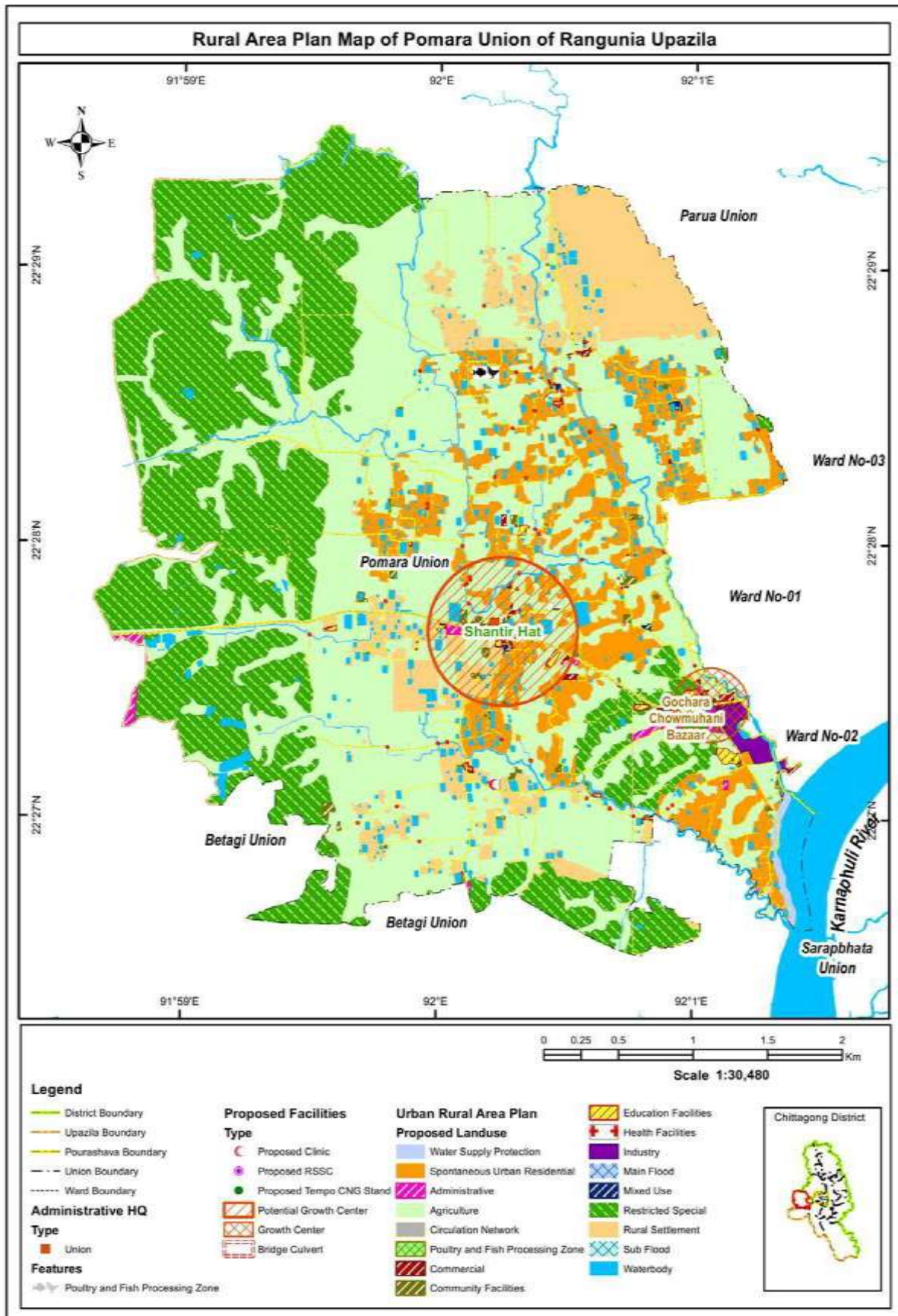
Source: Prepared by Consultant Team Based on Field Survey, 2016

Pomara union (**Map 7.49**) is densely populated area. Human settlements are visible here. Future urban area will be extended towards this union. It also has some portion of restricted special.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.48: Existing Land Use plan of Pomara Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.49: Rural Area Plan of Pomara Union

Existing Land Use and Development Plan of Rajanagar Union

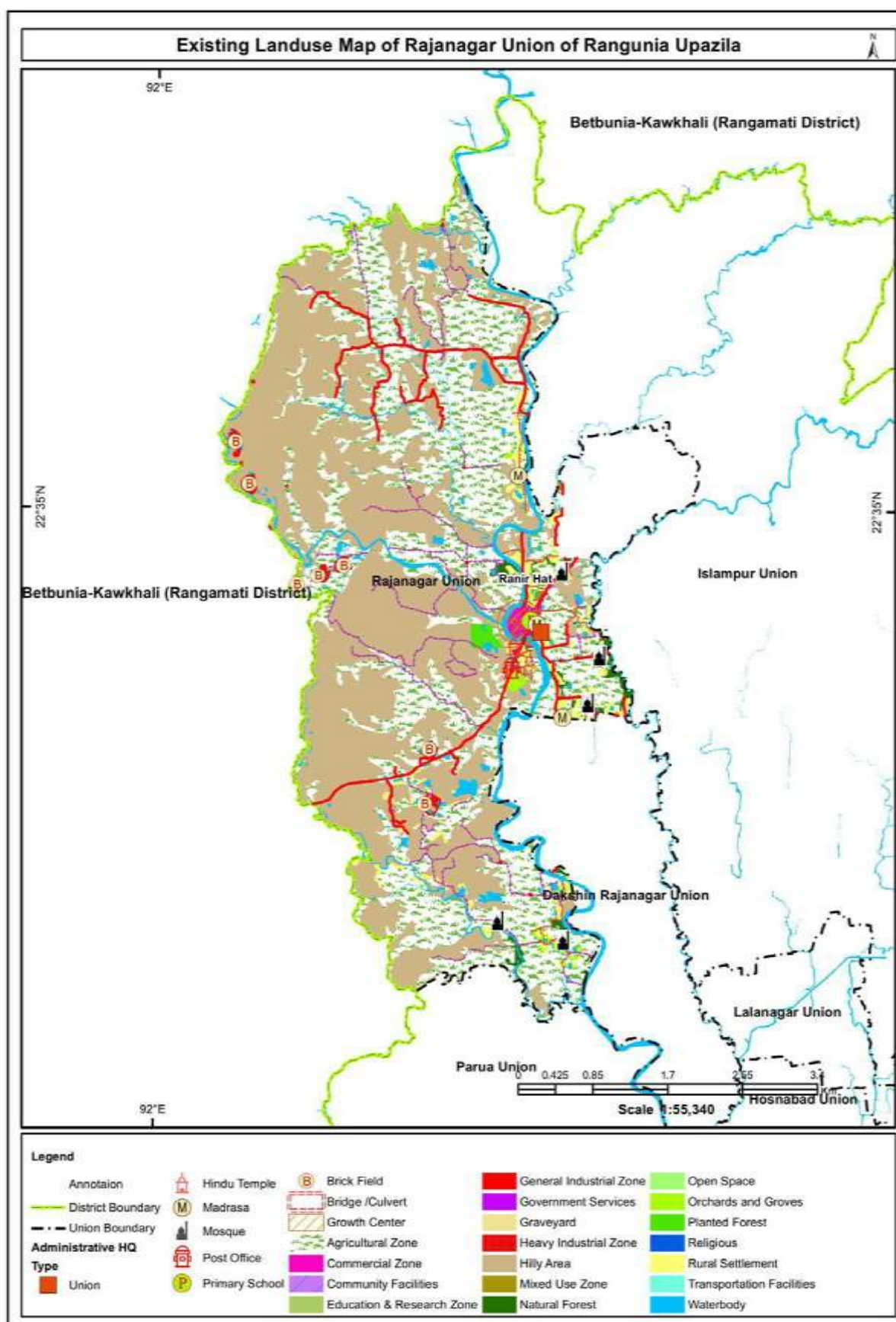
The existing land use of Rajanagar union has presented in **Table 7.42** along with **Map 7.50**. Total area of this union is 24.672 sq.km. The development plan of this union is presented in **Map 7.51**.

Table 42: Existing Land Use of Rajanagar Union

Landuse	Area in sq. m	Area in sq. km	Area in Acre
Agricultural Zone	9863170	9.8632	2437.2425
Circulation Network	201878.1406	0.2019	49.8852
Commercial Zone	104505.0859	0.1045	25.8238
Community Facilities	1865.830933	0.0019	0.4611
Education & Research Zone	9494.94043	0.0095	2.3463
General Industrial Zone	973.6651001	0.0010	0.2406
Government Services	3274.025635	0.0033	0.8090
Graveyard	9887.197266	0.0099	2.4432
Heavy Industrial Zone	194887.5469	0.1949	48.1578
Hilly Area	11869188	11.8692	2932.9403
Hilly Settlement	219106.9219	0.2191	54.1425
Mixed Use Zone	12236.33691	0.0122	3.0237
Native Forest	207641.8906	0.2076	51.3094
Open Space	4010.594238	0.0040	0.9910
Orchards and Groves	120341.0938	0.1203	29.7369
Planted Forest	69197.9375	0.0692	17.0992
Religious	6787.508301	0.0068	1.6772
Rural Settlement	524062.0938	0.5241	129.4986
Transportation Facilities	464.9265747	0.0005	0.1149
Waterbody	1249062.125	1.2491	308.6500
Total	24672035.86	24.6720	6096.5931

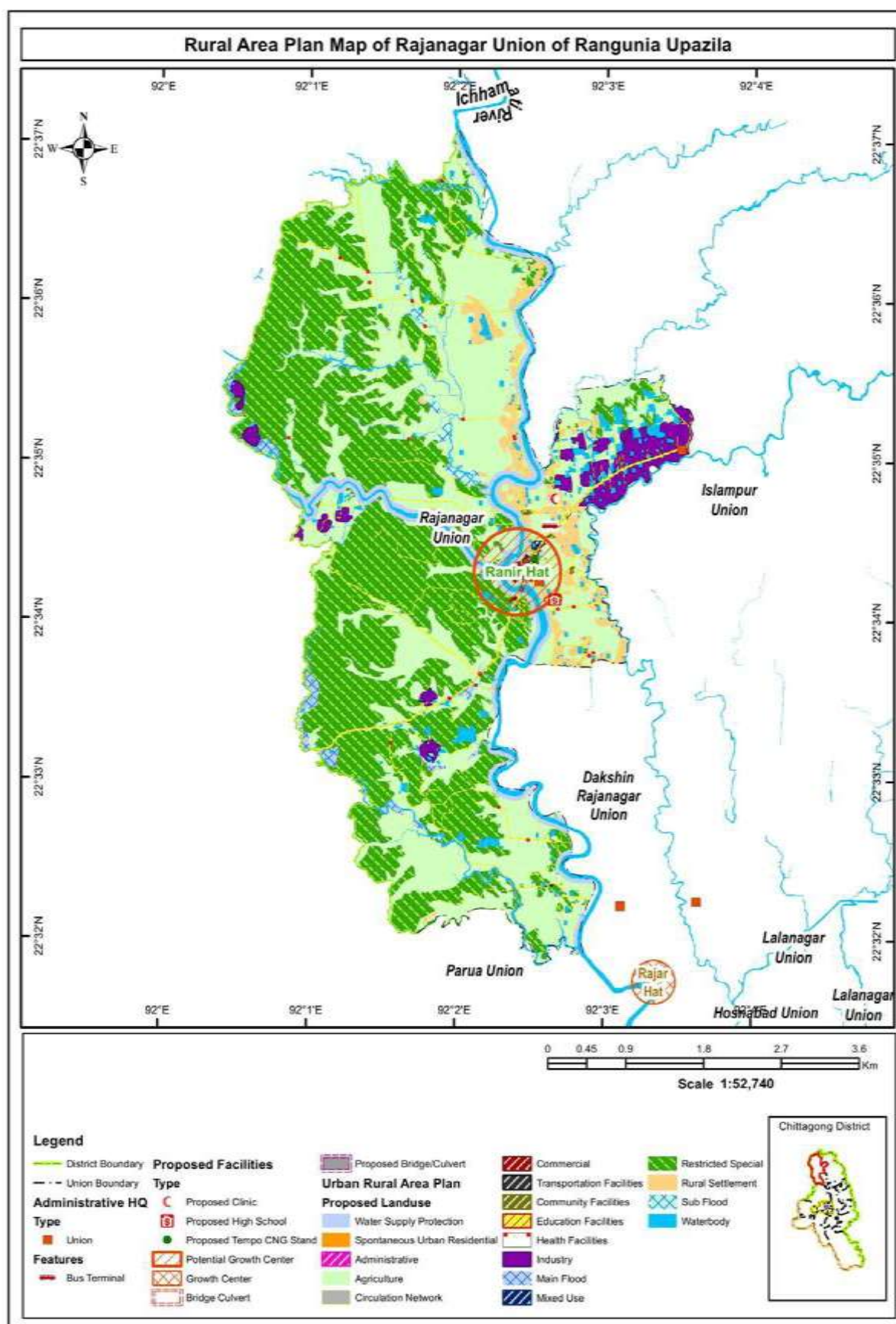
Source: Prepared by Consultant Team Based on Field Survey, 2016

Rajanagar union (**Map 7.51**) comprises of a little portion of industrial zone which most of the portion is situated in Islampur union. The dominant zone in this union is restricted special and other zoning such as rural settlements and agriculture is also visible.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.50: Existing Land Use Plan of Rajanagar Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.51: Rural Area Plan of Rajanagar Union

Existing Land Use and Development Plan of Rangunia Union

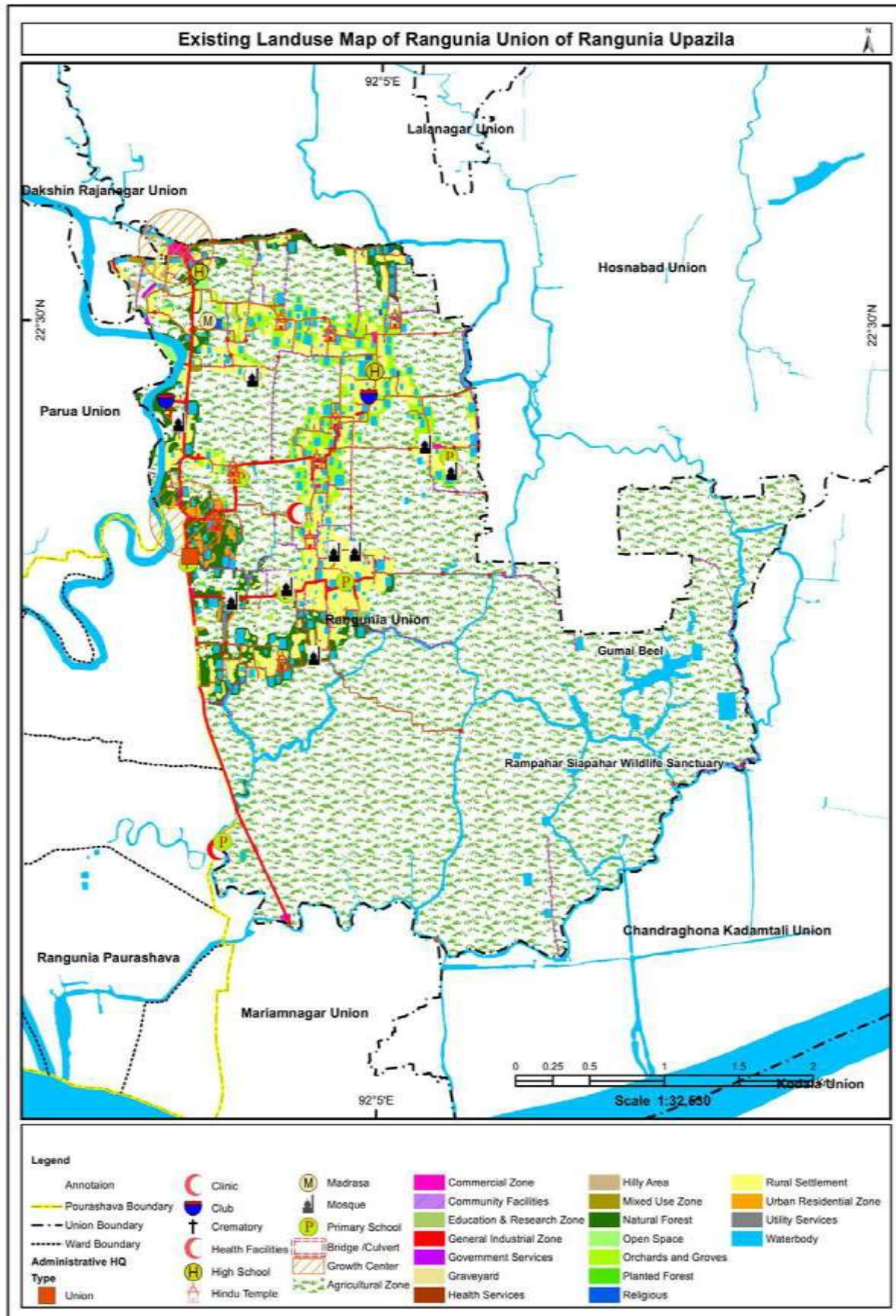
The existing land use of Rangunia union has presented in **Table 7.43** along with **Map 7.52**. Total area of this union is 12.710 sq.km. The development plan of this union is presented in **Map 7.53**.

Table 7.43: Existing Land Use of Rangunia Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	9634900.00	9.6349	2380.836
Circulation Network	142891.27	0.1429	35.309
Commercial Zone	41903.58	0.0419	10.355
Community Facilities	586.93	0.0006	0.145
Education & Research Zone	18811.71	0.0188	4.648
General Industrial Zone	350.84	0.0004	0.087
Government Services	6219.14	0.0062	1.537
Graveyard	5859.99	0.0059	1.448
Health Services	670.92	0.0007	0.166
Hilly Area	27957.56	0.0280	6.908
Mixed Use Zone	11215.02	0.0112	2.771
Native Forest	490371.56	0.4904	121.173
Open Space	19640.21	0.0196	4.853
Orchards and Groves	386282.34	0.3863	95.452
Planted Forest	1269.95	0.0013	0.314
Religious	28624.22	0.0286	7.073
Rural Settlement	922108.88	0.9221	227.858
Urban Residential Zone	45536.38	0.0455	11.252
Utility Services	288.78	0.0003	0.071
Waterbody	925047.06	0.9250	228.584
Total	12710536.32	12.7105	3140.842

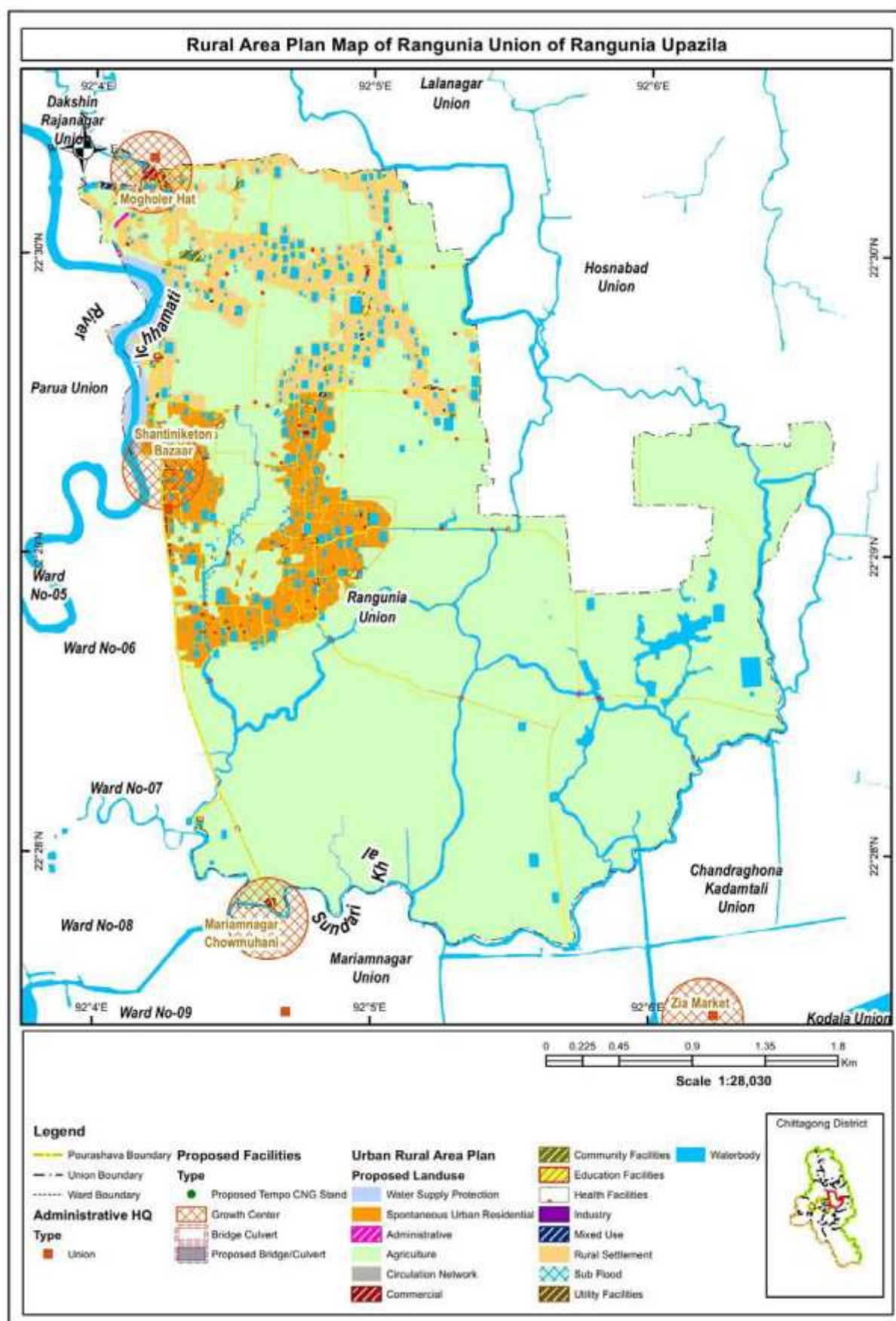
Source: Prepared by Consultant Team Based on Field Survey, 2016

A huge portion of Rangunia Union (**Map 7.53**) is declared as eco sensitive zone. The Gumai Beel area is a triple cropped land and very much enriched with natural resources. So, this area has given top most priority. Urban and rural settlements are also visible.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.52: Existing Land Use Plan of Rangunia Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.53: Rural Area Plan of Rangunia Union

Existing Land Use and Development Plan of Sharapbhata Union

The existing land use of Sharapbhata union has presented in **Table 7.44** along with **Map 7.54**. Total area of this union is 25.760 sq.km. The development plan of this union is presented in **Map 7.55**.

Table 7.44: Existing Land Use of Sharapbhata Union

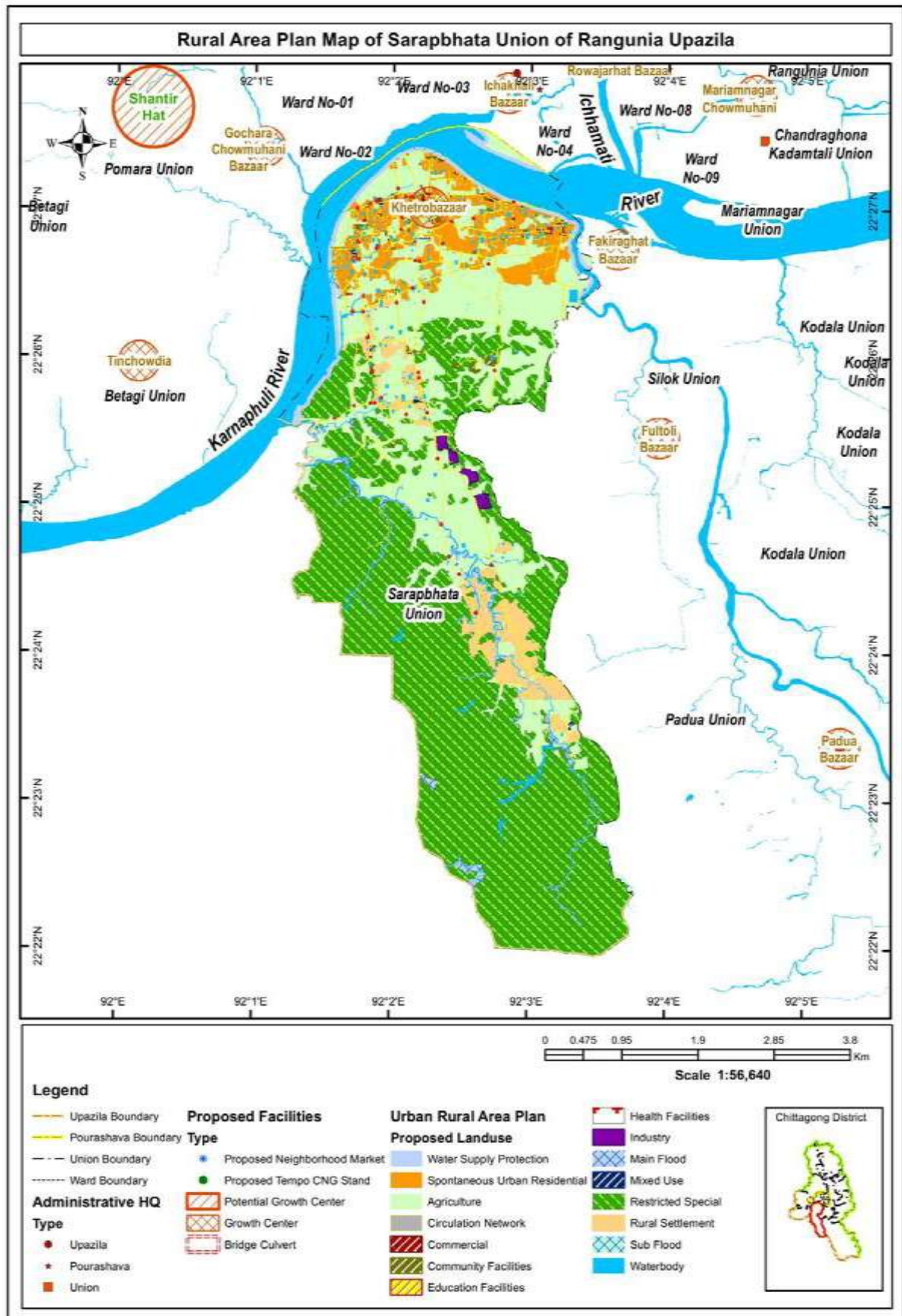
Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	7516972.00	7.5170	1857.484
Circulation Network	177892.59	0.1779	43.958
Commercial Zone	46733.04	0.0467	11.548
Community Facilities	38362.11	0.0384	9.479
Education & Research Zone	27666.50	0.0277	6.837
General Industrial Zone	5511.90	0.0055	1.362
Graveyard	31546.36	0.0315	7.795
Health Services	177.35	0.0002	0.044
Heavy Industrial Zone	93701.61	0.0937	23.154
Hilly Area	13068157.00	13.0682	3229.212
Miscellaneous	663.61	0.0007	0.164
Mixed Use Zone	17912.62	0.0179	4.426
Open Space	12107.90	0.0121	2.992
Orchards and Groves	299860.31	0.2999	74.097
Planted Forest	425.35	0.0004	0.105
Religious	24745.22	0.0247	6.115
Rural Settlement	2193142.25	2.1931	541.937
Vacant Land	30437.39	0.0304	7.521
Waterbody	2174214.75	2.1742	537.260
Total	25760229.87	25.7602	6365.492

Source: Prepared by Consultant Team Based on Field Survey, 2016

Rangunia Upazila is surrounded by hills. That is why the amount of restricted special area is huge. In Sharapbhata union (**Map 7.55**) the scenario is also the same.



Map 7.54: Existing Land Use Plan of Sarapbhata Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.55: Rural Area Plan of Saraphbata Union

Existing Land Use and Development Plan of Silok Union

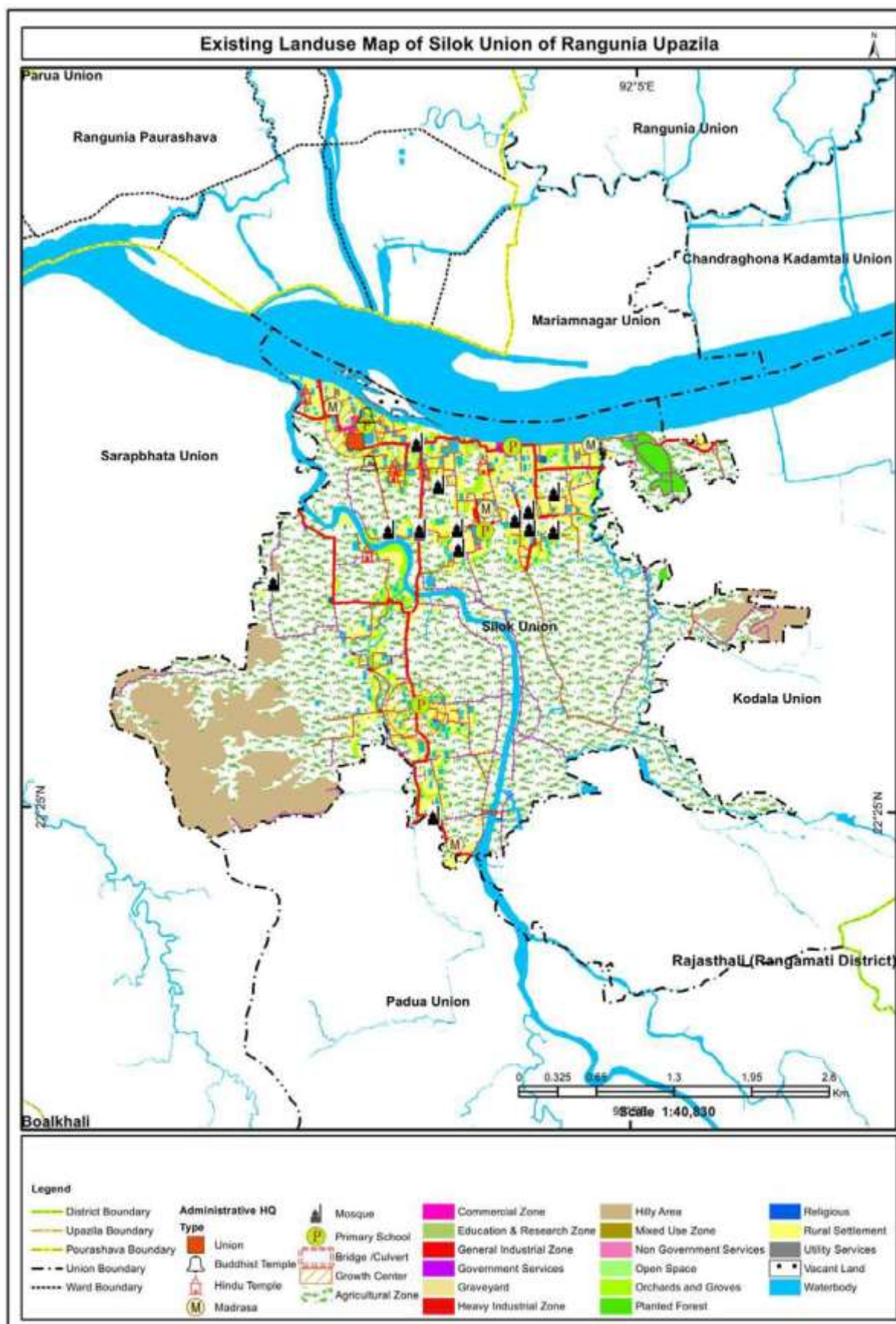
The existing land use of Silok union has presented in **Table 7.45** along with **Map 7.56**. Total area of this union is 12.821 sq.km. The development plan of this union is presented in **Map 7.57**.

Table 7.45: Existing Land Use of Silok Union

Landuse	Area in sq. m	Area in sq.km	Area in Acre
Agricultural Zone	7373406.50	7.3734064	1822.008
Circulation Network	160717.69	0.1607177	39.714
Commercial Zone	36322.21	0.0363222	8.975
Education & Research Zone	33136.70	0.0331367	8.188
General Industrial Zone	4846.89	0.0048469	1.198
Government Services	239.15	0.0002392	0.059
Graveyard	26386.55	0.0263865	6.520
Heavy Industrial Zone	0.21	0.0000002	0.000
Hilly Area	1614663.63	1.6146636	398.992
Mixed Use Zone	2546.21	0.0025462	0.629
Non-Government Services	138.56	0.0001386	0.034
Open Space	2952.45	0.0029524	0.730
Orchards and Groves	516215.97	0.5162160	127.560
Planted Forest	142044.05	0.1420440	35.100
Religious	18416.01	0.0184160	4.551
Rural Settlement	1355049.63	1.3550496	334.840
Utility Services	3308.22	0.0033082	0.817
Vacant Land	75137.48	0.0751375	18.567
Waterbody	1455948.50	1.4559486	359.773
Total	12821476.60	12.8214766	3168.256

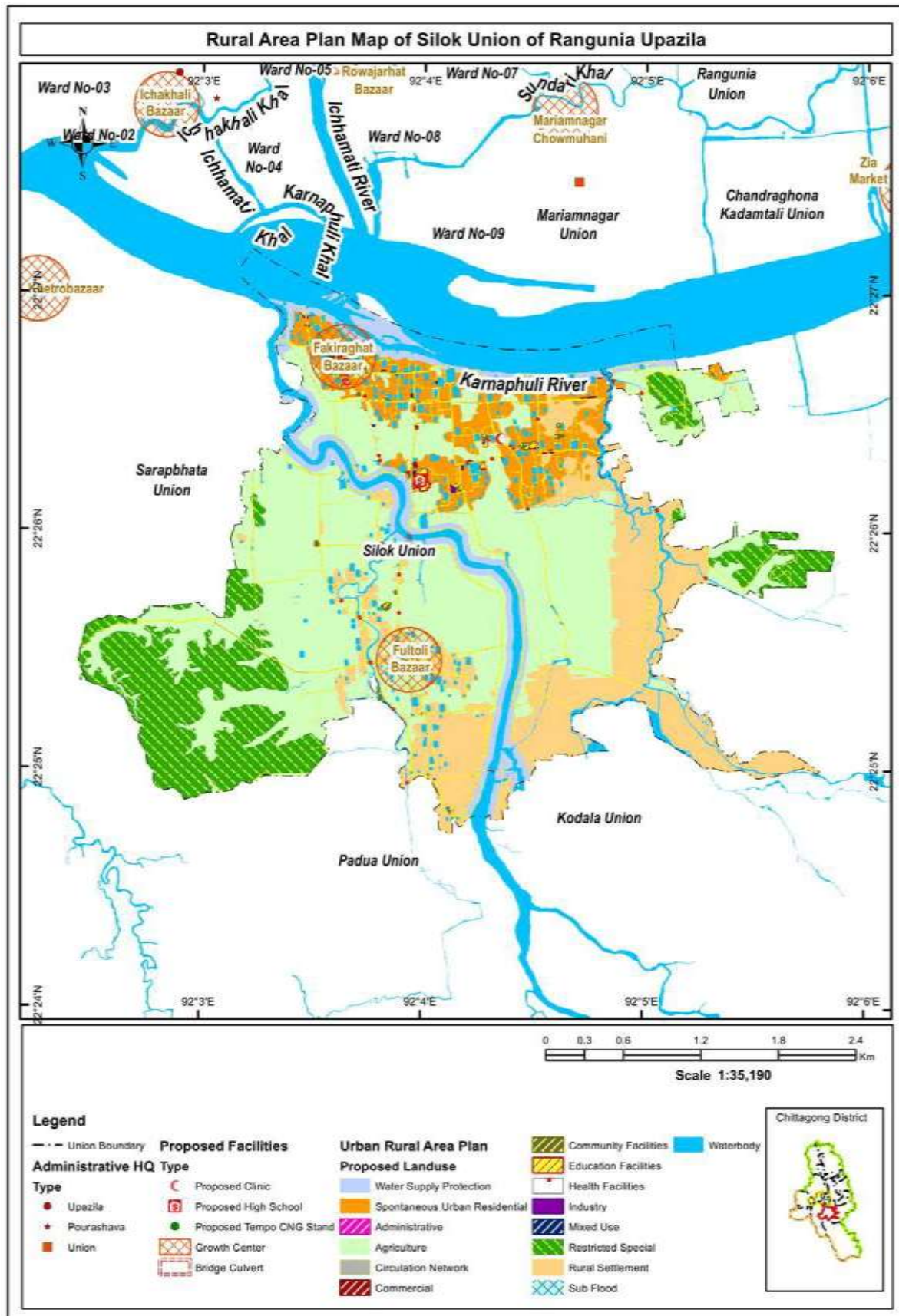
Source: Prepared by Consultant Team Based on Field Survey, 2016

Silok union (**Map 7.57**) is very enriched with triple and double cropped land which must be preserved. In this union agriculture zone, urban area, rural settlement and some portion of restricted special are noticed.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.56: Existing Land Use Plan of Silok Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.57: Rural Area Plan of Silok Union

7.4 Action Area Plan

Action Area Plan is not a statutory plan and it provides detail consideration of areas that are required consolidated planning in order to ensure a coordinated approach in development.

7.4.1 Conceptualization of Action Area Plan

Action Plan assists to clarify what resources are required to achieve the goal, formulate a timeline for when specific tasks need to be completed and delineate what resources are required.

7.4.2 Extent and Nature of Action Area Plan

The Action Area Plan for Rangunia Upazila is a separate document covering the first five-year period of the structure plan. It examines, in the context of the structure plan, those items that might be implemented in this period and thus contains more detail on a more limited range of subjects than the structure plan. It tries to provide the Upazila with guidance in deciding between priorities.

The Action Area Plan (AAP) guides land use and infrastructure within the area potential for immediate intervention based on public demand and necessity. It is prepared on 5 years' interval. The preparation of Action Area Plan (AAP) will be formulated through participatory approach involving the local people. It will contain problem analysis using participatory approach, stakeholder analysis, Potential analysis (Basic and derived potentials), Identification of possible projects, Priority ranking of projects, Strategy formulation for prioritized projects. Action Area Plan will provide prioritized projects consisting location of project, goal & objectives, activities, tasks, actors, resources, cost and assumptions/constraints.

The action plan consists of three parts, a summary of resources available, project selection and project evaluation. The analysis of available resources looks at the past availability of funds, in so far as this is possible for such a recent institution as an Upazila and attempts to assess funds likely to be available for the Upazila itself for development in the action plan period. Project selection summarises existing guidelines as they affect five-year plans and lists the criteria used in selection before identifying priorities in each sector and proposing projects to address these priorities.

Project evaluation looks at projects, which might be locally funded over the five-year period, given budgetary and other constraints, looks at projects which cannot be locally funded but which might be considered by national agencies operating locally and makes preliminary assessments of larger scale projects, which would need larger investment.

The purpose of a plan is to lessen uncertainty about what presently exists and what is likely to happen in future and to provide a basis for different agencies, public and private, to proceed on the basis of a common goal by providing a framework for overall development.

The structure plan examined the existing situation, drew attention to key problems, assessed likely changes and their implications and proposed how some major problems might be tackled. Very briefly, the structure plan notes an anticipated population increase of some 30% in the Upazila by the end of the plan period and assesses the implications of this growth. Amongst its major proposals are the needs for more modern inputs to sustain agricultural productivity, the need for new non-agricultural jobs, improved infrastructure. It concentrates on the framework and not the details of layout or individual development. Where action is proposed within a relatively short time however, more detail may be needed than is provided in the structure plan. The structure plan identified the major actions needed to bring about development in accordance with its recommendations. Its final chapter consists of a development programme, listing, for five-year phases, the projects needed in each sector to bring about development along the lines proposed. This programme for the first five-year period forms the starting point for the action plan.

The objective of the action plan is to evaluate those projects, which should be implemented during the first five years' life of the structure plan. It thus contains more detail on a more limited range of subjects.

It consists of four parts:

- ✓ Project Selection
- ✓ Project Evaluation
- ✓ Analysis of Resource
- ✓ Establishing Priorities

7.4.3 Priority Development Projects

At the initial stage of survey PRA has been carried out to identify the problems of this upazila with prioritizing. PRA has been done union wise. The total outcome of the PRA session of all unions are prioritized below according to the respondents.

Table 7.46: Union wise PRA Demand

Unions	PRA Demand 1	PRA Demand 2	PRA Demand 3	PRA Demand 4	PRA Demand 5
Betagi Union	River Erosion	Gas	Transportation	Health	Education
Chandraghona Kadamtali Union	River Erosion	Gas	Transportation	Education	Waterlogging
Rajanagar Union	Transportation	Education	Health	Gas	
Hosnabad Union	Education-High School	Market and Hat Bazar	Transportation	Gas	
Islampur Union	Lack of Hat - Bazar	Health	Terrorism	Transportation	
Kodala Union	River Erosion	Transportation	Health	Education	
Lalanagar Union	Transportation	River Erosion	Health	Education	Agriculture Development
Mariamnagar Union	River Erosion	Transportation	Drainage System problem	Health	Education
Padua Union	Transportation	Agriculture Development	Health	River Erosion	Disturbance by wild elephant
Parua Union	River Erosion	Transportation	Electricity Line	Health	Education
Pomra Union	Gas	Transportation	Agriculture Irrigations	Drainage System	Sanitation
Dakshin Rajanagar Union	River Erosion	Transportation	Health	Agriculture Development	Lack of Hat Bazar
Rangunia Union	Transportation	Electricity Line	Drainage System	Gas	
Sarapbhata Union	Transportation	Education	Health	Recreation	Housing
Silok Union	Health	River Erosion	Transportation	Industry	Education

Source: Field Survey, 2015

PRA session has also done in each ward. The problems of the inhabitants of this area has also prioritized. The table given below depicts the problems ward wise along with the priority.

Table 7.47: Pourashava ward wise PRA Demand

Rangunia Pourashava	PRA Demand 1	PRA Demand 2	PRA Demand 3	PRA Demand 4	PRA Demand 5
Ward-01	Gas	Transportation	Education-High school	Drainage System	Reduce Load shedding
Ward-02	River Erosion	Drainage System	Education-High school	Gas	Reduce Load shedding
Ward-03	Education-High school	Transportation	Drainage System	Gas	Water Supply System
Ward-04	River Erosion	Transportation	Drainage System		
Ward-05	River Erosion	Gas	Drainage System	Education-High school	
Ward-06	River Erosion	Drainage System	Transport	Gas	Health
Ward-07	Transport	River Erosion	Drainage System	Education	Gas
Ward-08	Transport	Drainage System	Solid Waste Management	Sanitation	Recreation
Ward-09	River Erosion	Transportation	Drainage System	Health	Recreation

Source: Field Survey, 2015

7.4.4 Priority Development Projects

The following development activities will be taken immediately by the concerned Government Agencies to secure the urban and rural areas, property, lives etc. These development activities were identified based on the PRA survey during initial stage of planning process, through a series of workshops, meetings with TMC and also in the light of planning approach.

1. Protection for river bank erosion;
2. Embankment for river flood protection and embankment slope protection;
3. Redevelopment plan for growth centres;
4. Construction of Regulators for flood control, drainage and water management;
5. Low cost housing.

Depending on the PRA demand priority and the present need according to planning perspective the projects have been prioritized and their duration has also determined. But the duration of projects mainly depends on volume of the project and in case of Action Area Plan generally the project duration is 5 years.

Project/Scheme	Duration
Protection for river bank erosion	1 to 2 years
Embankment for river flood protection and embankment slope protection	1 to 2 years
Redevelopment plan for growth centres	1 year
Construction of Regulators for flood control, drainage and water management	1 to 2 years (depending on the volume of work)
Low Cost Housing	1 to 3 years

7.4.4.1 Protection for River Bank Erosion

River bank erosion is a common phenomenon in our country as the lands are nested by the series of canals, rivers. When the river course changes its alignment or direction with a sharp bend or steep slope of river bed, the bank starts to erode. Generally, river bank erosion is depending on the river discharge, velocity, width of river section, physical properties of river bed and bank materials, suspended sediment materials, river morphology and scour depth etc. A proper hydrologic and hydraulic investigation will be required to provide an appropriate sustainable river bank protection works. Bangladesh Water Development Board (BWDB) or Local Government Engineering Department (LGED) may take necessary action on the detail design and implementation of protection for river bank erosion. A typical drawing of protection of river bank erosion is presented in **Map 7.58**

7.4.4.2 Embankment

Generally, embankment is constructed along the river bank to protect entry of flood water or flash flood into country side from river. As it is beside the river, sometimes high-water level in the river may erode the embankment side slope due to high velocity during flood. Then the river side embankment slope needs to protect from erosion and it is furnished by placing CC blocks on geo-textile or inverted filter materials considering scouring depth. A proper hydrologic and hydraulic investigation will be required to provide an appropriate sustainable embankment river side slope protection works. A typical drawing of protection of river side embankment slope works is presented in **Map 7.58 and Figure 7.7**.

7.4.4.3 Redevelopment Plan for Growth Centres

Bangladesh is an agricultural country and more that 75% of the country's population live in rural areas. Development of the country depends on the development of the rural areas. The country has about 20,000 rural markets or 'Hats' and 'Bazars'. Development of physical facilities of these Growth Centers and creation of employment for the rural poor are the strategy for rural development. Rural markets are classified into two groups – (i) markets those have annual revenue income of more than Tk 50,000 and (ii) those with annual revenue of less than Tk 50,000. Rural markets are in fact collection centers. Rural Growth Centers are larger rural markets and have permanent shops, and commodities are traded every day in these markets starting from about 6 o'clock in the morning till 10 o'clock at night. Other rural markets have a few permanent shops and they run for limited hours. Rural hats sit twice or thrice a week and they may start at 10 o'clock in the morning and break at sunset.

Agriculture products and inputs are generally traded in the rural markets. Traders come to growth centers and larger markets, and purchase vegetables, fishes, pulses, cereals, oil seeds as available from small farmers and transport their bulk commodities using trucks to the urban centers of the country. However, most market centers are unplanned and undeveloped. Many markets lack separate areas for selling meat, fishes and vegetables etc. Sanitation facilities are either absent or are extremely poor. In many markets internal roads are not paved, internal drainage system is either absent or is clogged and in rainy season the pathways become muddy and dirty making the situation difficult both for the farmers and traders. However, on every hat day a good number of people come to the growth centers and large markets to purchase their weekly necessities or to sell their produced commodities. In smaller bazars or 'hats', attendants are comparatively low. Since markets are far away from the settlements and are not very comfortable place for selling goods, many farmers sell their commodity at home to the middle men and thus deprived of the actual market price of the commodity.

Development of rural collection centre is required to create better trading environment as increased number of traders are expected in the developed markets which in turn will encourage farmers to come to the markets to sell their products. The move will certainly reduce exploitation of actual price of farmers' products by the intermediaries. To facilitate marketing after sunset in each market or collection centre, the provision of electricity has been considered either from power grid line if available near to the market area or from solar PV.

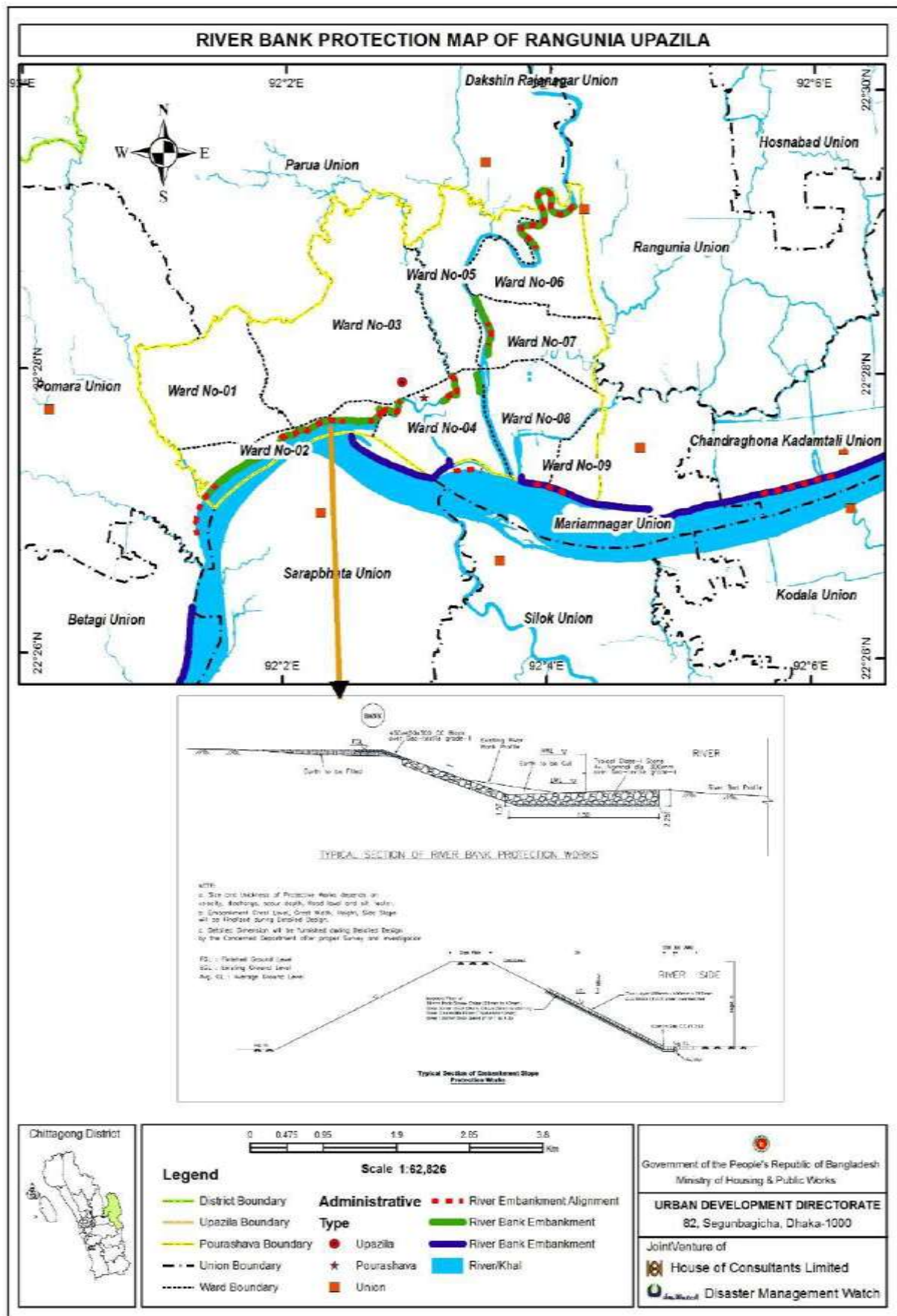
Planned development of collection centers is extremely necessary so that farmers can sell their goods easily and get the agriculture inputs at hand. Development of rural collection centers is expected to create better trading environment and increased numbers of traders are expected in the developed markets which in turn will encourage farmers to come to the markets to sell their products. Local Government Engineering Department may take necessary action on the detail design and implementation of growth centres in rural areas. A typical drawings of planned growth centre in the rural area is presented in Map 7.59 and Figure 7.8.

7.4.4.4 Regulator

When a saucer types plain land either in urban or rural areas is bounded by the high land or embanked for protection of flood water then regulators are used to protect entry of flood water inside the country from the river. This regulator is not protecting only the flood water but also control the drainage water that accumulated by the surface runoff within catchment area due to rain during monsoon. It also controls water management by retaining water inside the canal for irrigation purpose mainly or for bio-diversity or ecological benefits especially in the dry period. Flash flood is a very burning problem in Rangunia Upazila. The inhabitants of this area are suffering from these phenomena. To mitigate or control this situation different types of regulators have been proposed. The size of the regulator is depends on the catchment area, topography of the catchment area, rainfall pattern, outfall river condition and river water level, intake canal section etc. It is essential, then, that proper attention be given to the design of the drainage sluice to ensure it fulfils its desired function. Collectively it is a structure that shares an intimate relationship with a large portion of the rural population, often determining the success or failure of a farmer's crop. Bangladesh Water Development Board (BWDB) or Local Government Engineering Department may take necessary action on the detail design and implementation of regulator based on the design parameters. A typical drawing of regulator of 1 vent regulator, 2 vent, 4 vent and 6 vents are presented in **Figure 7.9, Figure 7.10, Figure 7.11, Figure 7.12 and Figure 7.13 respectively.**

7.4.4.5 Low Cost House

Government of Bangladesh has taken an initiative to construct a low-cost house for landless people for enjoying better improved life style. Accordingly, a housing area for low-cost house has selected in the rural area of each Upazila with considering internal roads, drain, drinking water supply, ponds, playground, and community centre etc. A typical layout plan prepared containing 120 houses, each plot size is assumed 40'x50' tentatively. The plot size may vary based on the availability of land and demands of inhabitants. A typical plan of low-cost house prepared and may vary in size. A detailed typical layout plan of low-cost housing with all facilities is presented in **Map 7.60, Figure 7.14 and Figure 7.15.** Local Government Engineering Department (LGED) may take necessary action on the detail design and implementation of low cost housing area.



Source: Prepared by Consultant Team Based on Field Survey, 2016
Map 7.58: River Bank Protection Map of Rangunia Upazila

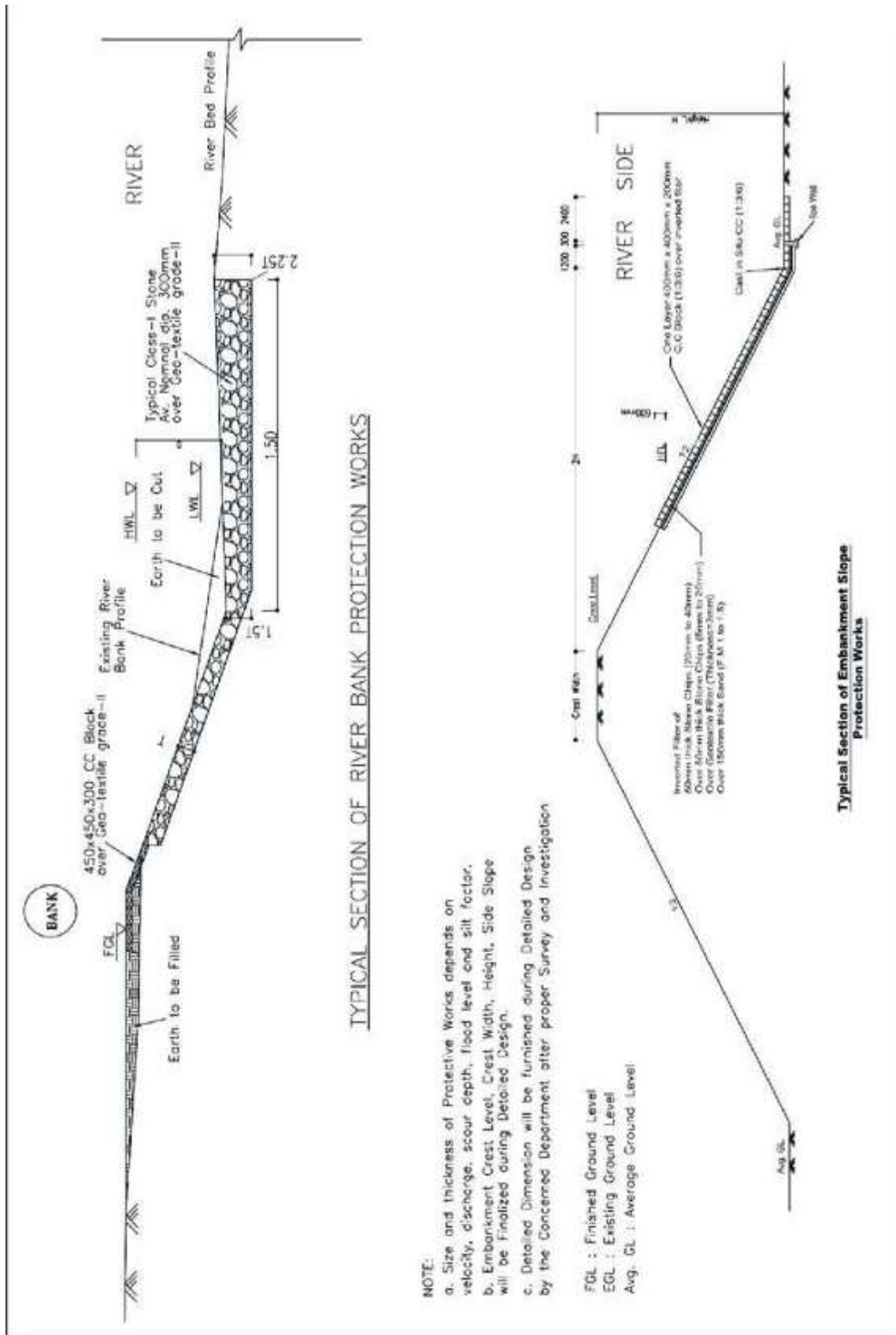
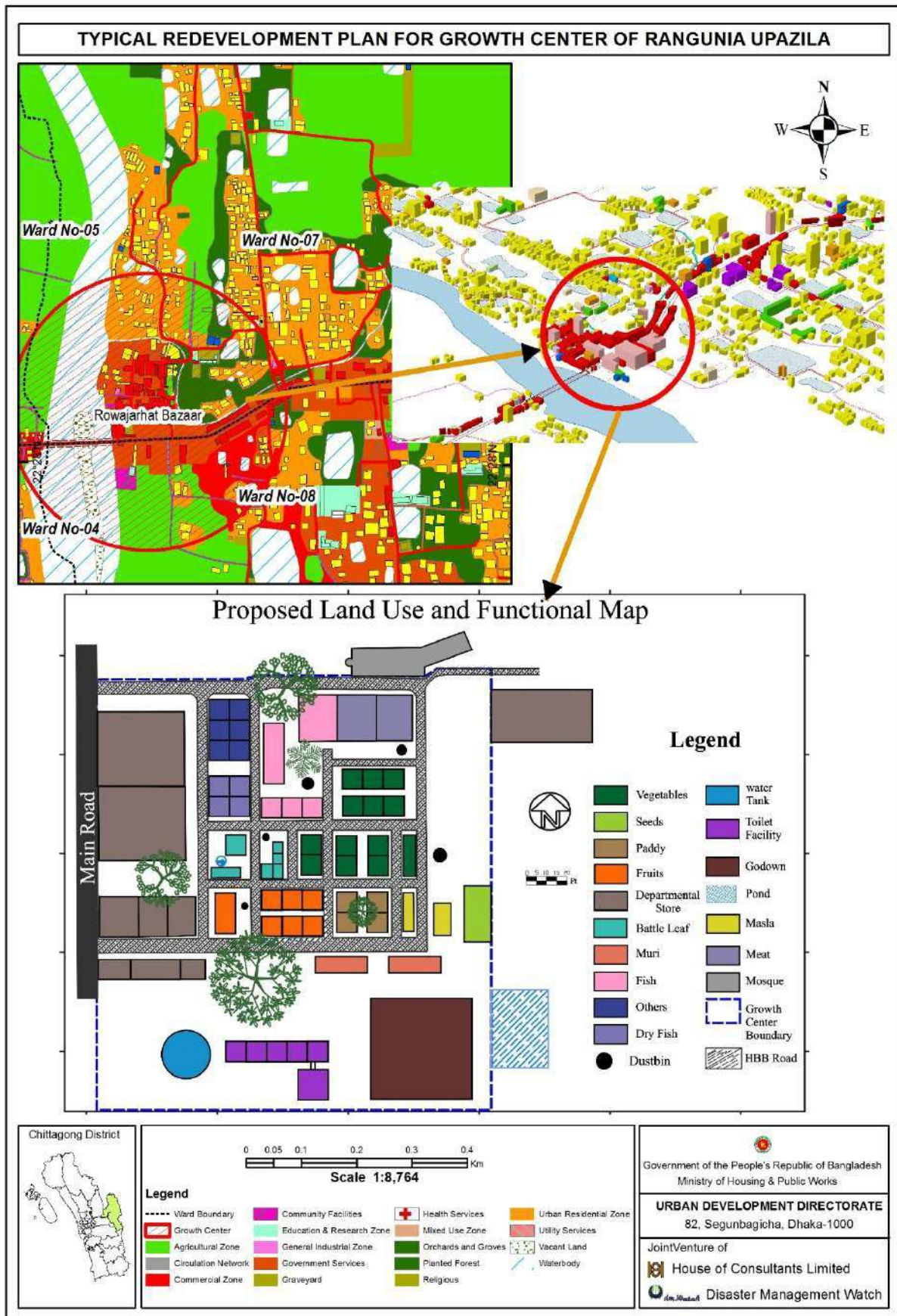


Figure 7.7: Typical Section of River Bank Protection



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.59: Typical Redevelopment Plan for Growth Centre

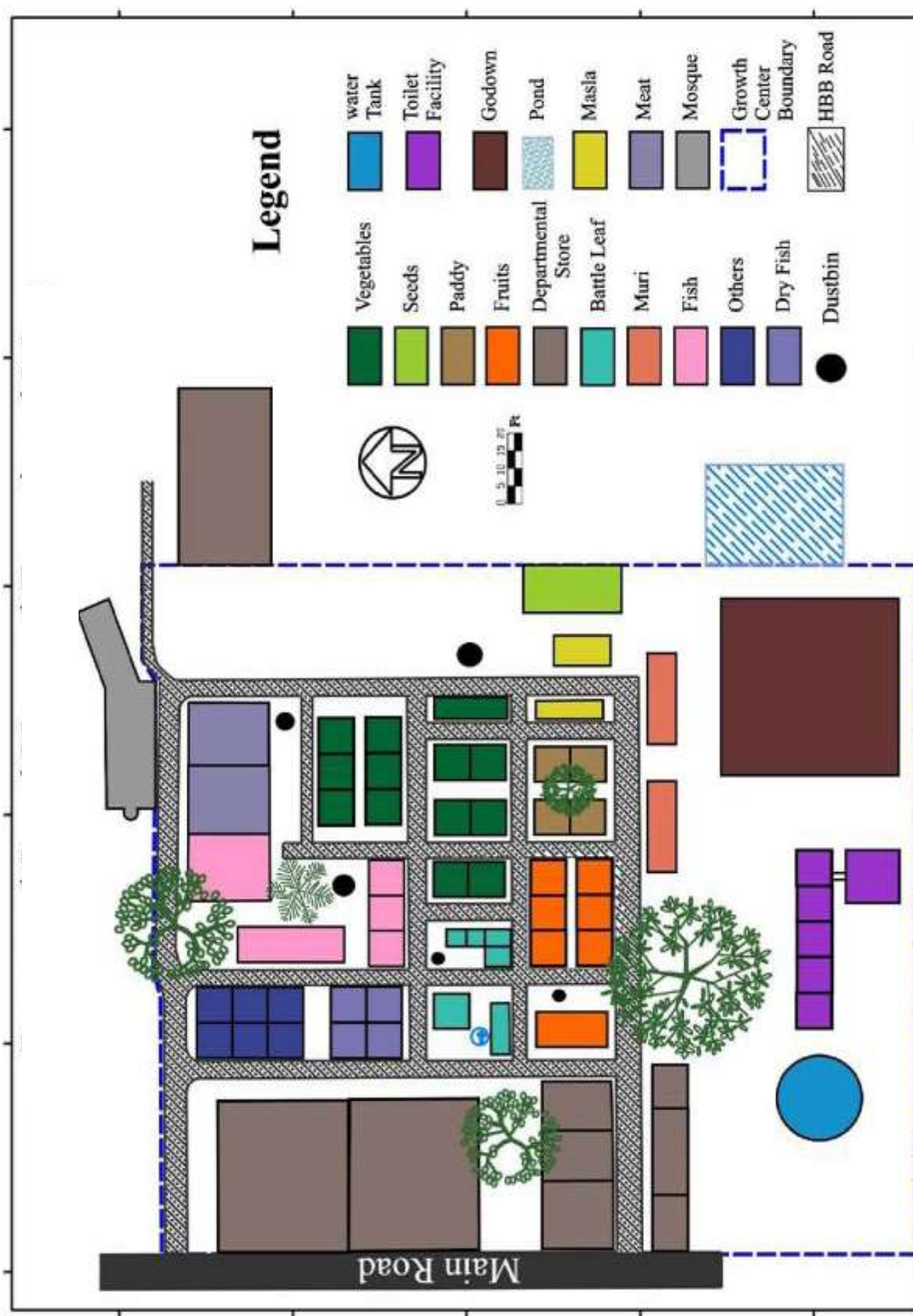


Figure 7.8: Typical Plan of Growth Center

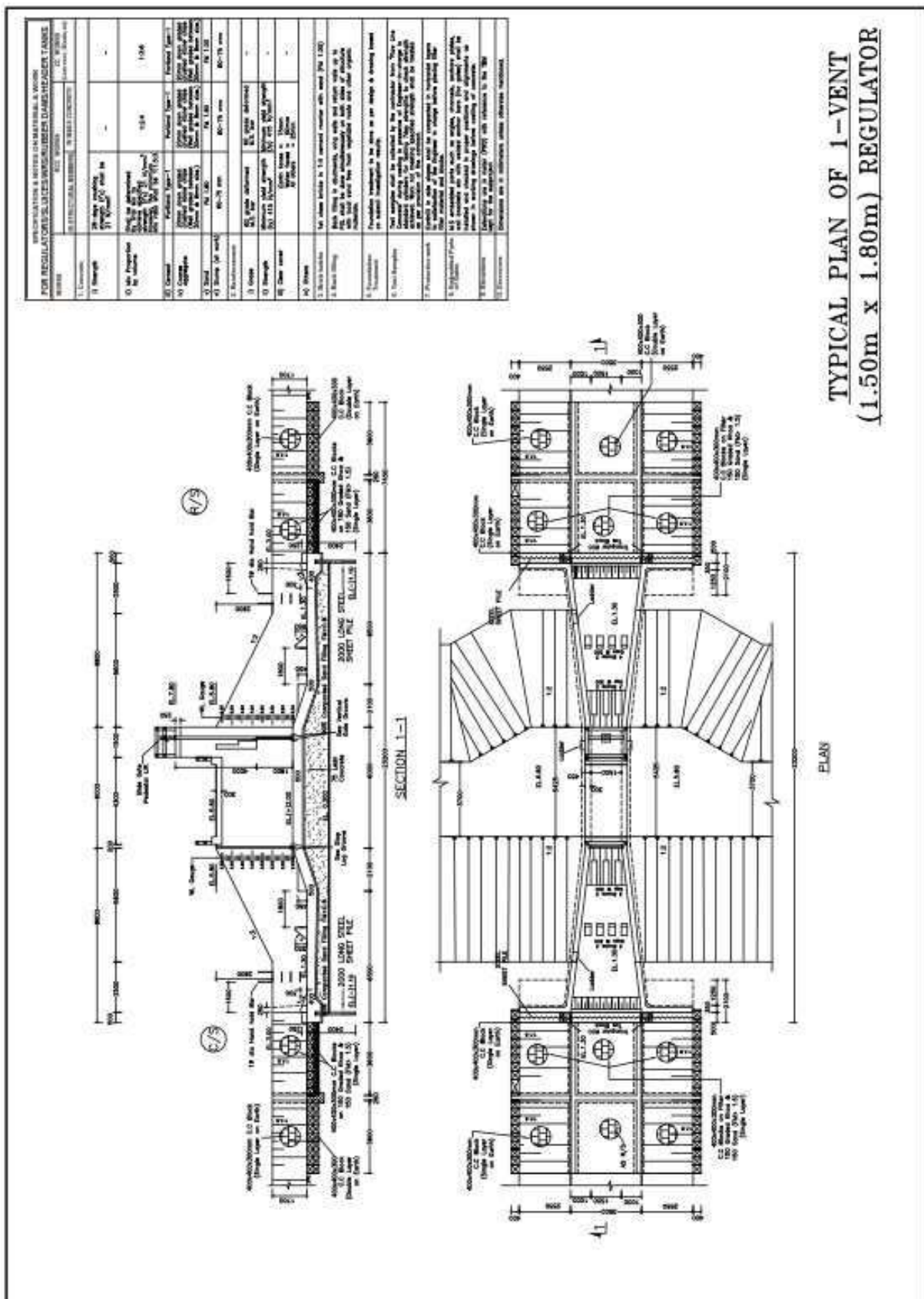


Figure 7.9: Typical Plan of 1-Vent Regulator

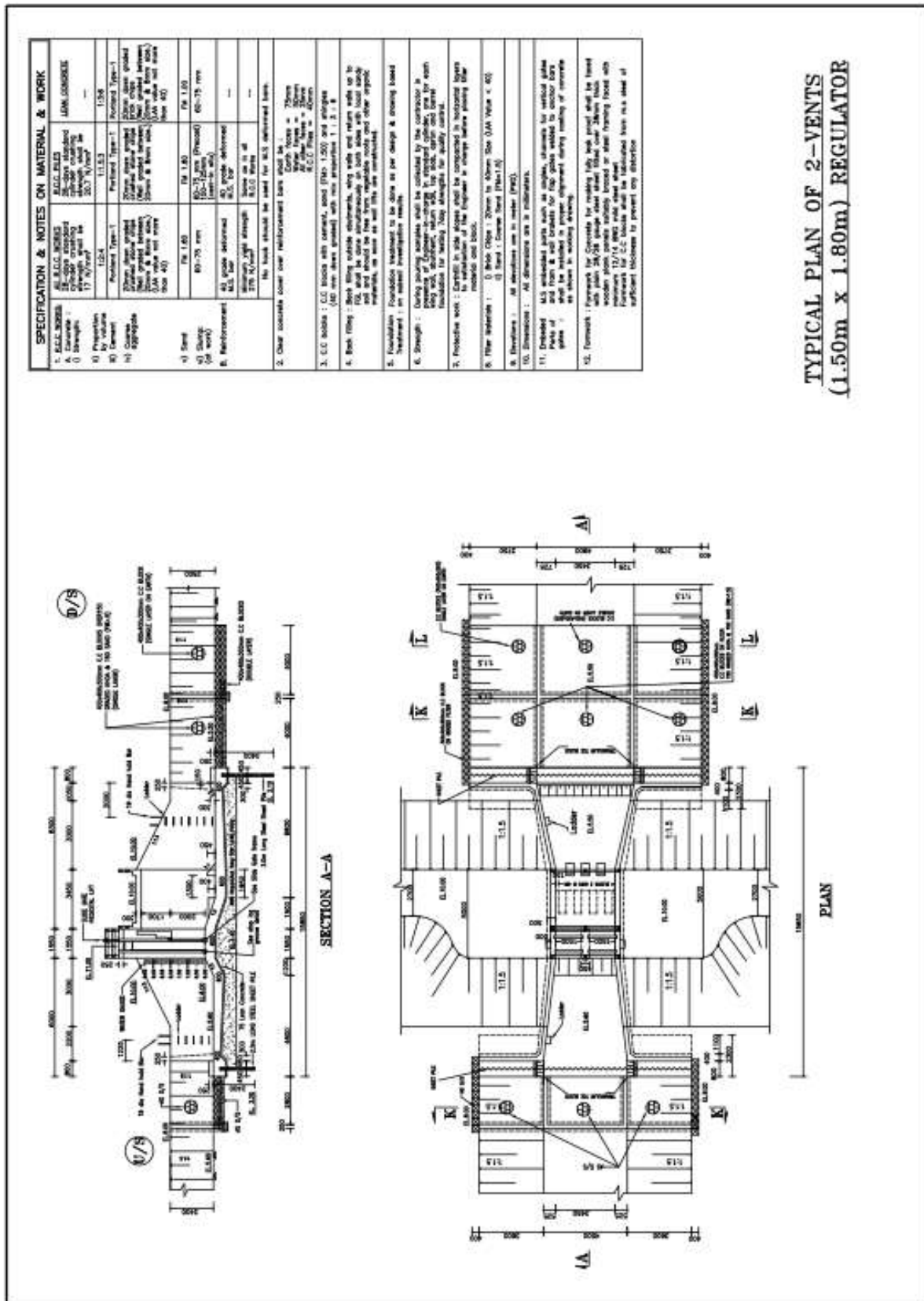


Figure 7.10: Typical Plan of 2-Vent Regulator

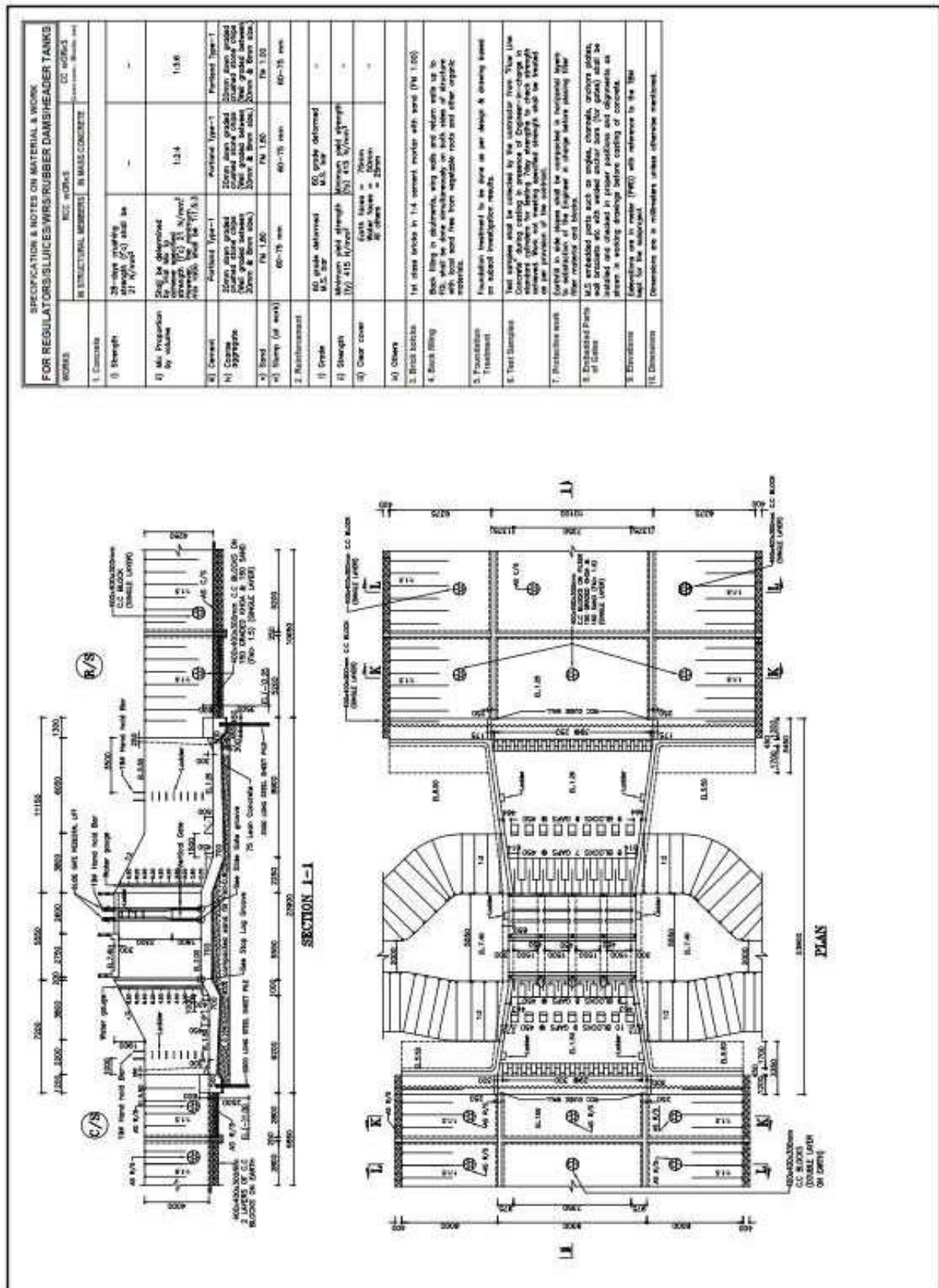


Figure 7.11: Typical Plan of 4-Vent Regulator

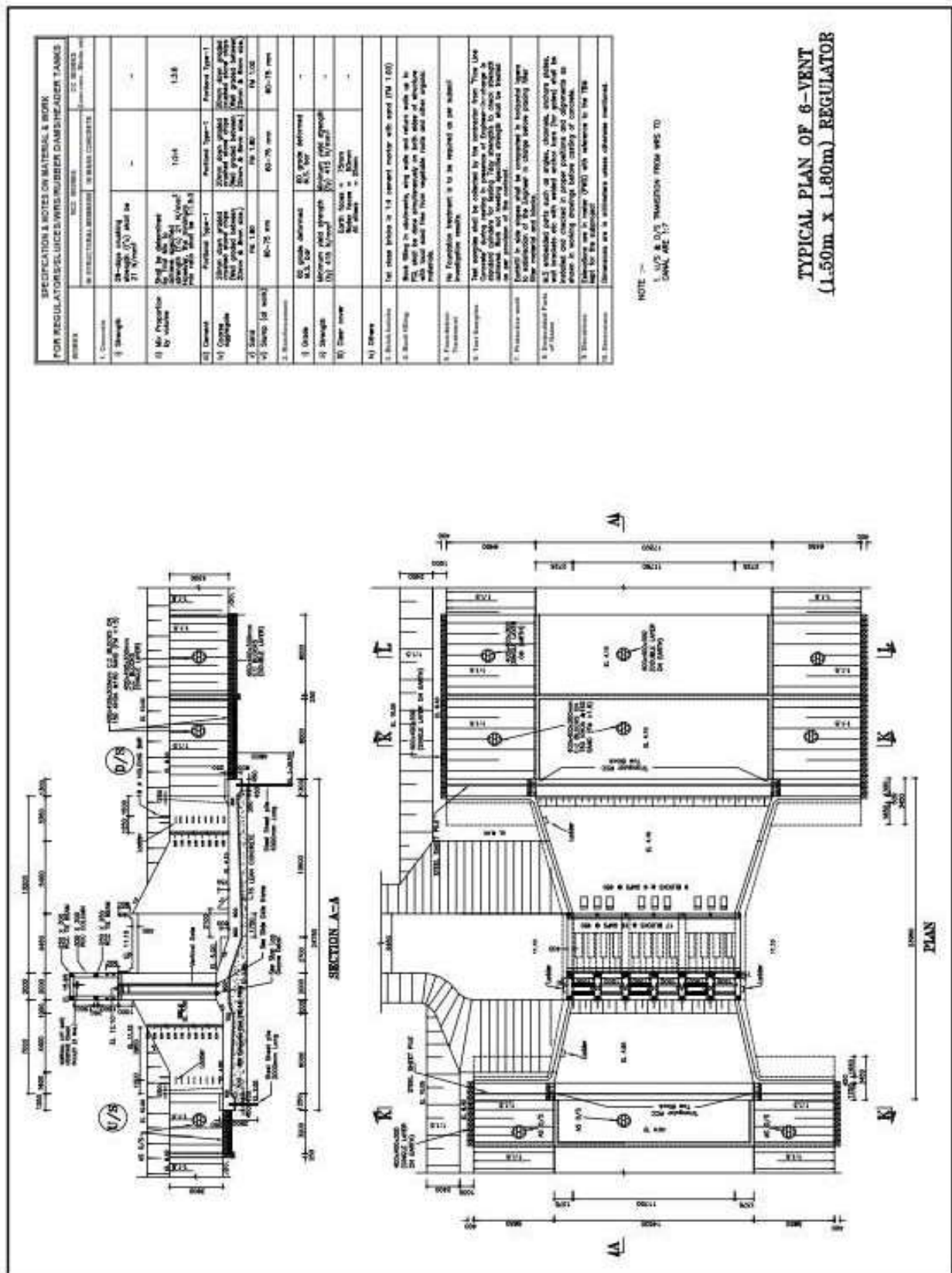


Figure 7.12: Typical Plan of 6-Vents Regulator

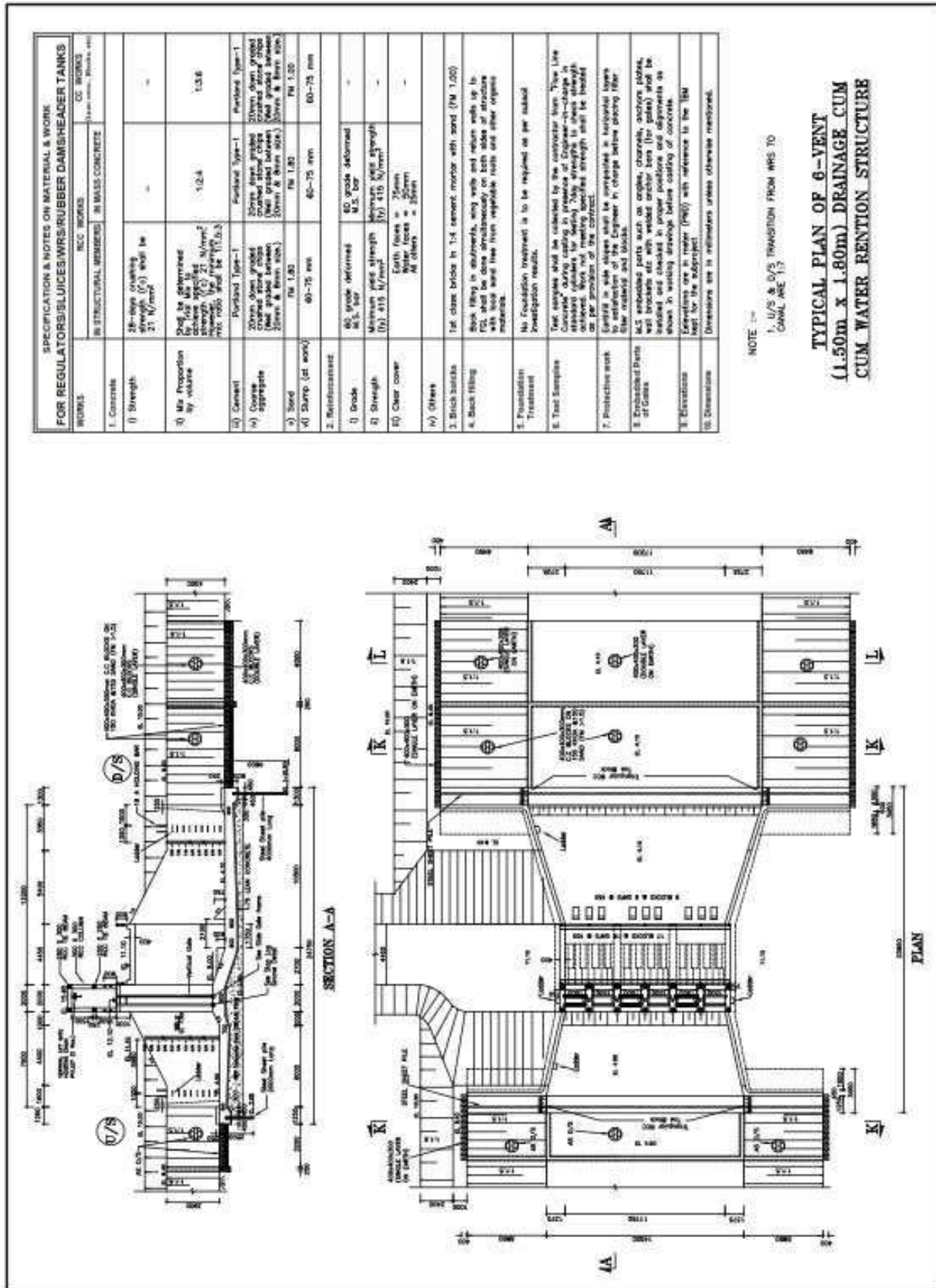


Figure 7.13: Typical Plan of 6-Vent Drainage Cum Water Retention Structure



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 7.60: Low Cost Housing in Rangunia Upazila

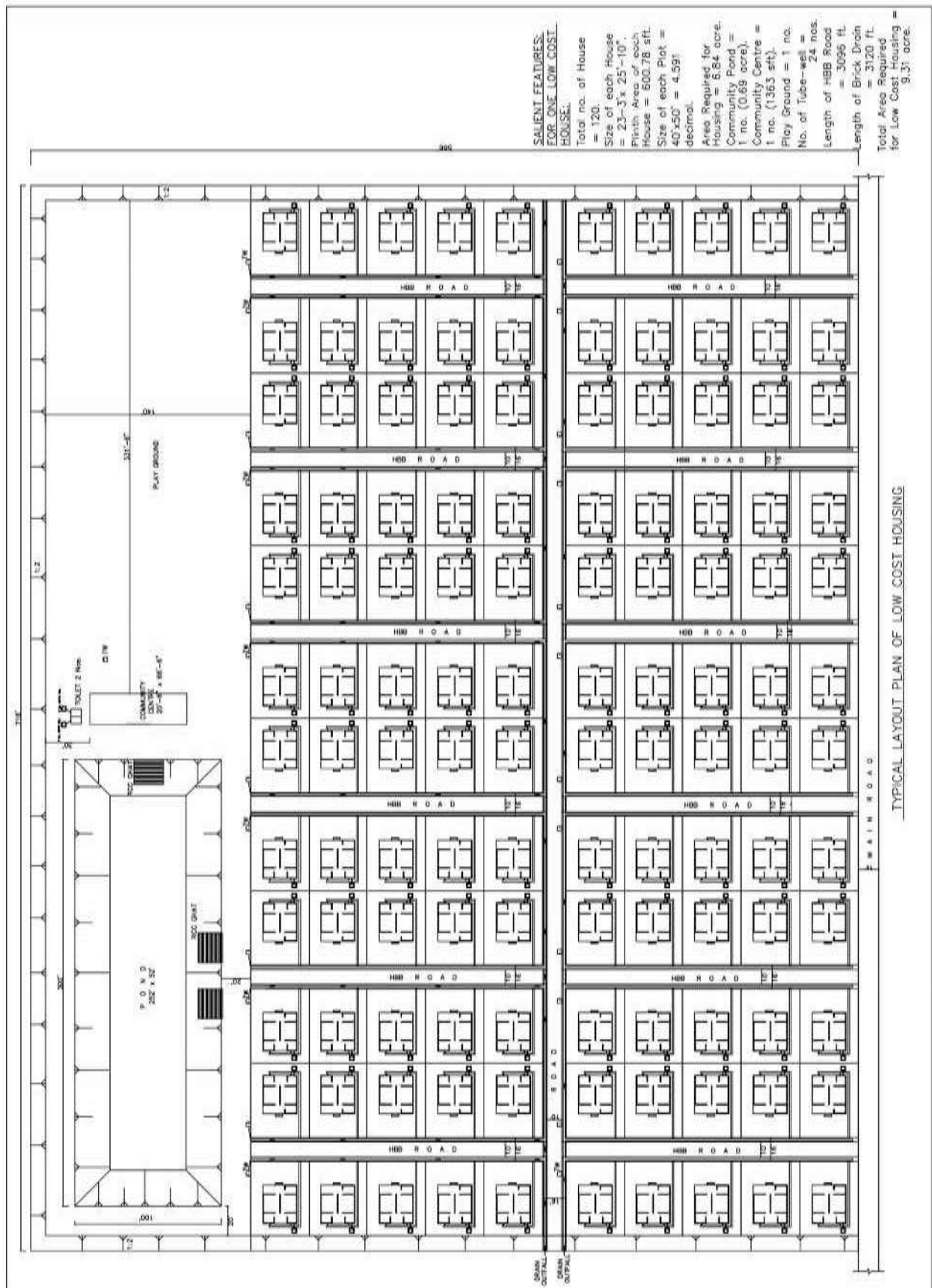


Figure 7.14: Layout Plan of Low Cost Housing

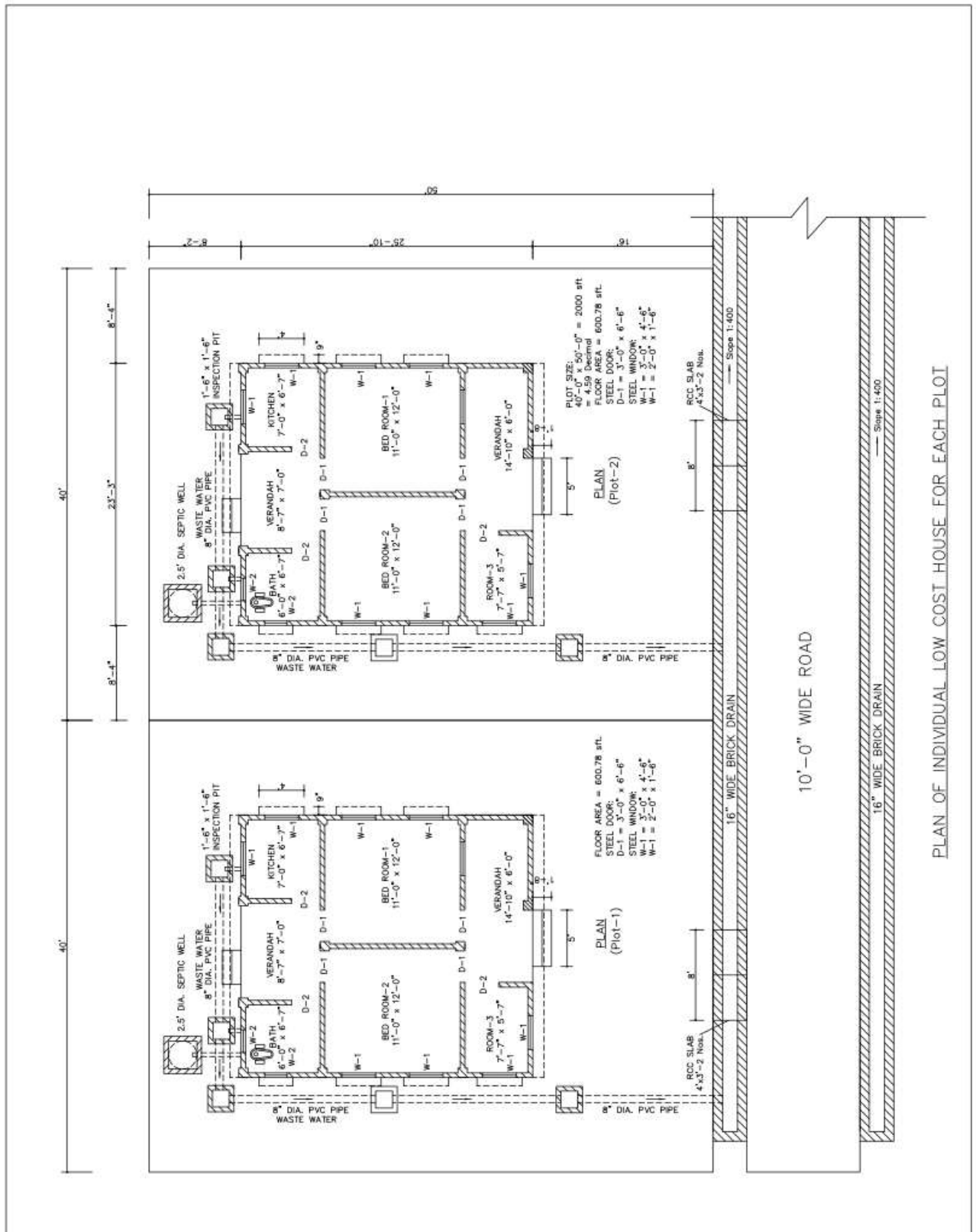


Figure 7.15: Plan of Individual Low-Cost House for Each Plot

CHAPTER 8

CONTINGENCY PLANNING

8.1 Introduction

A contingency is a situation that is likely to occur but may not. Contingency Planning is a systematic approach and the preparatory process of identification of and planning for such situations. A contingency plan may never need to be activated. However, if the anticipated situation does arise, the plan will provide a basis for rapid and appropriate actions. Thus the contingency planning consists of anticipating and analyzing potential hazards, and determining the kind of measure.

Contingency implies a future event or circumstance which is possible but cannot be predicted with certainty. Contingency Planning is done for the rationalize change. It ensures that the resources available now and in the future are used in the most efficient way to obtain specific objectives (Green, 1994). Contingency planning enables actions taken to prepare for an impending emergency (Cunny, 1988). According to UNHCR, 1996; Contingency planning is a forward planning process in a state of uncertainty in which scenarios and objectives are agreed, managerial and technical actions defined and potential response systems put in place in order to prevent or better respond to an emergency. Contingency planning is one component of a much broader emergency preparedness process that includes items such as practices, operational continuity, and disaster recovery planning. Preparing for such events often involves implementing policies and processes at an organizational level and may require numerous plans to properly prepare for, respond to, recover from, and continue activities if impacted by an event.

8.2 Process of Contingency Planning

The purpose of contingency planning is to help ensuring a rapid, appropriate and effective response if and when a crisis occurs. The process of contingency planning should identify operational and other difficulties that could be encountered in responding to potential crises and enable thinking ahead and finding ways in which, such problems can be avoided or overcome before a crisis actually occurs. In case of Contingency Planning, the plan identifies the issues, buildup scenarios and analyze them, promotes the choices and assert the first steps. The steps of contingency planning are summarized below:

- ✓ Identify scenarios of hazard and risk
- ✓ Set priorities and goals
- ✓ Identify activities and tasks
- ✓ Allocate resources
- ✓ Allocate responsibilities
- ✓ Set order of implementation
- ✓ Ensure technical inputs
- ✓ Develop procedures

8.3 Factors of Contingency Planning

Contingency plan includes how the current situation will change and what we want to achieve, then what we should be done firstly. The following factors are derived for contingency planning.

- **Population and Society:** Number of people, water security, food security, access to facilities, access to services.
- **Environment:** Shelter and habitat, sanitation, wildlife and natural heritage, cultural heritage.
- **Production and Economy:** Agriculture and livestock, industry, commerce, tourism, employment.
- **Infrastructure and Services:** Energy, communications, transports, health and medical, public works, education.

8.4 Contingency Plan for the Project Area

Natural disasters can strike anyplace, anytime with little or no warning. Fortunately, a small degree of preparation and common sense can greatly increase one's chances of surviving a natural disaster. This contingency plan for natural disasters summarizes the Government's alerting systems and organizational framework for responding to such disasters. Functions and responsibilities of Government departments and other bodies in the event of natural disasters including those resulting from severe weather conditions are also set out in this Contingency Plan. The following possible aspects are examined under contingency plan:

- Building Vulnerability Assessment
- Existence of Natural Hazards

8.4.1 Building Vulnerability Assessment

8.4.1.1 Background of the Assessment

Buildings are more vulnerable to earthquake. A significant earth quake may destroy the buildings that cause deaths within a few moments. It was difficult to conclude visually during survey period that most of the buildings were not constructed considering earth quake resistant structure. Therefore, building vulnerable assessment was necessary through setting some visual physical parameters. In Rangunia Upazila, building vulnerability assessment has been done to identify the risk sensitive structure from the existing physical feature data. The assessment has been done above one storied building. According to the physical feature data, there are about 55,041 structures in Rangunia Upazila from where 915 structures are dominated as more than one storied. The assessment carried for 915 structures to identify the visual phenomena such as soft story, short column, heavy overhanging, pounding possibilities, tilting, ground set, age (0 to 10 years, 10 to 30 years and above 30 years), historical time period (British, Pakistan, Bangladesh Period), setback, existence of mobile tower above the structure and overall structure visible physical condition (good, average, poor). The outlined phenomena have been prioritized according to their existence weightage.

8.4.1.2 Methodology of Building Vulnerability Assessment

Building vulnerability assessment has been done through five steps. Assessment of exposure condition of structure is the prime criteria and then multiplication has been done with other criteria (Step 2 to Step 5) to simplify or generalize the vulnerability assessment. **Table 8.1** depicted the measure for building vulnerability assessment.

Table 8.1: Measure for Vulnerability Assessment

Weightage Value	Scale	Explanation
0	Not Sensitive	No existance of variables of Step 01
10	Less Sensitive	Existance of any 1 variable of Step 01
20	Average Sensitive	Existance of any 2 variables of Step 01
30	Moderate Sensitive	Existance of any 3 variables of Step 01
40/50/60	Most Sensitive	Existance of 4/5/6 variables of Step 01

Source: Designed by Consultants

Step 01: Exposure Condition of Structure

Primarily to identify risk sensitive structure, the structure condition of each structure has been taken as the base. For that reason, every structure condition has given the same weightage. During earthquake the 6 factors stated in the **Table 8.2** that related to structure condition can be worked independently.

Table 8.2: Variable's Value of Structure Condition

Structural Condition Variable	Weightage
Soft Story	10
Short Column	10
Heavy Overhanging	10
Pounding Possibilities	10
Tilting	10
Ground Set	10

Source: Designed by Consultants

Step 02: Age of Structure

At this stage structure age (0 to 10 years, 10 to 30 years and above 30 years) has been given weightage according to their age. It has been assumed that most aged structure is mostly vulnerable to earthquake and has given the highest weightage value.

Table 8.3: Variable's Value of Structure Age

Structure Age	Weightage
Above 30 Years	3
10 to 30 Years	2
0 to 10 Years	1

Source: Designed by Consultants

After that the summation of structure condition has been multiplied by the weightage of structure condition and the result has been generalized numbering between 60 sensitive structure has been identified at this stage.

Generalization

If Structure Condition's sum= 40 and Structure Age Weightage=3

So, That Structure multiplication value will be 120 from 180 (as highest structure condition weightage=60 & structure age=3)

As, generalization will be in 60, the calculated value= $\frac{120 \times 60}{180}=40$

Table 8.4: Generalization of Weightage Range Value

Rank	Generalized Weightage Range value
Not Sensitive	0
Less Sensitive	1-10
Average Sensitive	11-20
Moderate Sensitive	21-30
Most Sensitive	31-60

Source: Designed by Consultants

Step 03: Historical Construction Time Period

Weightage has been given according to the historical construction time period (British, Pakistan, Bangladesh Period). The oldest structure has been assumed as most vulnerable and weightage has been given according to that.

Table 8.5: Variable's Value of Historical Time Period

Historical Time Period of Structure	Weightage
British Period	3
Pakistan Period	2
Bangladesh Period	1

Source: Designed by Consultants

The summation of structure condition weightage has been multiplied by the weightage of historical time period. After that the result has been generalized numbering between 60 sensitive structure has been identified at this stage.

Step 04: Peripheral Impacts

Peripheral Impact includes having Mobile tower and not having set back. If a structure has Mobile Tower, it seems to be vulnerable cause it may not be thought in the time of construction and having Set back has positive site in the time disaster it can minimize the impact.

Table 8.6: Variable's Value of Peripheral impact

Peripheral impact of Structure	Weightage
Mobile Tower	10
Set back	10

Source: Designed by Consultants

The summation of structure condition weightage has been multiplied by the weightage of peripheral impact of structure. After that the result has been generalized numbering between 60 sensitive structures.

Step 05: Quality of Physical Condition

Weightage has been given according to the visible physical condition of structure. The poorest structure has been given the highest weightage. It has been assumed that visibly poor structure may be more sensitive to earthquake.

Table 8.7: Variable's Value of Visible Physical Condition

Visible Physical Condition of Structure	Weightage
Poor Structure	3
Average Structure	2
Good Structure	1

Source: Designed by Consultants

The summation of structure condition weightage has been multiplied by the weightage of visible physical condition. After that the result has been generalized numbering between 60 sensitive structure has been identified at this stage.

Findings for Building Vulnerability Assessment

The findings of step 1 to 5, the process for Building Vulnerability Assessment have presented in below **Table 8.8, Table 8.9, Table 8.10, Table 8.11 and Table 8.12.**

For the purpose of identifying vulnerable structures 915 buildings that are more than one storied have surveyed. After generalizing the weightage value according to structure condition, 79 structures were identified as mostly sensitive and 168 structures were not sensitive. Other structures are categorized into less, moderately and averagely sensitive and their frequency has mentioned in the **Table 8.8.**

In case of structure age sensitivity 13 structures were found as most sensitive that means age of these structures were above 30 years as well as the structure condition was also not satisfactory. Recent constructed structures have found not sensitive that is about 152. A statistic of age of the structure in Rangunia Upazila is presented in the **Table 8.9.**

As per procedure described in step 3, structure period sensitivity has identified. About 5 structures have marked as mostly sensitive and 152 not sensitive. About 601 structures were less sensitive on the basis of structure condition and structure period. A statistic of the structure period sensitivity in Rangunia Upazila is presented in the **Table 8.10.**

Almost half of the surveyed structures have been found as not sensitive. It indicated that the rest of the structures have the peripheral impact and their structure condition were also not satisfactory. About 2 structures have marked as mostly sensitive and 302 structures were marked as less sensitive. A statistic of the peripheral impact sensitivity in Rangunia Upazila is presented in the **Table 8.11**.

In case of quality sensitivity, about 915 structures were not involved here as many structures condition was missing. This analysis has carried out on 427 structures. From that about 352 structures were identified as less sensitive and 29 structures as not sensitive. No structure has found as most sensitive. A statistic of the quality sensitivity in Rangunia Upazila is presented in the **Table 8.12**.

Table 8.8: Structure Condition Sensitivity

Structure Condition Sensitivity	Frequency
Averagely Sensitive	293
Less Sensitive	175
Moderately Sensitive	200
Mostly Sensitive	79
Not Sensitive	168

Source: Field Survey, 2016

Table 8.9: Structure Age Sensitivity

Age Sensitivity	Frequency
Averagely Sensitive	235
Less Sensitive	405
Moderately Sensitive	38
Mostly Sensitive	13
Not Sensitive	152

Source: Field Survey, 2016

Table 8.10: Structure Period Sensitivity

Structure Period Sensitivity	Frequency
Averagely Sensitive	81
Less Sensitive	601
Moderately Sensitive	4
Mostly Sensitive	5
Not Sensitive	152

Source: Field Survey, 2016

Table 8.11: Peripheral Impact Sensitivity

Peripheral Impact Sensitivity	Frequency
Averagely Sensitive	169
Less Sensitive	302
Moderately Sensitive	6
Mostly Sensitive	2
Not Sensitive	436

Source: Field Survey, 2016

Table 8.12: Quality Sensitivity

Quality Sensitivity	Frequency
Averagely Sensitive	42
Less Sensitive	352
Moderately Sensitive	4
Not Sensitive	29

Source: Field Survey, 2016

Step 06: Final Stage

Finally, to identify the risk sensitive structure the summation of structure conditions have multiplied by structure age, historical time period, peripheral impact and visible physical condition. After that the result has generalized through marking 0 to 60 to identify of sensitive structure at this stage. In this case the structure that has got more number, it was identified as more sensitive. This analysis has done for 915 structures but all 915 structures do not have all the information related to structure age, historical time period, peripheral impact and visible physical condition. Therefore, the results that depicted in **Table 8.13** included 400 structures among 915.

Table 8.13: Final Vulnerability Sensitivity

Final Vulnerability Sensitivity	Frequency
Averagely Sensitive	1
Less Sensitive	298
Not Sensitive	101

Source: Field Survey, 2016

At the final stage when all the criteria have generalized, a total overview of vulnerable structures has identified. After generalizing all the criteria, the number of structures has reduced from 915 to 400. Among 400 structures, about 298 structures Were marked as less sensitive, 101 structures as not sensitive and one as averagely sensitive.

8.4.1.3 Recommendation

The above analysis has done on the basis of structure condition, structure age, structure quality, peripheral impact, structure period. Vulnerable structure identified where these above stated criteria are present. It does not indicate if any one of these criteria is present in a structure it won't be vulnerable. That means apart from this if any one of these criteria is found in any structure it will be declared as vulnerable on the fixed sensitivity scale. An analysis on that point has done and the result is presented in **Table 8.14**.

Table 8.14: Vulnerability Assessment According to the Factor's Existence

Sensitivity	Sensitivity Scale	Frequency	Percentage
Not Sensitive	0	12	1.31
Less Sensitive	0 to 20	197	21.53
Sensitive	20 to 40	494	53.99
Averagely Sensitive	40 to 60	153	16.72
Moderately Sensitive	60 to 80	59	6.45
Mostly Sensitive	80 to 100	0	0.00
Total	100	915	100.00

Source: Field Survey, 2016

Among 915 structures if any one of the criteria is present a scale has been fixed to denote its vulnerable condition and appropriate engineering steps should be taken to reduce the vulnerability. About 59 structures are found as moderately sensitive, 494 as sensitive, 253 as averagely sensitive. So, mitigation measurement through retrofit the structure should be taken according to its scale of sensitivity. A list of mentioned vulnerable structures with its degree of sensitivity could be visible in the GIS data base under vulnerability assessment.

8.4.2 Existence of Natural Hazards

8.4.2.1 Introduction

Natural hazards are occurred for different physical phenomena which includes geophysical, hydrological, meteorological etc. From these phenomena, geophysical factor is prominent for occurring natural hazards in Rangunia Upazila from where four types of hazards have been identified for the project area that are categorized in planning process according to responsive stages to confine under a contingency plan. Which are:

- Earthquake
- Landslide
- Flood/Flash Flood
- Cyclone

8.4.2.2 Assessment of Natural Hazards

The above outlined hazards have been identified through different ways and assessment has been done to comprehend the extent of this hazards.

- **Earthquake:** Building vulnerability assessment has been done as a precautionary measure due to sustainable structure against earth quake.
- **Landslide:** Several landslides have been taken place during the project period which has been also examined.
- **Flood/Flash Flood:** Inundation map has been prepared for different returning period upon these scenarios main flood and sub flood flow zone has determined.
- **Cyclone:** Cyclone can be devastating for the project area according to the past trends. In recent era, thunder storm is also increasing its effect, Lightning Protection System (LPS) has suggested in several areas for upcoming threats.

8.4.2.3 Lightning Protection System

The fundamental principle in the protection of life and property against lightning is to provide a means by which a lightning discharge can enter or leave the earth without resulting damage or loss. A low-impedance path that the discharge current will follow in preference to all alternative high impedance paths offered by building materials such as wood, brick, tile, stone, or concrete should be offered. When lightning follows the higher impedance paths, damage can be caused by the heat and mechanical forces generated during the passage of the discharge. It can be defined as below:

- A system of strike termination devices on the roof and other elevated locations
- A system of grounding electrodes
- A conductor system connecting the strike termination devices to the grounding electrodes

Items to be considered during Planning of Protection:

- The best time to design a lightning protection system for a structure is during the structure's design phase, and the best time to install the system can be during construction
- Conductors should be installed to offer the least impedance to the passage of stroke current between the strike termination devices and earth.
- Properly made ground connections are essential to the effective functioning of a lightning protection system
- In general, the extent of the grounding arrangements depends on the character of the soil, ranging from simple extension of the conductor into the ground where the soil is deep and of high conductivity to an elaborate buried network where the soil is very dry or of very poor conductivity.

There are some cases where the need for protection should be given serious consideration regardless of the out-come of the risk assessment. Examples are those applications where the following are factors:

- Large crowds;
- Continuity of critical services;
- High lightning flash frequency;
- Tall isolated structure.

As well as some other factors should take into account which are:

- Building environment
- Type of construction
- Structure occupancy
- Structure contents
- Lightning stroke consequences

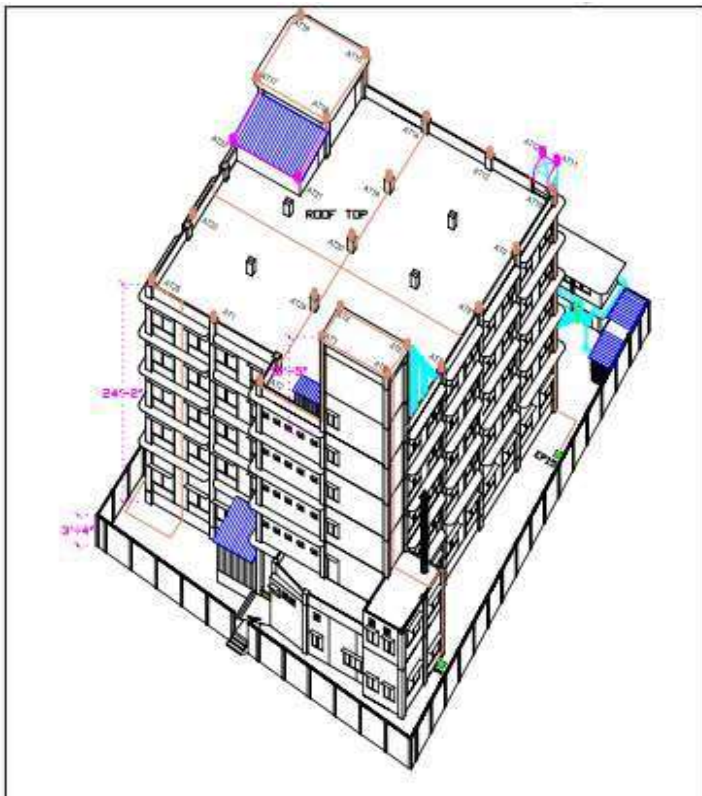


Figure 8.1: Lightning Protection System

Recommendation

- LPS should be installed above the structure depending on the use.
- For protection in open spaces LPS should be installed in electric pole which should be assessed by PDB and REB.
- Palm tree should be planted in open spaces, along the streets or in the aisle of agricultural land.

8.4.2.4 Components of Plan

Contingency plan included:

- **Proposal of Connectivity Road and Multi-purpose Shelter**

To protect the people and ensure their safety the possible evacuation roads have proposed in project area and for the emergency response multi-purpose shelter proposed in hilly areas. The location of shelter has determined by well connection of road and the hilly settlements.

- **Hill buffer area in where human intervention is not allowed**

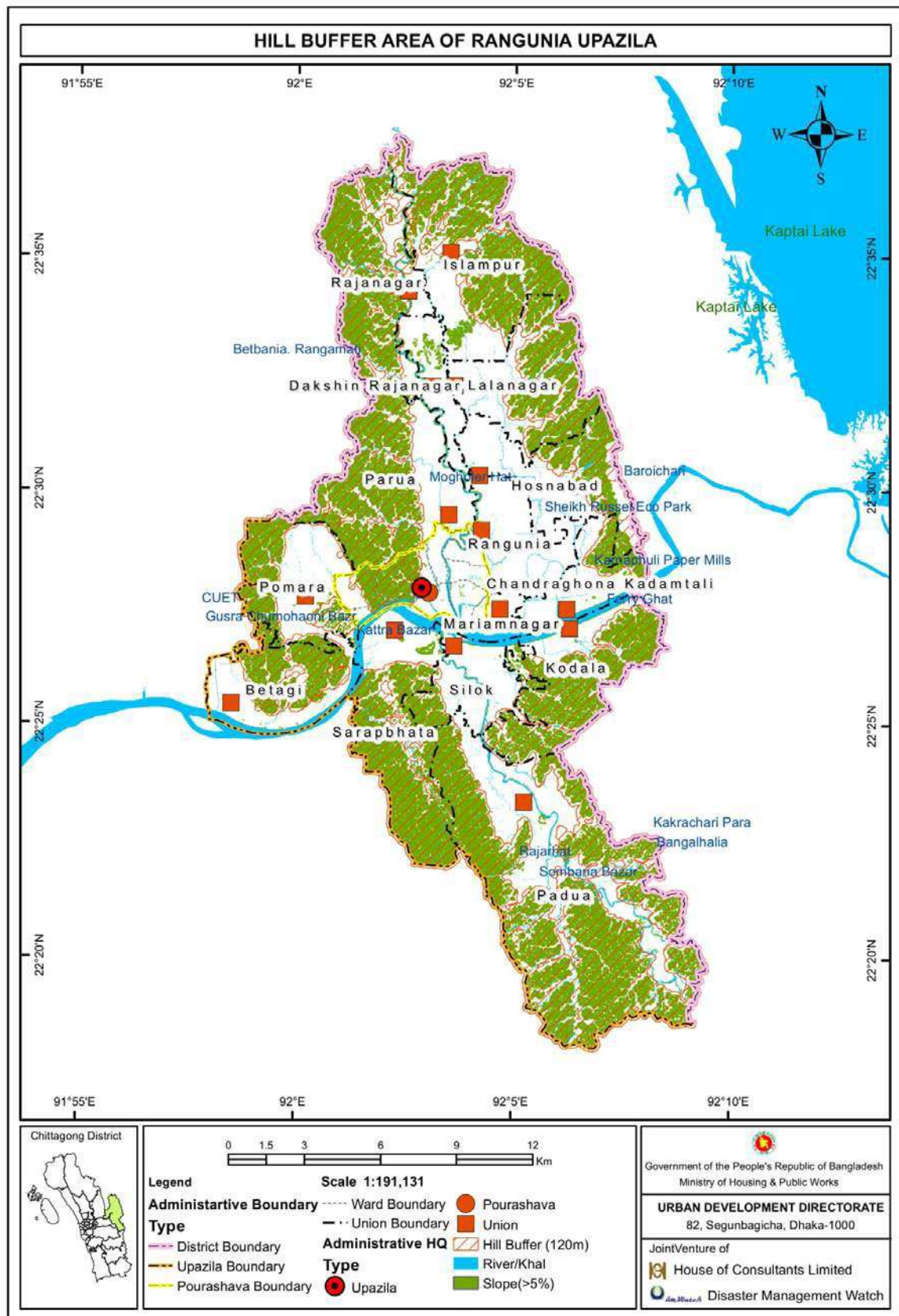
Hilly areas are prone to landslide. Human intervention is preferable within 5% slope in respect of planning perspective in our country. Landslide becomes hazard when properties or people are being affected. Human intervention is not allowed up to 120 meters from the edge of hill presented in the **Map 8.1**.

Table 8.15: Proposal of Multi-purpose Shelter according to the Plot wise Location

Sl. No.	Mouza	JL No.	Sheet No.	Plot No.	Union
1	Purbo Khurushia	070	001	298	Padua Union
2	Paschim Khurushia	069	002	792	Padua Union
3	Podua	065	005	10165	Padua Union
4	Podua	065	005	11196	Padua Union
5	Kodala	060	001	1432	Kodala Union
6	Kodala	060	002	4075	Kodala Union
7	Chondra Ghona	026	002	1549	Chandraghona Kadamtali Union
8	Uttar Ghagra	013	002	648	Islampur Union

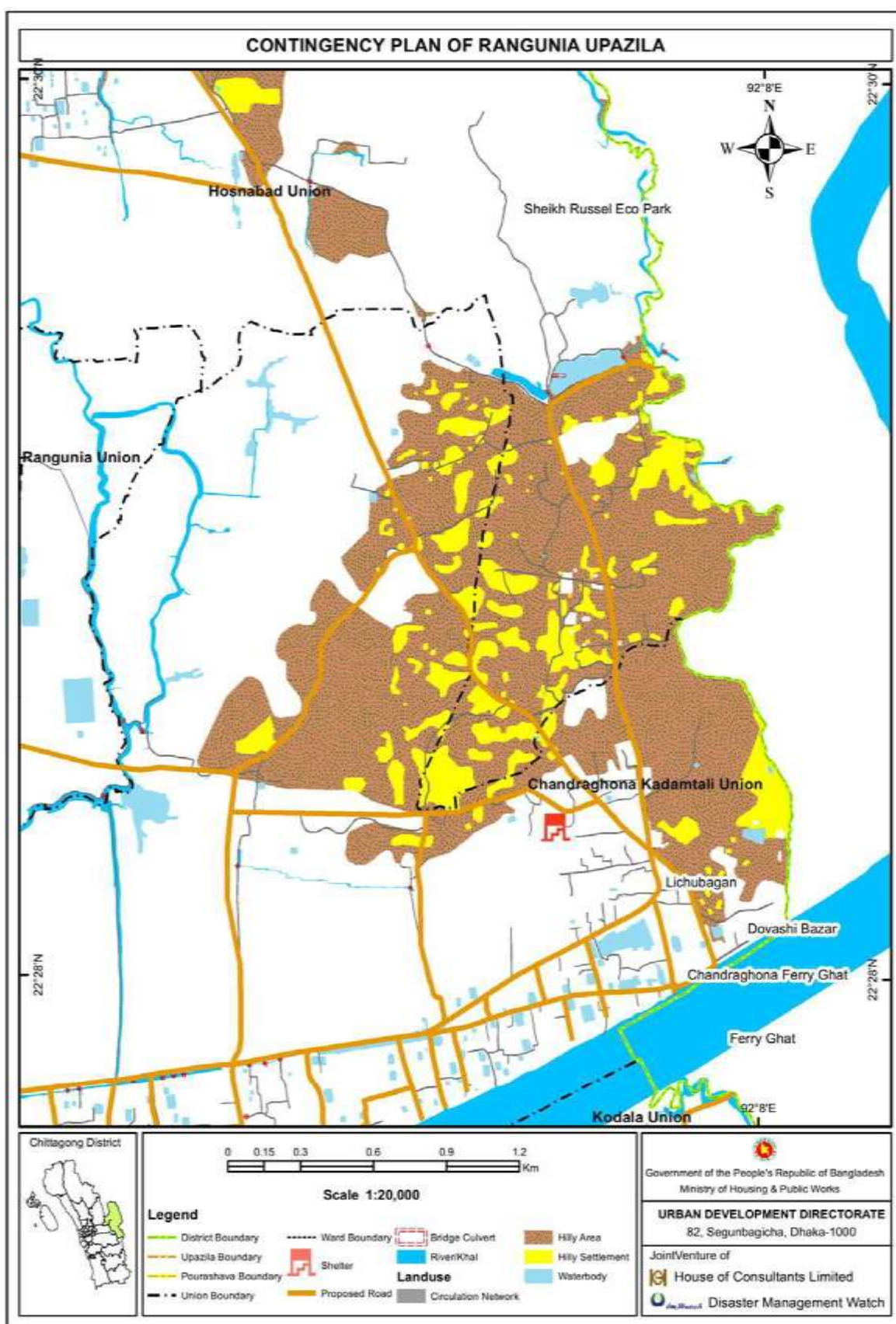
Source: Proposed by Consultants

The above table depicted the locations of multi-purpose shelter. Shelter has proposed for Natural disaster such as cyclone, flood and earthquake. The shelter has presented in the map. It will provide shelter to the effected people during the disaster. The road connectivity is also satisfying. Specially the inhabitants living in the hilly areas will get help. Among the proposed shelters in three locations are presented in **Map 8.2**, **Map 8.3** and **Map 8.4**.

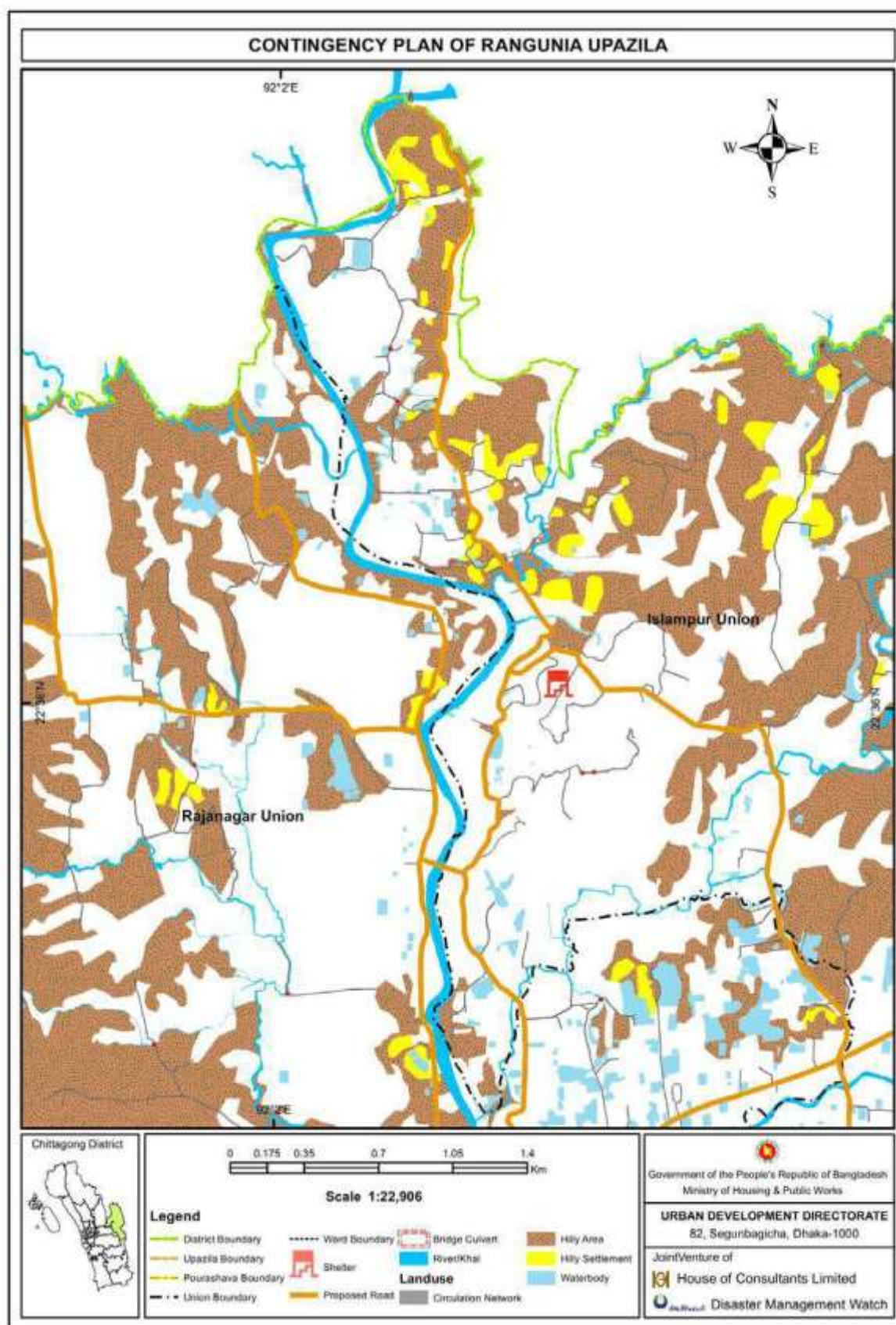


Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 8.1: Hill Buffer Map of Rangunia Upazila

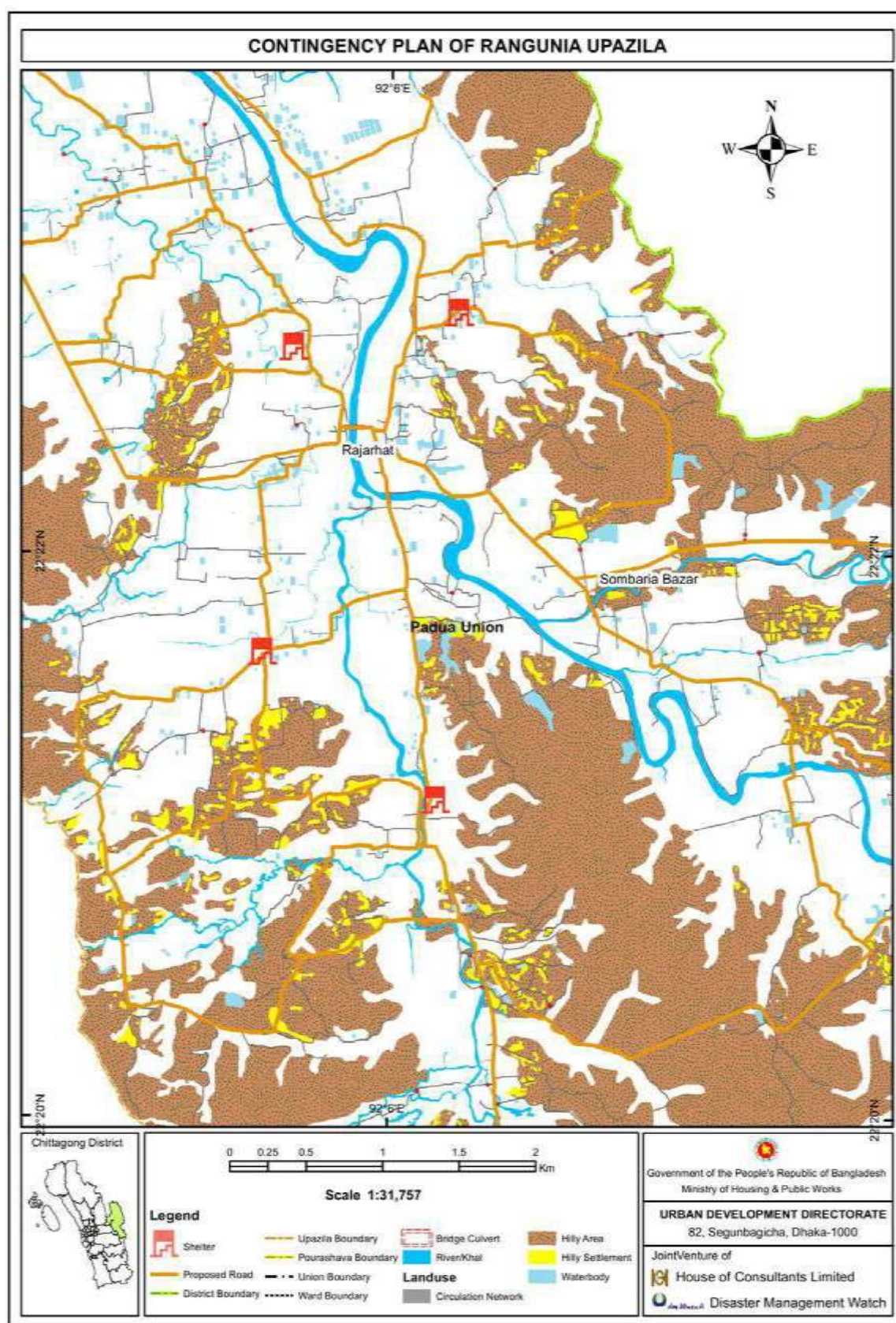


Source: Prepared by Consultant Team Based on Field Survey, 2016
Map 8.2: Contingency Plan Map (Chondroghona Kadamtali Union)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 8.3: Contingency Plan Map (Islampur Union)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 8.4: Contingency Plan Map (Padua Union)

8.4.2.5 Mitigation Measures for Natural Hazards

Earthquake

Preparation for An Earthquake

There is no such thing as "earthquake weather" or earthquake seasons. Earthquakes can occur at any time and any place.

- Make necessary repairs to home and office buildings
- Know location of emergency exits, fire alarms, and fire extinguishers
- Check for cracks in building foundations
- Insure building is attached directly to foundation, e.g., with bolts through the sill; this may require an inspection by an expert
- Keep emergency supply kits in home, vehicle, and office.

During an Earthquake

- Get under a desk, table or doorway, and hang on
- Avoid panic and help others to remain calm
- Stay clear of windows, mirrors, fireplaces, heaters, heavy furniture and appliances

After an Earthquake

- Quickly estimate damage and further danger and make decision on a full/partial evacuation
- Check evacuation routes for obstacles, such as water (electrical hazard), fire, fallen debris, or blocked passages. If safe, evacuate staff away from buildings, light posts, electric power lines, etc.

Flood

From the flooding scenario analysis of this Upazila it is concluded that this Upazila is vulnerable to flood. The flooded area has been divided into five categories according to the depth of the water. In this situation some measurement should be taken to fight with the flood. Some mitigation measurements are recommended at two stages which are before flood and during flood.

Before a Flood

- Keep first aid supplies, batteries, drinking water, water purification kits, and canned food at hand;
- Arrange for auxiliary electrical supplies;
- Know the elevation above flood stage;
- Know the evacuation route;
- If warning signal is received, move to safe area before access is cut by flood water.

During a Flood

- Act quickly to save yourself, children and handicapped
- Avoid already flooded and high velocity flow areas -- do not attempt to cross flowing streams on foot where water is above the knee
- Be especially cautious at night as it is harder to recognize flood danger.

Cyclone

Before the Storm

Countries with high natural disaster profiles will likely have a cyclone/hurricane/typhoon warning or alert systems in place. If an effective alert system is not available, be aware of: seasonal factors, ocean temperatures at or above 27 degrees Celsius, and distant formations of thin horizontal or spiraling clouds, proceeded by strong winds and rain.

- When a storm is imminent, plan your time before storm arrives and avoid last minute rushes, which might leave you unprepared
- Stock up on fresh water, canned food and batteries
- Check location and contents of first aid kits
- Know where emergency medical assistance can be obtained and where disaster stations will be set up before storm arrives

During the Storm

- Remain indoors, preferably in an interior room without windows
- If outdoors, leave low-lying areas that may be swept by high tides or storm waves and seek shelter from flying debris
- Stay calm and wait for all clear signal

After the Storm

- Stay out of disaster areas. Unless you are qualified to help, your presence might hamper first-aid and rescue work
- Drive carefully along debris-filled streets, as damaged roads may collapse under the weight of a car -- landslides along roadways are also a hazard
- Avoid loose or dangling wires
- Avoid use of candles (flashlights are preferred) and other fire hazards, as lowered water pressure will make firefighting difficult
- Stay away from river banks and streams as cyclones moving inland can cause severe flooding
- When electric power is disrupted, turn off appliances and light switches so that electric circuits will not be overloaded when electricity is restored
- Eat food stored in refrigerators and freezers within first few hours only, otherwise eat canned food
- Check on colleagues and assist anyone in need of medical attention

Landslide

The work group evaluated potential strategies to reduce landslide interruptions and impacts. Strategies were outlined and evaluated for implementation time, complicating factors and effectiveness to reduce or prevent landslides over the short-, moderate- and long-term strategies include:

Conduct Community Outreach and Education:

- Engage adjacent landowners to improve slope management practices.
- Develop a public information campaign on best practices.
- Construct demonstration projects in coordination with adjacent land owners.
- Work with Upazila to streamline slope management permit process and provide clear direction on best practices (i.e., storm water, vegetation management).

Implement Vegetation Management Program:

- Work with adjacent landowners to identify and implement vegetation management plans in specific areas based on recommendations from geotechnical and vegetation specialists. Work with adjacent landowners to retain and replant native vegetation where it benefits slope stabilization.

Review Feasibility of Improving Monitoring Tools:

- Research available systems and tools. Representatives from participating agencies have discussed whether monitoring tools can be developed.

Explore Options for Long-term Debris Disposal Plan:

- Evaluate beach nourishment as an option to remove slide debris. The strategy seeks to improve near-shore habitat and ecological function, as well as to reduce the amount of landslide debris to be removed offsite. Provides benefit for salmon restoration efforts through the restoration of forage fish spawning habitat.

CHAPTER 9

SUSTANIABLE DEVELOPMENT GOALS

9.1 Introduction

The Sustainable Development Goals (SDGs) are a collection of 17 global goals set by the United Nations. The broad goals are interrelated though each has its own targets to achieve. The total number of targets is 169. The SDGs cover a broad range of social and economic development issues. These include poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, urbanization, environment and social justice.

The 17 Sustainable Development Goals (SDGs) – part of a wider 2030 for Sustainable Development – build on the Millennium Development Goals (MDGs). The SDGs are also known as "Transforming our World: the 2030 Agenda for Sustainable Development" or 2030 Agenda in short. They are also known as the Global Goals for Sustainable Development.

The goals were developed to replace the Millennium Development Goals (MDGs) which ended in 2015. Unlike the MDGs, the SDG framework does not distinguish between "developed" and "developing" nations. Instead, the goals apply to all countries.



Figure 9.1: The Sustainable Development Goals

9.2 SDG Goals

The Sustainable Development Goals are outlined below:

- Goal 1: End poverty in all its forms everywhere
- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3: Ensure healthy lives and promote wellbeing for all at all ages
- Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5: Achieve gender equality and empower all women and girls
- Goal 6: Ensure availability and sustainable management of water and sanitation for all

- Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10: Reduce inequality within and among countries
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impacts
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

9.3 Perceived Development Plan Goals according to SDGs

Development plan reflects different goals based on Five Tier Plan where the perceived goals are sustained with Sustainable Development Goals. The relation between these are derived in the **Table 9.1**.

Table 9.1: Relation between Development Plan Goals and SDGs

SDG	Ways	Provisions
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Agricultural lands have given most priority during planning phase. Agricultural lands have been preserved. Food processing zone, retail trade zone, wholesale zone has been proposed for the food security and improved nutrition. Affordable housing is proposed for sustainable living.	32% area has been declared as predominantly agricultural zone and any kind of development on this area is prohibited, in Rangunia Upazila 1 food processing zone, 1 retail trade zone have been proposed. Finally, 16% area of Rangunia Upazila has been preserved for pure agricultural use. (Ref.: Figure 9.6 & Map 6.9 in Chapter 6)
Goal 4: Ensure inclusive and quality education for all and promote lifelong learning	On the basis of population projection, future demand and PRA education facilities have been quantified and proposed.	On the basis of demand and population projection 2 primary schools and 8 high schools has been proposed. (Ref.: Figure 9.2)
Goal 6: Ensure access to water and sanitation for all	Pond more than 0.25 Decimal will be preserved for Surface Water Consumption and for Urban Area an Overhead Tank has been Proposed, River can be used for Surface water Treatment.	1 overhead tank has been proposed in Rangunia Upazila. Karnafhuli River can be treated for surface water treatment and already has been treated for CWASA. (Ref.: Figure 9.5)
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Solar park has been proposed as modern, affordable and reliable energy for all.	1 solar park has been proposed in Rangunia Upazila. (Ref.: Figure 9.4)

SDG	Ways	Provisions
Goal 8: Promote inclusive and sustainable economic growth, employment and decent work for all	Shift shear analysis has been done to identify the future economic growth of the Upazila. Growth centers have been identified, redevelopment plan for growth center has been proposed, RSSC has been proposed for rural areas, neighborhood market for urban area.	25 growth centers have been identified in this Upazila, redevelopment plan of these growth centers have proposed, 7 RSSC and 3 neighborhood markets have been included in the plan. (Ref.: Table 7.18: Proposed RSSC Feature in Chapter 7).
Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation	Industrial area has been identified.	2.429 sq.km area has been declared as industrial zone in the structure plan. (Ref.: Figure 9.3)
Goal 11: Make cities inclusive, safe, resilient and sustainable	Suitable urban area has been identified through planning. The facilities have been quantified according to the need.	25.290 sq.km area has identified as urban area, schools, drainage systems, stadium and other facilities have been proposed in urban area. (Ref.: Structure Plan Map)
Goal 13: Take urgent action to combat climate change and its impacts	Eco sensitive zone has been identified and policies have been given to conserve these areas.	Around 41% area (145.53 sq.km) has declared as eco-sensitive zone, it includes the hilly area, Triple and Double agricultural zone, native forests, waterbodies. Specially Gumai Beel 13.35 sq. km will be preserved as Predominantly Eco Sensitive Area. To protect inhabitants from landslide human intervention is restricted between 120-meter buffer zone from hill toe. (Ref.: Figure 9.7)
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	Reserved forests are the massive natural resource of the Upazila. Reserved forests have been restricted from any kind of development. Eco sensitive zones have been identified to protect the biodiversity of the Upazila.	45.720% of total area has been declared as restricted special to conserve the restricted forest, wild life sanctuary and Eco park have been proposed in Padua union. (Ref.: Structure Plan Map)
Goal 12: Ensure sustainable consumption and production patterns	The Upazila is an agro-based Upazila and also suitable for fisheries and poultry farms. Food processing zones, retail and trade zones, wholesale zone has been proposed for the Upazila.	In Rangunia Upazila 1 food processing zone, 1 retail trade zone have been proposed, poultry and fish processing zones have been proposed. (Ref.: Structure Plan Map)

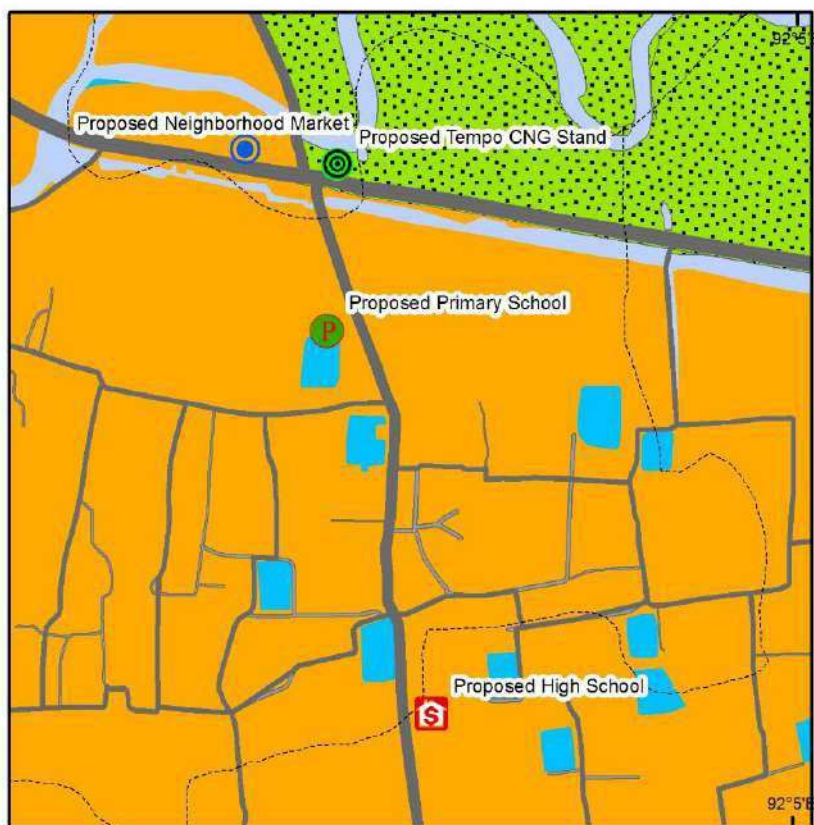


Figure 9.2: Typical Pictorial View to Ensure Inclusive and Quality Education for All

The locations of the proposed primary schools have indicated in the **Table 9.2**. A pictorial view of the proposed school has planned in Mariamnagar union is presented in the **Figure 9.2**.

Table 9.2: Locations for Proposed Primary School

Existing Primary School	Proposed Primary School	Union	Ward No.	Mouza
107	2	Betagi	2	Gungunia Batagi
		Mariamnagar	1	Syedbari

For economic growth of the Upazila industrialization is an important factor. According to the sustainable development goal an industrial area has proposed in Islampur. A pictorial view for location of industrial zone is presented in the **Figure 9.3**.

For electricity production solar park can play an important role. A solar park has proposed for Rangunia Pourashava and the pictorial view of location of solar park is presented in the **Figure 9.4**.

To ensure access to drinking water supply, a water overhead tank has proposed for Rangunia Pourashava. This over tank will serve the demand of the urban population of Pourashava. A pictorial view of location of overhead tank for water supply is presented in the **Figure 9.5**.

House is one of the basic needs of every human being. But the low-income people hardly afford a house of their own. Affordable housing scheme will provide an opportunity for the low-income people to have their own house with all necessary facilities. The location of housing for

low-income people is proposed in Chandroghona Kadamtali union. A pictorial view of location of housing for low income people is presented in the **Figure 9.6**.

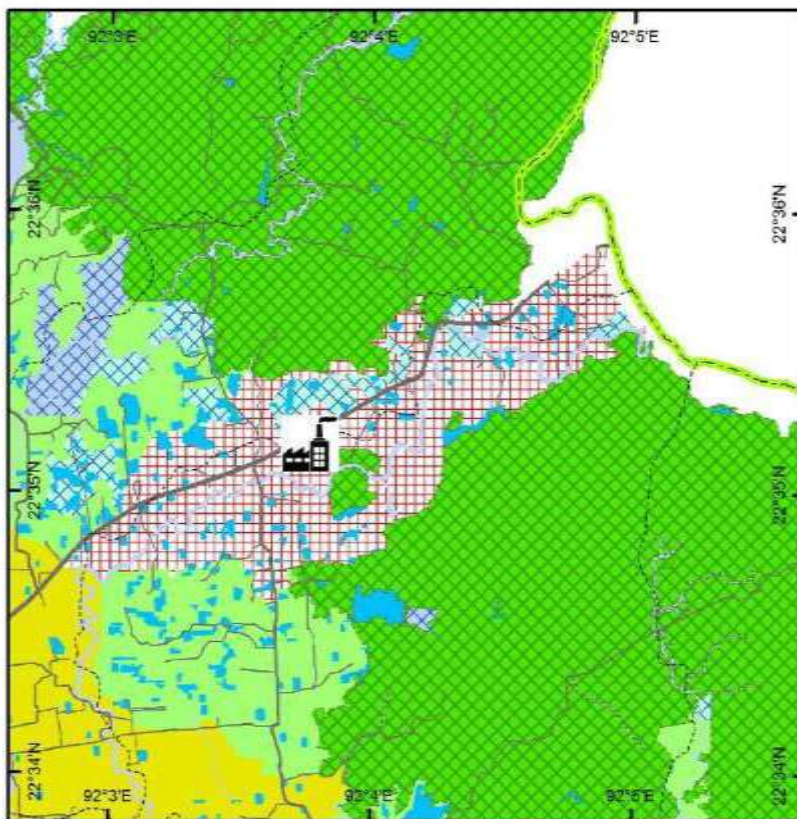


Figure 9.3: Promote Sustainable Industrialization



Figure 9.4: Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All



Figure 9.5: Ensure access to water and sanitation for all

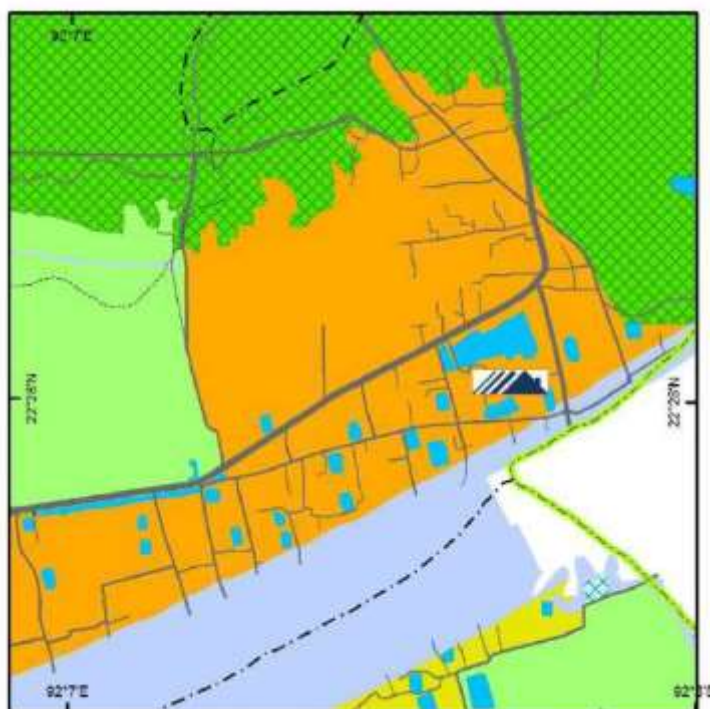


Figure 9.6: Affordable Housing

Gumai beel is a huge area which is an asset for this Upazila. This area should be preserved as an Eco sensitive area that will provide support to make a balance in the environment and played a great role in food production. A pictorial view of location of Gumai beel is presented in the **Figure 9.7**.

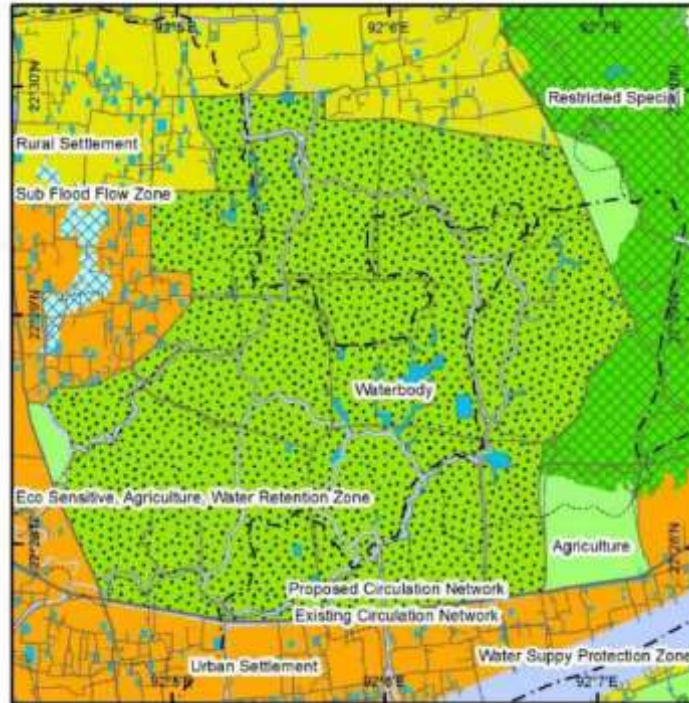


Figure 9.7: An Urgent Action necessary to Combat Climate Change and its Impacts

CHAPTER 10

IMPLEMENTATION MODALITY AND LANDUSE CONTROL

10.1 Introduction

Effective implementation of a plan is the most important part of the total planning process. The process of execution needs to be carried out with care and efficiency in order to produce the best results. This chapter of the plan report highlighted the various measure needed to be taken in order to execute the plan proposals.

10.2 Priority Development Projects for Rangunia Upazila

A list of type of development, implementation responsibility, source of fund and, monitoring and evaluation was prepared and presented in **Table 10.1** to make easy for implementation modality and land use control.

Table 10.1: Implementation Modality based on Priority Development Projects for Rangunia Upazila

Type of Development Project	Implementation Responsibility	Source of Fund	Monitoring and Evaluation
RESIDENTIAL			NHA, Upazila
Site and Services Projects	Public Sector-NHA	Self-Finance	
Public Housing	Public Sector-PWD,NHA	Government Finance	
Low Income Housing/Slum Upgradation	Upazila/NGO/ Other–City Corporation/ Private	Government Finance	
Participatory Housing Area Development	Public–Community Joint, Community	Community, Public (infrastructure development),	
Commercial Housing	Real Estate Company	Real Estate Company	
Cooperative Housing	Cooperative Body	Cooperative Body	
COMMERCE			Pourashava/Upazila
Private Business Enterprise	Company /Proprietor	Company /Proprietor	
Town Centre	Private Joint Venture	Private Joint	
Shopping Centre	Private Joint Venture	Private Joint, Government	
INDUSTRY			BSCIC, BEPZA
Industrial Area	BEPZA	Government	
Export Processing Zone	BEPZA	Government	
EDUCATION AND CULTURE			Department of Education, Ministry of Science and Technology, LGED
School, College	Ministry of Education, Ministry of Science & Technology,	Government, Community, Government-Community Joint	
IT Village	Ministry of Industry	Government	
Library	Upazila, Ministry of Education	Government	
Social Welfare	Upazila, NGO	Government	

OPEN SPACE			Upazila/Pourashava/ LGED
Park, Stadium, Play ground	Pourashava/District and National, Divisional Sports Council	Government	
UTILITY SERVICES			PWD, DPHE, LGED
Post Office, Water Supply Installations, Drainage Installations, Fire Station, Waste Disposal Site, etc.	Postal Department, Pourashava/Fire Service and Civil Defence Authority,	Government	
Regulator, Embankment	BWDB, LGED	Government	BWDB, LGED

Source: Developed by Consultants

10.3 Landuse Control

Landuse zoning is an evitable element of development plan that regulates the haphazard land use and ensure enough space for proper uses and creates homogeneous land uses. Land use zoning practices have practiced in local planning system since the beginning of the post-World War II in the form of physical planning approach. The aim of land use zoning is outlined below:

- Landuse control or regulation and land use development will ensure sustainable development of the environment and urban growth.
- Enables issuance of land use clearance for development.

10.4 Land Use Regulation for Different Land Use Zones

Summary of permitted & conditional uses of different land use category for the study area is presented in the **Table 10.2**.

Table 10.2: Permitted & conditional uses of different Land use category

PERMITTED USE	O	Agriculture Zone	Eco Sensitive, Water Retention Zone	Industrial Low Hazard	Main Flood and Sub Flood Zone	Restricted Special	Urban Settlement	Rural Settlement	Water Supply Protection Zone and Waterbody
CONDITIONAL USE	C								
PLAN REVIEW REQUIRED	P								
NOT PERMITTED	N								
LAND USES									
Agriculture, Forestry & Grazing		O	O	N	O	C	C	C	N
Aquaculture & Fisheries		C	O	N	O	N	N	C	O
Brick fields		N	N	C	N	N	N	N	N
Cemeteries / Graveyard		N	N	N	N	N	O	O	N
Cinemas		N	N	N	N	N	O	C	N
Clinics, Medical		N	N	N	N	N	O	O	N
Clubs		N	N	N	N	N	O	O	N
Colleges & Universities		C	N	N	N	N	O	O	N
Farm		O	N	N	N	C	O	O	N

PERMITTED USE	O	Agriculture Zone	Eco Sensitive, Water Retention Zone	Industrial Low Hazard	Main Flood and Sub Flood Zone	Restricted Special	Urban Settlement	Rural Settlement	Water Supply Protection Zone and Waterbody
	C								
	P								
	N								
Dwellings-Minimal Housing		N	N	N	N	N	O	O	N
Dwellings-Single/Multi Family		O	N	N	N	N	C		C
Flood Management Structures		O	O	O	O	O	O	O	O
Hospitals (with morgue)		N	N	N	N	N	O	O	N
Hotel /Guest House		N	N	N	N	P	O	O	N
Hotel International Class		N	N	N	N	P	O	O	N
Industrial, Orange A		N	N	O	N	N	N	C	N
Industrial, Orange B		N	N	O	N	N	N	C	N
Industrial, Red		N	N	O	N	N	N	N	N
Institutions		N	N	N	N	N	O	O	N
Major Development		C	C	C	N	C	O	O	N
Offices, Services		N	N	N	N	N	O	O	N
Parking Facilities, Commercial		N	N	C	N	N	O	O	N
Petrol Stations		N	N	N	N	N	O	O	N
Public Uses & Structures		N	N	N	N	N	O	O	N
Recreation Facilities, Outdoor		N	C	N	N	C	O	O	N
Religious Uses & Structures		N	N	N	N	N	O	O	N
Repair Shops, Major		N	N	N	N	N	O	O	N
Repair Shops. Minor		N	N	N	N	N	O	O	N
Retail Shops & Restaurants		N	N	N	N	N	O	O	N
Schools, Private		N	N	N	N	N	O	O	N
Schools, Government, Religious		N	N	N	N	N	O	O	N
Shopping Centres, Large Market		N	N	N	N	N	O	O	N
Stadium, Sports		N	N	N	N	C	O	O	N
Terminals, train, bus		N	N	N	N	N	O	O	N
Trade Centres		N	N	N	N	N	O	O	N
Utility Installations		N	N	N	N	N	O	O	N
Ware Housing & Distribution		N	N	N	N	N	O	O	N
Waste Disposal & Processing		N	N	O	N	O	O	O	N

Source: Developed by Consultants

10.5 Plan Review Committee

Ministry of Housing & Public Works will provide administrative orders regarding the specific landuse change and it will be included during review of the plan on specific interval as stated in the plan. If there is any landuse change required on any plot for Government/Non-Government/Private Intervention/Project/Land Acquisition on General Welfare that is not in consistent to the proposed landuse or it's permitted, conditionally permitted, restricted or special use stated in the Gazetted plan, it must be approved by the Ministry of Housing and Public Works through the following Plan Review Committee:

Plan Review Committee Formation

1. Secretary, Ministry of Housing & Public Works- Chairman
2. Upazila Nirbahi Officer (UNO) of concerned Upazila- Member
3. Mayor of Concerned Pourashava- Member
4. Upazila Engineer of Concerned Upazila- Member
5. Director, UDD- Member
6. Concerned Senior Planner, UDD-Member
7. Deputy Secretary, Ministry of Housing & Public Works, Member- Secretary

ToR:

1. Plan Review Committee will meet on need basis.
2. Any decisions taken by the committee will be Gazetted by the Ministry of Housing & Public Works.
3. Plan Review Committee can Co-opt any member if necessary.

CHAPTER 11

CONCLUSION

The development of urban and rural areas is the inevitable destiny of the human civilization especially in most densely populated country. Major and minor cities including secondary towns in Bangladesh are densely populated. Therefore, development plan for secondary towns along with cities is utmost essential. Final plan of Rangunia Upazila will give a guideline to develop the area according to the demand of local people. The plan consists of a written statement of objectives and a map or series of maps. The motto of development plan of a urban or rural areas are to provide planned development, renewal of absolute areas; preserving, improving and extending amenities; provision for better utility services, waste recovery and disposal facilities; zoning of areas for residential, commercial, industrial, agricultural, forestry, flood plains; provision of accommodation for travellers and provision of services for the community etc. However, the five-tier plan devised in this report will be effective tools for planned development of most of the areas in Rangunia. The planned township and integrated rural development will require infrastructure and service facilities that can be done by the proper utilization of such urban and rural area plan. This in turn will make a positive impact on economic growth, social progress and environmental sustainability in the whole region. Rangunia Upazila must avail this opportunity for its progress in future by implementing the Development Plan done by UDD under the Ministry of Housing and Public Works. According to the Development Plan, Detail Land Schedule of Proposed Landuse as mentioned in Structure Plan, Urban Area Plan & Proposed Road Network Plan can be found in Land Schedule Book.

REFERENCES

Bangladesh Bureau of Statistics. Economic Census (2003 & 2013). *District Statistics 2013 & 2003- Chittagong*.

Cohen, B. (2006). Urbanization in developing countries: Current trends, future projections, and key challenges for sustainability Committee on Population, National Research Council, 500 Fifth Street, N.W., Washington, DC 20001, USA.

Economic Modeling Specialist Inc. EMSI. (2015). *emsi resource library*. Retrieved http://www.economicmodeling.com/wp-content/uploads/2007/10/emsi_understandinglq.pdf

Ezra, B. C. (2001). A Guide to Global Population Projections. *DEMOGRAPHIC RESEARCH*, 4, 203-288.

Glasson, J. (1975). *An Introduction To Regional Planning*. Hutchinson and Co Limited: London.

Herath, J., Gebremedhin, T., & Maumbe, B. M. (2012). A Dynamic Shift Share Analysis of Economic Growth in West Virginia.

Hossain Zillur Rahman (ed), 2012, *Bangladesh Urban Dynamics*, PPRC. This publication was the outcome of a multi-year and comprehensive urban strategy study implemented by PPRC and supported by The World Bank and DFID and was launched at the international conference on urbanization held in Dhaka on 8 December, 2012.

Islam, N. (2005) Centre for Urban Studies (CUS), Dhaka, Urbanization in Bangladesh: Challenges and Opportunities, NEC Conference Room, Planning Commission, Dhaka 8-9 April 2015.

Timberlake, M., (1987). "World-System Theory and the Study of Comparative Urbanization", In: Smith, M.P. and Feagin, J.R. (eds.) *The Capitalist City*, Blackwell, Oxford.

World Bank (2007), Bangladesh Strategy for Sustained Growth.

World Bank (2007), Improving Living Conditions for the Urban Poor.

APPENDIX-A

Plan Related Policies

National Agriculture Policy 1999

Policy	Five Tier Plan	Key Issues
National Agriculture Policy 1999	Sub-regional Plan	<ul style="list-style-type: none"> • Groundwater irrigation programmes will be coordinated at the national level. • National Agricultural Research Institutes will give priority to region-wise research on irrigate and rain-fed cultivation and also Research on improving quality and utility of various crops.
	Structure Plan	<ul style="list-style-type: none"> • Location specific (including hill tracts) suitable crops will be identified with respect to technological and economic parameters and appropriate strategies will be pursued for cultivating those crops. • Measures will be taken to minimize post-harvest losses by introducing appropriate technologies. • With a view to transforming crop production system into a profitable and sustainable sector, a two-dimensional agricultural research management programme will be followed. • Government, private sector agencies and NGOs involved in agriculture sector will in principle agree to exchange information among them. • Special development programmes will be taken with a view to increasing production of potential crops suitable for the coastal areas and the hill tracts. • ensure a profitable and sustainable agricultural production system and raise the purchasing power by increasing real income of the farmers • The Seed Certification Agency will take membership of the International Seed Testing Association (ISTA) so that the opportunities for exporting internationally standard seeds are created
	Action Area Plan	<ul style="list-style-type: none"> • Reservoirs will be built-up to tap water from the year-round stream flow in hilly areas and appropriate infrastructure will be developed for irrigation as well as fish culture. • Pest surveillance and monitoring system will be strengthened. • Salt tolerant crop varieties will be developed and extended along with possible measures to resist salinity. • Irrigation programmes will be undertaken following proper strategy according to the availability of surface and groundwater. • Number of agricultural education institutions will be increased up to the required level. • take supportive programmes for inter-cropping in a field instead of single cropping; • Land zoning programme will be taken up by the Soil Resources Development Institute (SRDI) on a priority basis.

Climate Change Strategy 2009

Policy	Five Tier Plan	Key Issues
Climate Change Strategy 2009	Sub-regional Plan	<ul style="list-style-type: none"> • Model climate change scenarios for Bangladesh by applying global climate change models and methodologies at regional and national levels • Regional and international cooperation is essential in order to build necessary capacity and resilience • Strengthen the government's capacity and that of civil society partners and communities to manage natural disasters • To review energy and technology policies and incentives to promote efficient production, consumption, distribution and use of energy • To build the capacity of the country to meet the challenge of climate change over the next 20-25 years.
	Structure Plan	<ul style="list-style-type: none"> • Repair and rehabilitate existing infrastructure (e.g., coastal embankments, river embankments and drainage systems, urban drainage systems) and ensure effective operation and maintenance systems • Undertake strategic planning of future infrastructure needs and future patterns of urbanization and socio-economic development; and the changing hydrology of the country, because of climate change • Strengthen cyclone, storm surge and flood early warning systems to enable more accurate short, medium and long-term forecasts.
	Urban Area Plan	<ul style="list-style-type: none"> • New urban areas must be built to be climate resilient. • Flood protection and drainage schemes to protect urban areas from rainwater and river flooding during the monsoon season
	Action Area Plan	<ul style="list-style-type: none"> • .Monitor changes in water quality and quantity available for drinking and forecast future changes due to climate change • flood management schemes to raise the agricultural productivity of many thousands of km2 of low-lying rural areas and to protect them from extremely damaging severe floods • Monitor and research the impacts of climate change on ecosystems and biodiversity • Model the likely hydrological impacts of climate change on the Ganges-Brahmaputra-Meghna system to assess future system discharges and river levels <p>The Climate Change Action Plan is built on six pillars:</p> <ul style="list-style-type: none"> ➤ Food Security, Social Protection and Health ➤ Comprehensive disaster management ➤ Infrastructure to ensure existing and maintainences. ➤ Research and Knowledge Management ➤ Migration and low carbon development ➤ Capacity Building and institutional strengthening

Disaster Management Act 2012

Policy	Five Tier Plan	Key Issues
Disaster Management Act 2012	Sub-regional Plan	<ul style="list-style-type: none"> National Disaster Management Council should provide <ul style="list-style-type: none"> ➤ strategic guidelines concerned to policies and plans about disaster management; ➤ Implementation progress review of government projects and programs taken to face the disaster and rehabilitation The government may give order to accomplish special activities to be done on emergency basis by concern ministry, division, directorate, office, government and semi-government organization and committees formed under this Act.
	Action Area Plan	<p>The following requirements will need assistance:</p> <ul style="list-style-type: none"> Unusable or destroyed disaster protection infrasturcture for essential services. Extensive death or disaster like any unnatural event or any such natural event.

National Plan for Disaster Management 2008-2015

Policy	Five Tier Plan	Key Issues		
National Plan for Disaster Management 2008-2015	Sub-regional Plan	Strategic Goal	Action Agenda for 2008-2015	Supporting Agency/ dept.
		Strengthening Institutional Mechanisms	Identify national, regional, sub-regional and local institutional mechanisms including informal systems and undertake an audit to validate roles and linkages	Ministry of Establishment /Ministry of Law, Justice and Parliamentary Affairs/ Cabinet Division/ Sectoral Ministries/NGOs Affairs Bureau/NGOs / Development Partners
		Strengthening Emergency	Use SAARC, RCC and other	Armed Forces Division; Ministry of

National Plan for Disaster Management 2008-2015

Policy	Five Tier Plan	Key Issues
		<p>Response Systems available frameworks and platforms to establish regional networks for real time data/information sharing</p> <p>Post and Telecommunication; MoHA/ MoFA/ SMRC NGO Affairs Bureau/ NGOs Development Partners</p> <p>Developing and Strengthening regional and global Networks Identify key regional collaborating organizations and develop systems for coordination, and knowledge sharing. Use SAARC, ASEAN and RCC platforms to establish regional networks for real time data/information sharing as well as sharing of new knowledge and technology.</p> <p>Relevant Ministries/ Departments, NGO Affairs Bureau, NGOs, Academic Institutions MoFDM/MoD/ / MoWR/ MoP&T/NGO Affairs Bureau/NGOs/ / Regional and International Organisations</p> <ul style="list-style-type: none"> • Developing and strengthening networks of relevant national, regional and international organizations. • To mitigate the impacts of floods, the government has been developing and implementing various measures to better equip the country to deal with floods.
	Structure Plan	<ul style="list-style-type: none"> • Strengthening disaster management and risk reduction capacity • The plan followed by the strategic plan and operational plan of the different directorate of the ministry. Purpose of the Corporate Plan includes <ul style="list-style-type: none"> <input type="checkbox"/> Articulate the Ministry's long-term Strategic Focus. <input type="checkbox"/> Detail a road-map for the development of internal

National Plan for Disaster Management 2008-2015

Policy	Five Tier Plan	Key Issues
		<p>Strategic Plans for the Disaster Management Bureau (DMB), Directorate of Relief and Rehabilitation (DRR), Director-General of Food (DGoF) and the Policy Programme and Partnership Development Unit (PPPDU).</p> <p>□ Provide a framework within which to report performance and success in achieving goals and strategies</p> <ul style="list-style-type: none">• Different stakeholders in a multi-sectoral approach, including the development sector, should address the strategic goals and priorities for action. <p>STRATEGIC GOALS OF THE PLAN</p> <p>The strategic goals of the plan are drawn from the SAARC Disaster Management Framework</p> <ul style="list-style-type: none">• Goal 1: Professionalising the Disaster Management System• Goal 2: Mainstreaming Risk Reduction• Goal3: Strengthening Institutional Mechanisms• Goal 4: Empowering at Risk Communities• Goal 5: Expanding Risk Reduction Programming• Goal 6: Strengthening Emergency Response Systems• Goal 7: Developing and Strengthening Network
	Action Area Plan	<ul style="list-style-type: none">• to develop a Tsunami early warning system and mass awareness of Tsunami threat at the coastal areas

Population Policy 2004

Policy	Five Tier Plan	Key Issues
Population Policy 2004	Sub-regional Plan	<ul style="list-style-type: none">• Ministry of Planning/Planning Commission will be responsible for<ul style="list-style-type: none">➤ policy planning,➤ integration of population variables in the relevant sectoral plans and programs, as well as➤ co-ordination of adequate resource allocation to concerned ministries. <p>The Population Policy proposals can broadly be divided into four sectors,</p> <ul style="list-style-type: none">➤ human resources development,➤ decentralization of population activities,➤ participation of NGOs and private sector in population planning,➤ building of planned family
	Structure Plan	<ul style="list-style-type: none">• Roads and communication systems should be linked with the growth centers; along with health, education housing and other welfare services created in those places
	Rural Area Plan	<ul style="list-style-type: none">• to mitigate the push factors from rural areas by ensuring rural employment opportunities in agriculture and agro-based industries for slowing down the rate of migration from rural areas• Support the programs for re-excavation of canals and ponds in rural area and to undertake measures against soil and river erosion.
	Action Area Plan	<ul style="list-style-type: none">• A detailed time-bound integrated Action Plan shall be prepared to implement this policy with specific measurable indicators to monitor progress• satellite towns and growth centers should be established with adequate facilities to provide alternative destinations to rural migrants.

National policy for safe water supply and sanitation 1998

Policy	Five Tier Plan	Key Issues
National policy for safe water supply and sanitation 1998	Sub-regional Plan	<p>The overall works to be done-</p> <ul style="list-style-type: none"> ➤ Power to formulate international and regional agreement ➤ Formulation of National Disaster Management Policy. ➤ Declaration as distress zone • Drainage system in the cities and municipalities will be integrated with the overall drainage system with the coordination of Ministry of Water Resources. • Department of Environment will be consulted on solid waste management.
	Structure Plan	<ul style="list-style-type: none"> • A comprehensive strategic plan of operations shall be prepared • Within a specified period legislation will be enacted making use of sanitary latrine compulsory. • Support poverty alleviating strategies for improved quality of life
	Urban Area Plan	<ul style="list-style-type: none"> • Ensuring storm-water drainage in urban areas. • Making safe drinking water available to each household in the urban areas. • Adoption of necessary measures in urban areas to prevent contamination of ground and surface water by solid and liquid wastes. • To prevent contamination of ground and surface water by solid and liquid wastes. • The City Corporations or Paurasabhas shall be responsible for solid waste collection, disposal and their management.
	Rural Area Plan	<ul style="list-style-type: none"> • Ensuring the use of waste for the production of organic fertilizer (compost) in the rural areas. • Ensuring the installation of one sanitary latrine in each household in the rural areas • To improve public health standard through inculcating the habit of proper use of sanitary latrines.
	Action Area Plan	<ul style="list-style-type: none"> • Paurasabhas and WASAs will take actions to present the wastage of water. • Necessary measures shall also be taken to prevent contamination and damage of tube wells during natural disaster.

The Building Construction Act, 1952

Policy	Five Tier Plan	Key Issues
The Building Construction Act, 1952	Structure Plan	<p>In order to power to make Bangladesh National Building Code , the following requirements are:</p> <ul style="list-style-type: none"> ❖ general building requirements, control and regulation; ❖ fire protection; ❖ building materials; ❖ structural design; ❖ construction practices and safety; ❖ building services; ❖ alteration, addition to and change of use of existing building; ❖ sign and outdoor display;
	Urban Area Plan	<p>This act includes as follows:</p> <ul style="list-style-type: none"> • Restriction on construction of building and excavation of tank • Restriction on improper use of lands and building • Direction for removal of construction, etc • Power of removal of temporary building • Power of removal of building under construction
	Action Area Plan	<ul style="list-style-type: none"> • Restriction on cutting of hills • Direction for stopping cutting or razing of hill • Power of seizure and arrest without warrant

National Water policy 1999

Policy	Five Tier Plan	Key Issues
National Water policy 1999	Sub-regional Plan	<p>This plan will guide water management Institutions at the national, regional, and local levels in the formulation and implementation of policies and plans for improved water management and investment.</p> <ul style="list-style-type: none"> • The Government will exercise its water allocation power in identified scarcity zones on the basis of specified priorities • The Government may empower the local government or any local body to exercise its right to allocate water in scarcity zones during periods of severe drought • To environmental protection, restoration and enhancement measures consistent with the National Environmental Management Action Plan (NEMAP) and the National Water Management Plan (NWMP) • For sustaining rechargeable shallow groundwater aquifers. The Government will regulate the extraction of water in the identified scarcity zones with full public knowledge.
	Structure Plan	<ul style="list-style-type: none"> • Water development plans will make adequate provision in control structure for allowing fish migration and breeding. • Brackish aquaculture will be confined to specific zones designated by the Government
	Urban Area Plan	<ul style="list-style-type: none"> • Preserve natural depressions and water bodies in major urban areas for recharge of underground aquifers and rainwater management • Improve efficiency of resource utilization through conjunctive use of all forms of surface water and groundwater for irrigation and urban water supply.
	Rural Area Plan	<ul style="list-style-type: none"> • To develop different flood proofing measures such as raising of platform for homesteads, market places, educational institutions, community centers etc and adjusting the cropping pattern to suit the flood regime.
	Action Area Plan	<ul style="list-style-type: none"> • The contingency plan will include action to limit the use of groundwater according to priorities. • To assist the process of building public support

Industrial Policy 2005

Policy	Five Tier Plan	Key Issues
Industrial Policy 2005	Sub-regional Plan	<ul style="list-style-type: none">• Establishment of Special Economic Zone based on the Importance of Industries,• Availability of Inputs and Regional Facilities• To reduce poverty and generate employment opportunities• The government has taken an initiative to formulate a separate SME policy to provide entrepreneurs with necessary guidance and strategic support in respect of the establishment of SME industries all over the country.
	Structure Plan	<ul style="list-style-type: none">• Develop planned industrial areas by establishing Special Economic Zones in areas with vast economic potentials, and utilizing local resources• Cluster villages can be set up in especial economic zones for industries• Provide structural and other facilities to establish and develop compact industrial areas.
	Action Area Plan	<ul style="list-style-type: none">• Necessary action will be taken to update the relevant legislation and• The establishment of a separate bank under public or private initiative will be considered

Burning Bricks Act 1989

Policy	Five Tier Plan	Key Issues
Burning Bricks Act 1989	Action Area Plan	<p>The conditions of the act as follows</p> <ul style="list-style-type: none">❖ Supremacy of the Act.❖ Licence for burning bricks❖ Prohibition of burning bricks with firewood❖ Inspection❖ Punishment❖ Filing suit❖ .Power to make rules

National Urban Sector Policy 2011

Policy	Five Tier Plan	Key Issues
National Urban Sector Policy 2011	Sub-regional Plan	<ul style="list-style-type: none"> • In order to make urban plans flexible and adaptable to changing circumstances, following three levels of planning activity are required <ul style="list-style-type: none"> ❖ structure planning, ❖ local planning and ❖ action planning • Associations at local and regional levels can form partnerships in local economic development which are then connected to national and international opportunities. • Formulation of Urban, Rural and Regional Planning Act (i.e., Physical Planning Act) • facilitate economic development, employment generation, reduction of inequality and poverty eradication through appropriate regulatory frameworks and infrastructure provisions
	Structure Plan	<ul style="list-style-type: none"> • Regional development planning at district level would pave the way for practical application of bottom-up planning approach as present planning activities in Bangladesh are too much centralized. • Detailed plan for specific sections of urban area as identified in the structure plan can be prepared for rapid development or for special projects and improvements. • urban planning and management strategies including: <ul style="list-style-type: none"> ❖ Regulatory frameworks ❖ Appropriate by-laws, standards and norms, ❖ and planning guidelines should be developed and adopted. ❖ Informal and home-based income-generating activities • Specific responsibilities for provision of services in urban areas will be formulated for government agencies and • encouraging community participation in maintaining law and order. • Develop and implement urban management strategies and governance arrangements for enhancing complementary roles of urban and rural areas in sustainable development • local level rural plans can be prepared at the union level while the local level urban plan can be prepared at the Paurashava level

National Urban Sector Policy 2011

Policy	Five Tier Plan	Key Issues
	Urban Area Plan	<ul style="list-style-type: none">• Protect hills in urban areas, specially Chittagong, Sylhet, Khagrachari, Cox's Bazar etc. Protect peri-urban areas from unplanned development.• Promote hierarchical structure of educational institutions, such as from the kindergartens to universities, at appropriate locations with catchment areas/zones in urban areas.• The local government body should design and implement regular survey of deprived groups in urban areas to keep track of numbers, origin and location of street children and other disadvantaged groups or individuals.• Promote hierarchical distribution of recreational places in all urban areas with planned coverage as per physical planning rules.• Plan for adequate number, size and location of graveyards and provision for burning ghats in all urban areas.• Conserve natural water bodies, forests if they exist in and around urban areas as public recreation open spaces.• Government will enact law and adopt prevention measures through police and special system for crime prevention and personal safety in urban areas.
	Action Area Plan	<ul style="list-style-type: none">• the Paurashava and City Corporation Ordinance/acts should be amended so that the women ward commissioners can participate fully and equally in the decision-making processes and activities of urban local bodies.• Union plans can be integrated at the upazila level to prepare the upazila plan.

National Fisheries Policy 1998

Policy	Five Tier Plan	Key Issues
National Fisheries Policy 1998	Sub-regional Plan	<ul style="list-style-type: none"> • To save the marine resources from further decline strict measures will be taken against increase in mechanized or non-mechanised boats engaged in fish harvest in the marine zones. • Development of the fisheries research infrastructure, extension, training, demonstration and other activities influencing fisheries programme shall be run by both private and public sector agencies. • The Ministry of Fisheries and Livestock will control all development, , and other management aspects of fisheries resources and fish habitats and Ministry of Land will be involved in taking effective steps in this respect • All water bodies of the country will be identified and their primary use as areas of fish production ensured. • To ensure high quality of exportable fish and shrimp products, laboratory facilities for Quality Control will be expanded and modernised. • Appropriate preventive measures will be taken against dumping of hazardous chemicals and nuclear wastes into the sea.
	Structure Plan	<ul style="list-style-type: none"> • Integrated rice cum fish culture shall be extended through the release of fish fry in the beels, haors and other floodplains, especially in the areas encircled by dams in flood control and irrigation projects. • Fish culture will be encouraged in all ponds, dighis and other water bodies. • Biodiversity will be maintained in all natural water bodies and in marine environment.
	Action Area Plan	<ul style="list-style-type: none"> • Priority will be given to fish culture in the low-lying lands of the country where 50 cm or more of water is retained or can be retained during rainy season for more than three months. • discharge of harmful municipal and industrial wastes directly into the water bodies will be considered a punishable crime and measures will be taken to control and limit the use of harmful chemical fertilisers, insecticides • Union based demonstration farms will be established with the assistance of the private sector, for the dissemination of aquaculture technologies. • After mapping of soil quality of potential aquaculture regions, a manual describing appropriate use of lime and fertiliser in fish ponds shall be developed and distributed.

Bangladesh National Building Code 1993

Policy	Five Tier Plan	Key Issues						
Bangladesh National Building Code 1993	Urban Area Plan	<p>The BNBC code has ten parts comprising different aspects of building construction and services.</p> <table><thead><tr><th>Parts</th><th>Components</th></tr></thead><tbody><tr><td>1. General introduction to the code</td><td><ul style="list-style-type: none">• Definitions• Symbols</td></tr><tr><td>1. Adminstrative requirements necessary for enforcement of the code</td><td><ul style="list-style-type: none">• Seismic zoning• Design earthquake forces for primary framing systems• Selection of lateral force method• Seismic Dead Load• Design Base Shear• Seismic zone coefficient• Structure Importance coefficients• Structure period• Response Modification coefficient for structural systems• Site coefficient• Vertical distribution of lateral force• Combination of structural systems• Ground motion• Response spectrum Analysis• Seismic laterak forces on components and equipment supported by structures• Horizontal force coefficient• Seismic lateral forces on nonbuilding structures• Horizontal force coefficient• Coefficient for nonbuilding structures• Combination of loads and stress increase for allowable stress design method• Combinations of load for strength design method</td></tr></tbody></table>	Parts	Components	1. General introduction to the code	<ul style="list-style-type: none">• Definitions• Symbols	1. Adminstrative requirements necessary for enforcement of the code	<ul style="list-style-type: none">• Seismic zoning• Design earthquake forces for primary framing systems• Selection of lateral force method• Seismic Dead Load• Design Base Shear• Seismic zone coefficient• Structure Importance coefficients• Structure period• Response Modification coefficient for structural systems• Site coefficient• Vertical distribution of lateral force• Combination of structural systems• Ground motion• Response spectrum Analysis• Seismic laterak forces on components and equipment supported by structures• Horizontal force coefficient• Seismic lateral forces on nonbuilding structures• Horizontal force coefficient• Coefficient for nonbuilding structures• Combination of loads and stress increase for allowable stress design method• Combinations of load for strength design method
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		<ol style="list-style-type: none"> 2. General Planning and architectural requirements of buildings based on classification in accordance with occupancy, fire resistance 3. The requirements for fire prevention and protection measures 4. The standard materials to be used in building construction 5. Requirements governing structural design that ensure safety and serviceability of buildings <ul style="list-style-type: none"> • Earth quake resistant Design • Strengthening of Masonry Building for Earthquake Seismic • Band Reinforcement • Strengthening of Corner and Junctions • Vertical Reinforcement for Brick and Hollow Block Masonry • provisions for high wind regions • Special Splice Requirements for Columns • special provision for seismic design • Detailing of Reinforced Concrete Structures • Analysis and Proportioning Structural Members • Detailing of Reinforced Concrete Structures • Structural Walls and Diaphragms • Shear Strength Requirements • Frame Members not Proportioned Resist Forces Induced by Earthquake Motion • Requirements for Special Moment Resisting Frames (SMR) 6. Ensuring safety of life during construction and minimization of construction hazards 7. Standards of minimum requirements for the various services
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Seventh Five Year Plan (FY2016 – FY2020)

Policy	Five Tier Plan	Key Issues
Seventh Five Year Plan	Action Area Plan	<ul style="list-style-type: none"> • Seventh plan strategy for enhancing the role of the services sector in economic development includes: <ol style="list-style-type: none"> i) Modernizing the service sector with emphasis on export of non-factor services; ii) Improve the incentive policies iii) Increasing public investment in key service sector infrastructure; iv) Strengthening the skills base for the service industry; v) Strengthening implementation of prudential regulations to boost service quality increase public safety, improve compliance and ensure accountability of service providers; vi) Strengthen monitoring and enforcement services and Strengthening public institutions vii) In urban and peri-urban areas the government should preferably not transfer land in freehold to occupants, rather choose leases as the instrument for granting tenure for publicly-owned land and especially local authority land • Provide infrastructure and services • Strategies for Reduction of Urban Poverty • Special Zones for the Urban Poor • Ensure availability and sustainable management of water and sanitation for all • Build resilient infrastructure • Take urgent action to combat climate change and its impacts • Conserve and sustainably use the oceans, seas and marine resources for sustainable development

National Land Use Policy 2001

Policy	Five Tier Plan	Key Issues
National Land Use Policy 2001	Sub-regional Plan	<ul style="list-style-type: none"> • Execution of coordinated land conservation projects aimed at prevention of desertification in the northern region. • Take up effective programmes aimed at preventing weathering of land, conservation of land fertility, • development and conservation of land in coastal areas. • identification of zones for land uses by Paurashavas and other places of Upazilas
	Structure Plan	<ul style="list-style-type: none"> • Formulation, categorization and effective implementation of land use plan in order to ensure planned occupancy and / or use of land. • Payment of compensation to those who will be affected by land weathering and land acquisition for the purpose of development agencies and/ or by the government. • Regular monitoring, survey and research on desertification in the northern region, land reclamation, prevention of weathering of land, mixed use of land, conservation and protection of coastal area land and condition of watershed areas.
	Urban Area Plan	<ul style="list-style-type: none"> • construct service roads along the main roads of the country so as to ensure safe movement of traffic as well as set aside 10 feet to 20 feet of land for plantation trees on the both sides of roads.
	Action Area Plan	<ul style="list-style-type: none"> • Prevention of destroying the hilly landscape by earth cutting, excavation and removal of land. • Appropriate measures to be taken against indiscriminate collection of earth and stone from hilly areas and disturbance ecological balance. • Emphasis on watershed management • Entrust the responsibility of maintaining small ponds by the owners and large water bodies such as river, channels, haor, baor and beel by the community people and the Government. • use of embankments for controlling flood as roads as far as possible • planned tree plantation on the embankments • encouragement to construct multi-storied buildings instead of single storied in the rural and urban areas so as to ensure optimum use land for residential purposes

Housing Policy 2008 (Draft)

Policy	Five Tier Plan	Key Issues
Housing Policy 2008 (Draft)	Sub-regional Plan	<ul style="list-style-type: none"> সরকারী হায়ন ডিওয়া বা বায়ন কালে উত্পাদিত পিরিডিত সমূহ পর্যালোচনা করে এবং এসংক্রান্ত পণ্যের বিতরণ বাধাবিধিগুলো অপসারণসহ যথাযথ ভূমিকা পালন করে। বিবাসীদের বা কোন ভিত্তি বসিত স্থানের করার হিসাব অপরিহার্য বিবেচিত হলে য়োজনীয় সামগ্রিক আর্থ সামাজিক তথ্যাবলীর সমন্বয়ে বিশেষভাবে পারা গীত একটি উপযোগিতা সমীক্ষা জাতীয় গণনা কতৃপক্ষের মতামতের জ্ঞান দাখিল করা হবে। বিএলাকা যেখানে আবাসিক এলাকার পিরেবশ ও অবকাঠামোর উন্নয়ন, গুরুত্ব একটি আধুনিক আবাসিক ভূমি তথ্য পণ্যের তৈরী করা হবে। জিমর সরবরাহ বৃদ্ধি, যেথাপযুক্ত ও সমাপ্যগী বহার ভিত্তি করণ এবং ফতকাবাজী রোধ করার লক্ষ্যে জিম ফেল রাখাকে অলাভজনক ও নিরুৎসাহিত করার ব্যবস্থা নেয়া হবে। গৃহায়নের জন্ম ভূমি ও অবকাঠামো উন্নয়ন এবং সাবসিডি ভাবে স্থায়ী ঘর বাড়ীর মান উন্নয়নকে সহজ ও কমস্বল্পে স্থান সৃষ্টির কার্যক্রমের সেবা সঞ্চার করা হবে।
	Structure Plan	
	Urban Area Plan	<ul style="list-style-type: none"> দেশের সকল পৌরী ও শহরগুলোর জন্ম সমভাবে যোজ্য এই নীতির আওতায় সরকারীভাবে সহায়তাকারী ভূমিকা নিবে। নগর ও স্থায়ী এলাকায় অববহন খাস ও পিতত জিম ও জেগে উঠা চর নিয়ে আলাদা প্লট সৃষ্টি করে তাকে সমন্বয় করা হবে। উত্তরে আবাসনের জন্ম ভূমি ও ইমারত এবং শিশু-বাণিজ্য জাতীয় অনাবাসিক ভূমি মূল্য বরাবর করে প্লট মুন্যাদি দিয়ে ভিত্তি বিবেচনায় সুবিধা দিতে ভুক্তি দেয়া একটি সমন্বিত আর্থিক উন্নয়ন পিরকল্পের আওতায় ছোট ও মাঝারি শহরের সংগে প্লটমাল ও হাটবাজারের সংযোগ গড়ে তোললে, এগুলোতে অর্থনৈতিক বিকাশ ও কমস্বল্পে স্থানের সুযোগ বৃদ্ধি করা হবে ও সামাজিক ও সাংস্কৃতিকভাবে আকর্ষণীয় করে দেবে দেশের সব কয়টি নগর এলাকার মহাপিরকল্পনা গণন সমন্বয় করে তদনুযায়ী ভিত্তি ও অববহন ভিত্তি করা হবে। নগর অঞ্চলে অনুমোদনবিহীন এবং ভিত্তি মালিকানাধীন বণ্টন গিয়ে ওঠা রোধ করার বিধি বিধিমালা কেঠারভাবে যোগ করা হবে। স্থায়ী/অস্থায়ী, কাঁচা/পাকা কৃতির যে কোন বসিতে এখানে গুলে, অতি ভিত্তি বার্পক অত্যাধিকারী যানবাহন চলাচল ভিত্তি করা হবে।

Housing Policy 2008 (Draft)

Policy	Five Tier Plan	Key Issues
	Rural Area Plan	<ul style="list-style-type: none"> • ঘামায়েল অধিক হারে কমর সংধান, রসেদর াতি ও গ্ ায়ন ও েসবা অভিবাসন জিনত গ্ ায়ন চাহিদা াস করণ। • পুরী জনগণের জ উপযু িনরমান উপকরণ সহজলভ্য করা হেব। একই সাথে সংরণ, অবাধব্ িনধন, ইট ভাটার ালানী, ইত্যাদি িনয় ণ করার ায়োজনীয় হেব। <p>ামীগ্হায়নঃ</p> <ul style="list-style-type: none"> • কৃষ জিমর উপর বাড়ীঘর িনমাণের বণতা িনরুংসাহিত করা হেব। ামায়েল িনবিড় আবাসন সৃির উৎসাহ ও িনেদশ্ না দেয়া হেব। ামীগ্হায়নের াতা সাপেে ‘আদশর্াম’/‘গুর্াম’ কমসু চীর অনুরু কারজম িন িনহান হেব। <p>ামীগ জনগণের গ্ িনমারণ, েমরামত, পিরবতর্, পিরবধন ও অা গ্ ায়োজন িবনা সুেদ বা সহজ শেতর্ ছাট ছাট ঞ্ণের বাকরা হেব।</p>

National Forest Policy 1994

Policy	Five Tier Plan	Key Issues
National Forest Policy 1994 জাতীয় বননীতি, ১৯৯৪ (সংশোধিত)	Sub-regional Plan	<ul style="list-style-type: none"> To fulfill national responsibilities and commitments by implementing various efforts and government ratified agreements relating to global warming, desertification and the control of trade and commerce of wild birds and animals; To encourage effective use and utilization of forest products at various stages of processing ;
	Structure Plan	To aforest about, 20% of the total area of the country by initiating various aforestation programmes in forest lands, fallow lands, lands not useful for agriculture, hinter lands and other possible areas to meet the basic needs of the present and future generations and to ensure greater contribution of the forestry sector to economic development.
	Rural Area Plan	<ul style="list-style-type: none"> To strengthen agriculture by extending assistance to those sectors related with forest development, especially by conserving land and water resources; To encourage effective use and utilization of forest products at various stages of processing ; To provide for and implement aforestation programmes on both public and private lands.
	Action Area Plan	<ul style="list-style-type: none"> To prevent illegal occupation of forest lands, illegal tree felling and hunting of wild animals through the promotion of participation of local people

National Environment Policy 1992

Policy	Five Tier Plan	Key Issues
National Environment Policy 1992	Sub-regional Plan	<p>Key elements of the policy statement are:</p> <ul style="list-style-type: none"> Maintain ecological balance and overall physical development progress of the country through protection and development of different sectors. Protection from natural disaster is one of them; Identification and regulation all type of activities which pollutes and degrade the environment; Ensuring proper Environment Impact Assessment prior to undertaking of industrial and other development projects; and Ensuring sustainable use of natural resources.

National Tourism Policy 1992

Policy	Five Tier Plan	Key Issues
National Tourism Policy 1992	Sub-regional Plan	<ul style="list-style-type: none"> The policy identified tourism as a multidimensional industry and spelt out the necessity to have an effective coordination among various government ministries, departments, agencies and civil society bodies. In line with the policy, the Bangladeshi Government provides incentives to attract private sector partners. The incentives include tax-holiday, loans, concession rates for taxes and duties and in specific cases, allotment of land etc.
	Action Area Plan	<p>Its main objectives are:</p> <ul style="list-style-type: none"> To create interest in tourism among the people. To preserve, protect, develop and maintain tourism resources. To take steps for poverty-alleviation through creating employment. To build a positive image of the country abroad. To open up a recognized sector for private capital investment. To arrange entertainment and recreation. To strengthen national solidarity and integrity

Private Residential Land Development Rule 2004

Policy	Five Tier Plan	Key Issues
Private Residential Land Development Rule 2004	Urban Area Plan	<ul style="list-style-type: none"> কক বা বায়েনের সময় পাওরবত এলাকায় যাহাতে কোন ধরনের জলাবতা পিরবেশর ভারসা না হয় উহা নিশ্চিত করন বিভিন্ন ডিটিলিটি সাইভল্ এর রঙােবের জে সংরি ত জায়গা সংি নীতি অনুসরণ হাের যােসই সকল বরা ও হাের যােসই সকল বরা এলাকার উয়েনের সময় পানি এবং বিদ্যুৎ সরবরাহ সুবিধাবা বস্থা না থাকিলে উোর িনজ খরেচ অব কালীন পানি এবং বস্হাকরণ নগরপিরকনার দ্িকে কোন হইত এলাকার িতিট বাড়ীর অবান, ক, সে, বাড়ীর অবান (Block/Sector/ Zone/ Neighbourhood) এ জনসংার বিবেচনায় বিবোরিত ভূমি বহার িসিডউল ত কিলে উত কিলেত হইবে। <p>➤ Sectoral/ Block/Zonal/ Neighbourhood Plan including detailed sub-division of lands;</p> <p>➤ Road Network Plan;</p> <p>➤ Drainage Plan;</p> <p>➤ Utility Services Plan of Water Supply, Sewerage</p>

Private Residential Land Development Rule 2004

Policy	Five Tier Plan	Key Issues																																												
		<p>System(Treatment & Final Disposal),Solid Waste Collectoin & Disposal, Gas Supply, Electricity Supply,Telephone Facilities,etc.</p> <p>➤ Traffic Circulation Plan;</p> <p>Space Standards for Urban Community Facilities in acres by Population size</p> <table><thead><tr><th>Community Facilities</th><th>Facility per 1000 Population</th></tr></thead><tbody><tr><td colspan="2">EDUCATION</td></tr><tr><td>Nursery</td><td>0.08</td></tr><tr><td>Primary School</td><td>0.08</td></tr><tr><td>Secondary School</td><td>0.10</td></tr><tr><td>College*</td><td>0.08</td></tr><tr><td colspan="2">HEALTH</td></tr><tr><td>Small Clinic*</td><td>0.04</td></tr><tr><td>Hospital*</td><td>0.04</td></tr><tr><td colspan="2">COMMUNITY ORGANIZATION</td></tr><tr><td>Community Center/Mosque</td><td>0.04</td></tr><tr><td colspan="2">RECRITATION</td></tr><tr><td>Play-Ground/</td><td>0.08</td></tr><tr><td>Play-field</td><td></td></tr><tr><td>Park</td><td>0.12</td></tr><tr><td colspan="2">COMMERCIAL</td></tr><tr><td>Corner Shop/</td><td>0.04</td></tr><tr><td>Market/Kutchra</td><td></td></tr><tr><td>Bazar*</td><td></td></tr><tr><td>Residential</td><td>0.34</td></tr><tr><td>Roads**</td><td></td></tr><tr><td>Total Area for community Facilities (minimun)</td><td>1.00</td></tr></tbody></table>	Community Facilities	Facility per 1000 Population	EDUCATION		Nursery	0.08	Primary School	0.08	Secondary School	0.10	College*	0.08	HEALTH		Small Clinic*	0.04	Hospital*	0.04	COMMUNITY ORGANIZATION		Community Center/Mosque	0.04	RECRITATION		Play-Ground/	0.08	Play-field		Park	0.12	COMMERCIAL		Corner Shop/	0.04	Market/Kutchra		Bazar*		Residential	0.34	Roads**		Total Area for community Facilities (minimun)	1.00
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	Action Area Plan	<ul style="list-style-type: none">❖❖❖ এলাকা ঢাকা িসিট কেপার্েরশন ও ঢাকা ওয়াসার আওতার বা়িহের হই়েল উে❖❖❖াদের িনজ❖❖ খরেচ Waste Water & Sewerage Plant Composting Plant ইতয়াদি িনমা়েগের❖❖বস্থা করণ;The Building Construction Act,1952 (E.B. Act // of 1953) এবং❖❖চলিত ইমারত িবিধমা়া																																												

Private Residential Land Development Rule 2004

Policy	Five Tier Plan	Key Issues
		<ul style="list-style-type: none"> • ১০০ একর এলাকার আয়তন অ জনসংখ্যা নিধারন ১০০ শত্ৰু: <ul style="list-style-type: none"> ➤ বেসরকারী আবাসিক ১০০ একর ১০০ হলের ১০০ টাকা সিটি কপেরেশন এলাকার অভ্যন্তরে ন্যূনতম ৫ (পাঁচ) একর এবং সিটি কপেরেশন বা পৌর এলাকা বাহিরে ন্যূনতম ১০ (দশ) একর জমির ১০০ যোজন হইবে। ➤ বেসরকারী আবাসিক ১০০ একর ১০০ তি একরে সবেরা ১০০ জনসংখ্যার ঘনত্ব (Gross Density) হইবে ৩৫০ জন। • ১০০ একর ৩০ (১০%) ভাগ জমির সঙ্গতভাবে অবস্থায় যোগ্য বলিয়া গণ্য হইবে এবং এই জমি ১০০ একর এলাকার বসবাসকারীদের ১০০ যোজনীয় নাগরিক সুযোগ-সুবিধা ১০০ দানসহ বিভিন্ন ইউটিলিটি সার্ভিসের জনসংক্রান্ত থাকবে • বেসরকারী আবাসিক ১০০ একর এলাকার মৌজা মাপের উপর আধুনিক পদ্ধতিতে জরিপ (GPS bases Survey) করিয়া existing topographical Survey Map ১০০ ত করিতে হইবে • ১০০ একর ৩০ (১০%) ভাগ জমি নাগরিক সুবিধাদি এবং বিভিন্ন ইউটিলিটি সার্ভিসের জনসংক্রান্ত থাকবে • সড়ক যোগাযোগ ব্যবস্থার বিন্যাস, ১০০ একর এলাকার আয়তন, জনসংখ্যা এবং আশে-পাশের Traffic Circulation বিবেচনায় রাখিতে হইবে, ১০০ একর প্রধান সড়কের (Main/Primary Road) ১০০ শতা (Right of Way or ROW) ন্যূনতম ৬০ ফুট, মাধ্যমিক সড়কের (Secondary Road) ১০০ শতা (ROW) ন্যূনতম ৪০ ফুট এবং অভ্যন্তরীণ বাসং যোগ সড়কের (Internal/ Access/Residential Roads) ১০০ শতা (ROW) ন্যূনতম ২৫ ফুট হইতে হইবে • ১০০ একর এলাকায় নিরপিত জন সংখ্যার ভিত্তিতে ১০০ যোজনীয় ১০০ মারী ১০০ লের সংখ্যা নিধারণ, হাই ১০০ লের সংখ্যা নিধারণ, ১০০ যোজনীয় কলেজ নিধারণ ১০০ যোজনীয় কলেজ এবং ১০০ পনের ব্যবস্থা করিতে হইবে।

Building Construction Rules 1996

Policy	Five Tier Plan	Key Issues
	Urban Area Plan	<p>Density Control- Density Control is considered as an important development control tool. It includes the number of units, people allowed per parcel of plot size, unit limitation, height of the building etc. In the Government and Semi Government institutions, building permission is hardly obtained and therefore, density control rules and regulations are not in practice.</p> <p>Payment of Betterment fee- For every town planning scheme for an existing town, some owners of the property will be affected and as such they will have to be paid some amount as compensation.</p> <p>Control of private housing estates Large numbers of pockets of urban infill and privately owned low lying peripheral lands have been developed by private companies. In some cases small scale real estate development permission is obtained occasionally but deviations from the approved plan are most common practice of the developers.</p>
	Action Area Plan	According to the Building Construction Rules (1996), the maximum height of a building will not be more than the summation of front side road width and the mandatory open space between road and building site.

Coastal Zone Policy 2005

Policy	Five Tier Plan	Key Issues
	Structure plan	<ul style="list-style-type: none">• Coastal Development Strategy (CDS) shall be developed and adopted in line with national strategy documents as a commonly agreed framework document;• Rigid enforcement of conservation regulations will affect the livelihoods of many people and such conservation efforts will be linked, as far as possible, with alternative opportunities of employment• Conservation and enhancement of critical ecosystems
	Urban Area Plan	<ul style="list-style-type: none">• Actions will be designed to reach the poorest and the remote rural areas (including the cycloneprone coastal regions, chars and river erosion affected areas), which are vulnerable to adverse ecological processes and those with high concentrations of socially disadvantaged
	Action Area Plan	<ul style="list-style-type: none">• Khas land will be distributed among the landless and a more transparent process of land settlement will be ensured;• An effective program for land reclamation will be developed• A Coastal Development Strategy (CDS) shall be developed and adopted in line with national strategy documents as a commonly agreed framework document

Climate Change Policies

Policy	Five Tier Plan	Key Issues
Climate Change Policies	Structure plan	<ul style="list-style-type: none">• According to the Intergovernmental Panel on Climate Change (IPCC), to keep global warming below 2 °C, emissions of carbon dioxide (CO₂) and other greenhouse gases (GHGs) must be halved by 2050 (compared with 1990 levels). Developed countries will need to reduce more – between 80 % and 95 % by 2050; advanced developing countries with large emissions (e.g. China, India and Brazil) will have to limit their emission growth.• Agreed in 1997, the UNFCCC's Kyoto Protocol is a first step towards achieving more substantial global emission reductions. It sets binding emission targets for developed countries that have ratified it, such as the EU Member States, and limits the emission increases of the remaining countries for the first commitment period from 2008 to 2012. The 15 pre-2004 EU Member States (the EU-15) have a joint emission reduction target of 8 % below 1990 levels. Through

		<p>the internal EU "burden-sharing agreement", some EU Member States are permitted increases in emissions, while others must decrease them. Most Member States that joined the EU after 1 May 2004 have targets of -6 % to -8 % from their base years (mostly 1990).</p> <ul style="list-style-type: none"> • EU emissions represent about 10 % of total global emissions. The United States, which has a large share of total global GHG emissions, has not ratified the protocol. China and several other countries with large GHG emissions do not have binding emission targets under the protocol. Countries are expected to meet their target mainly through domestic policies and measures. They may meet part of their emission reduction targets by investing in emission-reducing projects in developing countries (the Clean Development Mechanism (CDM)) or in developed ones (Joint Implementation (JI)). The CDM is also meant to support sustainable development, e.g. by financing renewable energy projects. • The Cancún Agreements, adopted at the UN Climate Conference in Mexico (December 2010), include a comprehensive finance, technology and capacity-building support package to help developing nations adapt to climate change and adopt sustainable paths to low-emission economies. The agreements also include a time schedule for reviewing the objective of keeping the average global temperature rise below 2 °C. The agreements confirm that developed countries will mobilise USD 100 billion in climate funding for developing countries annually by 2020, and establish a Green Climate Fund through which much of the funding will be channelled. • The 'Durban Platform for Enhanced Action', adopted at the UN conference in South Africa (Dec 2011) agreed a roadmap towards a new legal framework by 2015, applicable to all Parties to the UN climate convention. It also foresees a second commitment period of the Kyoto Protocol, starting in 2013. Agreement was also reached on the design and governance arrangements for the new Green Climate Fund.
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The United Nations Framework Convention on Climate Change

Policy	Five Tier Plan	Key Issues
<p>The United Nations Framework Convention on Climate Change</p>	<p>Structure plan</p>	<ol style="list-style-type: none"> 1. The 2015 Paris Agreement represents a historic turning point in global cooperation on addressing climate change and its global goal of limiting warming to well below 2 °C or 1.5 °C provide direction and help to frame climate change action. Given the gap between the emission level implied by the aggregate effect of countries’ national plans enshrined in their intended nationally determined contributions and the level consistent with limiting warming to well below 2 °C or 1.5 °C, urgent pre-2020 mitigation action is needed to reduce climate risks in the 21st century and beyond and increase the prospects for effective adaptation. While greater levels of mitigation can reduce the need for additional adaptation efforts, failure to mitigate can result in higher adaptation costs or in adaptation options being no longer available or being financially non-viable. 2. Addressing global climate change goes hand in hand with ensuring sustainable development. Reducing poverty as well as securing food, water, health, energy and livelihoods are contingent on our mitigation and adaptation efforts. National climate change policies will be most effective if linked to broader sustainable development strategies, including those geared towards the attainment of the United Nations Sustainable Development Goals enshrined in the 2030 Agenda for Sustainable Development. 3. Through the process of preparing national contributions and their implementation, countries demonstrate that they are increasingly introducing national policies and related instruments for low emission and climate resilient development. This rise is driven by increased mainstreaming of climate change in national and sectoral development priorities and increased collaborative climate action between Parties and non-Party stakeholders. All key economic sectors and areas are being addressed as laid out in this year’s report. 4. Financial support, technology development and transfer as well as capacity-building at scale continue to be urgently needed. Successful planning and implementation of adaptation and mitigation measures requires very large investments. As such, in many developing countries, financial, technological and capacity-building support is critical. Developed country Parties should continue to seek to scale up their level of support to developing

Policy	Five Tier Plan	Key Issues
		<p>country Parties, with a concrete road map to achieve the collective mobilization goal of jointly providing USD 100 billion annually by 2020 for climate mitigation and adaptation. It is also critical to further explore ways to increase private sector financial investments.</p> <p>5. Institutions need strengthening to enable them to plan for and implement adaptation and mitigation in an effective and sustainable fashion. Institutions and stakeholder groups at all levels of government, as well as civil society, are more likely to engage in climate action when they have the necessary human, technical and financial capacity.</p> <p>6. The UNFCCC process offers a platform to scale up cooperative action. Evidence continues to prove that cooperative initiatives are important to enhance climate action as such initiatives can facilitate access to support and knowledge. The UNFCCC process, including the technical examination processes and the Non-state Actor Zone for Climate Action platform, supports the incubation and fully fledged development of cooperative action by facilitating solution oriented dialogue, knowledge-sharing and learning between cooperative initiatives and government leaders and encouraging the scaling up of existing and the establishment of new initiatives.</p>

The Sendai Framework for Disaster Risk Reduction 2015-2030

Policy	Five Tier Plan	Key Issues
The Sendai Framework for Disaster Risk Reduction 2015-2030	Structure plan	<p>Priority 1: Understanding disaster risk.</p> <p>Priority 2: Strengthening disaster risk governance to manage disaster risk.</p> <p>Priority 3: Investing in disaster risk reduction for resilience.</p> <p>Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.</p>
	Urban Area Plan	<p>Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.</p>

Priorities of the 2017 G20 Summit (Agenda3)

Policy	Five Tier Plan	Key Issues
<p>Quito Implementation Plan for the New Urban Agenda</p>	<p>Structure Plan</p>	<p>The United Nations resolves to implement the New Urban Agenda as a key instrument for national, sub-national and local governments and all relevant stakeholders to achieve sustainable urban development.</p> <p>1. The Transformative Commitments for Sustainable Urban Development</p> <p>The transformative commitments for sustainable urban development are grounded in social, economic and environmental dimensions, which are seen as integrated and indivisible.</p> <p>a. Sustainable Urban Development for Social Inclusion and Ending Poverty</p> <p>Land tenure, the value of public space, and the sustainable leverage of natural and cultural heritage are among the issues that this section elaborates.</p> <p>b. Sustainable and Inclusive Urban Prosperity and Opportunities for All</p> <p>The profound impact of housing on economic transformation, access to knowledge, skills, and education, and the promotion of investments, innovations and entrepreneurship are part of the scope of concern.</p> <p>c. Environmentally Sustainable and Resilient Urban Development</p> <p>Climate change, unsustainable consumption, slum upgrading, energy efficiency and the social and ecological function of land are some of the topics of concern.</p> <p>2. Effective Implementation</p> <p>An enabling policy framework is required at the national, sub-national and local levels. Integrated and complimentary processes and actors, such as participatory planning, regional development banks, coordination of urban and rural development strategies, and international cooperation will assist the implementation of the New Urban Agenda, along with system-wide coordination of the UN.</p> <p>a. Building the Urban Governance Structure: Establishing a Supportive Framework</p> <p>Inclusive, implementable and participatory policies will ensure effective implementation of the New Urban Framework. Local and municipal governments are a particular focus, with support for capacity, reliable financing mechanisms and management structures. The cooperation of all levels of government will be fostered.</p>

Policy	Five Tier Plan	Key Issues
		<p><i>b. Planning and Managing Urban Spatial Development</i> Integrated planning will aim to balance short-term needs with long-term desired outcomes. Among the issues addressed are food security, the interrelationships of cities and territories, mixed social and economic uses, and quality public spaces. Road safety, affordable, accessible and sustainable urban mobility, water management and climate risk are also specific focus points. Culture will be included as a priority component of urban plans and strategies.</p> <p><i>c. Means of Implementation</i> The complexity of the agenda requires many actors and a variety of means, along with an enabling environment. Capacity development, cooperation, mobilization of financial resources, alongside political and legal frameworks, are all part of the core means. The New Urban Agenda advocates building on the legacy of Habitat III and the lessons learnt from its preparatory process.</p> <p>3. Follow-up and Review This will be done to track progress, assess impact, ensure effective and timely implementation, accountability and transparency. The United Nations Human Settlements Programme (UN-Habitat) is recognized as a focal point for sustainable urbanization. Quantitative and qualitative analysis, regular assessments, along with meetings and conferences, will support follow-up and review of the New Urban Agenda. The New Urban Agenda's and the 2030 Agenda for Sustainable Development's follow-up and review must have effective linkages to ensure coherence in their implementation.</p>

Sustainable Development Goals

Policy	Five Tier Plan	Key Issues
Sustainable Development Goals	Sub Regional Plan	<ul style="list-style-type: none"> ▪ Goal 1. End poverty in all its forms everywhere ▪ Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture ▪ Goal 3. Ensure healthy lives and promote well being for all at all ages ▪ Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all ▪ Goal 5. Achieve gender equality and empower all women and girls ▪ Goal 6. Ensure availability and sustainable management of water and sanitation for all ▪ Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all ▪ Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
	Structure Plan	<ul style="list-style-type: none"> ▪ Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation ▪ Goal 12. Ensure sustainable consumption and production patterns ▪ Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development ▪ Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss ▪ Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development
	Urban Area Plan	<ul style="list-style-type: none"> ▪ Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
	Rural Area Plan	<ul style="list-style-type: none"> ▪ Goal 10. Reduce inequality within and among countries ▪ Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
	Action Area Plan	<ul style="list-style-type: none"> ▪ Goal 13. Take urgent action to combat climate change and its impacts

APPENDIX-B

Sector-wise Policies**Agriculture Sector**

Policy	Key Issues
National Agriculture Policy 1999	<ul style="list-style-type: none">• To grow more profitable crops as an alternative to only rice-rice cropping pattern.• reduce excessive dependence on any single crop• Salt tolerant crop varieties will be developed• Special development programmes will be taken with a view to increasing production of potential crops suitable for the coastal areas and the hill tracts.• Maximum utilization of land will be ensured through promotion of inter-cropping with the main crops• preserve existing bio-diversity of different crops• encourage farmers in providing supplementary irrigation during drought with a view to increasing cropping intensity and yield• take supportive programmes for inter-cropping in a field instead of single cropping• Modern cultivation practices will be followed
Climate Change Strategy 2009	<ul style="list-style-type: none">• Develop climate change resilient cropping systems (e.g. agricultural research to develop crop varieties, which are tolerant of flooding, drought and salinity• irrigation schemes to enable farmers to grow a dry season rice crop in areas subject to heavy monsoon flooding and in other parts of the country, including drought-prone areas• agricultural research programmes to develop saline, drought and flood-adapted high yielding varieties of rice and other crops
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none">• Develop and establish policy and planning frameworks to incorporate all hazard risk reduction perspectives into Agriculture, livestock with the support agency Ministry of Agriculture,• Agriculture cannot be practiced without irrigation so irrigation is must.
Population Policy 2004	<ul style="list-style-type: none">• discourage housing in the villages and cities by destroying agricultural lands;
Safe Water Supply and Sanitation 1998	<ul style="list-style-type: none">• To ensure the use of waste for the production of organic fertilizer (compost) in the rural areas.
National Water policy 1999	<ul style="list-style-type: none">• Strengthen crop diversification programmes• Encourage and promote continued development of minor Irrigation
Industrial Policy 2005	<ul style="list-style-type: none">• To establish agro-based industries as well as to raise agricultural production.• Prioritize the expansion and development of agro-based and agricultural processing industries

Sector-wise Policies**Agriculture Sector**

Policy	Key Issues
	<ul style="list-style-type: none">• Take steps to preserve and market agro-based goods hygienically by processing in frozen, pasteurized, canned or dry form
National Urban Sector Policy 2011	<ul style="list-style-type: none">• Protect productive agricultural lands by limiting the intrusion of non-agricultural uses
Seventh Five Year Plan	<ul style="list-style-type: none">• develop technologies of crops• develop the capacity of agriculture to effectively respond to market signals• New technology generation for vulnerable areas e.g. stress tolerant varieties and management practices, quality improvement of major crop varieties• Promote adoption of modern agricultural practices in dry land, wetland, hills.
National Environment Policy 1992	<ul style="list-style-type: none">• Ensuring proper Environment Impact Assessment prior to undertaking of industrial and other development projects; and• Ensuring sustainable use of natural resources.

PRA, Socio-Economic and Formal-Informal Economic Sector

Policy	Key Issues
National Agriculture Policy 1999	<ul style="list-style-type: none">• Land zoning programme will be taken up by the Soil Resources Development Institute (SRDI) on a priority basis.• Activities of the government, private organization and NGOs involved in agricultural development will be brought under a well-organized monitoring system and will be coordinated from the national to field level.• The Ministry of Agriculture will have a contingency plan for taking up emergency agricultural rehabilitation programmes (ARP) to recover from the crop losses due to any natural disaster at both the farmers' and national levels.
Climate Change Strategy 2009	<ul style="list-style-type: none">• Implement drinking water and sanitation programmes in areas at risk from climate change (e.g., coastal areas, flood-and drought-prone areas)• to ensure food security, social protection and health for the poorest and most vulnerable in society, including women and children• agricultural research programmes to develop saline, drought and flood-adapted high yielding varieties of rice and other crops, based on the traditional varieties evolved over centuries by Bangladeshi farmers• comprehensive disaster management projects, involving community-

Sector-wise Policies

Agriculture Sector

Policy	Key Issues
	based programmes and early warning systems for floods and cyclones
Disaster Management Act 2012	<ul style="list-style-type: none"> • National Disaster Management Council should provide necessary guidelines to all concern about law, policy and plan implementation on disaster management • The government may establish a ‘National Disaster Management Research and Training Institute’ to take relevant programs including research on the effects of disaster and climate change and increasing capability of disaster management method. • Formulation of National Disaster Management Policy and National and Local Disaster Management Plan and also National Disaster Response Coordination Group, National, local, level disaster management committee
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> • Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links • To ensure socioeconomic development of the country through food security, relief and disaster management programmes. <p>Health</p> <ul style="list-style-type: none"> • Improve maternal health Combat HIV/AIDS, malaria and other diseases • Reduce child mortality • Maintaining and strengthening the National Food Security System <p>Education</p> <ul style="list-style-type: none"> • Achieve universal primary education • Promote gender equality and empower women <p>Environment</p> <ul style="list-style-type: none"> • Ensure environmental sustainability • launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries • Develop a global partnership for development • to take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the district, • capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector • Make provision in the national budget for funding of activities related to Disaster Reduction • Ensure an effective system within Government to link and co-ordinate the processes of planning and the management of sustainable development, environmental management and disaster reduction. • The government in coordination with NGOs and International

Sector-wise Policies**Agriculture Sector**

Policy	Key Issues
	<p>Organizations has done a commendable job in responding to the cyclone emergency situation and assisting the affected population</p> <ul style="list-style-type: none">• Non-structural mitigation measures such as community disaster preparedness, training advocacy and public awareness must be given a high priority
Population Policy 2004	<ul style="list-style-type: none">• Health• Improve maternal health with emphasis on reduction of maternal mortality• Reduce RTIs/STIs and prevent spread of HIV/AIDS• Establishment of Union level Health and Family Welfare Centers, wherever needed and appointment of a doctor in these centers• Ensure and support gender equity and empower women• provide food and social security and shelter for the disadvantaged including the elderly, destitute, physically and mentally retarded persons;• Ensure availability, access to safe and arsenic free water.• Strengthen training activities in order to develop skilled manpower like nurses, paramedics, field workers and skilled birth attendants so that maternal and child mortality can be reduced• Environment• Support measures for environmental sustainability with emphasis on access to safe drinking water.;• Education• Provide formal and non-formal education to both in-school and out-of-school adolescent boys and girls;• Provide adolescent RH and life skills education as well as counseling for parents, teachers and service providers• Impart education and skill training to the young men and women to become competent and skillful• Social Consciousness• Ensure Early Childhood Development (ECD) program• Eliminate all forms of violence and sexual abuse, including trafficking of women and children;• Promote male participation in household responsibilities;• Create equal opportunity for both boys and girls in education, nutrition and health services.• Ensuring rural employment opportunities in agriculture and agro-based industries.

Sector-wise Policies**Agriculture Sector**

Policy	Key Issues
	<ul style="list-style-type: none">• Ministry of Health and Family Welfare shall be the lead Ministry for overseeing family planning, maternal and child health and reproductive health care services.• Ministry of Primary and Mass Education and Ministry of Education may ensure improved quality and completion of primary and secondary education levels.• Ministry of Agriculture may make useful efforts to motivate farm population on small family norm through its extension workers.• Ministry of Information will be encouraged• Ministry of Local Government, Rural Development and Co-operatives strengthen institutional capacity and resources of the women's development related institutions.• Engage NGO in awareness creation activities regarding the benefits of delayed marriage and delayed birth, health and nutrition issues as well as of STIs, RTIs, HIV/AIDS;• Ensure coordination and intimate linkages of the NGOs and private sector with the Ministry of Health and Family Welfare and other relevant ministries and institutions and avoid duality
Safe Water Supply and Sanitation 1998	<ul style="list-style-type: none">❖ Health<ul style="list-style-type: none">• To ensure that all people have access to safe water and sanitation services at an affordable cost.• Removal of arsenic from drinking water and supply of arsenic free water from alternate sources in arsenic affected areas.❖ Social Consequences<ul style="list-style-type: none">• Bringing about behavioural changes regarding use of water and sanitation;• Promotion of various technology options will be sustainable for both water supply and sanitation keeping the needs of specific areas and socio-economic groups of people.❖ Environment Consequences<ul style="list-style-type: none">• To preserve environmental quality and to mitigate arsenic contamination research and field surveys are being carried out.• Use of organic waste material for compost and bio-gas will be promoted• The City Corporations or Paurasabhas shall be responsible for solid waste collection, disposal and their management• The government is encouraging and supporting the involvement of other partners, such as non-governmental organizations (NGOs) market-oriented business organizations and similar private organizations in

Sector-wise Policies

Agriculture Sector

Policy	Key Issues
	<p>water and sanitation development.</p> <ul style="list-style-type: none"> • Private sector and NGO investment will be encouraged in manufacturing, sale and distribution of different types of tube wells, sanitary latrines etc • During natural disaster WASAs and relevant agencies shall take appropriate measures for providing safe drinking water • Building capacity in local governments and communities to deal more effectively with problems relating to water supply and sanitation; • Water Supply, Sewerage Authorities (WASAs) shall be responsible for sustainable water supply in the metropolitan areas where WASAs exist. • Drainage system in the cities and municipalities will be integrated with the overall drainage system with the coordination of Ministry of Water Resources. <p>Behavioral development and changes in user communities shall be brought about through social mobilization and hygiene education in coordination with the Ministries of Health, Education, Social Welfare, Information, Women & Children Affairs and DPHE, NGOs, CBOs, local government bodies and other related agencies</p>
National Water policy 1999	<ul style="list-style-type: none"> ❖ Social Consequences <ul style="list-style-type: none"> • Recreational activities at or around water bodies will be allowed ❖ Environment Consequences <ul style="list-style-type: none"> • Natural water bodies such as heels, haors, and baors will be preserved for maintaining the aquatic environment and facilitating drainage • Mandate local governments to create awareness among the people in checking water pollution and wastage • Mandate relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage • Empower, and hold responsible, municipalities and urban water and sewerage institutions to regulate the use of water for preventing wastage and pollution by human action • Alleviation of poverty through creation of job opportunities and finding options for diversified livelihoods would be the major principles of all economic activities. • Economic opportunities based on local resources will be explored to enhance income of the people;
Industrial Policy 2005	<ul style="list-style-type: none"> • Social Consequences • Provide special facilities as well as infrastructural support to Cottage and Small and Medium Enterprises (SME) • establish more backward linkage industries in order to accelerate the

Sector-wise Policies**Agriculture Sector**

Policy	Key Issues
	<p>export of high value-added garments</p> <ul style="list-style-type: none">• SMEs will be established on a greater scale across the country in order to bring about poverty alleviation, unemployment reduction and creating more employment opportunity so that national economic growth can be attained• Provide financial, technical, technological and infrastructural facilities in order to inspire setting up and developing agro-based industries.• For setting up industries, The Board of Investment will provide one-stop service in the following fields so that investors get infrastructure facilities quickly when setting up industries:<ul style="list-style-type: none">• (a) Electric and gas connections;• (b) Water and sewerage connections;• (c) Telecommunications facilities;• (d) Customs clearance of imported machineries, spare parts and raw materials;• (e) Clearance from environmental agencies; and• (f) Other necessary facilities and services for speedy setting up and running of industries
National Urban Sector Policy 2011	<p>❖ Social Consequences</p> <ul style="list-style-type: none">• assure health, safety and security of all citizens through multifaceted initiatives to reduce crime and violence;• ensure social justice and inclusion by measures designed to increase the security of poor people through their access to varied livelihood opportunities, secure tenure and basic affordable services• Strengthen local government bodies by increasing efficiency through adequate and trained manpower.• Each Paurashava should have a Paurashava Development Committee and there should be a Ward Committee in each ward of a City Corporation.
Seventh Five Year Plan	<p>❖ Education</p> <ul style="list-style-type: none">➤ The religious education at primary level will be well organized & systemic. Islamic ideals, values culture will be disseminated and flourished among the students at primary schools.➤ Achieving 100 percent net enrolment rate for primary and secondary education <p>❖ Health</p> <ul style="list-style-type: none">➤ Creating Medicare facilities by creating a permanent infrastructural facilities for each Centre.➤ Providing free Medicare service will be given to the poor and disadvantaged people.

Sector-wise Policies

Agriculture Sector

Policy	Key Issues
	<ul style="list-style-type: none"> ➤ Safe drinking water for all and Proportion of urban population with access to sanitary latrines to be increased to 100 percent. ❖ Culture <ul style="list-style-type: none"> ➤ Preserve and present national history, culture and heritage ➤ Preserve and promote language arts and culture of small ethnic group communities within the framework of national unity; ➤ Access to education, language, and culture: Recreation <ul style="list-style-type: none"> ➤ Development and establishment of five new initiatives such as eco-parks, recreational garden along river or bay and botanical gardens, safari park, national park etc Such activities will be continued under this Seventh Five Year Plan. ➤ Regional botanical garden will also be setup for uniform biodiversity conservation in the country. Water and Sanitation <ul style="list-style-type: none"> · Safe drinking water for all · Proportion of urban population with access to sanitary latrines to be increased to 100 percent · Proportion of rural population with access to sanitary latrines to be raised to 90 percent
National Environment Policy 1992	<p>Key elements of the policy statement are:</p> <p>Maintain ecological balance and overall physical development progress of the country through protection and development of different sectors. Protection from natural disaster is one of them;</p> <p>Identification and regulation all type of activities which pollutes and degrade the environment;</p>
National Tourism Policy 1992	<p>In the Tourism Policy, status of tourism industry in Bangladesh was described, aims and objectives were defined and implementation strategies were suggested. The National Tourism Policy of Bangladesh was declared in 1992. Its main objectives are:</p> <ul style="list-style-type: none"> • To create interest in tourism among the people. • To preserve, protect, develop and maintain tourism resources. • To take steps for poverty-alleviation through creating employment. • To build a positive image of the country abroad. • To open up a recognized sector for private capital investment. • To arrange entertainment and recreation
Housing Policy 2008 (Draft)	<ul style="list-style-type: none"> • ভাসমান ও সাময়িক জনসংখ্যা পানীয় জল ও পর্যটন নিকাশে ব্যবস্থা সঞ্চিত আয় এবং গন-সেবা

Sector-wise Policies**Agriculture Sector**

Policy	Key Issues
	<p>নিম্নলিখিত করা হবে।</p> <ul style="list-style-type: none"> সরকারী, আধা-সরকারী এবং বেসরকারী সকল কৃষিকার আবাদন কৃষক পানি, বিদ্যুত, পয়ঃ, গ্যাস, বজ্র যন্ত্রাংশন, মেশিন ইত্যাদি সেবামূলক কার্যক্রমের জনস্বপ্নের জায়গা রাখা হবে। পরিবারহীন বৃদ্ধদের বিহায়েন সহর ও কামাঙ্গেলে যৌজনীয় সংখ্যক 'বৃদ্ধিনিবাস' নিম্নলিখ করা হবে। পানী অঙ্গের আবাদন ব্যবস্থার লেখ্য পিরকনা গণন, অর্থ যোগান নিতকরণ, বাবায়ন, তদারক ও পযেবণ সংক্ সাবিরক দািয় পালেনর লেখ্য কানীয় পযরায়ের সংগঠনগলোকে জাতীয় গৃহায়ন কত্পের সহায়তায় শিশালী করাসহ উপযুক্ত াথমিক কাঠামো, জনবল ও সঙ্গ সৃষ্টি করা হবে। লাগসই ও সহজেবাধ্য যুটি, পিরেবশ-বাব সামগী উৎপাদন, বাজারজাতকরণ ও ব্যবহার, ায়সত গৃহায়ন ও পিরেবশ উয়ন ইত্যাদি বিষয়ে এনিজও, এলাকা িভিত্তক বেসরকারী সংক্, সেবা
Forest Policy 1994	<ul style="list-style-type: none"> • Buffer zones attached to protected areas may be allocated for tree farming and agroforestry on a long term lease basis • Industries located in rural areas, particularly those cottage and small scale labour intensive industries which contribute to the local economy and process wood and other forest based raw materials, will be promoted by the State • To enrich biodiversity in the existing degraded forests by conserving the remaining natural habitats of birds and animals; • To strengthen agriculture by extending assistance to those sectors related with forest development, especially by conserving land and water resources

Geology Sector

Policy	Key Issues
Climate Change Strategy 2009	<ul style="list-style-type: none">• Afforestation and reforestation can protect land from soil erosion and landslides, particularly in hilly areas.
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none">• Incorporate Tsunami Risks in land use planning in Coastal Zone Development Plans developed by Ministry of Water Resources Ministry of Water Resources, Disaster Management Bureau, DRR• Prepare an Institutional Resource Map of Coastal Zone by Disaster Management Bureau and CDMP
Private Residential Land Development Rule 2004	<ul style="list-style-type: none">• ভূ তথ্য অধিদপ্তর হইতে কক এলাকার বনয়্ানি ও অনাপািনিনিশানসুবিধাদান সংক্রান্ত ছাড়পত্র

Transport Sector

Policy	Key Issues
Population Policy 2004	<ul style="list-style-type: none">• Roads and communication systems should be linked with the growth centers• disallow air polluting vehicles Reduce vehicular pollution by implementing appropriate laws
Coastal Zone Policy	<ul style="list-style-type: none">• development of communication network with islands for passengers and freight traffic;• An integrated network of communication including highways, major roads, rural roads, railways and waterways will be developed• development of two existing seaports and installation of a communication network between main river ports, ghat and inland container ports and depots;• Initiatives of establishing deep sea port;• development of communication network with islands for passengers and freight traffic;• ensuring shipping security for passengers and freight;

Hydrology Sector

Policy	Key Issues
Population Policy 2004	<ul style="list-style-type: none">• Support the programs for re-excavation of canals and ponds in rural area and to undertake measures against soil and river erosion
National Water policy 1999	<ul style="list-style-type: none">• Replacement of open drains and construction of sewers• Dredging and other suitable measures would be undertaken,• Develop and disseminate appropriate technologies for conjunctive use of rainwater ground water and surface water• Develop and promote water management techniques to prevent wastage and generate efficiency of water and energy use• Investigate thoroughly important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural Interventions• Haors that naturally dry up during the winter will be developed for dry season agriculture
National Urban Sector Policy 2011	<ul style="list-style-type: none">• protect, preserve and enhance the urban environment, particularly water bodies;• Conserve natural water bodies.
National Fisheries Policy 1998	<ul style="list-style-type: none">• Proper arrangement will be initiated to develop water control and drainage system for sustainable fish production in the baor.• Arrangements will be made to conserve the ecological balance within the polders and embankments in which a suitable environment shall be created for rice and shrimp production.• To ensure high quality of exportable fish and shrimp products, laboratory facilities for Quality Control will be expanded and modernised.

Hydrology Sector

Policy	Key Issues
Private Residential Land Development Rule 2004	<ul style="list-style-type: none"> • ঢাক ঢ় এলাকায় ভূমির উচ্চতা বড়ার পানি-বাহ সীমার উপর (Highes Flood Level) এর রাখার জয়োজনীয় বস্থা হ়; • ঢাক ঢ় এলাকায় কান খাল, িবল, নদী, নালা বা অ কান জলাশয় থাকেল উহার পানি বাহে িব কিরয়া বাহিত পানি যাহাতে কের শেষ াহ ইয়া কেমত খাল, িবল, নদী, নালা বা জলাধার পয়; • বাংলাদেশ পানি উয়ন েবড হ়েইত ঢাক ঢ় এলাকার ব া িনয় ণ অ পানি িন াশন সুবিধা দান ছাড়প

Physical, Landuse and Topographic Features Sector

Policy	Key Issues
National Agriculture Policy 1999	<ul style="list-style-type: none"> • Maximum utilization of land will be ensured through promotion of inter-cropping with the main crops. • Acquisition of land in excess of requirement for non-agricultural purposes will be discouraged.
Climate Change Strategy 2009	<ul style="list-style-type: none"> • Flood management embankments, coastal polders and cyclone shelters have been built
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> • restoration of damaged public infrastructure, resumption of educational institutions, • restoration of livelihood, rehabilitation of affected people, especially the disabled, and elderly women and children • Map out critical vulnerable infrastructure and communities within the high risk zones
Building Construction Rules 1996	<ul style="list-style-type: none"> • Land use planning Rules- It is based on land use policies including Local Plans, such as residential density, road standard, provision of infrastructure and services. • Control of public estates-Different government agencies have developed some housing, commercial and industrial estates in different urban areas and they have leased them out. • Non-compliance of development control by some government and semi-government agencies- According to Building Construction Act, 1952 (amended in 1996, followed by Paurashava) each public building needs approval from the concerned development agencies. • Control of private housing estates • Control of informal Development • Density Control- At present, Paurashava follows Building Construction Rule, 1952 (amended in 1996) which restricts the height of Building in respect of adjacent road. • Taxation • Payment of Betterment fee
National Water policy 1999	<ul style="list-style-type: none"> • replacement of open drains and • construction of sewers to the interest of public health

Physical, Landuse and Topographic Features Sector

Policy	Key Issues								
Industrial Policy 2005	<ul style="list-style-type: none"> • By creating special economic zones, cluster villages can be established quickly for running industrial enterprises. • Provide structural and other facilities to establish and develop compact industrial areas. • Develop planned industrial areas by establishing Special Economic Zones in areas with vast economic potentials, and utilizing local resources. 								
Burning Bricks Act 1989	<ul style="list-style-type: none"> • No person may burn bricks without a licence. • No person may use firewood for burning bricks. • No suit shall be filed in any court against offences under this Act without the written accusation of the chairman of the Upazila Parishad 								
National Urban Sector Policy 2011	<ul style="list-style-type: none"> • Allocating khas land/acquired land for housing the poor • Protect hills in urban areas, specially Chittagong, Sylhet, Khagrachari, Cox's Bazar etc.; • Protect peri-urban areas from unplanned development. • Manage floodplains by controlling uses of land within hydrologically defined areas subject to floods of a designated frequency; • Promote hierarchical structure of educational institutions, such as from the kindergartens to universities, at appropriate locations with catchment areas/zones in urban areas. • Preserve open space by designating land areas for a variety of purposes such as recreation, future use, green belt etc 								
Coastal Zone Policy 2005	<ul style="list-style-type: none"> • Enforcement of existing legal coverage will be facilitated with adequate logistics and support, to relevant agencies. 								
National Fisheries Policy 1998	<ul style="list-style-type: none"> • To increase production and to conserve biodiversity, part or the whole water bodies/jalmohals shall be converted into fish sanctuaries • Emphasis will be given for extension of rice-cum-fish culture. • Biodiversity will be maintained in all natural water bodies and in marine environment. • Chemicals harmful to the environment will not be used in fish and shrimp culture 								
Seventh Five Year Plan	<ul style="list-style-type: none"> • Coastal pollution & marine resource management • Crop Zoning and Land Use Planning: 								
Private Residential Land Development Rule 2004	<p>Building Height According to the Building Construction Rules (1996), the maximum height of a building will not be more than the summation of front side road width and the mandatory open space between road and building site. According to the law, the following decisions can be summarized</p> <table border="1"> <thead> <tr> <th>Distance between Front side road and space of the building</th><th>Building's Highest Height (meter)</th></tr> </thead> <tbody> <tr> <td>7. 60-10.59 m</td><td>9.5 m</td></tr> <tr> <td>10. 60-13.59m</td><td>12. 50m</td></tr> <tr> <td>13. 60-16.59m</td><td>15.50m</td></tr> </tbody> </table> <p>According to the rules, the building's height doesn't less than the above values, if</p>	Distance between Front side road and space of the building	Building's Highest Height (meter)	7. 60-10.59 m	9.5 m	10. 60-13.59m	12. 50m	13. 60-16.59m	15.50m
Distance between Front side road and space of the building	Building's Highest Height (meter)								
7. 60-10.59 m	9.5 m								
10. 60-13.59m	12. 50m								
13. 60-16.59m	15.50m								

Physical, Landuse and Topographic Features Sector

Policy	Key Issues										
	<p>the width of adjacent road of the site tends to the following conditions, the estimated building's height will be the correspondent value according to the following table.</p> <table> <tr> <th>Width of the Road of Adjacent Site</th><th>Building's Highest Height (meter)</th></tr> <tr> <td>4.55-7.59m</td><td>18.50m</td></tr> <tr> <td>7.60-10.66m</td><td>27. 50m</td></tr> <tr> <td>10. 67-15.24m</td><td>42.50m</td></tr> <tr> <td>15.25-22.99m</td><td>60.50m</td></tr> </table> <p>Here is also one condition, if the width of the Road of the adjacent Site is 23.50 or more then there is no limit of the height of the building.</p>	Width of the Road of Adjacent Site	Building's Highest Height (meter)	4.55-7.59m	18.50m	7.60-10.66m	27. 50m	10. 67-15.24m	42.50m	15.25-22.99m	60.50m
Width of the Road of Adjacent Site	Building's Highest Height (meter)										
4.55-7.59m	18.50m										
7.60-10.66m	27. 50m										
10. 67-15.24m	42.50m										
15.25-22.99m	60.50m										
The Building Construction Act, 1952	<p>Density Control: Section 12(1) of Building Construction Rules, 1996 sets a formula for building height determination based on the width of the front road. This rule imposes a limit on the building height as long as the front road is less than 75 ft. (22.87 meter). Indirectly this limits the number of family or the size of population in a building. Setback rule of the building and approval system of the building plan also prescribed in the Building Construction Rules.</p> <p>Raging of Hill: Section 3(3) of the Act presents regulation on the raging of hill. In the Act it is prescribed that anybody is not authorized for raging of hill without approval from the concerned authority. Development Authority and Deputy Commissioner is the concerned authority.</p>										

APPENDIX-C

Demand Calculation of Pourashava
Rangunia Paurashava

Rangunia Paurashava-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Secondary School	1	6	Ward-04(1)	0.41	0.01		Ward-1 Gas Transport
	Madrasa	8	2	Ward-01(2), Ward-04(1), Ward-06(1), Ward-07(1), Ward-08(2), Ward-09(1)	21.51	0.57		Education-High school Drainage Load shedding Ward-2 River Erosion
	College	3	4	Ward-06(1), Ward-08(1), Ward-09(1)	17.09	0.46		Drainage Education-High school Gas
Religious	Mosque	13	46	Ward-01(2), Ward-02(1), Ward-03(3), Ward-05(1), Ward-06(5), Ward-09(2)	57.00	1.52	1.71	Load shedding Ward-3 Education-High school Transport Drainage
	Temple	8	19	Ward-05(1), Ward-06(7)	4.53	0.12		Gas Water Supply System
	Mazar	2		Ward-03(1), Ward-06(1)	2.16	0.06		Ward-4 River Erosion Transport
Graveyard		24		Ward-01(5), Ward-03(2), Ward-04(3), Ward-05(3), Ward-07(6), Ward-08(4), Ward-09(1)	27.18	0.73	0.73	Drainage Ward-5 River Erosion Gas Drainage Education-High school Ward-6 River Erosion
Health Facilities	Community Clinic	4	1	Ward-03(1), Ward-05(1), Ward-07(1), Ward-08(1)	1.22	0.03	0.04	Drainage Transport Gas Health
	Hospital	1	1	Ward-01(1)	0.24	0.01		Ward-7 Transport River Erosion
Community	Community Center	1		Ward-06(1),	0.29	0.01	0.08	Drainage Education

Rangunia Paurashava-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
	Community Facilities	5		Ward-02(1), Ward-03(1), Ward-07(1), Ward-08(2),	2.35	0.06		Gas Ward-8 Transport Drainage Solid Waste Management Sanitation Recreation Ward-9 River Erosion Transport Drainage Health Recreation
	Autistic Center	1		Ward-08(1),	0.23	0.01		
Recreational	ICHAMOTI COMMUNITY CENTRE	1		Ward-04(1),	1.81	0.05	0.05	
	MURADN AGAR THEATRE	1		Ward-07(1)	0.07	0.00		
Open Space		7		Ward-03(7),	0.13	0.00	0.00	

Rangunia Paurashava-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Nursery	10000	0.5	4	2	Ward-03 (1), Ward-07(1),Ward-08(1)
	Primary School/ kindergarten	5000	2	9	18	Ward-01 (1), Ward-02 (1), Ward-03(2), Ward-04 (1), Ward-05(1), Ward-06(1), Ward-07(1), Ward-08(1), Ward-09(1)
	Secondary/High School	20000	5	2	10	
	College	20000	10	2	20	

Rangunia Paurashava-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Open Space	Play field/ground	20000	3	2	6	
	Neighbourhood park/Park	10000	1	4	1	Ward-03 (1), Ward-07(1), Ward-08(1)
Recreational	Cinema/ Theatre	20000	1	2	2	
Health	Health centre/Maternity clinic	5000	1	9	9	Ward-01 (1), Ward-02 (1), Ward-03(2), Ward-04 (1), Ward-05(1), Ward-06(1), Ward-08(1), Ward-09(1)
Community Facilities	Mosque/Church/T emple	20000	0.5	2	1	
	Eidgah	20000	1	2	2	
	Graveyard	20000	1	2	2	
	Community centre	20000	1	2	2	
	Fire Station	20000	1	2	2	
	Post office	20000	0.5	2	1	
Utilities	Water supply	20000	1	2	2	
	Gas	20000	1	2	2	
	Electric sub-station	20000	1	2	2	
	Telephone exchange	20000	0.5	2	1	
	Fuel Station	20000	0.5	2	1	
Commerce and Shopping	Wholesale market	20000	1	2	2	
	Retail sale market	20000	1	2	2	
	Shopping Complex	20000	2.5	2	5	

Rangunia Paurashava-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
	Corner Shop	2500	0.25	17	4.25	Ward-01(2), Ward-02 (1), Ward-03 (3), Ward-04 (2), Ward-05(2), Ward-06(2), Ward-07(2), Ward-08(3), Ward-09 (2)
	Neighborhood Market	10000	1	2	2	Ward-03 (1), Ward-07(1), Ward-08(1)
Industry	Small scale	1000	1.5	44	66	Ward-01 (4), Ward-02 (3), Ward-03(8), Ward-04(4), Ward-05(4), Ward-06(4), Ward-07(5), Ward-08(7), Ward-09(4)
	Heavy Industry	10000	5	4	20	Ward-03 (1), Ward-07(1), Ward-08(1)
Transporta- tion	Bus terminal	20000	1	2	2	
	Truck terminal	20000	0.5	2	1	

APPENDIX-D

Demand Calculation of Unions**Betagi Union**

Betagi Union-Existing Facilities								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	15	10	Ward-1(1), Ward-2(2), Ward-3(1), ward-04(2), ward-05(2), ward-06(3), ward-07(1), ward-08(1), ward-09(2)	9.42	0.21	0.52	River Erosion Gas Transportation Health Education
	Secondary School	3	3	ward-06(2), ward-07(1)	5.24	0.12		
	Madrasa	16	1	Ward-2(1), Ward-3(1), ward-04(2), ward-06(9), ward-07(1), ward-09(2)	8.38	0.19		
Religious	Mosque	34		Ward-1(2), Ward-2(3), Ward-3(2), ward-04(9), ward-05(2), ward-06(8), ward-07(2), ward-08(2), ward-09(3)	125.76	2.85	3.55	
	Temple	10		ward-02(3), ward-04(4) ward-03(1), ward-05(1), ward-06(1)	17.81	0.40		
	Eidghah	1		ward-02(1),	0.32	0.01		
	Mazar	10		ward-02(3), ward-04(1) ward-05(2), ward-06(1), ward-07(3)	12.58	0.29		
Graveyard		19	20	Ward- 1(3), Ward-2(3), ward-04(3), ward-05(2), ward-06(4), ward-07(3), ward-08(2), ward-09(2)	20.01	0.45	0.45	
Health Facilities	Community Clinic	3		ward-04(2), ward-06(1),	0.51	0.01	0.01	
Community	Institution	1		ward-09(1),	0.10	0.00	0.00	

Betagi-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Provided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	5	10	Ward-04 (1); Ward-03 (1); Ward-02 (1); Ward-06 (1); Ward-09 (1)
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park/Park	10000	1	3	3	Ward-04 (1);
Health	Health centre/Maternity clinic	5000	1	5	5	Ward-04 (1); Ward-03 (1); Ward-02 (1); Ward-06 (1); Ward-09 (1)
Community Facilities	Mosque/Church/ Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	11	2.75	Ward-04 (2); Ward-05 (1); Ward-03 (1); Ward-07 (1); Ward-08 (1); Ward-01 (1); Ward-02 (2); Ward-06 (2); Ward-09 (2)
	Neighborhood Market	10000	1	3	3	Ward-04 (1);
Industry	Small scale	1000	1.5	27	40.5	Ward-04 (5); Ward-05 (2); Ward-03 (3); Ward-07 (2); Ward-08 (2); Ward-01 (2); Ward-02 (4); Ward-06 (5); Ward-09 (4);
	Heavy Industry	10000	5	3	15	Ward-04 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Chandroghona Kadamtoli

Chandroghona Kadamtoli-Existing Facilities								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	15	12	Ward-01(3), Ward-02(1), ward-04(2), ward-05(1), ward-07(4), ward-08(4)	9.67	0.37	0.72	River Erosion Gas Transportation Education Waterlogging
	Secondary School	0	1					
	Madrassa	2	5	Ward-01(3), Ward-02(2), ward-03(3), ward-04(3), ward-06(1), ward-07(1)ward-08(2)	9.11	0.35		
	College	1		Ward-08 (1)	0.13	0.00		
Religious	Mosque	22	33	Ward-01(6), Ward-02(2), Ward-03(2), ward-04(4), ward-06(3), ward-07(3), ward-08(2)	53.86	2.05	4.05	
	Temple	12	12	ward-01(5), ward-02(2) ward-07(4), ward-08(1)	50.50	1.92		
	Orphanage	1		ward-06(1),	1.55	0.06		
	Mazar	1		ward-03(1),	0.43	0.02		
Graveyard		13	20	Ward-01(3), Ward-02(2), ward-04(2), ward-05(1), ward-06(2), ward-07(3)	3.86	0.15	0.15	
Health Facilities	Community Clinic	2		ward-01(1), ward-06(1),	0.2664 001	0.01	0.046 9	
	Hospital	2	4	ward-02(1), ward-08(1),	0.97	0.04		
Community	Community Center	1		ward-07(1),	0.12	0.00	0.01	
	Club	1		ward-06(1),	0.07	0.00	0.00	

Chandroghona Kadamtoli-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Provided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	8	16	Ward-01(1); Ward-07(1); Ward-06 (1); Ward-05 (1); Ward-03 (1); Ward-04 (1); Ward-08 (1);Ward-09 (1);
	Secondary/High School	20000	5	2	10	
	College	20000	10	2	20	
Open Space	Play field/ground	20000	3	2	6	
	Neighborhood park/Park	10000	1	4	4	Ward-01 (1);Ward-07 (1); Ward-05 (1);Ward-04 (1); Ward-08 (1);Ward-09 (1);
Health	Health centre/Maternity clinic	5000	1	8	8	Ward-01 (1);Ward-07 (1); Ward-06 (1);Ward-03 (1); Ward-04 (1);Ward-08 (1); Ward-09 (1);
Community Facilities	Mosque/Church/Temple	20000	0.5	2	1	
	Eidgah	20000	1	2	2	
	Graveyard	20000	1	2	2	
	Community centre	20000	1	2	2	
	Post office	20000	0.5	2	1	
Utilities	Water supply	20000	1	2	2	
	Gas	20000	1	2	2	
	Electric sub-station	20000	1	2	2	
Commerce and Shopping	Wholesale market	20000	1	2	2	
	Retail sale market	20000	1	2	2	
	Corner Shop	2500	0.25	16	4	Ward-01 (3);Ward-02 (1); Ward-07 (2);Ward-06 (2); Ward-05 (1); Ward-03 (1); Ward-04 (2);Ward-08 (2); Ward-09 (2);
	Neighborhood Market	10000	1	4	4	Ward-01 (1);Ward-07 (1); Ward-04 (1);Ward-08 (1); Ward-09 (1);
Industry	Small scale	1000	1.5	40	60	Ward-01 (7);Ward-02 (2); Ward-07 (6);Ward-06 (4); Ward-05 (3);Ward-03 (3); Ward-04 (5);Ward-08 (5); Ward-09 (5);
	Heavy Industry	10000	5	4	20	Ward-01 (1);Ward-07 (1); Ward-04 (1);Ward-08 (1); Ward-09 (1);
Transportation	Bus terminal	20000	1	2	2	
	Truck terminal	20000	0.5	2	1	

Rajanagar Union

Rajanagar Union-Existing Facilities								Major Demands From PRA
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	
Education	Primary School	6	7	Ward-02(1), ward-05(1), ward-06(1), ward-07(1), ward-08(2)	5.01	0.28	0.55	Transport
	Secondary School	0	2					Education
	Madrasa	6	5	Ward-02(1), Ward-05(1), ward-06(2), ward-07(1), ward-09(1)	4.95	0.27		Health
Religious	Mosque	16		Ward-02(1), Ward-03(1), Ward-04(1), ward-05(1), ward-06(2), ward-07(4), ward-08(4), ward-09(2)	14.25	0.79	1.08	Gas
	Temple	2		ward-07(2)	1.64	0.09		
	RajBihar	1		ward-06(1)	0.50	0.03		
	Mazar	2		ward-02(2)	3.21	0.18		
Graveyard		13		Ward-02(1), Ward-03(1), Ward-05(1), ward-06(1), ward-07(3), ward-08(5), ward-09(1)	4.35	0.24	0.24	
Health Facilities	Community Clinic	1		ward-07(1)	0.00	0.00	0.00	

Rajanagar-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	5	10	Ward-06 (1);Ward-08 (1);Ward-07 (1);Ward-02 (1)
	Secondary/ High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	3	3	Ward-08 (1);Ward-02 (1)
Health	Health centre/Materni ty clinic	5000	1	5	5	Ward-06 (1);Ward-08 (1);Ward-07 (1);Ward-02 (1)
Communit y Facilities	Mosque/Churc h/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub- station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	10	2.5	Ward-06 (1);Ward-08 (3);Ward-07 (1);Ward-03 (1);Ward-02 (2)
	Neighborhood Market	10000	1	3	3	Ward-08 (1);Ward-02 (1)
Industry	Small scale	1000	1.5	25	37.5	Ward-06 (3);Ward-09 (1);Ward-08 (6);Ward-07 (3);Ward-03 (2);Ward-02 (6)
	Heavy Industry	10000	5	3	15	Ward-08 (1);Ward-02 (1)
Transporta tion	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Hosnabad Union

Hosnabad Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	10	4	Ward-01(1), Ward-02(1), Ward-03(1), ward-04(1), ward-06(1), ward-07(2), ward-08(2), ward-09(1)	4.29	0.09	0.18	Education-High School Market and Hat Bazar Transport Gas
	Secondary School	1	1	ward-09(1)	0.04	0.00		
	Madrasa	14	1	Ward-01(3), Ward-02(1), ward-03(3), ward-07(5), ward-08(2)	4.54	0.09		
Religious	Mosque	21		Ward-01(1), Ward-02(3), Ward-03(7), ward-07(5), ward-08(4), ward-09(1)	23.74	0.49	0.50	
	Temple	1	5	ward-02(1)	0.08	0.00		
	Orphanage	1		ward-03(1),	0.12	0.00		
	Eidgah	1		ward-03(1),	0.31	0.01		
Graveyard		7	48	ward-01(1), ward-03(5), ward-07(1),	1.91	0.04	0.04	
Health Facilities	Community Clinic	1		ward-07(1)	0.02	0.00	0.00	
	Hospital	1		ward-03(1)	0.05	0.00		
Open Space		3		ward-02(2), ward-03(1), ward-09(1),	0.03	0.00	0.00	

Hosnabad-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	4	8	Ward-07 (1);Ward-02 (1);Ward-08 (1);Ward-03 (1);Ward-09 (1)
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	2	2	
Health	Health centre/Maternity clinic	5000	1	4	4	Ward-07 (1);Ward-02 (1);Ward-08 (1);Ward-03 (1);Ward-09 (1)
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	8	2	Ward-07 (1);Ward-06 (1);Ward-02 (1);Ward-08 (1);Ward-03 (2);Ward-09 (2);
	Neighborhood Market	10000	1	2	2	
Industry	Small scale	1000	1.5	20	30	Ward-07 (3);Ward-04 (1);Ward-06 (2);Ward-02 (3);Ward-08 (3);Ward-03 (4);Ward-09 (4)
	Heavy Industry	10000	5	2	10	
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Islampur Union

Islampur Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	5	3	Ward-01(3), ward-07(1), ward-08(1)	1.42	0.02	0.03	Lack of Hat – Bazar Health Terrorism Expansion of Drug Transport
	Madrasa	6	1	Ward-01(3), Ward-05(1), ward-07(1), ward-08(1)	1.22	0.01		
	College	0	1					
Religious	Mosque	11		Ward-01(6), Ward-05(1), Ward-07(2), ward-08(2)	8.49	0.10	0.15	
	Orphanage /Asram	2		ward-07(2),	2.28	0.03		
	BODDHO BIHAR	3		ward-01(1), ward-02(2),	0.63	0.01		
	Mazar	1		ward-05(1)	0.40	0.00		
Graveyard		5		ward-05(2)	0.48	0.01	0.01	
Open Space		1		ward-01(1)	0.02	0.00	0.00	

Islampur-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	5	10	Ward-08 (1);Ward-07 (2);Ward-05 (1);Ward-01 (1)
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	3	3	Ward-08 (1);Ward-07 (1);
Health	Health centre/Maternity clinic	5000	1	5	5	Ward-08 (1);Ward-07 (2);Ward-05 (1);Ward-01 (1)
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	

Islampur-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	10	2.5	Ward-08 (2);Ward-07 (4);Ward-05 (1);Ward-01 (2);
	Neighborhood Market	10000	1	3	3	Ward-08 (1);Ward-07 (1);
Industry	Small scale	1000	1.5	25	37.5	Ward-08 (6);Ward-07 (9);Ward-06 (1);Ward-05 (3);Ward-04 (1);Ward-02 (1);Ward-01 (4);
	Heavy Industry	10000	5	3	15	Ward-08 (1);Ward-07 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Kodala Union

Kodala Union-Existing								Major Findings From PRA
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	
Education	Primary School	6		Ward-02(3), Ward-03(2), ward-04(1), ward-05(1), ward-07(1), ward-09(1)	6.05	0.10	0.23	
	Secondary School	2		ward-05(1), ward-07(1)	1.70	0.03		
	Madrasa	9	3	Ward-03(1), Ward-04(4), ward-05(1), ward-06(1), ward-07(1), ward-08(1)	5.63	0.10		
Religious	Mosque	21	23	Ward-01(1), Ward-02(2), Ward-03(3), ward-04(2), ward-05(2), ward-06(1), ward-07(3), ward-08(2), ward-09(5),	35.83	0.62	0.80	
	Temple	11		ward-02(5), ward-03(1), ward-05(4), ward-06(1),	10.19	0.18		
	Mazar	1		ward-01(1)	0.07	0.00		
Graveyard		10		ward-01(2), ward-03(2), ward-04(3), ward-05(1), ward-07(1), ward-08(1)	28.54	0.49	0.49	
Community	Community Center	1		ward-05(1),	0.13	0.00	0.00	

Kodala-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	5	10	Ward-02 (1); Ward-03(1); Ward-04 (1); Ward-05 (1); Ward-09 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	3	3	Ward-02 (1);
Health	Health centre/Maternity clinic	5000	1	5	5	Ward-02 (1); Ward-03(1); Ward-04 (1); Ward-05 (1); Ward-09 (1);
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	

Kodala-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Utilities	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	10	2.5	Ward-02 (2);Ward-03(1);Ward-04 (1);Ward-05 (1);Ward-06 (1);Ward-09 (2);Ward-07 (1);Ward-08 (1);
	Neighborhood Market	10000	1	3	3	Ward-02 (1);
Industry	Small scale	1000	1.5	25	37.5	Ward-01 (1);Ward-02 (6);Ward-03(3);Ward-04 (3);Ward-05 (4);Ward-06 (2);Ward-09 (5);Ward-07 (2);Ward-08 (1);
	Heavy Industry	10000	5	3	15	Ward-02 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Lalanagar Union

Betagi Union								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	5	6	Ward-1(2), Ward-2(2), Ward-07(1)	3.08	0.06	0.23	Transport River Erosion Health
	Secondary School	2	2	ward-01(1), ward-08(1)	5.41	0.10		
	Madrassa	5	2	Ward-2(1), Ward-5(1), ward-07(1), ward-08(2)	2.29	0.04		
	College	1	1	Ward-01(1)	1.32	0.03		
Religious	Mosque	16	40	Ward-1(5), Ward-2(5), Ward-7(3), ward-08(1), ward-09(2)	9.61	0.18	0.35	
	Temple	5	5	ward-08(3), ward-01(2)	5.42	0.10		
	Mazar	6		ward-01(3), ward-02(2), ward-07(1)	3.38	0.06		
Graveyard		11	48	ward-01(1), ward-02(3), ward-07(3), ward-08(3), ward-09(1),	6.430862	0.12	0.12	
Health Facilities	Community Clinic	1		ward-02(1), ward-05(1), ward-08(1)	0.31	0.01	0.01	

Lalanagar-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	4	8	Ward-08 (1);Ward-07 (1);Ward-02 (1);Ward-01 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	2	2	Ward-02 (1);
Health	Health centre/Maternity clinic	5000	1	4	4	Ward-08 (1);Ward-07 (1);Ward-02 (1);Ward-01

Lalanagar-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
						(1);
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	8	2	Ward-08(2); Ward-07(2); Ward-02(2); Ward-01(2); Ward-09(1);
	Neighborhood Market	10000	1	2	2	Ward-02(1);
Industry	Small scale	1000	1.5	19	28.5	Ward-08(4); Ward-07(3); Ward-02(6); Ward-01(4); Ward-09(1);
	Heavy Industry	10000	5	2	10	Ward-02 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Mariamnagar Union

Mariamnagar Union								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	10	8	Ward-01(1), Ward-02(1), Ward-03(2), ward-05(1), ward-06(2), ward-07(2), ward-08(1)	2.73	0.28	0.65	River Erosion Transport Drainage problem Heath Education
	Secondary School	2	2	ward-04(1), ward-06(1)	1.23	0.12		
	Madrasa	8	1	Ward-02(1), Ward-03(3), ward-05(2), ward-06(1), ward-07(1)	2.48	0.25		
Religious	Mosque	18		Ward-02(1), Ward-03(3), Ward-04(2), ward-05(2), ward-06(3), ward-07(4), ward-08(1), ward-09(2)	26.19	2.64	4.39	
	Temple	1		ward-09(1)	0.41	0.04		
	Orphanage	2		ward-03(1), ward-07(1)	3.99	0.40		
	Mazar	4		ward-03(1), ward-06(1), ward-07(2)	12.99	1.31		
Graveyard		7		ward-01(2), ward-06(1), ward-07(4)	10.33	1.04	1.04	
Health Facilities	Community Clinic	3		ward-01(1), ward-03(1), ward-05(1),	0.17	0.02	0.02	
	Hospital	2		ward-01(2)	0.07	0.01		
Community	Community Center	1		ward-09(1),	0.41	0.04	0.04	

Mariamnagar-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Provided Area (acre)	Location Ward (No. of Facilities)
Education	Primary School/ kindergarten	5000	2	5	10	Ward-06 (1); Ward-07 (1); Ward-02 (1); Ward-09 (1); Ward-01 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	2	2	
Health	Health centre/Maternity clinic	5000	1	5	5	Ward-06 (1); Ward-07 (1);

Mariamnagar-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Provided Area (acre)	Location Ward (No.of Facilities)
						Ward-02 (1); Ward-09 (1); Ward-01 (1);
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	10	2.5	Ward-04 (1); Ward-06 (1); Ward-07 (2); Ward-02 (1); Ward-03 (1); Ward-08 (1); Ward-09 (1); Ward-01 (2);
	Neighborhood Market	10000	1	2	2	
Industry	Small scale	1000	1.5	25	37.5	Ward-04 (2); Ward-06 (4); Ward-07 (4); Ward-02 (3); Ward-03 (2); Ward-05 (1); Ward-08 (1); Ward-09 (3); Ward-01 (5);
	Heavy Industry	10000	5	2	10	
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Padua Union

Padua Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	
Education	Primary School	24	28	Ward-01(3), Ward-02(3), Ward-03(2), ward-04(2), ward-05(2), ward-06(2), ward-07(8), ward-08(2)	16.22	0.09	0.23	Transport Agriculture Development Health River Erosion Disturbance by wild elephant
	Secondary School	4	5	Ward-02(1), Ward-03(1), ward-04(1), ward-06(1)	9.12	0.05		
	Madrasa	13	2	Ward-01(2), Ward-03(2), ward-05(1), ward-06(1), ward-07(2), ward-08(5)	15.98	0.09		
	College	1		Ward-04(1)	1.00	0.01		
Religious	Mosque	44	74	Ward-01(6), Ward-02(3), Ward-03(5), ward-04(4), ward-05(4), ward-06(5), ward-08(4), ward-09(13)	24.67	0.14	1.23	
	Temple	38	40	ward-02(5), ward-03(5), ward-04(9)	156.37	0.86		
	Eidgah		4					
	Buddho Bihar	14		ward-02(4), ward-03(3), ward-04(1), ward-07(1), ward-08(5),	18.63	0.10		
	Orphanage/Asrom	2		ward-07(2)	1.21	0.01		
	Mazar	13		ward-03(1), ward-05(3), ward-06(4), ward-07(4), ward-08(1)	21.85	0.12		
Graveyard		26	75	ward-01(4), ward-02(5), ward-03(1), ward-04(3), ward-05(4), ward-06(2), ward-07(2), ward-08(5),	21.30	0.12	0.12	
Health Facilities	Community Clinic	7		ward-01(2), ward-03(1), ward-04(2), ward-06(1), ward-07(1),	0.68	0.00	0.01	
	Hospital	2		ward-05(1), ward-08(1)	0.33	0.00		
Community	Community Center	1		ward-05(1),	0.23	0.00	0.00	
	Club	3		ward-05(1), ward-06(1), ward-08(1),	0.39	0.00		
Open Space		5		ward-05(1), ward-07(1), ward-08(3),	0.10	0.00	0.00	

Padua-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	9	18	Ward-07 (1);Ward-06 (2);Ward-08 (2);Ward-04 (1);Ward-05 (1);Ward-02 (1);Ward-03 (1);Ward-01 (1);
	Secondary/ High School	20000	5	2	10	
	College	20000	10	2	20	
Open Space	Play field/ground	20000	3	2	6	
	Neighborhood park/Park	10000	1	5	5	Ward-07 (1);Ward-06 (1);Ward-08 (1);Ward-04 (1);Ward-02 (1);Ward-03 (1);
Health	Health centre/Maternity clinic	5000	1	9	9	Ward-07 (1);Ward-06 (2);Ward-08 (2);Ward-04 (1);Ward-05 (1);Ward-02 (1);Ward-03 (1);Ward-01 (1);
Community Facilities	Mosque/Church/Temple	20000	0.5	2	1	
	Eidgah	20000	1	2	2	
	Graveyard	20000	1	2	2	
	Community centre	20000	1	2	2	
	Post office	20000	0.5	2	1	
Utilities	Water supply	20000	1	2	2	
	Gas	20000	1	2	2	
	Electric sub-station	20000	1	2	2	
Commerce and Shopping	Wholesale market	20000	1	2	2	
	Retail sale market	20000	1	2	2	
	Corner Shop	2500	0.25	19	4.75	Ward-07 (3);Ward-06 (3);Ward-08 (3);Ward-04 (2);Ward-05

Padua-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
						(2);Ward-02 (2);Ward-03 (2);Ward-01 (2);
	Neighborhood Market	10000	1	5	5	Ward-07 (1);Ward-06 (1);Ward-08 (1);Ward-04 (1);Ward-02 (1);Ward-03 (1);
Industry	Small scale	1000	1.5	47	70.5	Ward-07 (7);Ward-06 (8);Ward-08 (8);Ward-04 (5);Ward-05 (5);Ward-02 (5);Ward-03 (5);Ward-01 (4);
	Heavy Industry	10000	5	5	25	Ward-07 (1);Ward-06 (1);Ward-08 (1);Ward-04 (1);Ward-02 (1);Ward-03 (1);
Transportation	Bus terminal	20000	1	2	2	
	Truck terminal	20000	0.5	2	1	

Parua Union								
Facilities	Type	No of Facilities		Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	9	14	Ward-02(1), Ward-04(2), Ward-08(3), ward-09(3)	3.18	0.05	0.09	River Erosion Transport Electricity Line Health Education
	Madrasa	6	4	Ward-04(3), Ward-09(3)	2.99	0.04		
Religious	Mosque	16	32	Ward-02(1), Ward-04(4), Ward-08(5), ward-09(6)	16.39	0.23	0.47	
	Temple	8	15	ward-02(1), ward-08(2), ward-09(5)	16.21	0.23		
	Mazar	2		ward-04(2)	0.68	0.01		
Graveyard		13		ward-04(1), ward-06(1), ward-08(5), ward-09(6)	2.76	0.04	0.04	
Open Space		2		ward-02(1), ward-06(1)	0.12	0.00	0.00	

Parua-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	4	8	Ward-08 (1); Ward-09 (1); Ward-04 (1); Ward-02 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	2	2	Ward-09 (1); Ward-04 (1);
Health	Health centre/Maternity clinic	5000	1	4	4	Ward-08 (1); Ward-09 (1); Ward-04 (1); Ward-02 (1);
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	

Parua-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	8	2	Ward-08 (1); Ward-09 (2); Ward-04 (2); Ward-02 (1);
	Neighborhood Market	10000	1	2	2	Ward-09 (1); Ward-04 (1);
Industry	Small scale	1000	1.5	19	28.5	Ward-08 (3); Ward-09 (6); Ward-06 (1); Ward-04 (6); Ward-02 (4);
	Heavy Industry	10000	5	2	10	Ward-09 (1); Ward-04 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Pomara Union

Pomara Union- Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	15	15	Ward-01(1), Ward-02(1), Ward-03(1), ward-04(2), ward-05(2), ward-06(2), ward-07(2), ward-08(3), ward-09(1)	12.12	0.27	0.81	River Erosion Transport Electricity Line Health Education
	Secondary School	4	4	Ward-02(1), Ward-02(1), ward-03(2), ward-04(1), ward-07(1), ward-08(3)	11.27	0.25		
	Madrasa	13	2	Ward-01(2), Ward-03(2), ward-05(1), ward-06(1), ward-07(2), ward-08(5), ward-09(3)	12.31	0.27		
	College	1	1	Ward-06(1)	0.64	0.01		
Religious	Mosque	28		Ward-01(1), Ward-02(5), Ward-03(4), ward-04(1), ward-05(1), ward-06(4), ward-07(3), ward-08(6), ward-09(3)	66.71	1.48	3.76	
	Temple	9		ward-04(1), ward-06(6), ward-07(2)	40.27	0.89		
	Eidgah	1		ward-06(1)	0.08	0.00		
	Buddho Bihar	2		ward-07(2)	0.50	0.01		
	Mazar	11		ward-03(3), ward-07(4), ward-09(4)	62.12	1.38		
Graveyard		23		ward-01(1), ward-02(1), ward-03(1), ward-05(1), ward-06(3), ward-07(6), ward-08(5), ward-09(5),	33.41	0.74	0.74	
Health Facilities	Community Clinic	4		ward-02(1), ward-03(1), ward-04(1), ward-07(1)	0.68	0.02	0.02	
Community	Community Center	1		ward-08(1),	0.20	0.00	0.00	
Open Space		1		ward-06(1),	0.03	0.00	0.00	

Pomra-Proposed						
Facilities	Category	Popula- tion	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	7	14	Ward-07 (1);Ward-06 (1);Ward-08 (1);Ward-04 (1);Ward-09 (1);Ward-02 (1);Ward-05 (1);
	Secondary/Hi gh School	20000	5	2	10	
	College	20000	10	2	20	
Open Space	Play field/ ground	20000	3	2	6	
	Neighborhood park/Park	10000	1	3	3	Ward-08 (1);
Health	Health centre/Matern ity clinic	5000	1	7	7	Ward-07 (1);Ward-06 (1);Ward-08 (1);Ward-04 (1);Ward-09 (1);Ward-02 (1);Ward-05 (1);
Communit y Facilities	Mosque/ Church/ Temple	20000	0.5	2	1	
	Eidgah	20000	1	2	2	
	Graveyard	20000	1	2	2	
	Community centre	20000	1	2	2	
	Post office	20000	0.5	2	1	
Utilities	Water supply	20000	1	2	2	
	Gas	20000	1	2	2	
	Electric sub- station	20000	1	2	2	
Commerce and Shopping	Wholesale market	20000	1	2	2	
	Retail sale market	20000	1	2	2	
	Corner Shop	2500	0.25	14	3.5	Ward-07 (2);Ward-06 (2); Ward-08 (3);Ward-04 (1); Ward-09 (2);Ward-02 (1); Ward-03 (1);Ward-05 (1);
	Neighborhood Market	10000	1	3	3	Ward-08 (1);
Industry	Small scale	1000	1.5	34	51	Ward-07 (4);Ward-06 (5); Ward-08 (7);Ward-04 (4); Ward-09 (5);Ward-02 (3); Ward-03 (2);Ward-01 (1); Ward-05 (3);
	Heavy Industry	10000	5	3	15	Ward-08 (1);
Transporta tion	Bus terminal	20000	1	2	2	
	Truck terminal	20000	0.5	2	1	

Rajanagar Union

Rajanagar Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Secondary School	1	1	ward-08(1)	0.158426	0.002599		Gas Transport Agriculture Irrigations Drainage Sanitation
	Madrasa	3	1	Ward-03(1), ward-06(1), ward-08(1)	2.729915	0.044778		
	College	1		Ward-08(1)	0.66445	0.010899		
Religious	Mosque	4		Ward-06(1), Ward-08(3)	6.384444	0.104722	0.214441	
	Temple	3		ward-06(1), ward-08(2)	6.274496	0.102918		
Graveyard		3		ward-03(1), ward-07(1), ward-08(1)	2.921274	0.047917	0.047917	
Community	Club	1		ward-08(1),	0.461057	0.007563	0.007563	
Open Space		1		ward-02(1),	0.038711	0.000635	0.000635	

Dakshin Rajanagar -Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	5	10	Ward-08 (1);Ward-06 (1);Ward-07 (1);Ward-02 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park/Park	10000	1	2	2	Ward-07 (1);
Health	Health centre/Maternity clinic	5000	1	5	5	Ward-08 (1);Ward-06 (1);Ward-07 (1);Ward-02 (1);
Community Facilities	Mosque/Church/Te mple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	10	2.5	Ward-09 (1);Ward-08 (2);Ward-06 (1);Ward-07 (2);Ward-05 (1);Ward-02 (2);Ward-04 (1);
	Neighborhood	10000	1	2	2	Ward-07 (1);

Dakshin Rajanagar -Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
	Market					
Industry	Small scale	1000	1.5	24	36	Ward-09 (2);Ward-08 (5);Ward-06 (3);Ward-07 (5);Ward-03(1);Ward-05 (2);Ward-02 (4);Ward-04 (2);
	Heavy Industry	10000	5	2	10	Ward-07 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Rangunia Union

Rangunia Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Secondary School	1		ward-03(1)	0.71	0.02		Transport Electricity Line Drainage Gas
	Madrasa	10		Ward-01(1), Ward-02(3), ward-04(1), ward-05(2), ward-07(3)	4.59	0.15		
Religious	Mosque	17		Ward-01(2), Ward-02(5), Ward-04(2), ward-05(1),ward-06(1),ward-07(6)	17.43	0.55	1.31	
	Temple	23		ward-01(5),ward-04(4), ward-06(7), ward-07(7)	18.93	0.60		
	Mazar	1		ward-01(1)	0.06	0.00		
Graveyard		9		ward-01(1),ward-02(1),ward-05(1), ward-07(6)	3.80	0.12	0.12	
Health Facilities	Community Clinic	3		ward-06(1),ward-07(1),ward-08(1)	0.17	0.01	0.01	
Community	Community Center	1	2	ward-07(1),	0.15	0.00	0.00	
Open Space		2		ward-03(1),ward-04(1),	0.03	0.00	0.00	

Rangunia-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
Education	Primary School/ kindergarten	5000	2	4	8	Ward-07 (1);Ward-06 (1);Ward-02 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	2	2	Ward-07 (1);
Health	Health centre/Maternity clinic	5000	1	4	4	Ward-07 (1);Ward-06 (1);Ward-02 (1);
Community Facilities	Mosque/Church/Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	7	1.75	Ward-07 (2);Ward-05 (1);Ward-06 (1);Ward-04 (1);Ward-03 (1);Ward-02 (1);Ward-01 (1);
	Neighborhood Market	10000	1	2	2	Ward-07 (1);
Industry	Small scale	1000	1.5	18	27	Ward-07 (5);Ward-05 (2);Ward-06 (3);Ward-04 (1);Ward-03 (2);Ward-02 (3);Ward-01 (1);
	Heavy Industry	10000	5	2	10	Ward-07 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

Sarapbhata Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Secondary School	4	3	ward-03(1), ward-07(1), ward-08(1), ward-09(1)	7.01	0.11		Transport Education Health Recreation Housing
	Madrasa	9	15	Ward-03(4), Ward-04(3), ward-07(1), ward-09(1)	6.53	0.10		
Religious	Mosque	29		Ward-01(2), Ward-02(2), Ward-03(3), ward-04(7), ward-05(2), ward-06(1), ward-07(1), ward-08(10), ward-09(1)	38.61	0.61	1.32	
	Temple	2		ward-01(1), ward-04(1)	30.80	0.48		
	Mazar	3		ward-01(2), ward-04(1)	14.66	0.23		
Health Facilities	Community Clinic	2		ward-02(1), ward-08(1)	0.15	0.00	0.00	
Community	Community Center	2		ward-05(1), ward-06(1),	6.40	0.10	0.10	
	Club	1		ward-08(1)	0.07	0.00		

Sharapbhata-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Provided Area (acre)	Location Ward (No. of Facilities)
Education	Primary School/ kindergarten	5000	2	7	14	Ward-03 (1); Ward-07 (1); Ward-04 (2); Ward-05 (1); Ward-08 (1);
	Secondary/High School	20000	5	2	10	
	College	20000	10	2	20	
Open Space	Play field/ground	20000	3	2	6	
	Neighborhood park/Park	10000	1	3	3	Ward-04 (1); Ward-08 (1);
Health	Health centre/Maternity clinic	5000	1	7	7	Ward-03 (1); Ward-07 (1); Ward-04 (2); Ward-05

Sharapbhata-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Provided Area (acre)	Location Ward (No. of Facilities)
						(1); Ward-08 (1);
Community Facilities	Mosque/Church /Temple	20000	0.5	2	1	
	Eidgah	20000	1	2	2	
	Graveyard	20000	1	2	2	
	Community centre	20000	1	2	2	
	Post office	20000	0.5	2	1	
Utilities	Water supply	20000	1	2	2	
	Gas	20000	1	2	2	
	Electric sub-station	20000	1	2	2	
Commerce and Shopping	Wholesale market	20000	1	2	2	
	Retail sale market	20000	1	2	2	
	Corner Shop	2500	0.25	13	3.25	Ward-01 (1); Ward-02 (1); Ward-03 (1); Ward-09 (1); Ward-07 (2); Ward-04 (4); Ward-05 (1); Ward-08 (3);
	Neighborhood Market	10000	1	2	2	Ward-04 (1); Ward-08 (1);
Industry	Small scale	1000	1.5	34	51	Ward-01 (2); Ward-02 (1); Ward-03 (4); Ward-06 (1); Ward-09 (2); Ward-07 (5); Ward-04 (9); Ward-05 (3); Ward-08 (6);
	Heavy Industry	10000	5	3	15	Ward-04 (1); Ward-08 (1);
Transportation	Bus terminal	20000	1	2	2	
	Truck terminal	20000	0.5	2	1	

Silok Union

Silok Union-Existing								
Facilities	Type	No of Facilities	From PRA	Location (No of Facilities)	Area (Acre)	%	Total %	Major Findings From PRA
Education	Primary School	11	8	Ward-01(2), Ward-02(2), Ward-04(1), ward-06(1), ward-07(1), ward-08(4)	8.00	0.25	0.46	Health
	Secondary School	2	6	ward-04(1), ward-08(1)	2.43	0.08		River Erosion
	Madrasa	5		Ward-04(1), Ward-06(1), ward-07(2), ward-08(1)	4.30	0.14		Transport
Religious	Mosque	13		Ward-02(3), Ward-03(3), Ward-04(1), ward-05(2), ward-07(3), ward-08(1)	27.52	0.87	2.03	Industry
	Temple	10		ward-01(1), ward-03(2), ward-04(3), ward-05(2), ward-06(1), ward-07(1),	18.60	0.59		Education
	Mazar	2		ward-03(1), ward-07(1)	18.09	0.57		
	Buddho Mandir	1		ward-03(1)	0.09	0.00		
Graveyard		19		ward-01(3), ward-02(4), ward-03(2), ward-04(2), ward-05(3), ward-06(1), ward-07(2), ward-08(2)	87.95	2.78	2.78	
Health Facilities	Community Clinic	2		ward-06(1), ward-08(1)	0.54	0.02	0.02	

Silok-Proposed						
Facilities	Category	Population	Standard Area per acre	No. of Facilities	Proided Area (acre)	Location Ward (No.of Facilities)
	Primary School/ kindergarten	5000	2	5	10	Ward-02 (1); Ward-03(1); Ward-08 (1); Ward-06 (1); Ward-07 (1);
	Secondary/High School	20000	5	1	5	
	College	20000	10	1	10	
Open Space	Play field/ground	20000	3	1	3	
	Neighborhood park/Park	10000	1	2	2	Ward-08 (1);
Health	Health centre/Maternity clinic	5000	1	5	5	Ward-02 (1); Ward-03(1); Ward-08 (1); Ward-06 (1); Ward-07 (1);
Community Facilities	Mosque/Church/ Temple	20000	0.5	1	0.5	
	Eidgah	20000	1	1	1	
	Graveyard	20000	1	1	1	
	Community centre	20000	1	1	1	
	Post office	20000	0.5	1	0.5	
Utilities	Water supply	20000	1	1	1	
	Gas	20000	1	1	1	
	Electric sub-station	20000	1	1	1	
Commerce and Shopping	Wholesale market	20000	1	1	1	
	Retail sale market	20000	1	1	1	
	Corner Shop	2500	0.25	10	2.5	Ward-02 (1); Ward-03(1); Ward-08 (2); Ward-06 (1); Ward-07 (2); Ward-05 (1); Ward-04 (1);
	Neighborhood Market	10000	1	2	2	Ward-08 (1);
Industry	Small scale	1000	1.5	24	36	Ward-02 (4);Ward-01 (1);Ward-03(3);Ward-08 (6);Ward-06 (3);Ward-07 (4);Ward-05 (2);Ward-04 (2);
	Heavy Industry	10000	5	2	10	Ward-08 (1);
Transportation	Bus terminal	20000	1	1	1	
	Truck terminal	20000	0.5	1	0.5	

APPENDIX-E

Planning Standard Review**Table E 1: Broad Category of Landuse**

Broad Category	Percentage (%)
Commerce and Industry	10-15
Social, Admin, Cultural and urban services	20-30
Roads (including local)	5-10
Residential	35-45
Urban deferred	About 10
Reserves	About 5
Total	100

Source: Urban Development Directorate (UDD), 1980

Table E 2: Specific Landuse Standard

Facilities			Landuse Standard (in acre)
a) Commerce and Industry			
		Market	1.5 acre per 1,000 population
		Shop	
		Office	
		Small Scale Industry	
b) Social, Administrative, Cultural and Urban Services			
Social Services	Education	Nursery School	2 acre per 5,000 population
		Primary School	population
		Secondary School	1 acre per 5,000 population
		College	population
	Health	Dispensary	1 acre per 5,000 population
		Maternity/Child Care	population
		Health Center	5 acre per 20,000 population
		Hospital	population
Administrative		Administrative/Judiciary including Officers' Residences	12 acres per Upazila Shahr
Recreational Facilities		Parks, Open Space	1 acre per 1,000 population
		Cinema	0.5 acre per 20,000 population
		Sports Stadium	3 acres per 20,000 population
Socio-Cultural		Community Center	1 acre per 20,000 Population
		Religious Facilities	0.5 acre per 20,000 population
		Graveyard	5 acre per 20,000 population

Urban Services	Post Office	0.5 acre per 20,000 population
	Telephone Exchange	0.5 acre per 20,000 population
	Police Station	2 acre per 20,000 population
	Bus/Ghat/Rail Station	1 acre per 20,000 population
	Others	1 acre per 20,000 population
c) Roads		
Category	Reserve	Surface
Major	60'	30'
Secondary	40'	20'
Local	24'	12'

Source: Urban Development Directorate (UDD), 1980

MASTER PLAN FOR BARISAL DIVISIONAL TOWN, 2010**Table E 3: Standard for Road**

Road Type		Construction Type	RoW
Overall Road Hierarchy	Primary Road	New Construction	30.45m (100 ft.)
		Widening of Existing Road	18.29m- 24.39m (60-80 ft)
	Secondary Road	New Construction	12.20(40 ft.)
		Widening of Existing Road	9.15m (30ft)
	Collector Road	New Construction	9.15 (30 ft.)
		Widening of Existing Road	6.09m (20ft. minimum)
	Access Road	New Construction	9.15 (30 ft.)
		Widening of Existing Road	6.09m (20ft. minimum)
Neighborhood and Local Road	All neighborhood (mahallah) Roads ROW may be in between 20 ft. to 40 ft wide depending on their functions		

Source: Master Plan For Barisal Divisional Town, 2010

MASTER PLAN FOR SYLHET DIVISIONAL TOWN, 2010**Table E 4: Standrad for Different Landuses**

Use	Recommended Standard	Comments
Open space		
Open space	1 acre/ 1000 population Within 1 acre 0.5 acre for Play field and 0.5 acre for Park	
Official park	Minimum 5 acres	
City level park	Minimum 10 acres	
Education		
Primary School	1 primary school/7000 population Area: 1 acre	There should be two shifts in every school
Secondary School	1 secondary school/8000 population Area: 2 acres	890 students in each school
College (Higher secondary and Degree)	1 college/30000 population	1800 students in each college and there will be an open space equivalent to one formal football field for each college.
Health	1 bed/1000 population	
Katcha Bazar	0.30 acre	

Source: Master Plan For Barisal Divisional Town, 2010

Table E 5: Standard as per Population

Landuse Components	Standard (Acre per population)	Remarks
A. General Landuse		
1. Residential Density		
Private/General	100-150 person/1 acre	
Public/Government	150-200 person/1 acre	
2. Administrative		
Upazila Complex	10 acre	
Pourashava Office	3 acre	
Ward Councillor's office	0.10 acre	For each Ward
Jail/Sub-Jail	10 acre	
3. Commercial		
Wholesale Market	3-5 acre	1 in each Pourashava
Retail/Neighborhood shops	0.5 acre/10,000 population	
Shopping Complex	0.5 acre/20,000 population	
Cattle Market/Hat	1-1.5 acre	1 in each Pourashava
Slaughter House		
4. Education		
Nursery/Elementary School	2 acre/10,000 population	
Primary School	5 acre/5,000 population	
Secondary School	10 acre/20,000 population	
College/University	5-10 acre/20,000 population	
Vocational Training Center	5 acre	1 in each Pourashava
Others	0.5 acre/20,000 population	1 in each Pourashava
5. Community and Social Services		
Eidgah	2 acre/20,000 pop.	
Graveyard	1 acre/20,000 pop.	
Cremation Ground	0.5 acre /20,000 population	
Mosque/Temple/Church	0.5 acre/20,000 pop.	
Community Center/Auditorium	0.5 acre/20,000 pop.	
Club/Gymnasium	0.10 acre	Optional
Day Care Center	0.10 acre	Optional
6. Government Services		
Police Station	3-5 acre	1 in each Pourashava
Police Box	0.5 acre/Box	
Post Office	0.5 acre /20,000 population	
Fish Landing Station	0.5 acre	Optional 1 in each Pourashava
Fire Service	1 acre/20,000 population	
Telephone Exchange	0.25 acre/20,000 population	
7. Industrial		
General/Agro/Cottage Industry	2-5acre/10,000 population	
Heavy Industry	10-15 acre	As per local requirement. 1 in each Pourashava
8. Open Space and Recreation		
Central Park	5-10 acre	1 in each Pourashava

Neighborhood/Community Park	1 acre/10,000 population	
Playground/Play Field	3 acre/20,000 population	
Stadium Complex (Indoor and Outdoor)	5-10 acre	Optional 1 in each Pourashava
Cinema Hall	3 acre/20,000 population	
Club House	1 acre	Optional 1 in each Pourashava
B. Utility/Physical Infrastructure Facilities		
1. Health		
General Hospital	5 acre/50 bed hospital	1 in each Pourashava
Specialized Hospital	1 acre	1 in each Pourashava
Maternity/ Child Care Center	1 acre/20,000 population	
Clinic	0.25 acre /20,000 population	
2. Water Supply, Sewerage and Garbage Disposal		
Water Supply Station with Treatment Plant	1 acre /20,000 population	
Waste Disposal Ground	2-3 acre	
Waste Collection Point		As per local requirement
Sewerage Treatment Plant		As per local requirement
3. Electrification		
Electric Sub-station	1 acre /20,000 population	1 in each Pourashava
4. Gas		
Supply Station	1 acre	1 in each Pourashava
5. Transportation and Communication Infrastructure		
Bus Terminal	1 acre	1 in each Pourashava
Bus Stand	0.5 acre /20,000 population	
Truck Terminal	1 acre	1 in each Pourashava
Launch/Steamer Terminal	1 acre	1 in each Pourashava
Rickshaw/Van/Tempo Stand	0.25 acre/Station	
Fuel/Filling Station	0.5 acre /20,000 population	
Railway Station	4 acre	
6. Circulation Network		
a. Road		
Type	Right of Way/Width	Remarks
Primary	60-100 feet	
Secondary	30-40 feet	
Local/Connector	Minimum 20 feet	
Walkway/Footpath	5-8 feet	
b. Drain		
Primary		As per local requirement
Secondary		As per local requirement
Household		As per local requirement

Source: Urban Development Directorate (UDD), 2013

Table E 6: Recommended General Planning Standards as per Population Distribution

Land use/ Community Facilities/Utility service		Standards
Commercial and industry	Commerce (market, shop, office)	1.5 acres per 1,000 population served
	Industry/factory (small scale)	1.5 acres per 1,000 population served
Residential	Private/government Housing Estate	1acre per 100 population served
Post Office		0.5 acre per 20,000 population served
Telephone Exchange		0.5 acre per 20,000 population served
Police line/Police Station		2 acres per 20,000 population served
Bus/Railway Station/Ghat		1 acre per 20,000 population served
Other (Power supply, Water supply, Gas station, Garbage, Disposal site/Rickshaw/Baby taxi/truck stand)		1 acre per 20,000 population served
Reserve		5% of the total buildable land which will not be used for further development purpose. (if possible)
Education	Nursery	0.08 acre per 1,000 population served
	Primary school	0.08 acre per 1,000 population served
	Secondary school	0.1 acre per 1,000 population served
	College	0.08 acre per 1,000 population served
Health	Small Clinics	0.04 acre per 1,000 population served
	Hospitals	0.04 acre per 1,000 population served
Community Organization	Community Center/Mosque	0.04 acre per 1,000 population served
	Play Ground/Playfield	0.08 acre per 1,000 population served
Recreation	Park	0.12 acre per 1,000 population served
Commercial	Corner Shop/ Katcha bazar	0.04 acre per 1,000 population served
Utility Service	Electricity (Million/Hour)	Per Capita/day 6.5 Kw/h
	Water (Million Liter)	Per Capita/day 119 liter
	Gas(Million cubic feet)	Per Capita/day 45 cubic feet
	Garbage disposal (Metric ton)	Per Capita/day 0.03 kg
Land use/ Community Facilities/Utility service		Standards
	Used water drainage (Million liter)	55.12% of used water/day
Recreational	Cinema Hall	0.5 acre per 20,000 population served
	Stadium	5-10 acres per pourashava

Eidgah	0.5 acre per 20,000 population served
Graveyard/Crematorium	1 acre per 20,000 population served
Police Box/outpost	0.5 acre per Box
Fire Station	1 acre per 20,000 population served
District Head Quarter	15 acres
Pourashava Office	3-5 acres
Jail/Sub-jail	10 acres/Upazilla HQ

Development Plan for Cox's Bazar Town and Sea Beach upto Teknaf (2011-31)

Table E 7:Recommended Planning Standards

Types of Land Uses	Recommended Standard Provision (Unit)
Residential	
General residential	100 -150 persons/1 acre
Real Estate - Public/Private	150-200 population/ 1 acre
Settlements/ Rural Homestead	50 person/1 acre
Roads	
Paurashava primary roads	80 - 100 feet
Paurashava secondary roads	40 - 60 feet
Paurashava tertiary roads	30 - 40 feet
Paurashava access/ local roads	20 - 25 feet
Education	
Nursery	
Primary School/ kindergarten	0.5 acre/10,000 population
Secondary/High School	2.00 acres/5000 population
College	5.00 acres /20,000 population
Vocational Training/ Polytechnic	10.00 acres/20,000 population
Institute	5 - 10 acres/ Paurashava/ Upazila
College for XII grand/ Vocational	5 acres/ Union
Center	
Others (Library, Public library)	5.00 acres / 20,000 population
Open Space	
Play field/ground	3.0 acres/20,000 population/Paurashava/
Central Park	Union HQ
Neighborhood/ Community park	5-10 acres/ Paurashava/ Upazila HQ
Types of Land Uses	Recommended Standard Provision (Unit)
Stadium/sports complex Cinema/ Theatre	1.0 acre /10000 population 5-10 acres/ Paurashava/ Upazila HQ 1.0 acres/20,000 population/Paurashava/ Union HQ
Health Upazila health complex/ hospital Specialized Hospital Maternity/ Child Care Center Health Centre/ Clinic	10 -20 acres/Upazila HQ 1 acre/ Paurashava/ Union HQ 1 acre/ 20000 population 0.25/ 20000 population
Community Facilities Mosque/Church/Temple Eidgah Graveyard Community Centre Police Station Police Box/ Outpost Fire Station Post office	0.5 acre /20,000 population 2.0 acre/20,000 population 1.0 acre /20,000 population 0.50 acre /20,000 population 3-5 acres/Paurashava/Union HQ 0.5 acre/ per box 1 acre/20000pop/Dist. HQ/Union HQ 0.5acre/20000 pop/Paurashava/union
Commerce and Shopping Wholesale market Retail sale market Neighborhood market Super Market Cattle Market (Cow Hat) Slaughter House	3-5 acres/Paurashava/Union HQ 0.5 acre / 10000 population 1.00 acre/per neighborhood market 1.50-2.50 acres/per super market 1-2.5 acres/Paurashava 0.15/20000 pop/Paurashava/Union HQ

Utilities Drainage Water supply Gas Supply Station Solid waste disposal site Waste transfer station/ collection point Electric sub-station Telephone exchange Fuel Station	As per local requirement 1.0 acre /20,000 population 1.0 acre /20,000 population 4-10 acres/Upazila HQ 1 acre/ ground/Union 0.2 acres/per waste transfer station 1.0 acre/20,000 population 0.5 acre/20,000 population 0.5 acres/20000pop/Union HQ/Paurashava
Industry Small scale Cottage/agro-based	1.50 acres /10,000 population 2.5 acres/10,000 population
Transportation Bus terminal Truck terminal Launch/steamer terminal Railway station Baby taxi/tempo stand Rickshaw/van stand	1.0 acre /20,000 population 1 acre/20,000 pop/ Paurashava/Union HQ 2.0 acre /20,000 population 4 acre/per station/Dist HQ/Union HQ 0.25 acre /one baby taxi/tempo stand 0.25 acre /one baby taxi/tempo stand
Administration Upazila complex Paurashava office Jail/Sub-Jail Ward Councilor Office	10 acres / Upazila 3 acres / Paurashava 10 acres/Upazila HQ 0.10acre/office
Agri-extension Farm	10 acres/Upazila HQ
Urban Deferred	5 percent of the total build up area

Madaripur/Rajoir Master Plan, (UDD, 2015-2035)

**Preparation of Detailed Area Plan for Dhaka Metropolitan Development
Planning (DMDP) Area (RAJUK, 1995-2015)**

Table E 8: Standards for Provisions of Community Services

Type of Service	Number of Area Inhabitants served Per Unit	Surface Area Needed per Unit	Remark
Primary School	15000	1 acre	<ul style="list-style-type: none"> • 'ideal' standard is 1 per 7000; present situation is 1 per 220000. • 16% primary schools are government schools; • the 1 acre surface includes playgrounds; • can also be double shift / dual use.
Secondary Schools	23000	2 acres	<ul style="list-style-type: none"> • the surface area includes playgrounds.
Colleges	-	-	<ul style="list-style-type: none"> • Threshold number of students and area of land to be defined case by case
Playgrounds	Double usage of primary and secondary school yards.	-	-
Parks	25000	4 acres	<ul style="list-style-type: none"> • Larger parks may serve larger number of inhabitants.
Graveyards	Ward basis	Minimum 5 acres	-
Neighbourhood centers	Ward basis	0.30 acre	-
Health post	Ward basis	-	-
Welfare centre	Ward basis	-	<ul style="list-style-type: none"> • Also included in community center
Hospital	-	-	• To be determined in a case by case basis
Markets	Ward basis	-	
Police/Fire Station	-	-	• To be determined in a case by case basis.

Source: DMDP Urban Area Plan, 1995.

Table E 9: Facility Standard at Neighbourhood Level

Sl.	Name of the Facility	Quantity		Area		
		Min.	Max.	Minimum for Unit Facility	Sub Class Total	Class Total (Acre)
		(No.)	(No.)			
1	Primary School (Public or private)	2	3	1 Acre		3
2	High School (Public or private)	1	2	1.5 Acre		3
3	Open space			10 Acre		12
	i) Park/children's park	1	2	0.3 Acre	1 Acre	
	ii) Water body/ Canal/Pond	As per Planner		1.5 Acre	6 Acre	
	iii) Play field	2	3	1 Acre	3 Acre	
	iv) Green/Vegetation/Water Front	As per Planner		0.5 Acre	2 Acre	
4	Mosque and Maktab/ Worship Places	2	3	0.2 Acre		0.6
5	Library(central)	1	1	0.1 Acre		0.2
6	Services			0.3 Acre		0.5
	i) Dentist/Doctor's Chamber	2	3	40 sq.m	120 sq.m	
	ii) Beauty Parlour	1	2	50 sq.m	100 sq.m	
	iii) Laundry	2	3	16 sq.m	50 sq.m	
	iv) Hair Dresser	2	3	12 sq.m	40 sq.m	
	v) Cyber Cafe/Internet service provider	1	2	50 sq.m	100 sq.m	
	vi) Photocopy / mobile / land phone / fax	2	2	12 sq.m	40 sq.m	
	vii) Computer based (word processing, printing etc) services	1	1	30 sq.m	30 sq.m	
	viii) Motor bike Repair, vulcanising etc.(optional)	1	1	50 sq.m	50 sq.m	
	ix) NMT repair service (Rickshaw, bicycle etc)	1	2	30 sq.m	60 sq.m	
	x) Post Office / Courier Services	1	2	20 sq.m	40 sq.m	
	xi) Sports / Recreational facilities(games, indoor games etc)	1	2	50 sq.m	100 sq.m	
	xii) Rickshaw/Auto stand (General)	2	4	100 sq.m	400 sq.m	
	xiii) Restaurant, Tea bar, Fast food	2	4	10 sq.m	100 sq.m	
	xiv) Tailoring	1	2	20 sq.m	40 sq.m	
7	Solid waste transfer station(may also small scale processing)	1	1	0.5 Acre		1
8	Utility Facilities					1*
9	Neighborhood Co-operative Office Complex			0.33 Acre		0.5
	i) Offices	2	4	15 sq.m	60 sq.m	
	ii) Committee rooms	2	3	40 sq.m	120 sq.m	
	iv) Community Club including indoor games (male and female)	2	2	200 sq.m	400 sq.m	
	v) Cultural Facilities (Rehearsal, Music room etc)	1	2	30 sq.m	60 sq.m	

	vi) Community Police Barrack	1	1	40 sq.m	50 sq.m	
	vii) Technician Service (Electrical, Plumber, AC, Freeze etc.)	2	4	25 sq.m	100 sq.m	
10	Community Hall	1	2	0.33 Acre		0.5
11	Shops			0.33 Acre		0.5
	i) General store	3	4	25 sq.m	100 sq.m	
	ii) Grocery	4	6	25 sq.m	150 sq.m	
	iii) Stationary	2	3	25 sq.m	150 sq.m	
	iv) Confectionary / Bakery	2	3	25 sq.m	80 sq.m	
	v) Departmental Store**	1	2	100 sq.m	200 sq.m	
	vi) Medicine Shop	2	3	25 sq.m	80 sq.m	
	vii) Sweet Meat Shop	2	3	25 sq.m	80 sq.m	
	viii) Book / Newspaper Stall	2	3	10 sq.m	30 sq.m	
	ix) Fresh Corner (Vegetable, fish, meat, egg, chicken etc.)	2	3	12 sq.m	40 sq.m	
	x) Fruit Shop	2	3	10 sq.m	30 sq.m	
	xi) Flower Stall	2	2	10 sq.m	30 sq.m	
	xii) Gift shop	1	2	10 sq.m	30 sq.m	
Total Area for the Neighborhood Facilities				22.8 Acres (approx.)		

Urban residential zone shall be developed in neighbourhood concept with following approximate standard that will be free of through traffic.

Gross area of neighbourhood: 50 acres [approx.]. It may vary depending on the population density of the planning area.

Gross density: 225 to 250 persons per acre.

Table E 10:Proposed Road Standard for DAP Area

SL No.	Road Category	Type	ROW (Meter)	ROW (Ft)
1	Primary Road	Type-1	51.82	170
2	Primary Road	Type-2	39.63	130
3	Primary Road	Type-3	30.48	100
4	Secondary Road	Type-1	24.39	80
5	Secondary Road	Type-2	18.29	60
6	Secondary Road	Type-3	12.19	40
7	Tertiary Road	Type-1	9.14	30
8	Access Road	Type-1	7.31	24
9	Access Road	Type-2	6.09	20

Table E 11:Standards for Road

The minimum road standards for Proposed in Structure plan are as follows			
Main Road	24.0 m	(78 ft.)	ROW
Arterial Road	14.5 m	(47.5 ft.)	ROW
Collector Road	13.0 m	(42.6 ft.)	ROW
Access Road	9.0 m	(29.5 ft.)	ROW
Access Road	6.0 m	(19.7 ft.)	ROW
Non-Motorized Road	4.0 m	(13.0 ft.)	ROW
Footpath	2.5 m	(8.2 ft.)	ROW

Table E 12:Standards for Road Hierarchy

Functional Basis	RoW	Hierarchical Basis
Arterial I	30 m	Primary Road I
Arterial II	27 m	Primary Road II
Distributor I	25 m	Secondary Road I
Distributor II	20 m	Secondary Road II
Collector I	15 m	Tertiary Road I
Collector II	12.5 m	Tertiary Road II
Access I	10 m	Access I

Khulna Master Plan, 2001-2020

Table E 13: Landuse Facility Standard

Facility	Home to Facility (Distance in Km)		Area Required (Acre)		Population Served	
	Desired	Max.	Min	Desired	Min	Desired
Primary School	0.25	0.5	1	1.5	1500	5000
High School up to Std. X / Madrasha up to Dakhil	1	1.5	1.5	2.5	5000	10000
High School up to Std. XII / Madrasha up to Kamil	1	1.5	2	3	5000	15000
Vocational Institute	2	3	3	5	-	-
College	2	3	3	4	15000	25000
University College	-	-	10	15	-	100000
University	-	-	20	50	-	100000
Mosque	0.15	0.25	0.2	0.67	1500	5000
Temple	5	-	0.2	0.5	-	-
Library	1	1.5	0.2	0.5	-	-
Community Hall	-	-	0.5	1.5	-	-
Cinema Hall	3	-	0.3	0.5	25000	-
Play Ground/Eidgah	0.25	0.5	1.5	2.5	3000	5000
Children's Park	0.25	0.5	0.5	1.5	1500	5000
Community Park	0.5	1	2	10	-	-
Graveyard	1	2	3	5	30000	50000
Crematorium	3	-	1	2	-	50000
Health Centre	0.5	1	0.3	0.5	5000	10000
Hospital	-	-	-	-	-	-
Police Outpost	-	-	0.2	0.3	-	-
Fire Service	5	10	0.2	0.33	-	-
Post Office	-	-	0.1	0.15	-	-
Katcha Bazaar	0.75	1.5	0.3	1	25000	50000
Solid Waste Processing Yard	-	-	3	5	-	-

Table E 14:Description of Proposed Roads

Road Type	Width (ROW) in meter	Length in kilometer	Area in Acre
1. Primary Road "a"	36.58 (120 ft)	19.83	178.92
2. Primary Road "a"	39.63 (130 ft)	16.54	161.91
3. Primary Road "a"	60.97 (200 ft)	9.83	148.06
4. Primary Road "a"	36.58 (120 ft)	3.04	27.54
5. Primary Road "a"	36.58 (120 ft)	19.88	179.96
6. Primary Road "b"	30.50 (100 ft)	51.56	421.75
7. Secondary Road "a"	24.40 (80 ft.)	14.12	253.80
8. Secondary Road "b"	18.30 (60 ft)	63.21	274.28
9. Local Road "a"	15.25 (50 ft.)	24.38	91.84
10 Local Road "b"	12.20 (40 ft.)	36.99	113.28
Total		259.38	1851.34

Table E 15:Highway Standard

Road Type on Functional Basis	Road Width	Right of Way	Road Type on Hierarc hical Basis	Remarks
National/Regional Links-I	60m	Four times of Road height from the existing ground level + Road Width	Highway	With flanking major road on both sides
				Difference to house slope on both sides
National/Regional Links-II	45m		Highway	With flaking major road on one side
				Road passing through embankment
				Difference to house slope on both sides

Table E 16:Area Connector Standard

Road Type on Functional Basis	Road Width	Right of Way	Road Type on Hierarchical Basis	Remarks
Areal Link-I	30m	Four times of Road height from the existing ground level + Road Width	Area Connector-I	Variable RoW from place to place
Areal Link-II	20m		Area Connector-II	Variable RoW from place to place

Table E 17:Local Urban Road Standard

Road Type on Functional Basis	Road Width	Right of Way	Road Type on Hierarchical Basis	Remarks
Arterial Road	20m	Four times of Road height from the existing ground level + Road Width	Primary Road	Variable RoW from place to place
Distributor	15m		Secondary Road	
Collector	12.5m		Tertiary Road	
Access I	10m		Access I	
Access II	8m		Access II	

Table E 18: Local Rural Road Standard

Road Type on Functional Basis	Road Width	Right of Way	Road Type on Hierarchical Basis	Remarks
Distributor	10m	Four times of Road height from the existing ground level + Road Width	Primary Road	Variable RoW from place to place
Collector	8m		Secondary Road	
Access	6m		Tertiary Road	

RAJSHAHI METROPOLITAN DEVELOPMENT PLAN (RDA. 2004-2024)

Table E 19: Recommended Planning Standards for Selected Facilities

Use	Recommended Standard for Rajshahi Functional Master Plan		Comment
i. Population Density	200 / acre gross		-
	220 / acre net		
ii. Open Space	1.5 acre / 1000 Population		-
iii. Road			
Roads in General			-
Primary Road	New Construction: ROW 100 ft. to 120 ft.		
	Widening of Existing Road: ROW 60-80 ft.		
Secondary Road	New Construction: ROW 60 ft.		-
	Widening of Existing Road: ROW 40 ft.		
Collector Road	New Construction: ROW 30 ft. to 40 ft.		-
	Widening of Existing Road: ROW 30 ft. (Minimum)		
Access Road	New Construction: ROW 30 ft.		-
	Widening of Existing Road: ROW 20 ft. (Minimum).		
Neighbourhood Road			
Secondary Road	Minimum recommended width (ROW): 40 ft.		
Collector Road	Minimum recommended width (ROW): 30 ft.		
Access Road	Minimum recommended width (ROW): 20 ft.		
iv. Education			
Primary School	One School / 4000 Population		This gives total 190 primary schools in the year 2014 for a study area population of 758227 persons.
	Area: 1 acre to 1.50 acres		
Secondary School	One school /6,000 Population Approx.		There will be need for total 127 secondary schools in the year 2014 for a study area population of 758227 persons.
	Area: 2 acres to 3 acres		
	One college /30,000 population		This gives total 26 colleges

College	Area: max. 10 acres each.	in the year 2014 for a study area population of 758227 persons.
v. Health	354 persons / bed	-
vi. Urban Services		
Katcha Bazar	One in Each Ward/SPZ in urban area only.	-
	Area: mini. 0.30 acre each.	
Fire Station	1 acre	Lump sum
Post Office	0.50 acre /20,000 population	-
Graveyard	5 acres /20,000 population	-
vii. Neighbourhood and Its Services		
Maximum Neighbourhood Size	50.00 acres	-
Neighbourhood Centre	One for each declared neighbourhood, 0.30 acre max. for each.	-

Source: Rajshahi Metropolitan Development Plan (RDA, 2004-2024)

**UPAZILLA TOWN INTEGRATED DEVELOPMENT PROJECT (UTIDP): LOCAL
GOVERNMENT ENGINEERING DEPARTMENT (LGED)**

Table E 20: Recommended Planning Standards

Types of Land Uses	Recommended Standard Provision (unit)
Residential	
General residential	50 - 100 persons/1 acre
Real Estate - Public/Private	200 population/ 1 acre
Roads	
Paurashava primary roads	60 -100 feet
Paurashava secondary roads	40 - 20 feet
Paurashava local roads	24 - 20 feet
Education	
Nursery/kindergarten	0.5 acre/10,000 population
Primary School	2.00 acres/5 000 population
Secondary/High School	5.00 acres /20,000 population
College	10.00 acres/20,000 population
Vocational Training Centre	5-10 acres / Upazila
Other	5.00 acres / 20,00Q0 population
Open Space/Recreation	
Play field/ground	3.00 acres/20,000 population
Park	1.00 acre /1000 population
Neighborhood park	1.00 acre /1000 population
Stadium/sports complex	5-10 acres/Upazila HQ
Cinema	0.5 acre /20,000 population
Health	
Upazila health complex/hospital	10-20 acres/Upazila HQ
Health centre/ Maternity clinic	1 acre/5000 population
Community Facilities	
Mosque/Church/Temple	0.5 acre / 20000 population
Eidgah	0.5 acre / 20000 population
Graveyard	1 acre/ 20000 population
Community centre	1 acre/ 20000 population
Police Station	3-5 acres/ Upazila HQ
Police Box/outpost	0.5 acre per box
Fire Station	1 acre/ 20000 population
Post Office	0.5 acre / 20000 population
Commerce and Shopping	
Wholesale market	1 acre/ 1000 population
Retail market	1 acre/ 1000 population
Corner shops	0.25 acre/corner shop
Neighborhood market	1 acre/ neighbourhood market
Super market	1.50-2.50 acres/super market
Industry	
Small scale	1 acre/ 1000 population

Cottage/Agro based	1 acre/ 1000 population	
Transportation		
Bus terminal	1 acre/ 20000 population	
Truck terminal	0.5 acre/ 20000 population	
Launch/steamer terminal	1 acre/ 20000 population	
Railway station	2 acre/ 20000 population	
Baby taxi/tempo stand	0.25 acre/one baby taxi/tempo stand	
Rickshaw/van stand	0.25 acre/one rickshaw/ van stand	
Passenger shed	0.25 acre/ one passenger shed	
Administration		
Upazila complex	15 acres	
Paurashava office	3-5 acres	
Jail/ Sub jail	10 acres/Upazila HQ	
Agri extension farm	10 acres/Upazila HQ	
Urban Deferred	10 percent of the total build up area	
Reserve		
Utility Service		Standards
Utility Service	Electricity (Million/hour)	Per capita /day 6.5 k w/h
	Water (Million Litre)	Per capita / day 119 litre
	Gas (Million cubic feet)	Per capita /day 45 cubic feet
	Garbage disposal (Metric ton)	Per capita /day 0.03 kg
	Used water drainage (Million litre)	55.12% of used water/day
Solid waste disposal site, Waste Generation Capacity		
Domestic waste per HH @ 0.25kg/cap/day		18252 kg/day
Commercial waste @ 8% of domestic waste		1460 kg/day
Market waste @ 12% of domestic waste		2190 kg/day

KALAPARA/PATHARGHATA PAURASHAVA MASTER PLAN (LGED, 2011-2031)**Table E 21: Land Requirement, Existing and Proposed Land Use of Kalapara Paurashava for the Year 2031**

Sl. No	Landuse Categories	Types of Landuses	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/ Surplus (Acre)	Actual Proposed Land (acre)
1	Residential	General residential	100 – 150 persons/1 acre	239.02	398.57	- 159.55	
		Real Estate – Public/Private	200 population/ 1 acre				10.14
		Total		239.02	398.5	- 159.55	10.14
2	Education and Research	Nursery	0.5 acre/10,000 population	1.20			
		Primary School/ kindergarten	2.00 acres/5000 population	9.56			
		Secondary/High School	5.00 acres /20,000 population	5.98			
		College	10.00 acres/20,000 population	11.95			
		Vocational Training Centre	5 - 10 acres / Upazila	5.00			
		Other	5.00 acres / 20,000 population	0			
		Total		33.69	13.31	20.38	2.93
3	Open Space	Play field/ground	3.00 acres/20,000 population	3.59			
		Park	1.00 acre /1000 population	23.90			
		Neighborhood park	1.00 acre /1000 population	23.90			
		Stadium/sports complex	5 – 10 acres/ Upazila HQ	6.00			
		Total		57.39	47.97	9.42	13.67
4	Recreational Facility	Cinema/ Theatre	1.0 acre /20,000 population	1.20			
		Total		1.20	0.38	0.82	0
5	Health Service	Upazila health complex/ hospital	10 -20 acres/ Upazila HQ	10			
		health centre/Maternity clinic	1.00 acre/ 5,000 population	4.78			
		Total		14.78	2.02	12.76	4.45

Sl. No	Landuse Categories	Types of Landuses	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/ Surplus (Acre)	Actual Proposed Land (acre)
6	Community Facilities	Mosque/Church/Temple	0.5 acre /20,000 population	0.60			
		Eidgah	1.0 acre/20,000 population	1.20			
		Graveyard	1.00 acre /20,000 population	1.20			
		Community centre	1 acre /20,000 population	1.20			
		Police Station	3 – 5 acres/Upazila HQ	3.00			
		Police Box/outpost	0.5 acre/ per box	0.5			
		Fire Service	1.00 acre/20,000 population	1.20			
		Post office	0.5 acre /20,000 population	0.60			
		Total		9.50	10.26	-0.76	6.67
7	Commercial	Wholesale market	1.0 acres/ 10000 population	2.39			
		Retail sale market	1.0 acres/ 1000 population	23.90			
		Corner shops	0.25 acre/per corner shop	0.50			
		Neighborhood market	1.00 acre/per neighborhood market	1.00			
		Super Market	1.50 – 2.50 acres/per super market	2.00			
		Total		29.79	22.08	7.71	3.32
8	Utility Services	Water supply	1.00 acre /20,000 population	1.20			
		Gas	1.00 acre /20,000 population	1.20			
		Solid waste disposal site	4-10 acres/Upazila HQ	5.00			
		Waste transfer station (9 nos)	0.25 acres/per waste transfer station	2.25			
		Electric Sub station	1.00 acre /20,000 population	1.20			
		Telephone exchange	0.5 acre/20,000 population	0.60			
		Water Treatment Plant	1.00 acre/20,000 population	1.20			
		Total		12.65	0	12.65	8.67

Sl. No	Landuse Categories	Types of Landuses	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/ Surplus (Acre)	Actual Proposed Land (acre)
9	Industrial	Small scale	1.00 acre/1,000 population	23.90			
		cottage/agro-based	1.00 acre/1,000 population	23.90			
		Total		47.80	16.72	31.08	5.30
10	Transportation Facilities	Bus terminal	1.0 acre /20,000 population	1.20			
		Truck terminal	0.50 acre /20,000 population	0.60			
		Launch/steamer terminal	1.00 acre /20,000 population	1.20			
		Railway station	4.00 acre / per Station	0			
		Baby taxi/tempo stand	0.25 acre /one baby taxi/tempo stand	0.50			
		Rickshaw/van stand	0.25 acre /one baby taxi/tempo stand	0.50			
		Passenger Shed	0.25 acre /one baby taxi/tempo stand	0.25			
		Fuel Station	0.5 acre/20,000 population	0.60			
		Total		4.85	0.78	4.07	4.93
11	Administrative	Upazila complex	10-15.00 acres	10.00			
		Paurashava office/Ward Councilor's Office	3 – 5 acres	5.00			
		Jail/Sub-Jail	10 acres/Upazila HQ	10.00			
		Total		25.00	17.21	7.79	6.72
12	Circulation Networks	Paurashava primary roads	150 – 100 feet				
		Paurashava secondary roads	100 – 60 feet				
		Paurashava local roads	40 - 20 feet				
		Total			30.82		126.20
13	Agriculture	Agri-extension Farm	10 acres/Upazila HQ	10	196.45		
		Total		10	178.33	- 168.33	
14	Urban Deferred	Urban Deferred	10 percent of the total build up area	9.95	0	9.95	15.56
		Total		9.95	0	9.95	15.56

Table E 22: Standards for Proposed Roads

Landuse Category	Hierarchy of Roads	Right of Way (ROW)
Circulation Network	Primary Roads	150-100 feet
	Secondary Roads	100-60 feet
	Tertiary Road	20-40 feet

Table E 23: Standard for Future Development of the Road Network of Kalapara Paurashava

Landuse Category	Hierarchy of Roads	Right of Way (ROW)
Circulation Network	Paurashava Primary Roads	60-150 feet
	Paurashava Secondary Roads	40-50 feet
	Paurashava Local Roads	20-30 feet

Comilla Master Plan (2014-2034)

Table E 24: Planning Standard and Land Required for Different Sector for the Preparation of Master Plan for Comilla City and Its Influence Area

Sl. No	Sectoral land use	Recommended Standard Provision	Year-wise Cumulative demand					Unit
			2014	2019	2024	2029	2034	
1.	Residential							
	General residential	Gross density 150-200 person per acre	3490	4900	6625	9160	13600	acre
	Real Estate – Public/Private / Neighborhood	Maximum 50 acre; 1.0 acre/ 150-200 population: Will follow Land Development Rules of Private housing Project, 2004						
	Neighborhood centers	0.5 acre					100	acre
2.	Educational							
	Nursery	0.4 acre/ 5,000 Population; seats/school: 160, the walking distance of school should normally be 0.5 Km	105	145	200	275	410	Number
			40	60	80	110	165	acre
	Primary School	1.6 acre/ 5,000 Population; infrastructure in 0.6 acre and 1.0 acre for Playground; seats/school:200; 2 Shifts; the walking distance of school should normally be 1.5 Km	105	145	200	275	410	Number
			170	235	320	440	650	acre
	Secondary/ High School	2-2.5 acre/ 10,000 Population; seats/school: 720; 2 shifts; infrastructure in 0.6 acre and 1.4 acres for Playground. the walking distance of school should normally be 2 Km	50	70	100	140	205	Number
			130	180	250	340	510	acre
	Intermediate / Degree College	4-6 acre/ 20,000 Population; seats/college: 1500 seats; 2 shifts	25	40	50	70	100	Number
			160	220	300	410	610	acre
	Technical School & college	Minimum land for establishment of Engineering College 8 acre; Minimum land for Polytechnic Institute 5 acre; Minimum land for Technical School & College 2 acre					15	acre
	Vocational Training Centre	2 institutes/ one City Corporation; 2.5 acre/ one institutes					5	acre
	Alim & Dakhil Madrasha	Minimum land within City Corporation 0.75 acre						
	Fazil & Kamil Madrasha	Minimum land within City Corporation 1 acre						
	University	Minimum land for establishment of private university 2 acres						
	Others	3-5 acre/ 20,000 Population; 1000	25	40	50	70	100	Number

Sl. No	Sectoral land use	Recommended Standard Provision	Year-wise Cumulative demand					Unit
			2014	2019	2024	2029	2034	
	(Madrasha)	seats	130	180	250	340	510	acre
3.	Open spaces & Recreational							
	Play field/ground	2.0 acre per 25,000 Population; minimum walking distance 1.5 km	20	30	40	55	80	Number
			40	60	80	110	160	acre
	Park/ Neighborhood park	2 acre/ 10,000 Population						
	Open Space	1.75 acre/ 1000 Population	915	1280	1740	2400	3570	acre
	Stadium/sports complex	5 acre/ 50,000 Population	10	15	20	30	40	Number
			50	70	100	135	205	acre
	Cinema/ Theatre	0.5 acre/25,000 Population	20	30	40	55	80	Number
			10	15	20	30	40	acre
4.	Health							
	N agar sashto kandro / hospital	4 acre/ 50,000 Population; 500 persons/ bed	10	15	20	30	40	Number
			40	60	80	110	160	acre
	Health Center/Clinic / Maternity	0.6 acre/ 5000 Household, Basic Health and family welfare services within 1-2 km. distance of residents.	20	30	45	60	90	Number
			15	20	25	35	55	acre
4.	Community Facilities							
	Mosque	0.2 acre/10,000 Population	50	70	100	135	205	Number
			10	15	20	30	40	Acre
	Church/Temple	As per requirement						
	Eidgah	0.5 acre/ 20,000 Population	25	40	50	70	100	Number
			15	20	25	35	50	acre
	Graveyard	5 acre/ 50,000 Population	50	70	100	135	205	acre
	Community centre	0.5 acre/ 10,000 Population	50	70	100	135	205	Number
			25	40	50	70	100	acre
Police Station	As per requirement made by Police							
Police Box/outpost	As per requirement made by Police							
5.	Commercial							
	Wholesale market	6 acre per city centre including services/ repairing & supplies	12					acre
	Retail sale market	5 acre includes market square, occasional supplies & shop like use						
	Corner Shop	0.2/ 2,500 Population	210	295	400	550	815	Number
			40	60	80	110	160	acre
	Retail Katcha Bazaar	One in each ward and one for every 20,000 Population, 0.3 acre minimum space for each	8	10	15	20	30	acre
Neighborhood Market	0.5 acre/ 10,000 population	100					acre	
6.	Utilities							
	Bangladesh Oil, Gas & Mineral Resource	For establishment of CNG station: 120 feet X 120 feet; (1400 sq. ft or 33 decimal along the road) Distance within two station: 3 km						

Sl. No	Sectoral land use	Recommended Standard Provision	Year-wise Cumulative demand					Unit
			2014	2019	2024	2029	2034	
	Corporation	considering one side of road & 2 km considering both sides of roads Necessary requirements of the corporation must have to be fulfilled						
	Power Development Board	Minimum land for construction of 33/11 KV & 2*10 MVA Substation .07 acre Minimum land for construction of GIS Substation less than .07 acre Minimum distance for installation of 33 KV, 11 KV & 4 KV line 30-40 meters Height of the poles: 15 meter for 33 KV line; 11/12 meter for 33 KVline & 9 meter for 4 KV line						
	Solid waste disposal site	5 acre / 500,000 Population	20					acre
	Waste Transfer Station	Minimum 20 decimal per ward	5					acre
	Fire Services	2/ City Corporation; Minimum 50 decimal for “A” Category Minimum 30 decimal for “B” Category	1					acre
	Post office	0.05 acre/ 20,000 Population	5					acre
7.	Industry							
	small scale	BSCIC area minimum 15 acres						
8.	Transportation							
	Bus terminal	Minimum 3 acres per terminal 3 acres per 1,00,000 Population						
	Truck terminal	Minimum 3 acres per terminal						
	Water way & Landing Station	Minimum 2.0 acres for landing station & office						
		For off-shore land: 500 meter on both sides of the landing station						
	Railway & Station	From one home signal to another home signal: length 3,000 feet & width 500 feet broad Gauge and 90 feet for meter Gauge (considerable average height of the embankment 10 feet) Minimum land width for establishment of double line: 125 feet for Broad Gauge and 115 feet for meter Gauge (considerable average height of the embankment 10 feet)						
	RHD	Road network of RHD within the study area will follow as per RHD Rules						

Sl. No	Sectoral land use	Recommended Standard Provision	Year-wise Cumulative demand					Unit
			2014	2019	2024	2029	2034	
9.	Administration							
	DC Office/ residence	Office: 4.0 acre, residence: 1.50 bigha						
	Youth Development center	Minimum 2 - 3 acres lands for establishment of Youth training center & Regional Human Development Center						
	Jail	Minimum land 5.0 acres						
	Judge Court	District Judge Court: 1.0 acre, Residence 33 decimal						
	SP Office	Sp's office: 1.0 acre, Residence 33 decimal						
	Police Headquarter	10 acres						
	Thana	1.0 acre						
	Police Fari	33 decimal						
	Circuit House	1.5 acres						
	Civil Surgeon	Office: 0.25 acre; Residence 33 decimal						
	Office for Islamic Foundation	Minimum 0.10 decimal						
	XEN (PWD)	Office: 0.25 acre; Residence 33 decimal						
	Others	As per concern department						

Private Landuse Development Rule, 2004

Table E 25:Space Standards for Urban Community Facilities in Acres by Population Size

Community Facilities	Size of Population									Facility per 1000 Population
	2500	5000	10000	15000	20000	25000	50000	100000	150000	
EDUCATION										
Nursery	0.2	0.4	0.8	1.2	1.6	2.0	4.0	8.0	12.0	0.08
Primary School	0.3	0.6	1.0	1.2	1.6	2.0	4.0	8.0	12.0	0.08
Secondary School			1.2	1.5	2.0	2.5	5.0	10.0	15.0	0.10
College*				1.2	1.6	2.0	4.0	8.0	12.0	0.08
HEALTH										
Small Clinic*				0.6	0.8	1.0	2.0			0.04
Hospital*								4.0	6.0	0.04
COMMUNITY ORGANIZATION										
Community Center/Mosque	0.1	0.2	0.5	0.6	0.8	1.0	2.0	4.0	6.0	0.04
RECREATION										
Play-Ground/ Play-field	0.5	1.0	1.0	1.2	1.6	2.0	4.0	8.0	12.0	0.08
Park	0.5	1.0	1.5	1.8	2.4	3.0	6.0	12.0	18.0	0.12
COMMERCIAL										
Corner Shop/ Market/ Kutcha Bazar*	0.2	0.3	0.5	0.6	0.8	1.0	2.0	4.0	6.0	0.04
ROADS										
Residential Roads**	0.9	1.7	3.5	5.0	6.8	8.5	17.0	34.0	51.0	0.34
Total Area for community Facilities (minimum)	2.7	5.2	10.0	14.90	20.0	25.0	50.0	100.0	150.0	1.00
Net Residential Area	4.44	9.08	18.5	27.95	37.14	46.43	92.85	185.71	278.57	
Gross Residential Area	7.14	14.28	28.57	42.85	57.14	71.43	142.85	285.71	428.57	
Persons per Area	350	350	350	350	350	350	350	350	350	

APPENDIX-F

Fact Sheet**1. BACKGROUND OF THE PROJECT**

Bangladesh is the most densely populated country in the world having a total population of about 124.36 million as per the last Population Census 2001 with an average increase of around 1.7 million per year during the decade between 1991 and 2001. Master plans prepared for the Zila and District Town, City Corporations, Paurashavas by Urban Development Directorate (UDD) during the 80s have also become obsolete due to the passage of time. In order to cope with the population surge in these towns, it has become almost imperative to update the existing Master Plans. The Drainage & environmental Master Plan will also be prepared to maintain the drainage system, while a Traffic Management Master plan would be required to provide planned traffic movement of the Urban Area. Rural Area Plan will ensure the development of rural areas within the project area. Disaster Management Plan within the urban area will reduce the vulnerability from natural and manmade hazards/disasters. The Action Area Plan will also be updated in order to keep track of the land use of the Areas. In the government's recent policy of overall administrative re-organization, the upazila has been recognized as the most significant tier of the administration. It will be planned and developed to accommodate all social, economic, administrative and infrastructure services for the region. Under the "Preparation of Development Plan for Fourteen Upazilas" Rangunia and Ramu are the two upazilas.

2. PROJECT PROFILE

Name of the Project:	Preparation of Development Plan for Fourteen Upazilas
Implementing Agency:	Urban Development Directorate (UDD)
Financial assistance:	Government of the People's Republic of Bangladesh (GoB)
Project Package:	Package 05- (Ramu Upazila, District-Cox's Bazar and Rangunia Upazila, District-Chittagong)
Main Goal of RDP:	Preparation of Five Tiers Development Plan
Plan Namely:	Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan

3. SURVEY UNDERTAKEN UNDER THE PROJECT**i. Inception Stage**

- Reconnaissance Survey (January, 2015)
- FGD (Focus Group Discussion) (January, 2015)
- Courtyard Meeting (January, 2015)
- Collection of secondary data and information (February-July, 2015)
 - Mouza Map Collection
 - Collection of Satellite image

ii. Major Survey and Studies

- Participatory Rural Appraisal (PRA) (July-October, 2015)
- Socio Economic Survey (October-November, 2015)
- Agricultural Survey (October-November, 2015)
- Formal and Informal Economic Survey (December, 2015)
- Traffic and Transportation Survey (December, 2015)
- Hydrological Survey (January-February,2016)
- Geological Survey (January-February,2016)
- Geo-physical Survey (January-February,2016)
- GCP Survey (March,2015)
- BM Pillar Installment (March,2015)
- Physical Feature, Land Use & Topographic Survey (March-April,2016)

4. PREPARATION OF FIVE TIER PLAN

- Sub-Regional Plan
- Structure Plan
- Urban Area Plan
- Rural Area Plan
- Action Area Plan

5. SURVEY SUMMARY**Description of the Project Area**

Rangunia Upazila is situated under Chittagong District which is bounded by Kawkhali Upazila of Rangamati on the North; Chandanaish, Patiya and Boalkhali on the South; Kaptai, Rajasthali and Bandarban Sadar Upazila on the East; and Raozan and Kawkhali Upazila on the West. It constitutes 15 unions along with one Pourashava with an area of about 347.87 sq.km (**85959.47 acre**). The detail administrative boundary of the project area has been shown in the below table:

Table: Study Area Demarcation

Study Area Demarcation						
Union	Area(sq.m)	Area (sq.km)	Area(Acre)	Percentage	Population (2011)	Density
Betagi	17828119.80	17.83	4405.42	5.13	20510.00	5
Chandraghona	10638268.36	10.64	2628.77	3.06	30221.00	11
Dakshin Rajanagar	7345580.55	7.35	1815.13	2.11	17920.00	10
Hosnabad	19489121.14	19.49	4815.87	5.60	14871.00	3
Islampur	32911103.87	32.91	8132.51	9.46	19044.00	2
Kodala	23411446.81	23.41	5785.09	6.73	18965.00	3
Lalanagar	21067359.91	21.07	5205.86	6.06	14545.00	3
Mariamnagar	4014744.46	4.01	992.06	1.15	21413.00	22
Padua	73346405.47	73.35	18124.29	21.08	35668.00	2
Parua	28424575.62	28.42	7023.87	8.17	14423.00	2
Pomra	18259656.86	18.26	4512.06	5.25	50643.00	11
Rajanagar	24672036.74	24.67	6096.59	7.09	19172.00	3
Rangunia	12710536.12	12.71	3140.84	3.65	13354.00	4
Sharapbhata	25760230.27	25.76	6365.49	7.41	25344.00	4
Shilok	12821476.51	12.82	3168.26	3.69	18009.00	6
Rangunia Paurashava	Area(sq.m)	Area (sq.km)	Area(Acre)	Percentage	Population (2011)	Density
Ward No.01	2302826.40	2.30	569.04	0.66	3329.00	6
Ward No.02	1118719.36	1.12	276.44	0.32	2497.00	9
Ward No.03	3477056.97	3.48	859.20	1.00	5625.00	7
Ward No.04	1432361.17	1.43	353.94	0.41	2967.00	8
Ward No.05	1700327.87	1.70	420.16	0.49	3019.00	7
Ward No.06	1694081.98	1.69	418.62	0.49	3094.00	7
Ward No.07	1272783.24	1.27	314.51	0.37	3971.00	13
Ward No.08	1645366.54	1.65	406.58	0.47	4968.00	12
Ward No.09	521462.93	0.52	128.86	0.15	3171.00	25
Total	347865648.94	347.87	85959.47	100	366743.00	185

Table: Bench Mark Location

SL No.	Benchmark Number	Coordinates	Location	Union/Ward
1	1A	N- 22°27' 36.70" E- 92°0' 28.30"	Northern part of Pomra Bongobondhu School	Pomra Union
	1B	N- 22° 27' 39.70" E- 92°0' 21.40"	Adjacent to Boro Pir Thai Aluminum	Pomra Union
2	2A	N-22°27'53.60" E-92° 2'55.40"	North Side of Primary Education Building in Upazila Complex	Rangunia Pourashava
	2B	N-22°27'53.50" E-92° 2'50.30"	Opposite site of Upazila Woman Teacher's Hostel Boundary	Rangunia Pourashava
3	3A	N-22°28'17.20" E-92° 7'44.70"	Leprosy (Khustho) Medical Center, Beside Chondroghona Main Gate	Chondroghona Kadamtali Union
	3B	N-22°28'12.30" E-92° 7'44.80"	In the Area of REB	Chondroghona Kadamtali Union
	3C	N-22°28'16.80" E-92° 7'48.00"	Leprosy (Khustho) Medical Center, Beside Chondroghona Main Gate	Chondroghona Kadamtali Union
4	4A	N-22°32' 3.50" E-92° 3' 54.20"	North Eastern Side of School along Road side	Lalannagar Union
	4B	N-22°32' 2.50" E-92°3' 50.40"	North Westside of School (Behind the Toilet)	Lalannagar Union
5	5A	N-22°34' 20.00" E-92° 2' 32.60"	South East Side of Rajanagar High School, Ranirhat.	Rajanagar Union
	5B	N-22°34' 17.00" E-92° 2' 28.70"	North West side of Rajanagar Land Office, Ranirhat.	Rajanagar Union
6	6A	N-22°26' 47.30" E-92° 3' 23.50"	East Side of Shilok Bridge	Shilok Union
	6B	N-22°26' 50.30" E-92° 3' 16.70"	West Side of Silok Bridge	Shilok Union
7	7A	N-22°26'2.30" E-91°59'48.40"	North West side of Dargha along the Road Side (Dargha Gate to Tinchadia Bazar)	Betagi Union
	7B	N-22°25'56.30" E-91°59'52.30"	South East side of Culvert on Santirhat to Mirjakhil Road	Betagi Union
8	8A	N-22°22'26.60" E-92° 5'55.30"	East side of Bridge (North side of Foundation Memorandum)	Padua Union
	8B	N-22°22'26.70 E- 92° 5'48.90"	West side of Bridge	Padua Union

Table: Structure Type in Urban and Rural Area

Rangunia Paurashava	Pucca	Percentage	Semi-Pucca	Percentage	Katcha	Percentage	Total
Ward No.01	165	24.55	136	20.24	371	55.21	672
Ward No.02	72	13.48	153	28.65	309	57.87	534
Ward No.03	176	16.76	259	24.67	615	58.57	1050
Ward No.04	134	22.98	184	31.56	265	45.45	583
Ward No.05	129	21.94	211	35.88	248	42.18	588
Ward No.06	155	27.63	135	24.06	271	48.31	561
Ward No.07	218	29.90	182	24.97	329	45.13	729
Ward No.08	279	27.38	305	29.93	435	42.69	1019
Ward No.09	130	25.49	140	27.45	240	47.06	510
Union	Pucca	Percentage	Semi-pucca	Percentage	Katcha	Percentage	Total
Betagi	903	21.10	877	20.50	2499	58.40	4279
Chandraghona	1220	24.36	1608	32.11	2180	43.53	5008
Dakshin Rajanagar	392	22.78	404	23.47	925	53.75	1721
Hosnabad	801	21.85	777	21.19	2088	56.96	3666
Islampur	189	6.15	1824	59.34	1061	34.52	3074
Kodala	342	13.11	867	33.23	1400	53.66	2609
Lalanagar	635	27.41	341	14.72	1341	57.88	2317
Mariamnagar	901	30.05	703	23.45	1394	46.50	2998
Padua	621	9.45	945	14.39	5002	76.16	6568
Parua	472	21.00	588	26.16	1188	52.85	2248
Pomra	1263	23.86	1135	21.44	2896	54.70	5294
Rajanagar	255	12.17	1057	50.45	783	37.37	2095
Rangunia	721	27.81	513	19.78	1359	52.41	2593
Sharapbhata	923	22.25	910	21.93	2316	55.82	4149
Shilok	791	25.78	531	17.31	1746	56.91	3068

Table: Existing Facilities of Upazila

Important Features	Frequency	Important Features	Frequency
Auditorium	1	Industry	5
Buddhist Temple	22	Kindergarten	4
Clinic	3	Madrassa	101
Club	6	Mazar	8
College	9	Mosque	260
Crematory	7		
Dustbin	1	Police Station	1
Fire Service	1	Post Office	7
Gas Station	1	Primary School	107
Government Services	23	Refueling Station	1
Health Facilities	24	Rojarhat Bus Station	1
High School	33	Sohid Minar	1
Hindu Temple	97	Union Health Complex	1
Hospital	1	Transfer Station	1

Table: Growth Center of Upazila

Union	Name of Growth Center
Betagi	Maddho Betagi
	Tin Chadia
Chandraghona Kadamtali	Lichubagan
	Zia Market
	Dovashi Bazaar
Dakshin Rajanagar	Rajar Hat
Hosnabad	Dhamairhat
Kodala	Kodala Bazaar
Mariamnagar	Mariamnagar Chowmuhan
Padua	Doash Mile Bazaar
	Padua Bazaar
	Rajar Hat
	Sombaria Bazaar
Parua	Katakhali Bangla Bazaar
	Shahabdinagar Bazaar
Pomara	Gochara Chowmuhan Bazaar
	Shantir Hat
Rajanagar	Ranir Hat
Rangunia	Mogholer Hat
	Shantiniketon Bazaar
Sarapbhata	Khetrobazaar
Silok	Fakiraghat Bazaar
	Fultoli Bazaar
Ward No-07	Rowajarhat Bazaar
Wars No- 03	Ichakhali Bazaar

Table: Brick Field of Upazila

Union Name	No. of Brick Field
Betagi	2
Hosnabad	6
Islampur	53
Kodala	1
Rajanagar	7
Sarapbhata	4

Table: Existing Facilities of Pourashava

Ward	Type of Facilities	Frequency	Ward	Type of Facilities	Frequency
Ward No-01	Health Facilities	1	Ward No-06	College	1
	High School	1		Gas Station	1
	Industry	1		High School	1
	Madrassa	2		Hindu Temple	3
	Mazar	1		Kindergarten	1
	Mosque	8		Madrassa	1
	Primary School	1		Mazar	2
	Temple	1		Mosque	7
Ward No-02	Government Services	2		Primary School	2
	Industry	4		Temple	3
	Madrassa	1	Ward No-07	Buddhist Temple	1
	Mosque	5		Clinic	1
	Primary School	2		Crematory	3
Ward No-03	Auditorium	1		Government Services	1
	Club	1		High School	2
	Dustbin	1		Hindu Temple	2
	Government Services	13		Madrassa	1
	High School	3		Mazar	1
	Hospital	1		Mosque	4
	Kindergarten	1		Pagoda	2
	Madrassa	2		Primary School	1
	Mazar	1		Rojarhat Bus Station	1
	Mosque	10	Ward No-08	Buddhist Temple	1
	Pagoda	1		Clinic	1
	Primary School	1		Club	1
Ward No-04	Crematory	1		College	2
	Government Services	3		Crematory	2
	High School	1		Fire Service	1
	Hindu Temple	1		Government Services	3
	Madrassa	1		High School	1
	Mosque	3		Hindu Temple	3
	Primary School	1		Kindergarten	1
	Temple	1		Madrassa	2
	Transfer Station	1		Mosque	2
Ward No-05	Government Services	1		Pagoda	5
	Health Facilities	1		Police Station	1
	Kindergarten	1		Post Office	1
	Mosque	4		Primary School	4
	Pagoda	2		Temple	1
	Primary School	1	Ward No-09	College	2
	Temple	2		High School	2
				Madrassa	4
				Mazar	3
				Mosque	5
				Primary School	1

Table: Existing Facilities Union-wise

Union	Type of Facilities	Frequency	Union	Type of Facilities	Frequency
Betagi	Buddhist Temple	2	Pomara	College	1
	Health Facilities	1		Health Facilities	2
	High School	3		High School	3
	Hindu Temple	8		Hindu Temple	5
	Madrassa	9		Madrassa	10
	Mosque	31		Mosque	25
	Primary School	8		Post Office	2
Chandraghona Kadamtali	Club	1	Rangunia	Primary School	9
	Health Facilities	4		Clinic	1
	Hindu Temple	6		Club	2
	Madrassa	5		Crematory	1
	Mosque	8		Health Facilities	1
	Primary School	6		High School	2
	Refueling Station	1		Hindu Temple	11
Dakshin Rajanagar	Health Facilities	1		Madrassa	3
	Hindu Temple	4		Mosque	9
	Madrassa	3		Primary School	7
	Mosque	9	Sarapbhata	Buddhist Temple	1
	Primary School	3		High School	4
Hosnabad	Health Facilities	1		Madrassa	4
	High School	1		Mosque	31
	Hindu Temple	3		Primary School	10
	Madrassa	8	Silok	Buddhist Temple	2
	Mosque	13		Hindu Temple	6
	Primary School	6		Madrassa	7
Padua	Buddhist Temple	4		Mosque	14
	Club	1		Primary School	5
	College	1	Kodala	High School	2
	Health Facilities	7		Hindu Temple	7
	High School	4		Madrassa	8
	Hindu Temple	18		Mosque	5
	Madrassa	7		Primary School	4
	Mosque	20	Lalanagar	College	1
	Post Office	2		Health Facilities	1
	Primary School	14		High School	2
Parua	High School	1		Hindu Temple	1
	Hindu Temple	8		Madrassa	7
	Madrassa	5		Mosque	11
	Mosque	8		Primary School	2
	Primary School	9	Mariamnagar	College	1
Rajanagar	Hindu Temple	1		Health Facilities	4
	Madrassa	3		Madrassa	4
	Mosque	5		Mosque	16
	Post Office	2		Pagoda	1
	Primary School	1		Primary School	5
Islampur	Madrassa	4		Health Complex	1
	Mosque	7			
	Primary School	4			

Table: Cropping Intensity Union and Ward Wise

Union & Ward	Cropping Intensity	Area in Sq.m	Area in Sq.km	Area in Acre	Percentage
Betagi	Double Cropping	5467534.073	5.468	1351.057	3.717
	Single Cropping	1965442.036	1.965	485.671	1.336
	Triple Cropping	598225.752	0.598	147.825	0.407
Chandraghona Kadamtali	Double Cropping	4061931.744	4.062	1003.725	2.762
	Single Cropping	1087936.122	1.088	268.835	0.740
	Triple Cropping	260621.764	0.261	64.401	0.177
Dakshin Rajanagar	Double Cropping	4362476.979	4.362	1077.992	2.966
	Triple Cropping	183371.762	0.183	45.312	0.125
Hosnabad	Double Cropping	8178829.582	8.179	2021.033	5.561
	Single Cropping	450534.743	0.451	111.330	0.306
	Triple Cropping	92452.388	0.092	22.845	0.063
Islampur	Double Cropping	4081455.952	4.081	1008.550	2.775
	Single Cropping	181748.019	0.182	44.911	0.124
	Triple Cropping	9571023.658	9.571	2365.051	6.507
Kodala	Double Cropping	4553275.739	4.553	1125.139	3.096
	Single Cropping	2263012.585	2.263	559.203	1.539
	Triple Cropping	794068.248	0.794	196.219	0.540
Lalanagar	Double Cropping	3975492.362	3.975	982.366	2.703
	Single Cropping	1833561.464	1.834	453.083	1.247
	Triple Cropping	3909630.492	3.910	966.091	2.658
Mariamnagar	Double Cropping	1002819.525	1.003	247.802	0.682
	Single Cropping	97524.563	0.098	24.099	0.066
	Triple Cropping	223825.537	0.224	55.308	0.152
Padua	Double Cropping	20519874.798	20.520	5070.571	13.951
	Single Cropping	2001067.647	2.001	494.475	1.360
	Triple Cropping	8476354.839	8.476	2094.553	5.763
Parua	Double Cropping	10035460.467	10.035	2479.816	6.823
	Single Cropping	2180268.872	2.180	538.756	1.482
	Triple Cropping	424557.257	0.425	104.910	0.289
Pomara	Double Cropping	3371448.721	3.371	833.103	2.292
	Single Cropping	680652.924	0.681	168.193	0.463
	Triple Cropping	4620910.450	4.621	1141.852	3.142
Rajanagar	Double Cropping	5688426.265	5.688	1405.641	3.867
	Single Cropping	820352.307	0.820	202.713	0.558
	Triple Cropping	231568.831	0.232	57.222	0.157
Rangunia	Double Cropping	9791536.808	9.792	2419.541	6.657
	Triple Cropping	859797.453	0.860	212.461	0.585
Sarapbhata	Double Cropping	5223347.738	5.223	1290.717	3.551
	Single Cropping	964348.919	0.964	238.296	0.656
	Triple Cropping	1307571.002	1.308	323.108	0.889
Silok	Double Cropping	3763032.129	3.763	929.865	2.558
	Single Cropping	2022977.262	2.023	499.889	1.375
	Triple Cropping	1600330.433	1.600	395.450	1.088
Ward No-01	Double Cropping	1233634.647	1.234	304.838	0.839
	Single Cropping	14496.179	0.014	3.582	0.010
	Triple Cropping	32014.962	0.032	7.911	0.022
Ward No-03	Double Cropping	324784.764	0.325	80.256	0.221
	Single Cropping	72960.470	0.073	18.029	0.050

Development Plan of Rangunia Upazila

Union & Ward	Cropping Intensity	Area in Sq.m	Area in Sq.km	Area in Acre	Percentage
	Triple Cropping	4356.040	0.004	1.076	0.003
Ward No-04	Double Cropping	17059.734	0.017	4.216	0.012
	Triple Cropping	1087410.011	1.087	268.705	0.739
Ward No-05	Double Cropping	142243.031	0.142	35.149	0.097
	Single Cropping	36150.750	0.036	8.933	0.025
	Triple Cropping	10262.984	0.010	2.536	0.007
Ward No-09	Double Cropping	239174.651	0.239	59.101	0.163
	Triple Cropping	92700.972	0.093	22.907	0.063
	Total	147087929.407	147.088	36346.219	100.000

Geology

Table: Bore Hole Information Summary at Rangunia Upazila, Chittagong

Borehole ID	Location Name	Latitude	Longitude	Depth of penetration (m)	N value (min.)	N value (max.)
BH-1	East Isamoti Govt. Primary School, East Isamoti	22°27'13.9''	92°04'0.43''	21	7	51
BH-2	B. I. Z. H. Govt. Primary School, Roajarhat	22°27'57.05''	92°03'47.11''	18	8	52
BH-3	ChowdhuryPara, Atimkhana Madrasa, Chandraghuna	22°27'49.08''	92°06'58.95''	27	3	50
BH-4	06 No Pomra Union Parishad Complex, Shantir Hat	22°27'42.04''	92°0'12.81''	12	12	39
BH-5	52 No South Noagaon Govt. Primary School	22°27'26.23''	92°01'44.75''	19.5	2	12
BH-6	RanguniaMazumderKhil High School	22°28'51.13''	92°04'15.54''	30	1	50
BH-7	KhorshedTaluk Govt. Primary School, South Raja Nagar	22°32'31.76''	92°04'33.67''	30	1	12
BH-8	North Rangunia Govt. Primary School	22°32'2.82''	92°03'52.03''	30	2	16
BH-9	Razabhuban Govt. Primary School, Razarhat	22°31'47.02''	92°03'22.5''	30	3	51
BH-10	Raza Nagar R. A. B. M. Multilateral High School, Razarhat	22°34'19.5''	92°02'32.17''	30	1	50
BH-11	Uttar Ghagra Betchari Jahangirnagar Govt. Primary School	22°36'22.3''	92°02'23.83''	30	3	30
BH-12	Sarafbhata Govt. Primary School, Sarafbhata	22°26'58.48''	92°02'19.59''	15	5	49
BH-13	South Rangunia Shelok Multilateral High School, Shelok	22°26'35.69''	92°04'24.62''	25.5	1	31
BH-14	East Kodala M. A. Taher High School, 12 No Kodala	22°27'21.22''	92°07'10.0''	24	2	51
BH-15	63 No West Sarafbhata Govt. Primary School	22°26'43.81''	92°01'46.9''	30	3	44
BH-16	84 No Narishcha Govt. Primary School, Poduia	22°24'37.09''	92°04'14.94''	27	1	51
BH-17	Sarasiya Govt. Primary School, Poduia	22°22'30.4''	92°05'59.63''	22.5	3	50
BH-18	Khursiya Daricop High School, West Khursiya	22°21'37.67''	92°05'29.01''	18	2	51
BH-19	Chip Chari Pequa Govt primary School, West khursiya	22°20'42.75''	92°05'0.44''	18	3	51
BH-20	Dud Pukuria Hazi Abdul Hakim Govt. Primary School, Padua	22°19'23.39''	92°08'27.34''	21	2	50

Table: Proposed Bridge/ Culvert

Existing	Proposed	Frequency	Union
Bridge/Culvert 657	Culvert	7	Betagi, Chandraghona Kadamtali, Lalanagar, Rajanagar, Shonirbhor Rangunia (02), Ward No-08 (Pourashava)
	Bridge	3	Rajanagar Union, Chandrodhona Kadamtali, Parua

Table: Low Cost Housing

Union/Ward	Structure Frequency	Average Household	Estimate d Populatio n	No. of Low Cost housing Site	Remarks
Chandraghona Kadamtali Union	241	4.9	1175	1	
Islampur Union	189	6.1	1160	1	
Padua Union	1629	4.6	7559	2	Indeginous Group
Ward No-01	131	5.2	681	1	
Ward No-03	124	4.8	595	1	

APPENDIX-G

Report on Deviation Found by RTK-GPS Survey in Rangunia Upazila

Introduction

To estimate the accuracy of GIS dataset a field survey was carried out by using Survey Grade GPS to measure the location of a number of well-defined features (corners of Building, Bridge, Culvert) and road centerline within the project area. The Real-Time Kinematic Global Positioning System (RTK-GPS) was the integral part of the surveys.

Methodology

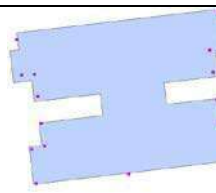

The Bench Mark established by of Survey of Bangladesh was used as base station for the RTK-GPS survey. After setting up, the base unit was initialized with the coordinates of the BM. The crew then navigated with the roving unit to the target locations to survey the topographic features. RTK measurements were taken by the rover receiver in real time. Upon completion of the topographic survey, the data logger was downloaded and the information was mapped with ArcGIS software.


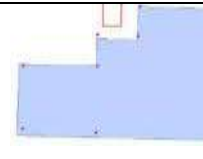
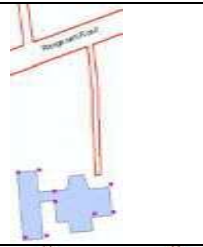

Findings of the RTK-GPS Survey in Rangunia Upazila

It is found that there exist deviations between RTK-GPS points on some target features and the same features which were captured by the photogrammetry based physical feature survey. The findings are presented in the following tables.





Structure


Structures have been corrected with respect to RTK-GPS points. In the snapshots, red structures are before corrections and blue structures are after the corrections. Two structures were missing which are created by using the GPS points and ortho-rectified satellite image.

SL No	Description	Location	No of Points Surveyed	Average Deviation in meter	Snapshot	Remarks
1	Upazila Parishad	Rangunia Paurashava	17	0.66		Photogrammetric feature has been kept, no correction has been made.
2	Rangunia Thana	Rangunia Paurashava	6	0.51		Photogrammetric feature has been kept, no correction has been made.


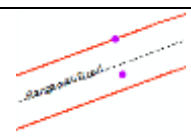




3	Rangunia Fire Station	Rangunia Paurashava	3	0.42		Photogrammetric feature has been kept, no correction has been made.
4	Rangunia Paurashava	Rangunia Paurashava	9	0.64		Photogrammetric feature has been kept, no correction has been made.
5	Islampur Union Parishad	Islampur Union	9	1.01		Photogrammetric feature has been kept, no correction has been made.
6	Rangunia Hospital	Rangunia Paurashava	4	1.45		Photogrammetric feature has been kept, no correction has been made.



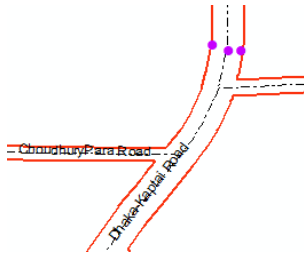
Bridge/Culvert

SL No	Description	No of Points Surveyed	Average Deviation in meter	Width Deviation in meter	Length Deviation in meter	Snapshot
1	Rowajarhat Bridge on Dhaka-Kaptai Road, Rangunia Paurashava	8	0.77	0.54	2.44	
2	Parua Bridge, Ghat Check Road, Parua Union	3	7.33	1.19	4.5	
3	Bottaola Bridge, Moriumnagar Choumuhoni Road, Islampur Union	3	5.46	1.31	10.62	
4	Ranirhat Bridge, Ranirhat Road, Rajanagar Union	3	0.72	0.33	0.45	

5	Godwon Mor Bridge, Karnafuli Godaun Road, Rangunia Paurashava	4	8.67	1.83	17.21	
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Road

SL No	Description	No of Points Surveyed	Average Deviation in meter	Average Width Deviation in meter	Snapshot
1	Road Centerline, Dhaka-Kaptai Road, Rangunia Paurashava	1	0.09	-	
2	Road Edge, Dhaka-Kaptai Road, Rangunia Paurashava	2	0.31	0.61	
3	Road Edge, Rangamati Road, Rajanagar Union	2	1.05	2.07	
4	Road Edge, Godown Mor, Dhaka-Kaptai Road, Rangunia Paurashava	4	0.86	0.53	
5	Road Edge, Gochara Choumohani, Dhaka-Kaptai Road, Pomara Union	4	0.68	0.17	
6	Road Edge, Gochara Choumohani, Baroaulia Road, Pomara Union	4	0.91	0.23	
7	Road Centerline, Mariumnagar Choumohani, Dhaka-Kaptai Road, Mariamnagar Union	1	0.69	-	

8	Road Edge, Mariumnagar Choumohani, Dhaka-Kaptai Road, Mariamnagar Union	2	0.67	0.32	
9	Road Edge, Mariumnagar Choumohani, Mariamnagar Road, Mariamnagar Union	2	0.29	0.23	
10	Road Edge, Mariumnagar Choumohani, Uttar Rangunia D.C. Road, Mariamnagar Union	2	0.28	0.51	
11	Road Centerline, Lichu Bagan, Dhaka-Kaptai Road, Chandraghona Kadamtali Union	1	0.22	-	
12	Road Edge, Lichu Bagan, Dhaka- Kaptai Road, Chandraghona Kadamtali Union	2	0.27	0.56	

APPENDIX-H

Comments during Public Consultation at Rangunia (Paurashava)

Date: 13-11-2017 to 14-11-2017

ক্রমিক	পৌর ওয়ার্ডের নাম	Existing Map এ ভুল সমূহ সংশোধিত	Existing Map	নতুন চিত্রাবলী	চিহ্নিতকরণ
১	১ নং ওয়ার্ড	১। গাইড ওয়ালসহ রাঁধা পাকা করত হবে। ২। েঁদন নাই। ৩। মসজিদের পাশে গাইড ওয়াল, পাকা রাঁধা ও েঁদন	চিহ্নিতকরণ না থাকায় সংযুক্ত করা হবে	১। রাঁধা ইমারতী টুলের পাশে রাঁধার গাইড ২। হাইল দরকার (রাঁধা ইমারতী টুলের পাশে)।	Consultants ও Stakeholder এর পরামর্শ নুযায়ী বতমান চিত্রাবলী সংযুক্ত করা হয়েছে
২	২ নং ওয়ার্ড	১। সীমানা বাউন্ডারী ভুল আছে। ২। কাঁচা লিশাহ মসজিদ পর্যন্ত কাঁচা রাঁধা ৩। কাঁচা লিশাহ মসজিদ মাপে নাই। ৪। গোচরা বাজার এর আংশিক মাপে	Stakeholder এর পরামর্শ অনুযায়ী বতমান Database এ সংযুক্ত করা হয়েছে চিহ্নিতকরণ না থাকায় সংযুক্ত করা হবে	কর্ণফুলী নদী ভাঙন রোধ করা দরকার।	Consultants ও Stakeholder এর পরামর্শ নুযায়ী বতমান চিত্রাবলী সংযুক্ত করা হয়েছে
৩	৩ নং ওয়ার্ড	১। কিরটা টলা ডীজ অভিমুখী কাঁচা রাঁধা মাপে ২। ওয়ার্ড বাউন্ডারী মাপে	Stakeholder এর পরামর্শ অনুযায়ী বতমান Database এ সংযুক্ত করা হয়েছে	মেইন রাঁধার পাশে েঁদন দরকার।	Consultants ও Stakeholder এর পরামর্শ নুযায়ী বতমান চিত্রাবলী সংযুক্ত করা হয়েছে
৪	৪ নং ওয়ার্ড	সংশোধনীর কোন বিষয় চিহ্নিত করেন নাই।		১। রাঁধা ইমারতী টুল পাকা করণসহ প্রিয় বৃত্তি করত হবে। ২। কাঁচা রাঁধা সংলগ্ন কালভার্ট এর পাশে নদী ভাঙন ৩। মসজিদের রাঁধা পাকা করত হবে। ৪। মিয়াজী বাড়ির রাঁধা পাকা করত হবে। ৫। ইছামিত নদীর ভাঙন রোধ করত হবে।	Action Area Plan এ দেখানো হয়েছে Consultants ও Stakeholder এর পরামর্শ নুযায়ী বতমান চিত্রাবলী সংযুক্ত Action Area Plan এ দেখানো হয়েছে

ক্রমিক	পৌর ওয়ার্ডের নাম	Existing Map এ ভুল সমূহ সংশোধিত	Existing Map	নতুন চিত্রাবলী	উদ্ভাবনা য সংযুক্তকর
৫	৫ নং ওয়ার্ড	ওয়ার্ড বাউন্ডারী মাপে ভুল আছে।	Stakeholder এর পরামর্শ অনুযায়ী বতমান Database এ সংযুক্ত করা হয়েছে	১। চিত্রিক দরকার ২। হাইল দরকার ৩। ইদগাহ দরকার ৪। ওয়ার্ড কাউন্সিলর অফিস দরকার।	২০৩৩ সাল এর সার্বজনসংখ্যা উপর ভিত্তি করে Consultants ও Stakeholder এর পরামর্শ অনুযায়ী বতমান উদ্ভাবনা সংযুক্ত করা হয়েছে
৬	৬ নং ওয়ার্ড	সংশোধনীর কোন বিষয় চিহ্নিত করেন নাই।		১। কোদাল বাড়ি সড়ক যোজন। ২। ইছামিত নদীর ভাঙ্গন রোধ করতে হবে। ৩। আমন চেনার মাঠের বাড়ির পাশে কাচা	
৭	৭ নং ওয়ার্ড	১। ওয়ার্ড বাউন্ডারী মাপে ভুল আছে (মিরময়নগর ইউনিয়ন সংলগ্ন)	Consultants ও Stakeholder এর পরামর্শ অনুযায়ী বতমান Database এ সংযুক্ত করা হয়েছে	১। মুরাদের ঘোনা সরকারী ঐতিহাসিক বিদ্যালয়ের পাশে হাইল দরকার। ২। মুরাদের ঘোনার রাস্তা পাকা করা দরকার। ৩। ইছামিত নদীর ভাঙ্গন রোধ করতে হবে। ৪। ইছামিত খালের ধারে চেন দরকার।	
৮	৮ নং ওয়ার্ড	১। ওয়ার্ড বাউন্ডারী মাপে ভুল আছে। ২। তালুকদার সড়ক পাকা করতে হবে।		১। ৮ নং ওয়ার্ডের উন্নয়নসীমানা সংশোধন করতে হবে।	
৯	৯ নং ওয়ার্ড				

Comments during Public Consultation at Rangunia (UNION)

ক্রমিক নং	ইউনিয়নের নাম	Existing Map এ ভুল সমূহ সংশোধিত বিষয়	Existing Map সংশোধন	নতুন ভাবনা	ভাবনা সংযুক্তকর
১।	১ নং রাজানগর	১। হাইমার লুল মপেপে নাই। ২। রাজঘাটা জামে মসজিদ মপেপে ৩। বগাবিল মসজিদ মপেপে ৪। বগাবিল হাইলুল	চিত্রিতকরণ না থাকায় সংযুক্ত করা সংবহন	তাদের কোন নতুন কোন ভাবনা নাই।	
২।	২ নং হোসনাবাদ	কোন সংশোধন আস		তাদের কোন নতুন কোন	
৩।	৩ নং ভিন্ড র রাউনিয়া	১। ভেবরী মরমপেপে দেখানো হয় নাই। ২। কী কী রাজিবহারী ধাম মরমপেপে নাই। ৩। রিহম চেয়ারমরানের বাড়ির পাশে ফারকানিয়া মাঠাসা ৫। নাজেম চৌধুরী আলেকারআন একাডেমী নাই। ৬। চৌধুরী বাড়ি জামে মসজিদ নাই। ৭। বড় মাঠাসা নাই। ৮। রিহম চেয়ারমরান সড়ক নাই। ৯। টি, সি, এম ভূমি অফিস মপেপে নাই।	চিত্রিতকরণ না থাকায় সংযুক্ত করা সংবহন	তাদের কোন নতুন কোন ভাবনা নাই।	
৪।	৬ নং পোমরা	No comments			
৫।	৭ নং বেতাগী	মসজিদ নাই	Stakeholder এর পরামর্শ অনুযায়ী বর্তমান Database এ সংযুক্ত করা	তাদের কোন নতুন কোন ভাবনা নাই।	
৬।	৯ নং শিলক	১। ছোট ও বড় কবররান মপেপে দেখানো হয়নি। ২। কেকজ লুল নাই। ৩। শাহ আলম হাইলুল নাই। ৪। আমতলা বাজার দেখানো হয়নি। ৫। নুইয়ার টোলা হাইমারী	চিত্রিতকরণ না থাকায় সংযুক্ত করা সংবহন	তাদের কোন নতুন কোন ভাবনা নাই।	

ক্রমিক নং	ইউনিয়নের নাম	Existing Map এ ভুল সমূহ সংশোধিত বিষয়	Existing Map সংশোধন	নতুন ভূখণ্ড	ভূখণ্ড সংশোধক
		৬। ইউনিয়ন পিরষেদর রাখামোপে নাই।			
৭।	১০ নং পাদুয়া	১। ইউনিয়ন পিরষদ ভবন নাই। ২। রগিতয়ার খাল দেখানো হয় নাই। ৩। হাইলুল দেখানো হয় নাই। ৪। শিলক রাবার ডাম দেখানো হয় নাই।	Stakeholder এর পরামর্শ অনুযায়ী বর্তমান Database এ সংশোধন করা হয়েছে	১। ২ নং ওয়ার্ডে মরাশিলক খাল ২। ৪ ও ৬ নং ওয়ার্ডে চেমী খাল ৩। ৩ ও ৫ নং ওয়ার্ডে ধলখাল ৪। ৮ নং চিকন ছড়া ও রগিতয়া খাল ৫। ৯ নং ওয়ার্ডে কইয়া ছড়া ৬। রাবার ডাম উই বিষয়গুলো অভ্যুত করা হোক।	২০৩৩ সাল এর সংসংখ্যা উপর ভিত্তিক Consultants ও Stakeholder এর পরামর্শ নুযায়ী বর্তমান ভূখণ্ড সংশোধন করা হয়েছে
৮।	১১ নং চৌধা না- কদমতলী	১। হেলকক সাবশন দেখানো হয় নাই। ২। সরকারী কলেক নাই। ৩। রাউনিয়া ন্যাশনাল হসপিটাল নাই। ৪। চস্ধানা হাইলুল নাই। ৫। সিপাহী বাড়ি দুগা মের নাই।	Consultants ও Stakeholder এর পরামর্শ অনুযায়ী বর্তমান Database এ সংশোধন করা হয়েছে চিচি তকরণ না থাকায় সংশোধন করা হয়েছে	১। পানিনিশন দরকার। ২। হাইমারীল ও হাইলুল দরকার।	
৯।	১২ নং কোদালা	১। মসজিদ মোপে নাই ২। মের মোপে নাই ৩। লুল মোপে নাই	Consultants ও Stakeholder এর পরামর্শ অনুযায়ী বর্তমান Database এ সংশোধন করা হয়েছে	১। তাদের কোন নতুন কোন ভূখণ্ড নাই।	
১০।	১৪ নং দিগ রাজানগর	১। ইউনিয়নের সীমানা লাইন ঠিক নাই।	Consultants ও Stakeholder এর পরামর্শ অনুযায়ী বর্তমান Database এ সংশোধন করা হয়েছে	১। তাদের কোন নতুন কোন ভূখণ্ড নাই।	
১১।	১৫ নং লালানগর	১। ইউনিয়নের সীমানা সঠিক নাই।		১। তাদের কোন নতুন কোন ভূখণ্ড নাই।	

APPENDIX-I

Comments during Public Hearing at Rangunia Upazila

রাঙা উপজেলায় উপেক্ষার গনশুনানীর ছক এর তালিকা

Date: 04-02-2018 to 04-03-2018

ক্রমিক সংখ্যা	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারীর নাম	মতামত দানকারীর পেশা	মেম্বার নং	ঠিকানা	মতামত	Attained Activities	Page No in Report
১	রাঙা উপজেলা	জায়েদুল ইসলাম জায়েদুল	সাংবাদিক	০১৮১২৪ ৩২০৬৯	১৩নং ইসলামপুর ইউনিয়ন, রাঙা	১। বায়ু দূষণ মোকাবেলা করতে হবে। গভীর গর্ত খুলে ভরাট করতে হবে। মাটি কাটা বন্ধ করতে হবে। যে সকল ইট ভাটা রেয়েছ তাদের এক আইনের আওতায় এনে নীতি মাল্য অনুযায়ী নতুন পিরকানা হবে। কনকনা এখানে পিরেবশন দূষণ হচ্ছে মারাত্মক	-brick field has been declared as gray zone	
		মুদ্রা রফিক ইসলাম	এফ পি আই	০১৮৬৭ ২৯৪০৩ ৫	৬নং পামরা ইউনিয়ন, রাঙা	২। জমি পামরা, বাচাঁশাহ নগর সৌদিয়া জমি এলাকা, হিলগাছ পাড়া ও হাজী পাড়া সিকদার পাড়া পাহাড়ী এলাকা অংশে যে সকল জমি আয়ের মানুষ বসবাস করেন তাদের আর্থ সামাজিক উন্নয়ন বিশেষ করে সরকারের বিভিন্ন ভাতা থেকে অর্থিক ভিত্তিতে সুবিধা পেয়েছে না খাবার পানির জটিলত্ব জনগণের সহ	-	
২	রাঙা উপজেলা	মাহমুদ মিহউদ্দিন	এফ ও	০১৮১৬ ০৮৭৩৫ ০	বিব আর বিব বিডি রাঙা দিন রাজানগর ইউনিয়ন	৩। বিশেষ করে ফসলী জমি ও পাহাড়ের বনভূমির মাঝে খোঁচা যতটা সহপেনর ফেল শস্য/ফসল হাট বনাঞ্চল ধ্বংস ও বায়ু দূষণ সহ মারাত্মক পিরেবশ বিপর্যয় হচ্ছে, আর ভূমি ব্যবহার নীতি মাল্য না থাকায় দিন দিন ফসলী জমি বসত ভিটায় রূপান্তরিত হচ্ছে আর মৌসুমি এলাকায় নালা বা কোনো বস্তু কায়দা হওয়ায় সবাই	-double cropping and triple cropping land have been reserved	

ক্রম ক	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
৩	রাঙ্গুনিয়া উপজেলা	মেম্বার: খালেদ ক	এফ.পি প, আই		উপজেলা প,প, অফিস সরফভাটা রাঙ্গুনিয়া	পাণিনির যাতায়াত বসহা মারা কছমিকর মুখ, এবং বাজারের খাবার দোকানের পিরপিরপিরতা অবক। ৪।রাঙ্গুনিয়া উপজেলার অগত সরফভাটা ইউনিয়ন দিন দিন পাড়া কাটা বৃদ্ধি পাচ্ছে, জমিচাষারিলাল মাঠ মাঠে মনদী ভাঙন রোধ হয়েছে, ক্রিকেট জায়ের অপিরকিত ভাবে বাপিল উন্নয়নের করেন সিসিসি ক মিনেচর মিদে তিলেয় ত বসহা না নেল ভূমি ম সহায়ী ভাবে নদী গেভর্ বিলীন হয়ে যাবে।	- Any kind of development is prohibited in this 63.48% area which comprises slope more than 5 %, main and Sub-flood flow zone.	-Chapter 6 page-6-34- 6-35
৪	রাঙ্গুনিয়া উপজেলা	মিম কুমার নাথ		০১৮৪৫ ৬৯৯১৫ ০	শিলক	৫। রাঙ্গুনিয়া উপজেলার অগত শিলক ইউনিয়ন শিলক খাল থেকে বাপিল উন্নয়নের দিন দিন শিলক খালটা হয়ে যাচ্ছে, তার কারেন কষকেদর নদীর ওপার থেকে ধান কেট আনেত অনেক বষারকায়েল খুব ক হয় এবং অতিরিক্ত বাপিল উন্নয়নের শিরাবাবর ম এর কিত হওয়ার সন্ধান দেখা কৃষি জিমগুলে চাষাবাদর অযা হওয়ার সন্ধান রেয়েছে, এবং খাবারের পিরছতার অভাব সাধারণ মানুষের বিভিন্ন রোগ হওয়ার সন্ধান দেখা যায়		
	রাঙ্গুনিয়া উপজেলা	মেম্বার: আশ ফ ডিন	ছবি	০১৮৩৫ ৬১৮৩৩ ৭	৩নং ওয়াডর্ ইছা খাল	৬। আমার বাড়ী ঠিক আমাদের এখানে পয়ার ডাঙর বন নইবলে চেল, ডাঙর বন থাকে ও তা যায় ৫০টি পিরবার বহার কের আর ময়লা পিরপির করে ও তা যায় ২ মাস হয়ে যায়। তাছাড়া আমাদের এলাকায় রাঙ্গুনিয়া ঘাটে কোন আলার বসহা নই যার ফেল রাতে মানুষ চলাচল করেত অসুবিধা হয় তাছাও আমরা নানা রকম পৌরসভার সুবিধা থেকে হয়		

ক্রমিক ক	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
৫	রংগুনিয়া উপজেলা	সাইফুল ন			মহম্মদ নায়গাঁও	৭। রাংগুনিয়া, রাংগুনিয়া এর সমগ্র রাংগুনিয়া পৌরসভা ৮। রাংগুনিয়া পৌরসভা কারণ ৯। সে, ও একটি বাজার বিবরণীয় ভবন নির্মাণ ন করা ১০। সে		
৫	রংগুনিয়া উপজেলা	নারায়ণ ঘাস		০১৮২২ ৮৭৯৭৭ ৮	রাংগুনিয়া ইউপি সদ			
৬	রংগুনিয়া উপজেলা	মেম্বার: জায়েদ আলম		০১৮১৬ ০৮৫৯১ ৮	রাংগুনিয়া পৌরসভা	৯। আমার বাড়ী ঠিক আছে, রাংগুনিয়া আশ পাশ ধূলাবাড়ি অনেক বেশী, অনেক জায়গায় ভাঙা আছে সেগুলো সেখানে করতে হবে, ময়লা ফেলার জায়গা আছে ডাঙা নির্মাণ দেওয়া গেলে ভাল হয়, দোকান কম জিনিস কেনার	-The significant roads inside the Upazila has been proposed to make pucca. - Water Treatment Plant has been proposed in Rajanagar Union	- chapter-7 , page 7-36
	রংগুনিয়া উপজেলা	ওসমান		০১৮২১ ৫৩৫৩১ ০	চন্দ্রাণা	১০। আমার বাড়ী ঠিক আছে, বড় ভেতর পাহাড়ে অনেক সেখানে অবস্থা ভাল নয়, জিনিসের দাম বেশী মেন হয় অ জায়গা দেওয়া		
৭	রংগুনিয়া উপজেলা	আনোয়ার		০১৮১২৯ ৩৮০৮৯	মিরয়ম নগর	১১। আমার বাড়ী ঠিক পেয়েছি আমার এলাকায় বিবরণীয় থাকে ও এখানে শিশুর হার কম মেন হয় আমার। পড়া লেখার জায়গা শিশুর মানুষ দরকার, সে শিশুর বসবাস আরও উন্নত করতে হবে, বায়ু দূষণ রোধ করতে হবে	-primary school and high school proposed in this union	-chapter-7 Page-7-23
৮	রংগুনিয়া উপজেলা	আজাদ		০১৮৩৮ ৭২৫৮০ ১	মিরয়ম নগর	১২। আমার বাড়ী ঠিক আছে, তেব সেখানে উন্নত করে আরও ভাল হত, রাংগুনিয়া ধূলাবাড়ি বেশী কমে বড় ভেতর কমে পাহাড়ে হয়, গবাদি পশু	- development plan of the union has been proposed	-Chapter-7 Page-7-32
৯	রংগুনিয়া উপজেলা	আলম		০১৮২০ ০৩২৪৪ ২	রাংগুনিয়া পৌরসভা	১৩। আমার বাড়ী ঠিক আছে, রাংগুনিয়া করেত হবে, রাংগুনিয়া ধূলাবাড়ি বেশী রাংগুনিয়া	- Developmen t plan of Rangunia Paurashava has been	-Chapter-7 Page-7-40- 7-48

ক্রম ক	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
						ধান ক্ষেত এর উৎপাদন বসহ বাড়িতে হেব, ময়লা আবজরনা ফেলার সুবসহ রাখতে হেব।	proposed	
	রাঙ্গুণী নয়া উপজেলা	মেম্বার: হাসান		০১৮২০১ ৭২৯২১	৩নং ওয়ার্ড রাঙ্গুণী পৌরসভা	১৪। পৌরসভার অবসহা আরা ভাল করেত হেব, রাঙ্গুণী ঘাটে ধুলাবাঁল অনেক বর্শী, ময়লা আবজরনা শ্রমিকের সুবসহা হন করেত হেব, ধানী জিম গরীব মানুষ আছ যারা ভালমত খেত পােরনা, তাদের আর্থিক সহায়তা দান করা ভাল হয়, কৃষি জিমর জসার, লাল এসেবর বসহা করা হেল ভাল হেব, খাল ভরাট শ্রমিক করেত হেব এবং পাশিন পয়ারকি বাহিত করেন করেত হেব।	- Development plan of Rangunia Paurashav ward no-3 a has been proposed	-Chapter-7 Page-7-42
১০	রাঙ্গুণী উপজেলা	মেম্বার: আজজ				১৫। আমার বাড়ী ঠিক আছ, পৌরসভার ধুলাবাঁল পিকার করেত হেব, বিবশ পাশিনর বসহা করেত হেব, পুকুর পাশিন দূষিত করণ করেত হেব, ময়লা আবজরনা ফেলার বসহা করেত হেব, গরীবদের আর্থিক করেত হেব, গবাধি পশু লালন পালেনর বসহা বাড়িতে হেব, শিশু মব করেত হেব।		
১১	রাঙ্গুণী উপজেলা	মেম্বার: আলম		০১৮৩৬ ৪৫৬০১	মিরয়ম নগর ৪নং ওয়ার্ড	১৬। আমার বাড়ীটি পেয়েছি, পুকুর অবসহা ভাল না তমন, ময়লা ফেল সস্থানে আইন দরকার এজ, গরীব ছেল মেয়েদের লেখা পড়ার খরচ বসহা করেত ভাল হেব আর রাঙ্গুণী অবসহা ভাল দরকার		
১১	রাঙ্গুণী উপজেলা	মেম্বার: রাঙ্গুণী			রাঙ্গুণী পৌরসভা	১৭। আমার বাড়ী ঠিক আছ, ভিব্রের কথা চিন্তা কের আবাসিক জিমেত বাড়ীঘর সহাপনা ভিব্রের হুমিক হয় পড়েব, তাছাড়া পুকুর ও ময়লা আবজরনা ফেলা হেচহ অনেক বর্শী, ভেতরের পৌরসভার অবসহা গুলে ভাল নয়, ধুলাবাঁল অনেক বর্শী		

ক্রমিক নং	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার নং	ঠিকানা	মতামত	Attained Activities	Page No in Report
	রাঙ্গুণিয়া উপজেলা	রাশু		০১৮২৪ ৯১৪৩৫ ৬	মিরয়ম নগর ৪নং ওয়ার্ড	১৮। বাজারের জমি খেলার জায়গার ব্যবস্থা করেত হবে, ব্রাদার কাজ বাবিক আছে অনেক, ময়লা আবজরুনা এর জমি ফলাহ ব্যবস্থা করেছে হবে		
১৩	রাঙ্গুণিয়া উপজেলা	লিটন		০১৮৩১ ৮৭১০১১	মিরয়ম নগর ৪নং ওয়ার্ড	১৯। বাসার পাশের রাঙ্গুণিয়া অবস্থা মুটামুটি, গরীবদের আর্থিক সহায়তার দরকার , ক্রীক পানি সব জায়গায় পাঠানোর ব্যবস্থা করেত হবে, ধানী জিম বেইট করা হয়েছে ও পানি সরবরাহ		
১৩	রাঙ্গুণিয়া উপজেলা	বিবাস নাথ	উপজেলা কেয়ার টেকার	০১৮৮২ ৮২৪১২ ৬	৪নং ওয়ার্ড শিলক	২০। বাড়ীর আশপাশের পয়নিশন ব্যবস্থা ভালনা, ব্রাদার দরকার, খাওয়ার পানির সমস্যা টাকার		
১৪	রাঙ্গুণিয়া উপজেলা	ইমান উদ্দিন বাদশা		০১৮১৫ ৭৮৮১৭ ৭	মিরয়ম নগর ৪নং ওয়ার্ড	২১। গরীব মানুষদের কম্প্লেক্স স্থান এর ব্যবস্থা করুন , আর্থিক সহায়তা দান, কৃষি জমির জমিদান, ব্রাদার ধুলাবালি কমানো, পয়নিশন ঔষধ সরবরাহ, শহরের যাতায়াতের সুব্যবস্থা, ভেতরের কাঁচা ব্রাদার জরুরী ঠিক		
	রাঙ্গুণিয়া উপজেলা	মাহমুদুল ইসলাম		০১৮৫৩ ৪৩৮৯২	৩নং ওয়ার্ড ইছা খাল	২২। আমার বাড়ী ঠিক আছে, রাঙ্গুণিয়া উন্নয়ন দরকার, ধুলাবালি পিরকার করেত হবে খেলার মাঠ		
১৫	রাঙ্গুণিয়া উপজেলা	মেম্বার: আমর		০১৮৩৩ ৪২০৪০ ০	৩নং ওয়ার্ড ইছা খাল	২৩। ময়লা আবজরুনা সংগ্রহ, বয়স্ককেল পানির জমা বাধা দূর করেত হবে বাজারের ঠিকানা		
১৬	রাঙ্গুণিয়া উপজেলা	রজাউ ল কিরম		০১৮১৭ ৭৬৯২৯ ৬	ইছাখাল পৌরসভা	২৪। বাড়ী ঠিক আছে, কৃষকের সার ও বীজ সরবরাহ করেত হবে, রাঙ্গুণিয়া উন্নয়ন দরকার ব্রাদার পুরুর ভরাট ব্রাদার		
১৬	রাঙ্গুণিয়া উপজেলা	মেম্বার: হিল্যাস		০১৮৯৩ ২২৫৫০ ৫	ইছাখাল	২৫। রাঙ্গুণিয়া ধুলাবালি পিরকার করেত হবে, সড়কের উন্নয়ন বিশ দরকার, কলের পড়ালখার মান বাড়ানো হবে, খাল পিরকার করেত হবে, গরীবদের জমি খাবার ও অর্থিক জিনিস পত্র		

ক্রমিক সংখ্যা	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	স্বাক্ষর তারিখ	ঠিকানা	মতামত	Attained Activities	Page No in Report
	রাঙ্গুনিয়া উপজেলা	কাওসার		০১৮৮৩ ৮০৩০৭ ০	আদলপুর গ্রাম, রাঙ্গুনিয়া	২৬। বাড়ীটি খুঁজে পেয়েছি, ধান ক্ষেত্রে জলসিঁড়ি সরবরাহ করতে হবে শ্রমিকের সড়ক সংস্কার করতে হবে		
১৮	রাঙ্গুনিয়া উপজেলা	জাহাঙ্গীর আলম		০১৮২১ ৫৩৫৭৫ ১	ইছাখাল পিম পাড়া, রাঙ্গুনিয়া	২৭। বাড়ীটি খুঁজে পেয়েছি, রাঙ্গুনিয়ায় ধুলাবাঁল অনেক বর্শী, পুকুরের ময়লা		
১৮	রাঙ্গুনিয়া উপজেলা	রিজত দাস		০১৮১২ ৭৫৪৩৪ ৭	ইছাখাল জেলা পাড়া	২৮। বাড়ীটি পেয়েছি, বাড়ীর আশপাশের অবস্থা ভাল করতে হবে, রাঙ্গুনিয়ায় অনেক বর্শী, গরীবের সাথে শ্রমিক পেঁয়াদা রাখতে হবে		
১৯	রাঙ্গুনিয়া উপজেলা	স্বামী ব্রজেন		০১৮৪৯ ৭২৮৯৯ ৫	ইছাখাল রাঙ্গুনিয়া	২৯। আমার বাড়ীটি পেয়েছি, বাড়ীর চাষবাদ এ চাষ করা ধান ক্ষেত্রে বাজার জাতকরনের বসতি করতে হবে, শ্রমিকের সব শ্রমিকের সংস্কার করতে হবে,		
	রাঙ্গুনিয়া উপজেলা	এনামুল হক		০১৮১৮ ৯৯১৮৩ ৭	ইছাখাল রাঙ্গুনিয়া	৩০। ব্রীকিং কেন্দ্র পেয়েছি, ময়লা আবজরনা সংশোধনের বসতির উন্নয়ন করতে হবে, খাবার এর দাম		
২০	রাঙ্গুনিয়া উপজেলা	বিগয়া স উদ্ভিদ		০১৮১৮ ৩২২৫৩ ৯	রাঙ্গুনিয়া পৌরসভা	৩১। আমার বাড়ী ঠিক শ্রমিকের বসতি ভাল করতে হবে, রাঙ্গুনিয়ায় ঘাট চলাচলের জল অলার বসতি করতে হবে রাঙ্গুনিয়ায়		
২১	রাঙ্গুনিয়া উপজেলা	স্বামী মিজবুর রহমান		০১৮১৯ ৮০৯৩০ ০	ইছাখাল গুচছা গ্রাম	৩২। আমার বাড়ী ঠিক রাঙ্গুনিয়ায় ধুলাবাঁল অনেক বর্শী, শ্রমিকের অবস্থা ভাল		
২২	রাঙ্গুনিয়া উপজেলা	স্বামী নাম সর		০১৮১১৮ ৫৫২৯০ ০	জিকরবাদ ইছাখাল	৩৩। মেয়েদের শ্রমিকের হার বাড়তে হবে, বাজারের উন্নয়ন করতে হবে।		
	রাঙ্গুনিয়া উপজেলা	স্বামী মিহু হ কারসার		০১৮৪৬ ৮৩১১৪৪ ৪	জিকরবাদ ইছাখাল	৩৪। রাঙ্গুনিয়ায় ঘাটের ধুলাবাঁল ঠিক করতে হবে এবং অবস্থা আরও ভাল করতে হবে, ডাক্তার দরকার		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	বয়স	ঠিকানা	মতামত	Attained Activities	Page No in Report
২৩	রশিদা নয়া উপজেলা	মিজ রাফি তাসিন	০১৮৫৫ ৯৮৯৫৬ ৭	রিশিদা পাড়াচনং ওয়াড	৩৫। ডাঙা বন কম রশিদা ঘাট এবং ময়লা সংগ্রহ আরও বেশী জাড়া করা হবে		
২৩	রশিদা নয়া উপজেলা	মেমঃ মাসুদ	০১৮২৯ ৬৬৮৮৬ ৯	২নং ওয়াড নংগা	৩৬। আমদার বাড়িটি খসড়া পেয়ছ, বাড়ির আশপাশ দোকান কম, ধুলাবাগিচা		
২৪	রশিদা নয়া উপজেলা	নজরুল ইসলাম	০১৮১১৫ ৪২৫৭৪	শিলক ইউনিয়ন	৩৭। বাড়ি ঠিক আছে, রশিদা আরও ভাল করে হবে, ময়লা, আবজরনা		
	রশিদা নয়া উপজেলা	পিরকু তিরৎ	০১৮৩০ ৫৫৭৪০ ৪	শিলক ইউনিয়ন	৩৮। শিলার বসহা বাড়িতে হবে, মেয়েদের কম স্বাস্থ্য হান এর		
	রশিদা নয়া উপজেলা	মেমঃ রাসুল রানা	০১৭৮১১ ৩৬১৯০	সরফাটা ইউনিয়ন	৩৯। রশিদা ধুলা বাগিচা অনেক বেশী, ময়লা ফেলার জায়গা করতে হবে,		
	রশিদা নয়া উপজেলা	মেমঃ সোহেল হাল আরমান	০১৮১২ ৭৯৩০০ ৪	সরফাটা ইউনিয়ন	৪০। ভেতরের রাসুলের জ বসহা বিনেত হবে, মরামত করতে হবে, শিলার মান এর দরকার		
	রশিদা নয়া উপজেলা	অজয় চবত	০১৮৪৩ ০৫০৬৭ ৪	শিলক ইউনিয়ন	৪১। কৃষকের জ টাকা যোগান দিতে হবে, জম এর দাম কমাতে হবে, জম কমাতে হবে		
	রশিদা নয়া উপজেলা	মেমঃ এরশাদুল আলম	০১৮২৮ ৫১০০৩ ৭	রাজানগর ইউনিয়ন	৪২। ময়লা বিন বসহা, রাসুলের অবসহা অনেক খারাপ সংগ্রহ করা হবে, কৃষকের টাকা দিতে হবে, শিলার বসহা উ করতে হবে, মেয়েদের শিলার হার বাড়াবে		
	রশিদা নয়া উপজেলা	মেমঃ ইকবাল হোসেন	০১৮১৩ ২২৫৫৮ ৫	চন্দ্রা না ইউনিয়ন	৪৩। বাড়ির পাশে ডাঙা এর সংগ্রহ বাড়াবে ধানী জির জ বসহা		
	রশিদা নয়া	মেমঃ আবু তৈয়ব	০১৮১৩ ২২৫৫৪	চন্দ্রা না	৪৪। শিলার মান বাড়াবে হবে, রাসুল সংগ্রহ করতে		
	রশিদা নয়া উপজেলা	মেমঃ আসক	০১৮১২ ৩৭৮৩০ ৫	সরফাটা ইউনিয়ন	৪৫। বাড়ি ঠিক আছে, রাসুলের অবসহা ভাল না ধুলা বাগিচা বেশী, চিকৎসা বসহা আরও ভাল করা দরকার		
	রশিদা নয়া পৌরসভা	জালাল উদ্দিন চৌধুরী	০১৮১৯ ৮৯৬৬১ ২	মুরাদ নগর	১। মারাদেখানা খসড়া মেয়ে মেয়ে		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
					মেম্বারদেখানা: মেম্বার জায়গার ভিতর হাইল মাতৃ-সনদ হাসপাতাল মেম্বারজেন, পড়া মেম্বার পাশাপাশি মেম্বার ধুলার মেম্বারজেন জরুরী ভিত্তিতে মেম্বার মিত শিশুদের মেম্বার মাঠ ,এখানে মেম্বার ধুলার মেম্বার নাই তাই একটি জায়গা বলে মেম্বার কেবল মেম্বার বসবাস করে থাকে।		
রাউলপুর পৌরসভা	মেম্বার মেম্বার			৩নং ওয়ার্ড ইছা খাল	২। ৩নং ওয়ার্ড এ হাইল মেম্বারজেন ওয়ার্ড (৩) পাশাপাশি মেম্বার যাতে জলাবদ্ধতা সৃষ্টি না করে মেম্বার জল পানীয় বসবাস দরকার		
রাউলপুর পৌরসভা	মেম্বার মেম্বার	সাবেক কাউন্সিলর	০১৮৩২ ৬৬৯৯৫ ২		৩। পাশাপাশি মেম্বার বসবাস করেত হেব রাউলপুর (মেম্বার) মেম্বারজেন বসবাসকারী মেম্বার ডল মেম্বার সাধন করে, ইছামিত নদীর বাধা উন্নয়ন দরকার।		
রাউলপুর পৌরসভা	শাসসুউ ন আজাদ		০১৮১৭ ৭০৬৪০ ৮	মেম্বার- দিন ঘাটেক, ওয়ার্ড ৪	৪। পাশাপাশি মেম্বার বসবাস, মেম্বার পর মেম্বার বাড়ী মেম্বার জ খাস জিমর উপর পাকা বাড়ী নিম্নের বসবাস করা করেত হেব, নদীর পাশের অবধ দখল মেম্বার করেত হেব		
রাউলপুর পৌরসভা	মেম্বার: আলী		০১৮২৩ ৫১৭৪৮ ৭	৭নং ওয়ার্ড	৫। আমার বাড়ীর ত সংশোধন করা হয়েছে জল বাধ দরকার (৬নং		
রাউলপুর পৌরসভা	মেম্বার: শাহিনুর মেম্বার			৮নং ওয়ার্ড	৬। পাশাপাশি মেম্বার মেম্বারজেন, রাউলপুর দরকার, মেম্বার পর মেম্বার আমার বাড়ী মেম্বার জ		
রাউলপুর পৌরসভা	নাছুর আকতার	শিক্ষক	০১৮৮২ ৩৮৮৪৬ ৬	৩নং ওয়ার্ড ইছা খাল	৭। আমার বাড়ী মেম্বার জ , বাড়ীর মেম্বার নাম উই, আমার বাড়ী সড়ক তড়িৎ ঠিক আছে এবং এটি মেম্বার করা যাবে, মেম্বারজেন রাউলপুর পাশ		
রাউলপুর পৌরসভা	মেম্বার মেম্বার		০১৮১৭ ৭২৬৯৯ ৩		৮। মেম্বার পর আমার মেম্বার, পাশাপাশি মেম্বার বসবাস মেম্বারজেন, ৭নং ওয়ার্ড কেলজ ও হাসপাতাল মেম্বারজেন		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
রঙ্গুণিয়া পৌরসভা	এনামুল হক চৌধুরি		০১৮১৮ ৭৫১১৪ ৫		৯। আম্রার বাড়ীটি খুঁজে গেল, আমার বাড়ীর সামনে পুকুর সংলগ্ন রাঙ্গুণিয়া গাইড ওয়াল দরকার (রাঙ্গুণিয়া ডেভেলপ পুকুর হয়ে যাচ্ছে), এতদন শ্রীমতী শশন বসহা কুলকুরমাই আর, সিস.সিস সড়েকর চার পাশে ওয়াল ও ডেভেলপ দরকার		
রঙ্গুণিয়া পৌরসভা	মেম্বার: ছেলক সিকদার		০১৮১৯ ৬০৪৯৬ ৪	৮নং ওয়ার্ড বাড়ী রঙ্গুণিয়া	১০। গঙ্গা বগু এবং সমাজের চৌকীশীল শ্রীনেয় গনশুনানী করা উচিত, রাঙ্গুণিয়া গুলো ঠিক সহ মাঠে সসারন করা বৈদ্যুতিক খুঁজি কিছু ভালো বসোনা হয়েছে সেসিটি অপসারণ কের যথা সহোনা বসোনা।		
রঙ্গুণিয়া পৌরসভা	মেম্বার: জিসম	কাউনিসলর	০১৮১৫ ৪৮৭৮৮ ১	২নং ওয়ার্ড	১১। ২নং ওয়ার্ড এ বাড়ীটির ভুল হয়েছিল, আগ পি.আর.এ এর সময় বলা হয়েছে		
রঙ্গুণিয়া পৌরসভা	মেম্বার: শ্রীমনার		০১৮২১৪ ৬২১১১	উত্তর নোয়াগাঁও	১২। আম্রার বাড়ীটি খুঁজে যায় নাই, বাড়ী নোয়া: ১৫২, ওয়ার্ডের বাড়ীটির ঠিক		
রঙ্গুণিয়া পৌরসভা	উপায়ন বড়ুয়া		০১৮১৬ ৮০৪৪০ ১	৯নং ওয়ার্ড	১৩। ইছামতি ধাতুচ কমেন্টে (৯নং ওয়ার্ড নাই, এখানে আমার খুঁজে পাওয়া যায়নি		
রঙ্গুণিয়া পৌরসভা	কমল হির দাস		০১৭১৯৯ ১০০২৪	২নং ওয়ার্ড	১৪। আম্রার বাড়ীটি খুঁজে পেয়েছি, মালের পাশে দখলের কারেন সাধারণ জনগণের সমস্যা হচ্ছে এসব অবস্থা দখল উচ্ছেদ য়োজন।		
রঙ্গুণিয়া পৌরসভা	মেম্বার: উত্তর		০১৮৩০ ৮৩০৪৪ ৮	৭নং ওয়ার্ড	১৫। পৌরসভার ৭নং ওয়ার্ড এতদন পিরকার করা যোজন		
রঙ্গুণিয়া পৌরসভা	শামীমা আকতার		০১৮৭১ ৫৬৫৬০ ২	৩নং ওয়ার্ড	১৬। রাঙ্গুণিয়া বড় করা দরকার		
রঙ্গুণিয়া পৌরসভা	মেম্বার: আবদু		০১৮৫৪ ০৪৩৭২ ১	৪নং ওয়ার্ড	১৭। অবস্থা দখল দমন শ্রীতিরোধ করতে হবে (৪নং ওয়ার্ড জলবাত সমাধান করতে হবে		
রঙ্গুণিয়া পৌরসভা	মেম্বার: নুর কিবর		০১৮১৩ ৫৪০২২ ৪	ইছামতি	১৮। বর্ষারকালে জলাবস্থা সমস্যা হয় ৩নং ওয়ার্ড এ এতদন জল নতুন ভবন দরকার		

ক্রম ক	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
	রাঙ্গুনিয়া পৌরসভা	বিপন বড়ুয়া		০১৮১৩ ৫৪০২২ ৪	৩নং ওয়ার্ড	১৯। রাঙ্গুনিয়া পৌরসভার পাওয়ার লাইন, ওয়াটার রাঙ্গুনিয়া ঘাটের মরামত		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ পারেভজ		০১৮২৯ ৭৪২১২ ৩		২০। খালের বাঁধের সংস্কার প্রয়োজন বসার কার্য হয়, মেমঃ নর প্রয়োজন		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ তাহের রক		০১৮২৯ ৬৬৮৫৮ ৬	সৈয়ত বাড়ী	২১। বিস্তৃত খাবার পানির বসতি করা প্রয়োজন খালের পাড়ে অবস্থিত দখল প্রতিরোধ করা প্রয়োজন, মেমঃ নজ উত্তর করা প্রয়োজন		
	রাঙ্গুনিয়া পৌরসভা	সাইমন		০১৮২২ ২৭৩১৭ ৫		২২। এলাকায় হাইওয়ে দরকার পানির শিশন উত্তর করতে হবে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ আনস		০১৮৬৫ ৩৫০০০ ০	#####	২৩। রাঙ্গুনিয়া পৌরসভার বাড়ি খরচের জাপোয়াইট বাড়ির আছে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ আরজু		০১৮২৯ ৬৯৫৪২ ৩	৭নং ওয়ার্ড	২৪। রাঙ্গুনিয়া পৌরসভার পেয়িছ, বাড়ির ত্রুটি আছে, খালের পাড়ে বজর পানির দূষণ হেচছ, হাইওয়ে দরকার নৈং ওয়াটার বর্জ অপসারণ এর জরুরি বসতি প্রদেয় হবে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ বড়ুয়া		০১৮১৬ ০১০৭৭ ২	১নং ওয়ার্ড	২৫। বসার কার্য পাহাড়ী ঢল নেম বাড়ী ঘেরের ক্ষতি সাধন করে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ দাদার আলম		০১৮৪৯ ২৪৮৩০ ৪	ইছাখাল	২৬। রাঙ্গুনিয়া পৌরসভার বাড়ি খরচের জাপোয়াইট গেছ, শিশন বসতি উত্তর হবে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ এনামুল হক		০১৮১৭ ৫৮৪০৮ ০০	ইছাখাল	২৭। রাঙ্গুনিয়া পৌরসভার পেয়িছ বাড়ির ত্রুটি আছে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ আলী		০১৮১৭৪ ৫৪৯১৩	খাটেক	২৮। নদীর পাড়ে বর্জ ফেল পানির দূষণ হেচছ, পানির শিশন বসতি ভাল করে হবে		
	রাঙ্গুনিয়া পৌরসভা	মেমঃ পারেভজ		০১৮৩২ ১২৮৭০ ০	ইছাখাল	২৯। রাঙ্গুনিয়া ঘাটের প্রয়োজন নদীর পানির দূষণ হেচছ, বজর শিশনের বসতি প্রদেয় হবে খালের খেলার মাঠ প্রয়োজন, মেমঃ গাড়ির জয়ান জট সৃষ্টি হয়		
	রাঙ্গুনিয়া পৌরসভা	অজয় বড়ুয়া		০১৮১৫ ৯৪৭২৫ ১		৩০। রাঙ্গুনিয়া পৌরসভার বাড়ি খরচের জাপোয়াইট বাড়ির আছে		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
রংগুনিয়া পৌরসভা	ইমরান		০১৮১৫ ৫৯৬৮১ ৭	পৌরসভা এলাকা ২ নং ওয়ার্ড	৩১। জলাবদ্ধতা সমাধান সমাধান করেত হেব, পৌরসভা বসহা উত্তর করেত হেব ,অব দখল উচ্ছদ করেত হেব		
রংগুনিয়া পৌরসভা	মেম্বার আতিক		০১৮১৫ ৫২৩০৪ ৭		৩২।। বসার কাঁচ জলাবদ্ধতা সমাধান হয়, খালের পাড় মরামত করা পৌরসভা পাওয়ার বোর্ড ফেলার কারেন জলাবদ্ধতা হয় ও পাণ্ডিন দূষিত হয়		
কাদালা ইউনিয়ন	মেম্বার; আজম	বসতি ইউ পি সদ	০১৮৫৭ ৭০১৭	কাদালা	১। কতৃ পৌর ডিউচ হেব পুনরায় জিরীপ কাজ পিরচালনা করা।		
কাদালা ইউনিয়ন	মেম্বার: সিন্দু আলম	বসতি	০১৮৩৮ ৪৫৭২২ ৩	কাদালা	২। নগর উন্নয়ন অধিদপ্তর কতৃর মহা পিরকনা আওতায় চলানো জলার অগতর রাপিনয়া উপজেলার ১২নং কাদালা ইউনিয়নের পাট সব দিক থেকে ফিলত হয়িন, তাই পুনরায় জরীপ কাজচালানা দরকার।		
কাদালা ইউনিয়ন	মেম্বার: সিলম	ইউপি সদ	০১৮১৯ ৬৯০০৭ ৬	ধাপাঘাট	৩। মহা পিরকনা আওতায় কাদালা ইউনিয়নের পাটের উপর পুনরায় জরীপ কাজ চালানা দরকার		
কাদালা ইউনিয়ন	মেম্বার: উন	উন্নয়ন কাদালা ইউপি সদ	০১৮৩৬ ৯২৯৫৪ ৫	মেম্বার: দপু	৪। নগর উন্নয়ন অধিদপ্তর কতৃর গৃহীত মহা পিরকনা আওতায় কাদালা ইউনিয়নের পাটের উপর পুনরায় জরীপ করা পৌরসভা কারন আমার জানা মোত উ পাটের অনেক গুলো ওকেয়কাটি সড়ক আস নাই বা ফিলত হয় নাই		
কাদালা ইউনিয়ন	মেম্বার: লিয়াকত আলী	বসতি	০১৮১৭ ৭৮৩১৮ ৭	ধাপাঘাট, ২ নং ওয়ার্ড	৫। নগর উন্নয়ন অধিদপ্তর কতৃর কাদালা ২নং ওয়ার্ডের ল ওমসিজদ বিভিন্ন পিসঠানের উঠ নাই এমত অবসহায় পুনরায় জরীপ করা পৌরসভা		
কাদালা ইউনিয়ন	মেম্বার: হোসেন টিটু	সিএড পার	০১৮৭৫ ২২৪১৯৪	৪নং ওয়ার্ড	৬। পুনরায় ওসিএড পিরমাপন কিরেল ভাল হেব		
কাদালা ইউনিয়ন	মেম্বার: দ	উন্নয়ন কাদালা ইউপি সদ	০১৮২০ ২০২৪৩ ০	৬নং ওয়ার্ড	৭। নগর উন্নয়ন অধিদপ্তর কতৃর কাদালা জরীপ অনেক গুলো দিক নিবন্ধন চন ফিলত হয়িন উ ইউনিয়নের উন্নয়ন জ		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
					পুনরায় জরীপ করা প্রয়োজন		
	কাদালা ইউনিয়ন	মা: নূর খান	বসতি	০১৮১৫ ৬৬১৭৮ ১	নং ওয়াডর্	৮। নগর উন্নয়ন অধিদপ্তরের আওতায় কাদালা ইউনিয়নের পট পুনরায় পয়ারে লাচনা করা দরকার।	
	পারুলিয়া ইউনিয়ন	রতন সেন শি		০১৭১৯৯ ০১২৬১	উন্নয়ন পারুলিয়া উন্নয়ন বিবরণী লয় নং ইউনিয়ন	১। উন্নয়ন পারুলিয়া উন্নয়ন পারুলিয়া ইউনিয়ন প্যাপ সংযোজন প্রয়োজন, উন্নয়ন পারুলিয়া সরকারি বিবরণী লয় পূর্ব ও দিগন্ত সমানায়।	
	পারুলিয়া ইউনিয়ন	সমীরন কাটি ঝালাকার		০১৮১৭ ৭০৫৮২ ৯	সাহা নগর	২। সাহা নগর মিনার মিনার প্যাপ জলা কুমার মিনার ইউনিয়ন প্যাপ সংযোজন প্রয়োজন	
	পারুলিয়া ইউনিয়ন	আনছুর রহমান		০১৮২৩ ২৫৬৭২ ৮	পূর্বস্থান হাট ইউপি সদন নং ওয়াডর্	৩। গায়াজ পাড়া মসজিদ দ: প্যাপ পূর্বস্থান হাট নগর বিবরণী লয় ইউনিয়ন সংযোজন প্রয়োজন,	
২	পারুলিয়া ইউনিয়ন	মা: মুছা		০১৮২৪ ৭৭৮৪০ ৩	প: পারুলিয়া সদন নং ওয়াডর্	৪। ভাট পারুলিয়া নং ওয়াডর্ ইমান আবু হাফি নফা ও এস আহমদ প্যাপ: ইউনিয়ন প্যাপ সংযোজন প্রয়োজন।	
৩	পারুলিয়া ইউনিয়ন	মা: জাহেদুর রহমান	চয়ার পান	০১৮১৯০ ৭৬৫৭৯	পারুলিয়া ইউনিয়ন	৫। উপরিলিখিত প্যাপ গেনর মতামতের ভিত্তিতে বসহা নং জ অনুরোধ রইল।	
৪	শিলক ইউনিয়ন	গেনশচন্দ্র দাস	চাকুরি	০১৮১৯১ ৭৯৩৭৪	পিম শিলক	১। সনাতনী সমদায় ভূমি একটি মিনার পিনমার নও শশশান ঘাট পিম শিলক বনর বো বিহার হেত প্যাপ প্যাপের টেক পয়ার মরামত করা অতীজরুরী।	
	শিলক ইউনিয়ন	নুরজাহান বেগম	চাকুরি শি	০১৮১৬ ৩১৩৯০ ৯	নুটয়ার টিলা স: বিবরণী লয়	২। বিবরণী লয়ের সামেনর মার্চ ভরাট এবং কল গুলি অিত প্রয়োজন নতুন ভবন অিত জরুরী	
	শিলক ইউনিয়ন	মা: কাববাবদ আলী	নং ইউপি সদন	০১৮৬৯ ৬১১৬১৬	জমাদার পাড়া	৩। পিম মাহিজ পাড়া এলাকায় জন গুরু পূর্ণ এলাকায় জনসাধারনের সুবিধার্থে উন্নয়ন এলাকায় পিম মাহিজ পাড়া সড়ক এইচ, বি, করনের জ খুবই জরুরী। নং ওয়াডর্ শিলক জমাদার পাড়া থেকে প্যাপের টেক পয়ার দায় বি, করন প্রয়োজন।	

ক্রমিক উপজেলা/ পৌরসভা / ইউনয়ন	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
শিলক ইউনয়ন	মেম্বার: ডিন	ইউপি সদ ৯নং ওয়াড	০১৮৩২ ২১৭৫৮ ৭	১ নং ওয়াড শিলক	৪। শিলক রাজা পাড়া সরঘাটা তাখীমিয়া বিবলপালের মাঠ করেল খেলা খুলা করার জ সুবিধা হেব। উইয়ন এর রাট সং		
শিলক ইউনয়ন	মেম্বার: এয়াকুব	ইউপি সদ ৪নং ওয়াড	০১৮৩৩ ৮৬০৬২ ৬	৪নং ওয়াড শিলক	৫। ৪নং ওয়াড শিলক মে বহর পাড়া বসহা খুবই খারাপ বহর পাড়া সড়ক রথে পাইপ ও ওয়াল নিম্ন য়াজন। কণফুল রথে বসনা		
শিলক ইউনয়ন	হাজী আল কস	ইউপি সদ ৬নং ওয়াড	০১৮১১৬ ৩৯৯৭২	৪নং ওয়াড শিলক	৬। শিলক তলা ভা ফসল রথে বসার ব শিলক খালের বাঁধ নিম্ন একা বালুমছল ব করা একা য়াজন, নদী ভাঙা হেতর পাওয়ার জ		
শিলক ইউনয়ন	মেম্বার হোসেন	চাকুরি/সিচ ব	০১৮১৯৯ ৪৬৯২	শিলক	৭। গৃহায়ন ও গনপু ত ম নেলয়র আধীন। নগর উইয়ন অধির মহা পিরকনা নয়নর ইয়া হন করা হেয়েছ, তাহােত কতুরপ শিলক ইউনয়নর কাজ তরাই হেব তেব, ইউনয়নর বিশেষ কের উইয়র রা শিইতিসঠান পুন: সংার যাজন		
৫	পাম রা					মতামত নাই	
৬	পদুয়া ইউনয়ন	রিবন চৌধুরী	ইউপি সিচব ০১৮৪০ ০৮০৪৯ ৭	১০নং পদুয়া ইউপি	১। নগর উইয়ন অধির কতুরক বা বায়িত মহা পিরকনার পদুয়া ইউনয়ন ভবন নিম্ন ওরা টাট উইয়ন অরভ করার জ অনুরাধ করা হেলা		
পদুয়া ইউনয়ন	মেম্বার: নুরুল হামিদ	শিলক	০১৮১৯০ ০৯২১৩	সাপেলজা ১ নং ওয়াড	২। উইলাকায় পটান আলীর বাড়ী হেত উইর পাড়া আলী ফিকর এর বাড়ী পয কাঁচা রাই পাকা করা এবং এলাকার পড়ালখার উইয়নরজ একটি রা: ল সহাপন করার জ মহা পিরকনায় অভ করা জ অনুরাদ জানািছ।		
পদুয়া ইউনয়ন	হাজী আল হাকিম	বস	০১৮৪০ ৪৭২৫১ ৭	২ নং ওয়াড	৩। পদুয়া ইউনয়ন এর পিরকনার কাঁচা সড়ক ভারী সড়ক হেত ৫০০ ফুট কাঁচা রা টি শ		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারীর নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report	
					করার জমি বিবর্তিত অনুরোধ জানাচ্ছি।			
পদুয়া ইউনিয়ন	মেম্বার: নাজিম উদ্দিন	বসতি	০১৮৩৩ ৬৬১৯৮ ৪	সুখ বিলাস চনং ওয়াডর্	৪। পদুয়া ইউনিয়ন এর পিরকাতার সামবায়েরিয়া হাট থেকে সবার টিলি পয় অসমতা বাকি ৬০০ ফুট কাঁচা রাস্তা বাকি বা পাকাকরন জমি বিবর্তিত অনুরোধ			
পদুয়া ইউনিয়ন	মেম্বার: আরকান উদ্দিন	বসতি	০১৮১১৭ ৪১১৪৮	২ নং ওয়াডর্ পদুয়া	৫। অলাকাটি খুবই বড় লোক সংখ্যা অনুযায়ী তান মরামত অবকাঠামোর সঞ্চার ভাবে বিচ্ছিন্ন তাই উদ্দিন অবকাঠামো উন্নয়ন বেশী জানি বিভিন্ন সাহায্য জমি অনুরোধ জানাচ্ছি।			
পদুয়া ইউনিয়ন	নজরুল ইসলাম	শিক্ষক	০১৮৬৮ ৫৪৯০৩ ৬	হরুয়াল ছিড় ৫নং ওয়াডর্	৬। সরকারের এই উদ্দেশ্য গত জানাই, আমি অ ইউনিয়নের ৫নং ওয়াডর্ হরুয়াল ছিড়র বাসিন্দা। সারাদিন বিভিন্ন পথে পথে একটি সিলন রাই আছে। উদ্দিন রাস্তার মোড় ৩০০ ফিট. তার মধ্যে ১৫০ মত সিলন হয়েছে। বাকি রাস্তা অংশে এত বসার কাল হয়ে চলা চেলর অ্যাং পেড় চলা চেলর বিবর্তিত নাই, এতএব মেহাদেয়ের সু নজর আশা কির।			
৭	বেতাগী ইউনিয়ন	মেম্বার: নুর কুতুবুল আলম	চেয়ারম্যান	01817 20363 1	০৭নং বেতাগী	১। নগর উন্নয়ন অধিদপ্তর কর্তৃক বাকি বাসিত রাস্তা উপজেলার ৭নং বেতাগী ইউনিয়ন র মহা পিরকাতার মানিচের তত্ত্ব অর্থাৎ ও তত্ত্ব বিবর্তিত মানিচের ভাবে উপসহপন কিরেল তত্ত্ব সংশোধন সর্ব সহানীয় গমাংক বগর সহসকল ইউপি সদ ও সদ্যাদেরক প্রিনেয় সিমনার কিরেল বিষয়টি সকল অর্থাৎ চছ ও নিনভ তত্ত্ব পাওয়া সর্ব বেল মেন কির।		

ক্রমিক সংখ্যা	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
	বেতাগী ইউনিয়ন	সৈয়দ আবুল মনসুর	চনং ওয়াড সদ	০১৮১৭ ২০১১০১	চনং ওয়াড সদ কাউখালী	২। আমার ওয়াড এ ৫৫নং কাউখালী সরকারি ও মৌলানা বাড়ী সিরাজ জামে মসজিদ মানিচে আস নাই। হযরত সৈয়দ ওয়াজ উদীন শাহ কিজ ল বাদ পেরেছ, নওয়াজ পাড়া খিলফা জামে মসজিদ গেঠনাই, বেতাগী আম ল মানিচে নাই, জনসাধারণের বহারকৃত ওটি কবরসহান পেড়েছ।		
	বেতাগী ইউনিয়ন	মেম্বার: শওকত আলম	৭নং ওয়াড সদ	০১৮৫৩ ০৫১০৯ ১	৭নং ওয়াড পূর্ব বেতাগী	৩। আমার ওয়াড এ পূর্ব বেতাগী শেক মেম্বার ফা(দ:) হফজ খানা ওপ্রিতম খানা কণফুল লী মডল বাড়ী কবরসহান, সিরাজপাড়া কবরসহান, শাখা খালা, জালাল শাহ মাজার পা নাই।		
৮	সরফভাটা ইউনিয়ন	তিরকত নুর	বস	০১৮১৮ ০৭৭৩৫ ২	মীরের খালী পি ম সরফ ভাটা	১। মীরের খালী পাম ইমার ল।		
	সরফভাটা ইউনিয়ন	মেম্বার: সোহেল আরমান	ছা	০১৮১২৭ ৪২০০৪	৯নং ওয়াড পূর্ব সরফ ভাটা	২। একটি উবিপালয় পায়াজন, ৩নং ওয়াড মিহলাদর হাসপাতাল সরফ ভাটা ইউনিয়নে একটি কেলজ খুবই পায়াজন।		
	সরফভাটা ইউনিয়ন	মেম্বার: রহমত আলী	ছা	০১৮১৫ ৫১০১৪ ৮	মাঠের নীল	৩। ৮নং সরফ ভাটা ইউনিয়নে একটি খলার মাঠ।		
	সরফভাটা ইউনিয়ন	মেম্বার: শায়েব	বস	০১৮৩১ ৫৯৮৯১ ০	সিপাহী পাড়া	৪। সরফ ভাটা ইউনিয়নে একটি মিন পিয়াম খুবই পায়াজন।	-Upazila Stadium has been proposed in Rangunia Paurashava	chapter -7 Figure-7-11 Page-7-38
	সরফভাটা ইউনিয়ন	ডিকল আহমেদ	বস	০১৮৩৪ ৭৪৬২৩ ০	মীরের খাল	৫। জনৈকী শখ হাসনা ডিজিটাল কের আওতায় মীরের খালী, দীঘল ১০ মি:মি: রাটি আশপাশ জনশ। এলাকা তাই সে রায় জনগন নিব জ একটি পুলিশ ফাঁ ।	-roads has been proposed	
	চাঁচা নাকদমতলী ইউনিয়ন	জনাব মেম্বার: হিচ আজগর	চয়ার ন	০১৮১৯৮ ৯৪৫৭৫	১১নং চাঁচা নাকদমতলী ইউনিয়ন	১। চাঁচা নাকদমতলী ইউনিয়ন মহা পিরকনার নয়ন মিন মতামত দিয়েছেন।	- Developmen t plan of this union has been	-chapter -7 Figure-7-6 Page-7-43

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
					চাওঘানা লিচুবাগান বাস ও কচাই রোড সংলগ্ন ঘাও সহায়ন সুবিধা মিডিয়েট চোরচোর সহায়ন বতরমান সরকারের একটি অভূতপূর্ব মাইল ফলক হিসাবে থাকেব আশা রাখি। চাওঘানা বন চাও এলাকায় হোটেল মার্কেট পিরকানার নিম্নের ন পার্শ্ব একটি কেলজ অ ইউনিয়নের শিশুর মান বৃদ্ধি পাবে। চাওঘানা কদমতলী সরকারি চাও বিবলয় সংলগ্ন পূর্বপার্শ্ব বিবলয় নিম্নের ন করা জরুরী, বন চাও সরকারি বিবলয় সংলগ্ন উ বিবলয় নিম্নের ন করা । চাওঘানা কদমতলী ইউনিয়ন একটি হাইল থাকার ৪০/৫০ হাজার অর্ধ চত জনসংখ্যা এলাকায় সংখ্যা বেশী হওয়ায় সংকুলান হয় না বিধায় অ এলাকার শিশুর মান বৃদ্ধি আরও ৩টি হাইল সহায়ন করা অবশ্যক। পূর্ব চাওঘানা চীন মেডেল রিজ: এর একটি বাবিলকা উ বিবলয় সহায়ন করা অবশ্যক।	proposed	
চাওঘানা কদমতলী ইউনিয়ন	মেম্বার: রজাউ ল কিরম	ইউপি সদ ২নং ওয়াড ৮	০১৮১৮ ০২৯৩৪ ৪	চাওঘানা	২। নগর উইয়েন মহা পিরকানার আনত পদে প যথাযথ অ ইউনিয়ন বিবলয়ের ৩টি হাইল এবং ১টি কেলজ নিম্নের ন এলাকার চেলে মেয়রা অজর ন সহজ হবে। ২নং ওয়াড ৮ সরকারি চাও বিবলয় সংলগ্ন পূর্বপার্শ্ব উ বিবলয় নিম্নের ন করা	-high school has been proposed in this union	Chapter-7 See Table 7.13 page-7-39
চাওঘানা কদমতলী	মেম্বার: আলা উন	উপ সহকারী র কৃষি অফিসার	০১৮১৫ ৪৯৬৬২	উপজেলা কৃষি অফিসার রাণীনয়া	৩। চাওঘানা কদমতলী ইউনিয়ন মহা পিরকানার নিয়েন নিম্নের মতামত লিপ বধদ করা হেলা, ২নং ওয়াড ৮ কদমতলী সরকারি চাও	-Hotel motel zone, educational facilities has been proposed	- Chapter-7 See Table 7.11 page-7-37 -Chapter-7 See Table 7.12, 7.13 page-7-38-

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
					বিবরণীয় প্লানমেন্ট নং ৭৭ প্লান মেডেল প্রিজ: প্লোর বালিকা উবিবালয় ৯৭ ওয়াডর্ হোটেল প্লানমেন্ট ন পিরকনোর প্লানমেন্ট ন পাশে একটি কেলজ অ উইনয়নের পিশোর মান বৃদ্ধি পাবে। বাস শিশন ও কপি আই রোড সংলগ্ন দশর্ যথা সুচি মতামতের প্রতিশ্রুতি চোরোর প্রতি সহ সাপন বতরমান সরকারের একটি অভূতপূর্ব মাইল ফলক হিসাবে থাকেব আশা রাখি		7-39
চন্দ্রনা কদমতলী	লাকন বিবাস	উপ সহকারী র কৃষি অফিসার	০১৮১৪ ৩৬৭৭৫ ৩	উপজেলা কৃষি অফিস রাণিয়া	৪। ৭৭ ওয়াডর্ মহাজেনর বটতলা সংলগ্ন একটি বালিকা উবিবালয় সহাপন, ৯৭ ওয়াডর্ বৃহৎ জনগোষ্ঠীর কল্যাণ উ বিবালয় সহাপনের ফেল এলাকায় পিশোর মান উর্ধ্বার বৃদ্ধি পাবে বেল করেল ভালে হেব। ৯৭ ওয়াডর্ সংলগ্ন বাগান/সাব শিশন এ হোটেল প্লানমেন্ট ন সহান ও কপি রোডের যোগাযোগ সহাপন হেব।	- educational facilities has been proposed -Monument and hotel motel zone also has been proposed	Chapter-7 See Table 7.12, 7.13 page-7-38- 7-39 - Chapter-7 See Table 7.11 page-7-37
৯	লালানগর ইউনিয়ন	জিমলা আকতার	০১৮১৯৯ ৪০৬৯৮	লালানগর ৩৭ ওয়াডর্	১। চাঁদ নগর মসজিদটি পুন:রায় সংরক্ষণ দরকার।		
	লালানগর	ওসমান গিন	০১৮৫১ ৩৬৯০১ ৫	লালানগর ৭৭ ওয়াডর্	২। ঘাগড়া খিলেমাগল তালুকদার পাড়া, সৈয়দ বাড়ী প্রথেক ইছামিত নদীর পাকা হওয়া দরকার	- Developmen t plan of lalanagar union has been proposed	Chapter-7 See Figure Map 7.11 page-7-48
	লালানগর	মেমা; হাম্মুন কিবর প্রচারি	০১৮৫৬ ৩৫২০১ ৮	লালানগর ৩৭ ওয়াডর্	৩। রক্ষা পাকা হওয়া দরকার লালানগর ৭৭ ওয়াডর্ দরগাহটি প্রচার সৈদর জামাতির জ ৩৭ ওয়াডর্	-	

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
লালানগর	মেম্বার: মীর আমানুল হক		০১৮২৪ ৬১১২২ ৫	১ নং ওয়ার্ড	৪। উত্তর রাঙ্গুনিয়া বিডেই কেলেজর মাঠ ভরাট করা অতঃপর দরকার। মীর বাড়ী সড়ক	- Developmen t plan of 1 no ward has been proposed	Chapter-7 See Figure 7.20 page-7-57
লালানগর	মেম্বার: শাহেদুল ইসলাম		০১৮১৪ ৩১১০৯৪	২ নং ওয়ার্ড	৫। জালাল ফিকর পাড়া রাস্তা সেতুরামত হওয়া একই দরকার ।		
লালানগর	মেম্বার: আকাস উদ্দিন		০১৮১১৩ ২৩৭০১	২ নং ওয়ার্ড	৬। কাজী পাড়া ছায়েলহ আহেদ শাহ মাজার সংলগ্ন থেকে ২০০ ফুট পর্যন্ত সংস্কার হওয়া প্রয়োজন কাজী বাড়ী রাস্তা সংস্কার।		
লালানগর	মেম্বার: সালা উদ্দিন		০১৮৭৬ ৬৭২৬৯ ২	৬ নং ওয়ার্ড	৭। মুন্সি বাড়ীর সড়ক সংস্কার ও উন্নয়ন		
লালানগর	মেম্বার: জাহা ঙ্গীর আলম		০১৮৮২ ৮২৯৪৩ ১	৭ নং ওয়ার্ড	৮। মিরাজ বাড়ীর সড়ক খন মাগল সংস্কার ও উন্নয়ন দরকার		
লালানগর	মেম্বার: আবদুর রহমান		০১৮২৪ ৮২৬২৫ ২	৫ নং ওয়ার্ড	৯। মুন্সির পুকুরের গাভ ওয়াল দরকার এবং মুন্সির বাড়ী সড়ক (আলী হায়দার সংস্কার দরকার	- Developmen t plan of 5 no ward has been proposed	- Chapter-7 page-7-44
লালানগর	মেম্বার: আবদুর শুকুর		০১৮১৪১ ৪৯৩৭	৭ নং ওয়ার্ড	১০। নদীর তীর ফেল রাখা ঘাট তিলে যাওয়া যাতায়াত হত হেচছ এমতাবদায় ক দেওয়ার মাধ্যমে পুনরায় রাস্তা নির্মাণের একই প্রয়োজন।	- Embankmen t has been proposed for river bank erosion - Developmen t plan of 7 no ward has been proposed	- Chapter-7 Page 7-52 - Chapter-7 page-7-46
লালানগর	আহিযুব আলী		০১৮২৪ ৮২৮৭২ ২	৪ নং ওয়ার্ড	১১। ইসলামীয়া পাড়া হেত চালাইকুল সংযোগ সড়ক ইট বসানো দরকার, ইসলামীয়া পাড়া হেত চারিহীলা কবরসহান মৈত্রী দরকার এবং একটি কালভার্ট অিত প্রয়োজন, ইসলামীয়া পাড়ার মাঝে খানিদেয় পার্শ্ব জমি একটি মৈত্রী অিত চালাইকুল ৪ নং ওয়ার্ডে একটি গাভ ওয়াল প্রয়োজন, চালাইকুলের মসজিদটি সংস্কার প্রয়োজন, কমিউনিষ্টিয়াল উপর ১টি পায়ে প্রয়োজন দরকার,	- Developmen t plan of 4 no ward has been proposed	- Chapter-7 page-7-43

ক্রম ক	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
						পাড়া ১৭নং লালানগর সরকারি প্রাথমিক বিদ্যালয় নতুন ভবন প্রয়োজন, ৪নং ওয়াড ওয়াল পাড়া সড়েক কালভাট প্রয়োজন, বসাক পাড়া পুকুরের গাড ওয়াল।		
	লালানগর	মেম্বার: শাহ আলম		০১৮১৯৯ ৫৫০৩৯	লালানগর ৩নং ওয়াড	১২। চাঁদ নগরের আশ্রয় হতে পায়ে পেরে মারজী পথ ইট বিছানা দরকার, দরগাহ টিটার সড়েক পুনরায় ইট বিছানা, মকবুর চোরিধ মসজিদে সংস্কার প্রয়োজন, চাঁদ নগরের জুমা মসজিদে সংস্কার, গাড ওয়াল পিনমর্দন কালাগাজী বাড়ী সরকারি প্রাথমিক বিদ্যালয়ে আসবাব দরকার, চাঁদ নগর মসজিদে আসবাব পদ দরকার, চাঁদ নগর মসজিদে সামেন ইট বিছানা দরকার, ধায়াপাড়া ইট বিছানা দফদারের বাড়ীর ইট বিছানা দরকার, খিলের বাড়ীর সামেন কালভাট পিনমর্দন দরকার, রক্ষক বাড়ীর সামেনের মাটির রক্ষণায় ইট বিছানা আজ জেমে প্রের বাড়ীর বিছানা দরকার, কাইতায়ের সামেন ইট বিছানা দরকার এবং গাড ওয়াল পিনমর্দন কালাগাজী বাড়ীর প্রের গাড ওয়াল, ডা: ফয়সালেছির বাড়ীর সামেন ইট বিছানা দরকার,		
	লালানগর	কাজী মঈন উদ্দিন		০১৮১৪২ ৮৭৬৯৫	২নং ওয়াড	১৩। কাজী বাড়ী জামে মসজিদটি মনিচে উন্নীত হয়নি, কাজী ছায়েল মাজারিও উন্নীত হয়নি, কিছর মাহমুদ শাহ মাজারিও উন্নীত হয়নি, প্রাচীন পাড়া মিরিট উন্নীত হয়নি, ফিকর পাড়া ফরকারিয়া উন্নীত হয়নি, হজরত জালাল ফিকর মাজারিও উন্নীত হয়নি, সবাকপাড়া কাল মিরিও কৃষ্ণ মিরি	-Developmet plan of 2 no ward has been proposed	- Chapter-7 page-7-41

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
					২টি টেংগি খত হয়নি, বাড়ীর রাস্তা এবং টেংগি সংস্কার, সবাকপাড়া কাঁচাল এর(টি.সি.সি) ডালাই, ২ নং ৪নং ওয়াডর এ সংযোগ এর বেরী খালের উপর জরুরী একটি ব্রিজ নির্মাণ ন সড়েক ইট পাটন ব্রিজের পাশের টেংগি নির্মাণ ন, মওলান রাস্তায় ইট বিছানো, করকরা বাড়ী রাস্তায় টেংগি নির্মাণ ন, কাজী বাড়ী পাটন ব্রিজের পাশের বারেক একটি টেংগি নির্মাণ ন, দিগুন বাড়ী রাস্তার টি.সি.সি ডালাই পাটন ব্রিজের টেংগি কাজী নুরুল ইসলাম চেয়ারম্যান রাস্তার পাটন টেংগি পাড়া পুকুরের গাডর ওয়াল নির্মাণ ন, সবাকপাড়ায় ওয়াল, খেঁকার পাড়া সংস্কার পুকুরের গাডর ওয়াল নির্মাণ ন টেংগি পাড়া রাস্তায় ইট বিছানো, মিয়াজান চৌধুরি রাস্তার সংস্কার, মাগন পাশে গাডর ওয়াল নির্মাণ ন, আশেকর বাড়ীর রাস্তায় ইট বিছানো।		
৭ নং রাস্তা ইউনিয়ন	লাভলু	ইউনিয়ন পিরবর পিরকান	০১৮৩১১ ৩৩৮৬০	৭ নং রাস্তা ইউনিয়ন	১। ভবন দরকার (যাহা মা ওশিশুর জগত পুণ্য		
৭ নং রাস্তা ইউনিয়ন	নারায়ন ঘাস		০১৮২২ ৮৭৯৭৭ ৪	৭ নং রাস্তা ইউনিয়ন	২। উন্নয়নসাপেক্ষ রাস্তা করা হবে	-roads has been proposed and development plan has been proposed	Chapter-7 See Map page-7-12- 7-17
১১ ইসলামপুর ইউনিয়ন	মেম্বার রুম		০১৮১৯ ৩৩৯২১ ৫	ম কল	১। ছাত্রদল শির জামে মসজিদ/৫নং অডি বুইজার জামে মসজিদ, মানিচিং অডি হয় নি।		
ইসলামপুর ইউনিয়ন	মেম্বার সেকার		০১৮২০ ৩২৬৬১ ৪	সগুন বাগিচা নতুন পাড়া	২। অডি মানিচিং অডি ওয়াল ক্রিকেট চিনিহত করেত হেব এবং অডি অডি উপেখ থাকেত হেব।		

ক্রমিক উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারী র নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
ইসলামপুর ইউনিয়ন	আবদুল মালেক		০১৮১৪১ ৫৪৩২৫	আরফান বাড়ী	৩। ইসলামপুর উদ্ভিদ বন্যপ্রাণী প্রদর্শনালয়		
ইসলামপুর ইউনিয়ন	কামাল উদ্দিন		০১৮২৩ ৪৬৮৩৪ ১	মঘা ছিড় বড় বনপাড়া	৪। মানচিত্র মিশ্রণ প্রদর্শনালয়		
ইসলামপুর ইউনিয়ন	মেম্বার: আজহার রহমান		০১৮১৫ ৪১১০৩ ৫	আল আমন পাড়া	৫। আল আমন পাড়া জামে মসজিদ ও ঘাগড়া খাল মানচিত্র প্রদর্শনালয়		
ইসলামপুর ইউনিয়ন	মেম্বার: নাঈফ		০১৮২০ ৫২৫৪৯ ৫	গাবতল	৬। অ মানচিত্র অনেক মসজিদ, মসজিদ প্রদর্শনালয় হয়		
মিরয়মনগর ইউনিয়ন	সাইফুল ইসলাম		০১৮১৭ ৭৫৬৫৩	মিরয়মনগর	১। কদমতলী মৌজার অংশ নাই, কিছু পার্শ্ব উদ্ভিদ প্রদর্শনালয় মিশ্রণ কিমডিনটি ফিল্ড সফটওয়্যার জায়গায় নাই, হাসপাতাল নাই, (চৌমুহনী), অনেক গেট নাই, বীমা গেট নাই, কিছু কাঁচার পাথর পাথর নাই, সীমা চিহ্ন নাই, সুইচ আস নাই।	-All mistakes has been identified and corrected in maps And development plan of this union has been proposed	Chapter-7 page-7-32
দিবান রাজানগর ইউনিয়ন	আহমদ সৈয়দ তালুক দার	চয়ার দান	০১৮২২ ৪২৭৪৬	দিবান রাজানগর ইউনিয়ন	১। য পা পদওয়া হয়েছে তাহা স রপ ভুল প্রদর্শনালয় ইসলামপুর পা প্রদর্শনালয় হয়েছে তাহা দিবান রাজানগর উ পূর্বমগাছি দিবান রাজানগর সমানা । দন সাদ ঠা: ল পয়	-All mistakes have been identified and corrected in maps and development plan of this union has been proposed	-Chapter-7 See Map 7.16 page-7- 27
১২ দিবান রাজানগর ইউনিয়ন	মেম্বার: সাঈফ র রহমান		০১৪১১১ ৩৭০০৭	দিবান রাজানগর	২। ইউনিয়নের সীমানা চিহ্ন নাই ধামাইর হাট বাজারের প্রাচীর মিশ্রণ, অ ইউনিয়নের ৫, ৬, ৯ নং ওয়ার্ড মিশ্রণ, ডাকঘর এর প্রদর্শনালয় উদ্ভিদ ২টি, পাথর পরিমাণ ভুল আছে।	-All mistakes has been identified and corrected in maps And development plan of this union has been proposed	-Chapter-7 page-7-27
১৩ দিবান রাজানগর ইউনিয়ন	ইউছুপ উদ্ভিদ		০১৮১৮ ৫৯৬৯২	পিএম চিনচনপুর তানতুন পা যেটা পদওয়া হয়েছে তাহা স রপ ভুল আছে।			

ক্রমিক	উপজেলা/ পৌরসভা / ইউনিয়নের	মতামত দানকারীর নাম	মতামত দানকারীর পেশা	মেম্বার ল	ঠিকানা	মতামত	Attained Activities	Page No in Report
১৪	হাসনাবাদ ইউনিয়ন	এম নাছির উদ্দিন	২নং ওয়ার্ড ইউনিয়ন সদস্য ১,২,৩	০১৮১৭ ৭৪৬০৭ ৭	খিল মাহল হাসনাবাদ	১। হাসনাবাদ লালানগর সীমানা রখা আর পের দওয়া উচিত, হাসনাবাদ ওয়ার্ড শমসের পাড়া হাসনাবাদ জামে মসজিদ ওনলুয়ার পাড়া জামে মসজিদ উদ্ধৃত করা হয় নাই, কৃষক ওলাকনাথ মির, পুকুর পাড়া, বাইতুননুর জামে মসজিদ।		
	হাসনাবাদ ইউনিয়ন	আলী আশ রাফ মিলন		০১৮২১ ৩০৮৬২ ৪	জংলদ: নিম্ন, ৯ নং ওয়ার্ড	২। হাসনাবাদ ইউনিয়নের ৯ নং ওয়ার্ড যেহেতু পূর্বে ওদিগের পাবনা রপ্তানিকারী জেলা এবং পূর্বে চাষাবাদ কদমতলী ইউনিয়নের সীমানা সংলগ্ন যেহেতু উর্দু পূর্বে সীমানা ফিক হাফিমাল তীয়মান হয়। উর্দু সীমানা সঠিক নিধারণ করার	-union boundary has been checked and corrected And sub- regional plan has been proposed and policies for sub- regional plan has been declared	Chapter-7 Page-7-28

APPENDIX-J

Comments during Workshop at Rangunia

Date: 14-03-2018

উপস্থিত সদস্য বৃন্দ	মন্তব্য	Attained Activities	Page no in Report
চেয়ারম্যান, কোদালা	<ul style="list-style-type: none"> কোদালা ইউনিয়ন এর যে মৌজা শিট টি পাওয়া যায়নি সেটি সংগ্রহ করতে হবে 		
চেয়ারম্যান, সরাফভাটা	<ul style="list-style-type: none"> সরাফভাটা ইউনিয়ন এর যে মৌজা শিট টি পাওয়া যায়নি সেটি সংগ্রহ করতে হবে 	•	-
চেয়ারম্যান, চন্দ্রঘোনা কদমতলী	<ul style="list-style-type: none"> সম্ভ্রষ্ট এবং আরো কিছু প্রস্তুতবনা দিয়েছেন গুমাই বিল বেড়িবাঁধ দেয়া কর্ণফুলী নদী সংস্কার নদী ভাঙ্গন রোধ করা উন্নত হোটেল করার প্রস্তুতবনা দেয়া রাস্তা মেরামত ও নতুন রাস্তা করা খাল সংস্কার 	<ul style="list-style-type: none"> According to population projection, existing condition, all necessary plans have been included in development plan 	-Report Rangunia Upazila
চেয়ারম্যান, দক্ষিণ রাজনগর	<ul style="list-style-type: none"> ইট এর ভাটা যাতে যত্রতত্রভাবে গড়ে না উঠে তার ব্যবস্থা করা 	-	-Chapter-7 Page-7-20-7-22 -CHAPTER 7 Page-7-26 Table-7.11
চেয়ারম্যান, মরিয়মনগর	<ul style="list-style-type: none"> কৃষি নিয়ে আরো বেশি প্রস্তুতবনা দরকার Drainage system সমস্যা এর সমাধান করা 	•	-CHAPTER-7 Page-7-38 Map-7.13
মৎস্য কর্মকর্তা, পাদুয়া	<ul style="list-style-type: none"> Drainage system সমস্যা এর সমাধান করা মাছ সংরক্ষণ এর জন্য হিমাগার প্রয়োজন 	•	-CHAPTER-7
Livestock Officer	<ul style="list-style-type: none"> উর্বর কৃষিজমি সংরক্ষণ করা বর্তমান natural drainage system সংরক্ষণ করা এবং প্রপার ড্রেনেজ চ্যানেল বানানোর প্রস্তুতব গবাদি পশুর জন্য চলনভূমি প্রয়োজন Poultry farm এর প্রয়োজন (যেসব এলাকায় স্বল্প কৃষিকাজ হয়) Flash flood প্রতিরোধে যথাযথ ব্যবস্থা গ্রহণ করা 	<ul style="list-style-type: none"> 33 primary school has been proposed in Ramu Upazila Bridges and culverts has been proposed according to need. 	-CHAPTER 7 Page-7-26 Table-7.11 -Appendix-D Page-D-44

APPENDIX-K

Comments on Rangunia Upazila Draft Plan TMC**Date: 24.4.2017**

Comments	Attained Activities	Page no in Report
- Corrections in Thematic Maps	All corrections of Thematic Maps has done	Presented in CHAPTER 6 Page-6-4-6-16
- Labeling of Natural forest need to be changed in all maps.	Restricted special in the place of natural forest has included in proposed structure plan	
- Policy Review •SDG, Agenda3, should be reviewed.	SDG has reviewed and all activities under development plan has related to SDG and separate chapter has included	-Presented in CHAPTER-9
- Structure Plan Policy <ul style="list-style-type: none">• Geological policy must be incorporated in structure plan.• Undesirable area more than 5%should be removed from the policy.• Suitable buildable land should be corrected as buildable land.• The term low density should be removed from rural settlement policy.• The word navigable in case of chara should be replaced with active.• In agricultural policy there are no policies for single. double and triple cropped land.• Policies should be given to protect the existing agricultural set-up.• Specific policies should be given under the policy title.• Analysis based policies should be given.• Technology driven policy for agriculture should be given under economic policy.	Structure Plan policies has included and all necessary corrections has done	-Presented in CHAPTER-7 7.2.4-7.2.5 Page No-7-7-7-10

APPENDIX-L

Comments on Rangunia Upazila at TMC

Date: 19.4.2018

TMC Members	Comments	Attained Activities	Page no in Report
LGED	<ul style="list-style-type: none"> -Common guidelines of Implementation modality -Action Area Plan- SWTP (proposed) -SDG (Directly and indirectly guidelines) 	<ul style="list-style-type: none"> • SWTP has been proposed • SDG guidelines have been interlinked with the project. 	-Attachment-1 - Presented in Page-9-1-9-9 CHAPTER 9
BIWTA	<ul style="list-style-type: none"> -Pure Water supply system - Ensure Child education - how many cubic waters needed for rangunia? - develop water system -protect surface/ground water 	<ul style="list-style-type: none"> • Overhead tank has been proposed for water supply • Proposal for surface water treatment has been given 	- Presented in Page-9-5 CHAPTER 9 Attachment-2
RHD	<ul style="list-style-type: none"> -Natural Hazard -What are the mitigation measures for landslide and hill cutting 	<ul style="list-style-type: none"> • Any kind of development is prohibited in hills which have slopes more than 5% • Buffered zone has been indicated in the report to prohibit development on the hill toe. 	-Presented in Page-6-33-6-34 (CHAPTER 6) Attachment-3 -Presented in Page No-9-7 (Chapter-9) Attachment-4
Md Shafiqul SOB	-Coordinate system develop according to SOB	- Coordinate system is done according to SOB	
Railway person	<ul style="list-style-type: none"> -Railway Facilities ensure -Proposal of Rail line -Proposal of Demo train in respect of tourism 	<ul style="list-style-type: none"> • In the recent railway master plan there is no rail line proposal for Rangunia Upazila. 	-
Director	<ul style="list-style-type: none"> • Affordable housing-Total Area for low cost housing must mentioned <ul style="list-style-type: none"> - Total Population of area must be mentioned - Basic services should be highlighted • Indigenous people- number of indigenous people should be identified? • Show buffer zone <ul style="list-style-type: none"> - the foot hill area should be calculated - How many buildings are more sensitive or less sensitive? 	<ul style="list-style-type: none"> • Total population and area have been calculated for low cost housing project. • Buffered zone from the foot hill has been calculated 	- Attachment-5 -Presented in Page No-9-7 (Chapter-9) Attachment-4

Attained Activities According to Final Plan TMC Comments

Attachment -1

SWTP (Solid waste Treatment Plant) has been proposed

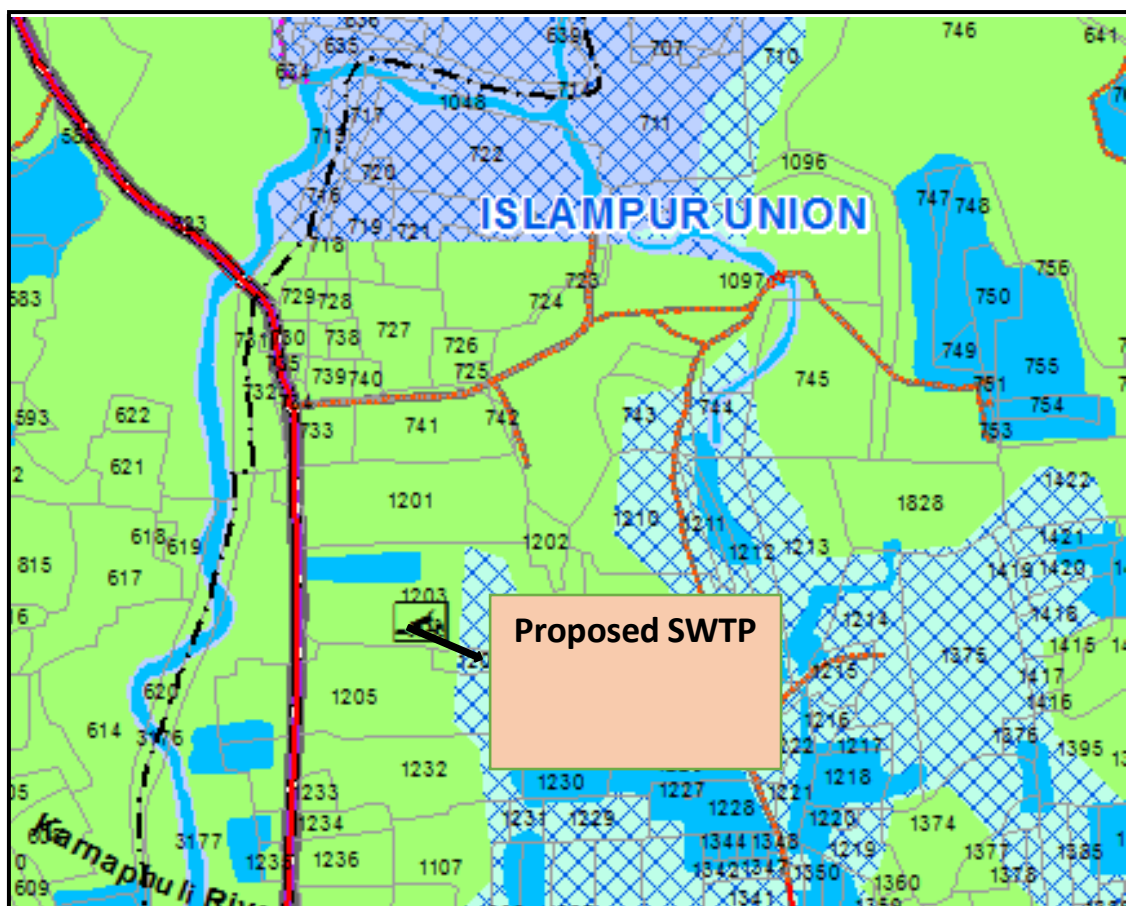


Figure-1: Proposed SWTP

Attachment -2

Overhead tank has been proposed for water supply

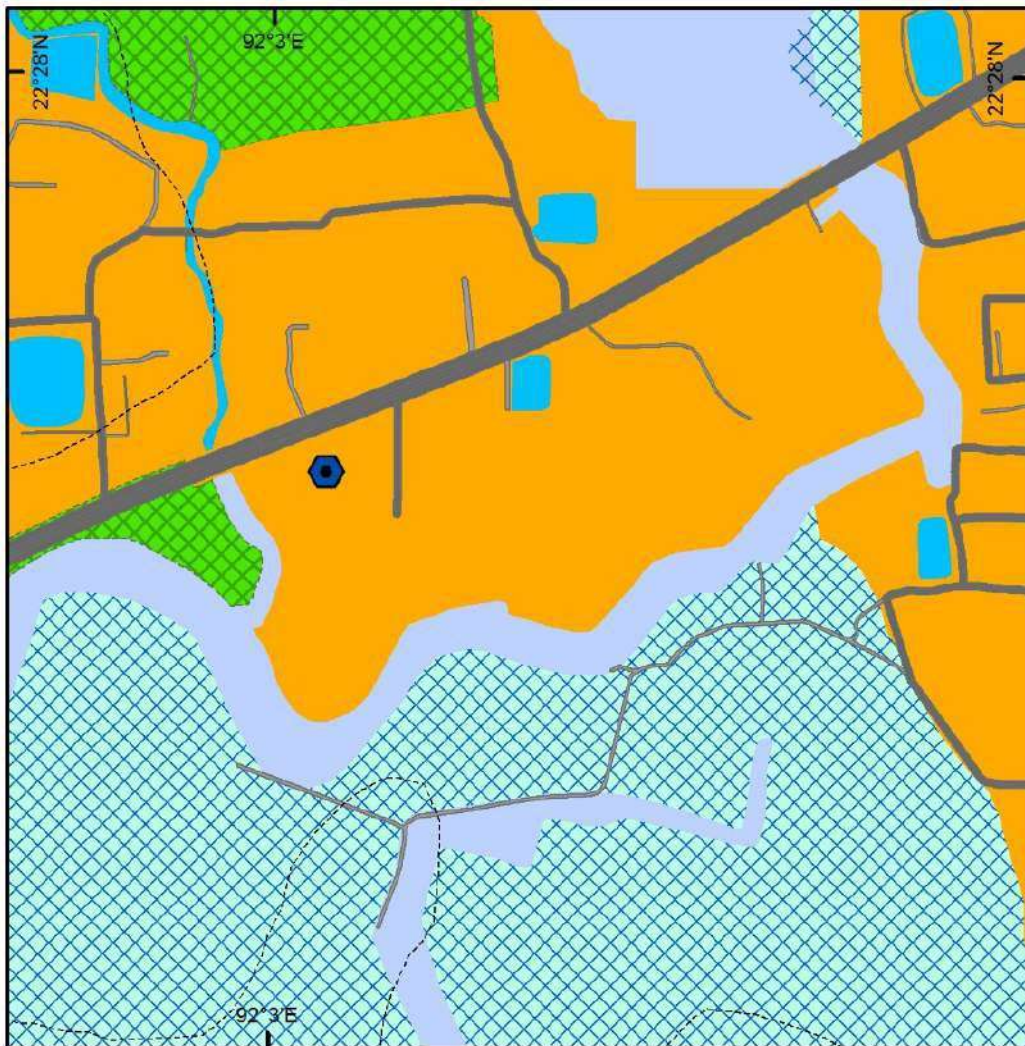
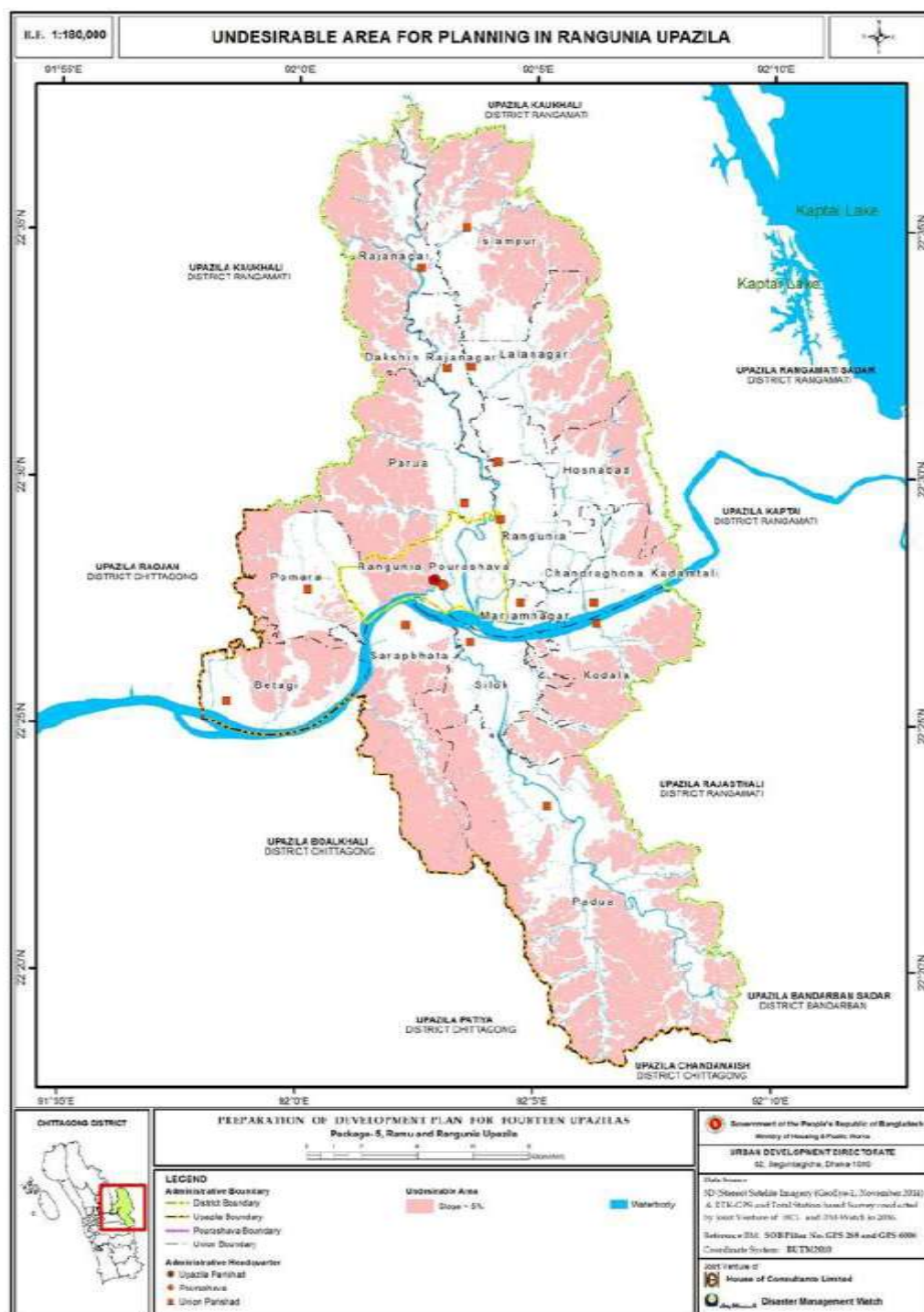


Figure 2: Proposed Overhead Tank for Water Supply

Attachment -3

Any kind of development is prohibited in hills which have slopes more than 5%.

Consideration of Affecting Factors for Planning			
Factors	Area(sq.m)	Area (Acre)	Percentage
Slope more than 5%	161649700	39944.51	46.47

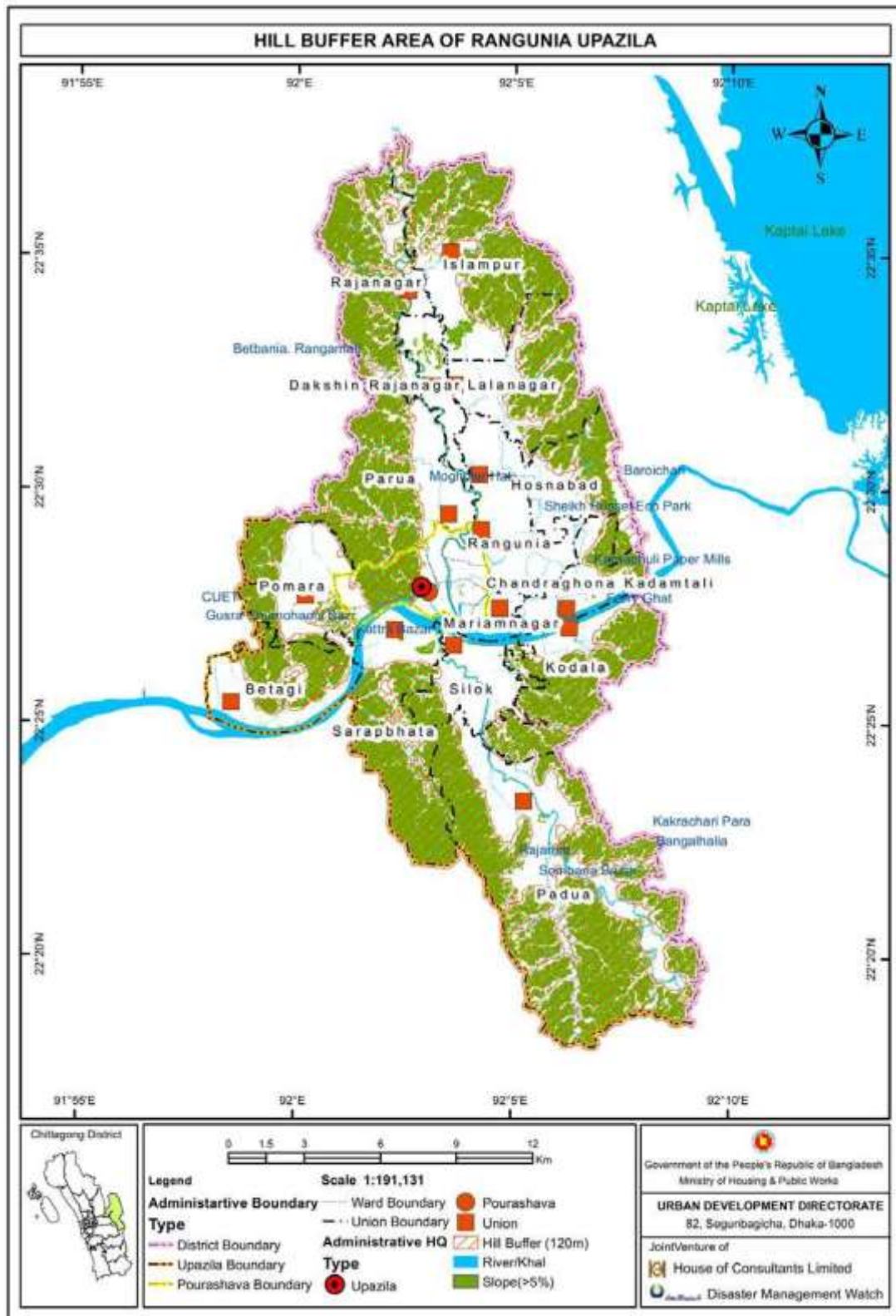


Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 1: Undesirable Area for Planning

Attachment -4

Buffered zone has been indicated in the report to prohibit development on the hill toe.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 2: Buffer Area for Hill Protection in Rangunia Upazila

Attachment – 5

Total population and area have been calculated for low cost housing project.

Table: Proposed Housing Site

Union_Ward	Structure Frequency	Average Household	Estimated Population	No. of Low Cost housing Site	Remarks
Chandraghona Kadamtali Union	241	4.9	1175	1	
Islampur Union	189	6.1	1160	1	
Padua Union	1629	4.6	7559	2	Indeginous Group
Ward No-01	131	5.2	681	1	
Ward No-03	124	4.8	595	1	

APPENDIX-M

Rangunia Tofsil**Proposed Upazila Features**

Proposed Upazila Features	Union	Mouza	JL No	Sheet No	Plot No
Wild Life Sanctuary	Padua	Dudh Pukuria	072	000	348
Bus Terminal		Padua	065	005	1149 9
Eco park		Padua	065	005	1028 5
Transfer Station	Rangunia Paurashava	Noagoan	042	001	2389
Monument		Dakshin Ichamoti	032	000	557
Amusement Park		Syedbari	033	001	269
Solar Park		Ghatchaque	037	002	4575
Auditorium/Cinema Hall		Ghatchaque	037	002	5093
Overhead Tank		Ghatchaque	037	002	5089
Affordable Housing		Syedbari	033	001	192
Bus Terminal	Chandraghona Kadamtali	Chondra Ghona	026	001	748
Upazila Stadium	Rangunia Paurashava	Jangle Ghat Chek	038	002	540
Truck Terminal	Chandraghona Kadamtali	Chondra Ghona	026	001	746
Transfer Station	Rangunia Paurashava	Syedbari	033	002	3147
Transfer Station	Rangunia Paurashava	Ghatchaque	037	002	4015
Wholesale Trade Zone	Chandraghona Kadamtali	Chondra Ghona	026	002	1872
Bus Stand		Chondra Ghona	026	002	1959
Monument		Chondra Ghona	026	002	2030
Hotel Motel Zone		Chondra Ghona	026	002	2054
Food Processing Zone		Gumai Jhil	024	002	1731
Poultry and Fish Processing Zone	Pomara	Pomra	043	003	4531
Sludge Treatment Plant	Rangunia Paurashava	Ghatchaque	037	001	149
Solid Waste Dumping Site	Hosnabad	Dakshin Nischintapur	022	004	8207
Monument	Hosnabad	Dakshin Nischintapur	022	004	8545
Bus Terminal	Lalanagar	Lala Nagar	018	001	226
Bus Terminal	Rajanagar	Moddho Ghagra	012	005	3305
Bus Terminal		Moddho Ghagra	012	005	3304
Industrial Zone	Islampur	Moddho Ghagra	012	004	1801

Proposed Affordable Housing

Proposed Features	Proposed Landuse	Union	Mouza	JL No	She etNo	PlotNo	Area (Acre)
Proposed Affordable Housing	Planned Urban Residential	Rangunia Paurashava	Syedbari	033	001	573	0.030
				033	001	572	0.000
				033	001	575	0.099
				033	001	574	0.004
				033	001	585	0.001
				033	001	583	0.004
				033	001	576	0.108
				033	001	577	0.067
				033	001	579	0.071
				033	001	536	0.222
				033	001	582	0.021
				033	001	578	0.121
				033	001	334	0.070
				033	001	581	0.236
				033	001	330	0.065
				033	001	580	0.249
				033	001	329	0.040
				033	001	333	0.138
				033	001	9999 9	0.022
				033	001	331	0.051
				033	001	332	0.158
				033	001	219	0.138
				033	001	218	0.073
				033	001	204	0.201
				033	001	215	0.048
				033	001	217	0.024
				033	001	207	0.181
				033	001	210	0.049
				033	001	211	0.048
				033	001	216	0.015
				033	001	214	0.052
				033	001	212	0.035
				033	001	209	0.041
				033	001	205	0.087
				033	001	208	0.069
				033	001	206	0.130
				033	001	194	0.026
				033	001	213	0.055
				033	001	195	0.065
				033	001	193	0.139
				033	001	199	0.008
			Ghatchaque	037	002	4187	0.000
			Syedbari	033	001	196	0.038
				033	001	197	0.057
				033	001	198	0.245
				033	001	192	0.208
				033	001	189	0.160
				033	001	184	0.021

Proposed Features	Proposed Landuse	Union	Mouza	JL No	SheetNo	PlotNo	Area (Acre)
				033	001	190	0.676
				033	001	191	0.087
				033	001	180	0.036
				033	001	323	0.001
				033	001	178	0.023
				033	001	179	0.170
				033	001	181	0.072
				033	001	185	0.123
				033	001	183	0.045
				033	001	182	0.021
				033	001	186	0.320
				033	001	176	0.118
				033	001	177	0.169
				033	001	187	0.282
				033	001	175	0.172
				033	001	188	0.329
			Ghatchaque	037	002	4186	0.089
			Syedbari	033	001	174	0.025
			Ghatchaque	037	002	4185	0.071
			Syedbari	033	001	173	0.061
			Syedbari	033	001	611	0.015
			Ghatchaque	037	002	4183	0.011
			Ghatchaque	037	002	4184	0.295
			Syedbari	033	001	613	0.001
			Syedbari	033	001	172	0.336
			Syedbari	033	001	171	0.098
			Ghatchaque	037	002	4182	0.036
			Syedbari	033	001	170	0.086
			Ghatchaque	037	002	4173	0.517
				037	002	4177	0.009
				037	002	4172	0.240
				037	002	4173	0.044
				037	002	4170	0.090
				037	002	4171	0.111
			Syedbari	033	001	163	0.012

Proposed Auditorium

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area (Acre)
Proposed Auditorium	Community Facilities	Rangunia Paurashava	Ghatchaque	037	002	4578	0.035
			Ghatchaque	037	002	4575	0.047
			Ghatchaque	037	002	4574	0.025
			Ghatchaque	037	002	4042	0.072
			Ghatchaque	037	002	4041	0.013
			Ghatchaque	037	002	4043	0.112
			Ghatchaque	037	002	4042	0.042
			Ghatchaque	037	002	4047	0.034
			Ghatchaque	037	002	4048	0.030
			Ghatchaque	037	002	4052	0.021
			Ghatchaque	037	002	4051	0.006
			Ghatchaque	037	002	5089	0.070
			Ghatchaque	037	002	4576	0.357
			Ghatchaque	037	002	5093	0.451
			Jangle Ghat Chek	038	002	530	0.006
			Ghatchaque	037	002	4033	0.015
			Ghatchaque	037	002	4036	0.062

Proposed Bus and Truck Terminal

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
Proposed Bus and Truck Terminal	Transportation Facilities	Chandraghona Kadamtali	Chondra Ghona	026	003	4616	0.036
			Chondra Ghona	026	003	4618	0.014
			Chondra Ghona	026	003	4620	0.004
			Chondra Ghona	026	003	4619	0.055
			Chondra Ghona	026	003	4615	0.177
			Chondra Ghona	026	001	749	0.068
			Chondra Ghona	026	001	747	0.084
			Chondra Ghona	026	001	748	0.228
			Chondra Ghona	026	001	750	0.080
			Chondra Ghona	026	001	746	0.401
			Chondra Ghona	026	001	752	0.027
			Chondra Ghona	026	001	753	0.138
			Chondra Ghona	026	001	751	0.116
			Chondra Ghona	026	001	755	0.127
			Chondra Ghona	026	001	754	0.041
			Chondra Ghona	026	001	756	0.001

Proposed Bus Terminal							
Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
Proposed Bus Terminal	Transportation Facilities	Padua	Podua	065	005	11499	1.078
		Padua	Podua	065	005	11469	0.001
		Lalanagar	Lala Nagar	018	001	1315	0.013
		Lalanagar	Lala Nagar	018	001	231	0.026
		Lalanagar	Lala Nagar	018	001	226	0.469
		Lalanagar	Lala Nagar	018	001	230	0.046
		Lalanagar	Lala Nagar	018	001	227	0.318
		Lalanagar	Lala Nagar	018	001	229	0.001
		Lalanagar	Lala Nagar	018	001	228	0.000
		Lalanagar	Lala Nagar	018	001	217	0.000
		Rajanagar	Moddho Ghagra	012	005	3305	0.083
		Rajanagar	Moddho Ghagra	012	005	3303	0.016
		Rajanagar	Moddho Ghagra	012	005	3312	0.571
		Rajanagar	Moddho Ghagra	012	005	4709	0.000
		Rajanagar	Moddho Ghagra	012	005	3302	0.001
		Rajanagar	Moddho Ghagra	012	005	3311	0.077
		Rajanagar	Moddho Ghagra	012	005	3304	0.344
		Rajanagar	Moddho Ghagra	012	005	3306	0.120

Proposed Clinic

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area (Acre)
Proposed Clinic	Health Facilities	Padua	Podua	065	005	10054	0.105
		Padua	Podua	065	005	10052	0.311
		Padua	Podua	065	005	10055	0.212
		Padua	Podua	065	002	5032	0.063
		Silok	Shilok	057	002	6335	0.065
		Silok	Shilok	057	002	6333	0.074
		Silok	Shilok	057	002	6334	0.248
		Silok	Shilok	057	002	6331	0.090
		Silok	Shilok	057	002	6330	0.245
		Silok	Shilok	057	002	6276	0.115
		Kodala	Kodala	060	001	1298	0.019
		Kodala	Kodala	060	001	1306	0.030
		Kodala	Kodala	060	001	1310	0.061
		Kodala	Kodala	060	001	1317	0.044
		Kodala	Kodala	060	001	1311	0.030
		Kodala	Kodala	060	001	1307	0.071
		Kodala	Kodala	060	001	1319	0.078
		Kodala	Kodala	060	001	1318	0.043
		Kodala	Kodala	060	001	1320	0.052
		Kodala	Kodala	060	001	1321	0.259
		Kodala	Kodala	060	001	1332	0.093
		Kodala	Kodala	060	001	1333	0.085
		Kodala	Kodala	060	001	1334	0.060
		Kodala	Kodala	060	001	1682	0.238
		Kodala	Kodala	060	001	1328	0.099
		Kodala	Kodala	060	001	1327	0.010
		Pomara	Pomra	043	007	26811	0.013
		Pomara	Pomra	043	007	26813	0.075
		Pomara	Pomra	043	007	26814	0.002
		Pomara	Pomra	043	007	26812	0.166
		Pomara	Pomra	043	007	26810	0.049
		Pomara	Pomra	043	007	26809	0.390
		Pomara	Pomra	043	007	26819	0.347
		Pomara	Pomra	043	007	26818	0.001
		Pomara	Pomra	043	007	26802	0.035
		Parua	Parua	010	002	3842	0.061
		Parua	Parua	010	002	3839	0.021
		Parua	Parua	010	002	3841	0.054
		Parua	Parua	010	002	3806	0.252
		Parua	Parua	010	002	3840	0.059
		Parua	Parua	010	002	3800	0.107
		Parua	Parua	010	002	3805	0.091
		Parua	Parua	010	002	3807	0.218
		Parua	Parua	010	002	3808	0.066
		Parua	Parua	010	002	3809	0.060
		Parua	Parua	010	002	3801	0.314
		Parua	Parua	010	002	3804	0.146
		Parua	Parua	010	002	3803	0.000

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area (Acre)
		Rajanagar	Moddho Ghagra	012	005	3201	0.380
		Rajanagar	Moddho Ghagra	012	005	3198	0.181
		Rajanagar	Moddho Ghagra	012	004	1269	0.391
		Rajanagar	Moddho Ghagra	012	004	1268	0.054
		Rajanagar	Moddho Ghagra	012	005	3199	0.031
		Rajanagar	Moddho Ghagra	012	005	3197	0.119
		Rajanagar	Moddho Ghagra	012	005	3200	0.266
		Rajanagar	Moddho Ghagra	012	004	1262	0.024
		Rajanagar	Moddho Ghagra	012	005	3178	0.003

Proposed Food Processing Zone							
Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
Proposed Food Processing Zone	Food Processing Zone	Chandraghona Kadamtali	Gumai Jhil	024	002	1732	0.125
			Gumai Jhil	024	002	1744	0.000
			Gumai Jhil	024	002	1731	0.304
			Gumai Jhil	024	002	1730	0.100
			Gumai Jhil	024	002	1660	0.073

Proposed High Schools

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
Proposed High School	Education Facilities	Betagi	Batagi	047	002	3567	0.095
		Betagi	Batagi	047	002	3568	0.086
		Betagi	Batagi	047	002	3570	0.037
		Betagi	Batagi	047	002	3569	0.156
		Betagi	Batagi	047	002	3571	0.159
		Betagi	Batagi	047	002	3566	0.244
		Betagi	Batagi	047	002	3573	0.044
		Betagi	Batagi	047	002	3572	0.075
		Betagi	Batagi	047	002	3574	0.041
		Betagi	Batagi	047	002	3575	0.170
		Betagi	Batagi	047	002	3565	0.074
		Betagi	Batagi	047	002	3561	0.226
		Betagi	Batagi	047	002	3560	0.067
		Betagi	Batagi	047	002	3559	0.297
		Betagi	Batagi	047	002	3558	0.238
		Betagi	Batagi	047	002	3563	0.329
		Betagi	Batagi	047	002	3562	0.099
		Betagi	Batagi	047	002	3557	0.645
		Betagi	Batagi	047	002	3555	0.000
		Silok	Shilok	057	002	5300	0.066
		Silok	Shilok	057	002	5299	0.059
		Silok	Shilok	057	002	4831	0.130
		Silok	Shilok	057	002	4830	0.014
		Silok	Shilok	057	002	4829	0.155
		Silok	Shilok	057	002	4824	0.027
		Silok	Shilok	057	002	4828	1.038
		Silok	Shilok	057	002	4823	0.033
		Silok	Shilok	057	002	4832	0.042
		Silok	Shilok	057	002	4825	0.138
		Silok	Shilok	057	002	5301	0.217
		Silok	Shilok	057	002	4834	0.000
		Silok	Shilok	057	002	4833	0.030
		Silok	Shilok	057	002	4827	0.312
		Silok	Shilok	057	002	4821	0.083
		Silok	Shilok	057	002	4822	0.124
		Silok	Shilok	057	002	4826	0.440
		Silok	Shilok	057	002	5302	0.084
		Silok	Shilok	057	002	4810	0.162
		Silok	Shilok	057	002	4811	0.013
		Silok	Shilok	057	002	4810	0.019
		Silok	Shilok	057	002	4812	0.011
		Silok	Shilok	057	002	4807	0.353
		Silok	Shilok	057	002	5303	0.086
		Silok	Shilok	057	002	4809	0.062
		Silok	Shilok	057	002	4806	0.012
		Silok	Shilok	057	002	4808	0.497
		Mariamnagar	Katakhali	029	000	2317	0.037
		Mariamnagar	Katakhali	029	000	1550	0.042

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
		Mariamnagar	Katakhali	029	000	1558	0.146
		Mariamnagar	Katakhali	029	000	1557	0.164
		Mariamnagar	Katakhali	029	000	1556	0.114
		Mariamnagar	Katakhali	029	000	1555	0.084
		Mariamnagar	Katakhali	029	000	1554	0.097
		Mariamnagar	Katakhali	029	000	1552	0.117
		Mariamnagar	Katakhali	029	000	1551	0.067
		Mariamnagar	Katakhali	029	000	909	0.252
		Mariamnagar	Katakhali	029	000	904	0.082
		Mariamnagar	Katakhali	029	000	905	0.091
		Mariamnagar	Katakhali	029	000	906	0.048
		Mariamnagar	Katakhali	029	000	903	0.317
		Mariamnagar	Katakhali	029	000	901	0.694
		Mariamnagar	Katakhali	029	000	899	0.001
		Hosnabad	Hosnabad	019	001	1686	0.046
		Hosnabad	Hosnabad	019	001	1687	0.152
		Hosnabad	Hosnabad	019	001	1692	0.002
		Hosnabad	Hosnabad	019	001	1682	0.083
		Hosnabad	Hosnabad	019	001	1685	0.034
		Hosnabad	Hosnabad	019	001	1688	0.152
		Hosnabad	Hosnabad	019	001	1691	0.006
		Hosnabad	Hosnabad	019	001	1684	0.037
		Hosnabad	Hosnabad	019	001	1680	0.290
		Hosnabad	Hosnabad	019	001	1689	0.142
		Hosnabad	Hosnabad	019	001	1681	0.155
		Hosnabad	Hosnabad	019	001	1690	0.003
		Hosnabad	Hosnabad	019	001	1683	0.095
		Hosnabad	Hosnabad	019	001	1672	0.218
		Hosnabad	Hosnabad	019	001	1671	0.029
		Hosnabad	Hosnabad	019	001	1670	0.046
		Hosnabad	Hosnabad	019	001	1669	0.245
		Hosnabad	Hosnabad	019	001	1668	0.076
		Parua	Parua	010	001	775	0.090
		Parua	Parua	010	001	738	0.028
		Parua	Parua	010	001	766	0.040
		Parua	Parua	010	001	768	0.079
		Parua	Parua	010	001	774	0.232
		Parua	Parua	010	001	767	0.030
		Parua	Parua	010	001	739	0.028
		Parua	Parua	010	001	758	0.099
		Parua	Parua	010	001	744	0.022
		Parua	Parua	010	001	757	0.505
		Parua	Parua	010	001	742	0.269
		Parua	Parua	010	001	743	0.139
		Parua	Parua	010	001	745	0.017
		Parua	Parua	010	001	753	0.144
		Parua	Parua	010	001	752	0.167
		Parua	Parua	010	001	754	0.167
		Parua	Parua	010	001	756	0.001
		Parua	Parua	010	001	751	0.085

Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
		Parua	Parua	010	001	700	0.110
		Parua	Parua	010	001	701	0.027
		Parua	Parua	010	001	699	0.000
		Parua	Parua	010	001	702	0.003
		Dakshin Rajanagar	Dakshin Ghagra	011	002	2005	1.241
		Dakshin Rajanagar	Dakshin Ghagra	011	002	2004	0.960
		Rajanagar	Moddho Ghagra	012	005	4004	0.209
		Rajanagar	Moddho Ghagra	012	005	3992	0.000
		Rajanagar	Moddho Ghagra	012	005	3995	0.088
		Rajanagar	Moddho Ghagra	012	005	3996	0.187
		Rajanagar	Moddho Ghagra	012	005	4006	0.173
		Rajanagar	Moddho Ghagra	012	005	3997	0.167
		Rajanagar	Moddho Ghagra	012	005	4007	0.120
		Rajanagar	Moddho Ghagra	012	005	4008	0.348
		Rajanagar	Moddho Ghagra	012	005	4003	1.104
		Rajanagar	Moddho Ghagra	012	005	4002	0.350
		Rajanagar	Moddho Ghagra	012	005	4001	0.704
		Rajanagar	Moddho Ghagra	012	005	8000	0.141
		Rajanagar	Moddho Ghagra	012	005	3999	0.306
		Rajanagar	Moddho Ghagra	012	005	3998	0.619
		Rajanagar	Moddho Ghagra	012	005	4018	0.050

Proposed Overhead Tank							
Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area (Acre)
Proposed Overhead Tank	Utility Facilities	Rangunia Paurashava	Ghatchaque	037	002	4043	0.004
				037	002	5089	0.138
				037	002	5093	0.116
				037	002	4033	0.006

Proposed Play Field							
Proposed Features	Proposed Landuse	Union	Mouza	JL_No	Sheet_No	Plot_No	Area_Acre
Proposed Play Field	Recreational Facilities	Rangunia Paurashava	Syedbari	033	001	773	0.000
				033	001	770	0.030
				033	001	767	0.043
				033	001	771	0.076
				033	001	772	0.123
				033	001	753	0.007
				033	001	758	0.031
				033	001	759	0.057
				033	001	766	0.238
				033	001	765	0.288
				033	001	764	0.009
				033	001	752	0.064
				033	001	760	0.195
				033	001	761	0.424
				033	001	762	0.361
				033	001	763	0.347
				033	001	778	0.002
				033	001	749	0.020

Proposed Poultry and Fish Processing Zone							
Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area (Acre)
Proposed Poultry and Fish Processing Zone	Poultry and Fish Processing Zone	Pomara	Pomra	043	003	4533	0.070
				043	003	4528	0.033
				043	003	4532	0.137
				043	003	4529	0.050
				043	003	4531	0.039
				043	003	4534	0.073
				043	003	4530	0.060
				043	003	8043	0.235
				043	003	8044	0.181
				043	003	4526	0.001

Proposed Primary Schools							
Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
Proposed Primary School	Education Facilities	Betagi	Gungunia_Batagi	054	000	960	0.209
		Betagi	Gungunia_Batagi	054	000	1033	0.110
		Betagi	Gungunia_Batagi	054	000	1032	0.190
		Betagi	Gungunia_Batagi	054	000	1028	0.028
		Betagi	Gungunia_Batagi	054	000	1030	0.034
		Betagi	Gungunia_Batagi	054	000	959	0.061
		Betagi	Gungunia_Batagi	054	000	1031	0.036
		Betagi	Gungunia_Batagi	054	000	958	0.073
		Betagi	Gungunia_Batagi	054	000	1038	0.037
		Betagi	Gungunia_Batagi	054	000	957	0.064
		Betagi	Gungunia_Batagi	054	000	1034	0.067
		Betagi	Gungunia_Batagi	054	000	956	0.071
		Betagi	Gungunia_Batagi	054	000	1035	0.134
		Betagi	Gungunia_Batagi	054	000	1036	0.032
		Betagi	Gungunia_Batagi	054	000	1037	0.099
		Betagi	Gungunia_Batagi	054	000	1044	0.041
		Betagi	Gungunia_Batagi	054	000	1045	0.048
		Betagi	Gungunia_Batagi	054	000	955	0.214
		Betagi	Gungunia_Batagi	054	000	1043	0.116
		Betagi	Gungunia_Batagi	054	000	1042	0.107
		Betagi	Gungunia_Batagi	054	000	1046	0.089
		Betagi	Gungunia_Batagi	054	000	904	0.120
		Mariamnagar	Syedbari	033	002	3493	0.000
		Mariamnagar	Syedbari	033	002	3488	0.030
		Mariamnagar	Syedbari	033	002	3498	0.000
		Mariamnagar	Syedbari	033	002	3497	0.115
		Mariamnagar	Syedbari	033	002	3496	0.225
		Mariamnagar	Syedbari	033	002	3478	0.255
		Mariamnagar	Syedbari	033	002	3495	0.294
		Mariamnagar	Syedbari	033	002	3479	0.237
		Mariamnagar	Syedbari	033	002	3494	0.450
		Mariamnagar	Syedbari	033	002	3485	0.232
		Mariamnagar	Syedbari	033	002	3600	0.010

Proposed Solar Park							
Proposed Features	Proposed Landuse	Union	Mouza	JL No	Sheet No	Plot No	Area Acre
Proposed Solar Park	Utility Facilities	Rangunia Paurashava	Ghatchaque	037	002	4586	0.000
			Ghatchaque	037	002	4594	0.080
			Ghatchaque	037	002	4595	0.082
			Ghatchaque	037	002	4583	0.112
			Ghatchaque	037	002	4570	0.009
			Ghatchaque	037	002	4597	0.011
			Ghatchaque	037	002	4585	0.188
			Ghatchaque	037	002	4598	0.008
			Ghatchaque	037	002	4580	0.281
			Ghatchaque	037	002	4582	0.118
			Ghatchaque	037	002	9999 9	0.011
			Ghatchaque	037	002	4599	0.031
			Ghatchaque	037	002	9999 9	0.020
			Ghatchaque	037	002	4571	0.002
			Ghatchaque	037	002	4596	0.080
			Ghatchaque	037	002	4585	0.192
			Jangle Ghat Chek	038	002	9999 9	0.164
			Ghatchaque	037	002	4579	0.033
			Ghatchaque	037	002	4584	0.161
			Ghatchaque	037	002	4577	0.047
			Ghatchaque	037	002	4573	0.272
			Ghatchaque	037	002	4578	0.205
			Ghatchaque	037	002	4575	0.527
			Ghatchaque	037	002	4574	0.403

Proposed Upazila Stadium							
Remarks	Zoning	Union	Mouza	JL No	Sheet No	Plot No	Area (Acre)
Proposed Upazila Stadium	Community Facilities	Rangunia Paurashava	Jangle Ghat Chek	038	002	541	1.584
				038	002	540	3.328

Planned Residential Unit

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
Rangunia Paurashava	Rangunia	034	003	12071	0.23
		034	003	12072	0.20
		034	003	12073	0.04
		034	003	12077	0.08
		034	003	12070	0.37
		034	003	12076	0.04
		034	003	12075	0.06
		034	003	12066	0.31
		034	003	12067	0.32
		034	003	11257	0.08
		034	003	12074	0.29
		034	003	12106	0.62
		034	003	12105	0.58
		034	003	11261	0.13
		034	003	12040	0.99
		034	003	12097	0.31
		034	003	12098	0.31
		034	003	11258	0.05
		034	003	12034	0.71
		034	003	11260	0.17
		034	003	12080	0.22
		034	003	12065	0.15
		034	003	99999	0.21
		034	003	11400	0.21
		034	003	12096	0.14
		034	003	12100	0.53
		034	003	12035	0.08
		034	003	12079	0.27
		034	003	12078	0.29
		034	003	12095	0.15
		034	003	12063	0.21
		034	003	12064	0.05
		034	003	12042	0.41
		034	003	12043	0.12
		034	003	11259	0.06
		034	003	12044	0.13
		034	003	12045	0.11
		034	003	12036	0.08
		034	003	12083	0.09
		034	003	12039	0.22
		034	003	12038	0.13
		034	003	12102	0.28
		034	003	12037	0.04
		034	003	12081	0.29
		034	003	11256	0.97
		034	003	12082	0.21
		034	004	13610	1.21
		034	003	12062	0.12
		034	003	12104	0.29

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	12094	0.14
		034	003	12093	0.06
		034	003	12091	0.07
		034	003	12092	0.16
		034	003	12046	0.44
		034	004	13609	0.08
		034	003	11255	0.11
		034	003	10121	0.28
		034	003	10122	0.21
		034	003	10039	0.13
		034	003	12103	0.38
		034	003	12061	0.29
		034	003	12090	0.10
		034	003	12088	0.34
		034	003	12101	0.69
		034	003	12055	0.23
		034	003	10030	0.10
		034	003	10032	0.30
		034	003	12060	0.11
		034	003	12399	0.24
		034	003	10123	0.34
		034	003	12047	0.56
		034	003	12089	0.06
		034	003	12054	0.20
		034	003	10124	0.11
		034	003	10031	0.14
		034	003	10033	0.03
		034	003	11254	1.22
		034	003	10041	0.10
		034	003	10040	0.27
		034	003	10029	0.06
		034	003	12087	0.23
		034	003	12085	0.31
		034	003	12084	0.46
		034	003	12048	0.33
		034	003	10120	0.47
		034	003	10125	0.39
		034	003	10037	0.11
		034	003	10038	0.12
		034	003	10043	0.11
		034	003	12058	0.24
		034	003	12052	0.04
		034	003	12059	0.59
		034	003	99999	0.22
		034	003	10027	0.08
		034	003	10130	0.04
		034	003	10129	0.13
		034	003	10126	0.15
		034	003	10034	0.13
		034	003	12086	0.15

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10042	0.06
		034	003	10036	0.57
		034	003	10035	0.07
		034	003	10026	0.02
		034	003	12056	0.35
		034	003	10028	0.05
		034	003	12051	0.14
		034	003	12057	0.13
		034	003	10044	0.07
		034	003	12053	0.64
		034	003	12049	0.15
		034	003	10024	0.07
		034	003	10127	0.58
		034	003	10080	0.37
		034	003	10045	0.20
		034	003	10067	0.07
		034	003	10025	0.04
		034	003	10021	0.01
		034	003	10098	0.06
		034	003	10022	0.06
		034	003	10023	0.35
		034	003	10119	0.27
		034	003	10132	0.13
		034	003	10131	0.40
		034	003	10066	0.06
		034	003	10046	0.13
		034	003	10133	0.08
		034	003	10090	0.67
		034	003	10097	0.06
		034	003	10099	0.13
		034	003	10019	0.04
		034	003	10018	0.08
		034	003	10081	0.37
		034	003	10017	0.08
		034	003	10100	0.54
		034	003	10047	0.09
		034	003	10065	0.03
		034	003	10079	0.22
		034	003	12050	0.39
		034	003	10082	0.25
		034	003	10128	0.43
		034	003	10068	0.20
		034	003	10015	0.08
		034	003	10048	0.12
		034	003	10016	0.09
		034	003	10116	0.69
		034	003	10118	0.21
		034	003	10134	0.47
		034	003	10101	0.26
		034	003	10049	0.07

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10069	0.07
		034	003	10117	0.08
		034	003	10091	1.00
		034	003	10050	0.06
		034	003	10135	0.46
		034	003	10053	0.17
		034	003	10078	0.21
		034	003	10136	0.41
		034	003	99999	0.03
		034	003	10084	0.35
		034	003	10083	0.20
		034	003	10070	0.10
		034	003	10054	0.04
		034	003	10055	0.05
		034	003	10052	0.04
		034	003	10051	0.07
		034	003	10077	0.09
		034	003	10096	0.97
		034	003	10071	0.07
		034	003	10076	0.07
		034	003	10056	0.07
		034	003	10115	0.37
		034	003	10137	0.53
		034	003	10061	0.13
		034	003	10086	0.16
		034	003	10302	0.10
		034	003	10075	0.06
		034	003	10138	0.40
		034	003	10373	0.25
		034	003	10085	0.29
		034	003	10314	0.10
		034	003	10313	0.09
		034	003	12393	0.06
		034	003	10072	0.10
		034	003	10396	0.29
		034	003	10381	0.80
		034	003	10095	0.37
		034	003	10114	0.07
		034	003	10376	0.02
		034	003	10057	0.03
		034	003	10139	0.20
		034	003	10296	0.08
		034	003	10377	0.03
		034	003	10111	0.51
		034	003	10058	0.04
		034	003	10062	0.06
		034	003	9922	0.27
		034	003	10374	0.14
		034	003	10301	0.11
		034	003	10375	0.11

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10141	0.12
		034	003	10372	0.31
		034	003	10315	0.21
		034	003	10113	0.06
		034	003	10112	0.39
		034	003	10089	0.56
		034	003	10092	0.44
		034	003	10093	0.20
		034	003	10088	0.69
		034	003	10140	0.21
		034	003	10087	0.74
		034	003	9923	0.26
		034	003	10299	0.28
		034	003	10300	0.11
		034	003	10094	0.18
		034	003	10397	0.81
		034	003	10297	0.38
		034	003	10371	0.11
		034	003	10142	0.12
		034	003	10295	0.07
		034	003	10319	0.25
		034	003	10320	0.04
		034	003	10316	0.06
		034	003	10317	0.05
		034	003	10059	0.04
		034	003	10294	0.73
		034	003	10370	0.26
		034	003	10102	1.47
		034	003	10063	0.12
		034	003	10060	0.17
		034	003	10318	0.30
		034	003	10064	0.48
		034	003	10369	0.10
		034	003	10284	0.04
		034	003	10073	0.18
		034	003	10283	0.04
		034	003	10280	0.08
		034	003	10074	0.25
		034	003	10285	0.04
		034	003	10143	0.03
		034	003	10398	0.14
		034	003	10364	0.04
		034	003	10148	0.06
		034	003	10147	0.05
		034	003	10293	0.06
		034	003	10282	0.06
		034	003	10146	0.07
		034	003	9924	0.29
		034	003	10145	0.06
		034	003	9919	0.19

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10400	0.06
		034	003	10286	0.05
		034	003	10144	0.03
		034	003	10401	0.47
		034	003	10362	0.07
		034	003	10363	0.08
		034	003	10279	0.09
		034	003	10365	0.03
		034	003	10399	0.04
		034	003	10281	0.03
		034	003	10110	0.57
		034	003	10278	0.03
		034	003	10106	0.29
		034	003	10287	0.06
		034	003	10422	0.07
		034	003	10292	0.08
		034	003	10402	0.10
		034	003	9914	0.19
		034	003	10323	0.19
		034	003	10322	0.15
		034	003	10411	0.10
		034	003	10321	0.73
		034	003	10412	0.08
		034	003	10361	0.08
		034	003	10149	0.28
		034	003	9917	0.07
		034	003	10366	0.09
		034	003	9915	0.20
		034	003	10421	0.12
		034	003	10367	0.18
		034	003	10288	0.06
		034	003	10423	0.02
		034	003	10291	0.09
		034	003	10368	0.22
		034	003	9955	0.13
		034	003	10284	0.22
		034	003	10420	0.03
		034	003	10419	0.02
		034	003	10403	0.09
		034	003	10413	0.07
		034	003	10103	0.46
		034	003	9921	0.22
		034	003	9957	0.16
		034	003	10410	0.10
		034	003	10276	0.22
		034	003	9956	0.27
		034	003	10109	0.47
		034	003	10417	0.04
		034	003	9954	0.03
		034	003	10427	0.06

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	9953	0.04
		034	003	9952	0.05
		034	003	10418	0.03
		034	003	10414	0.07
		034	003	9925	0.72
		034	003	10289	0.19
		034	003	10150	0.37
		034	003	10277	0.27
		034	003	9913	0.19
		034	003	10415	0.03
		034	003	9920	0.19
		034	003	10290	0.19
		034	003	10416	0.02
		034	003	9916	0.13
		034	003	9918	0.56
		034	003	10404	0.30
		034	003	10428	0.07
		034	003	10409	0.09
		034	003	10324	0.22
		034	003	10325	0.19
		034	003	10326	0.17
		034	003	10360	0.32
		034	003	10359	0.24
		034	003	10274	0.08
		034	003	10408	0.28
		034	003	10358	0.23
		034	003	9926	0.52
		034	003	10275	0.17
		034	003	10357	0.23
		034	003	9959	0.17
		034	003	10271	0.11
		034	003	9911	0.14
		034	003	10269	0.05
		034	003	9949	0.13
		034	003	10151	0.37
		034	003	9946	0.06
		034	003	10267	0.16
		034	003	10273	0.10
		034	003	10266	0.17
		034	003	10153	0.19
		034	003	9962	0.10
		034	003	9951	0.39
		034	003	9960	0.05
		034	003	9945	0.23
		034	003	10405	0.49
		034	003	10437	0.06
		034	003	10272	0.08
		034	003	10257	0.10
		034	003	10257	0.10
		034	003	10265	0.48

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10327	0.25
		034	003	10407	0.28
		034	003	9963	0.24
		034	003	9961	0.12
		034	003	10328	0.50
		034	003	10104	0.28
		034	003	10356	0.23
		034	003	10105	0.59
		034	003	10108	0.68
		034	003	10107	0.69
		034	003	10438	0.08
		034	003	10256	0.11
		034	003	10256	0.11
		034	003	9910	0.42
		034	003	10268	0.22
		034	003	10355	0.24
		034	003	9912	0.49
		034	003	10436	0.25
		034	003	10258	0.20
		034	003	9948	0.17
		034	003	10329	0.38
		034	003	10152	0.31
		034	003	10270	0.13
		034	003	9964	0.13
		034	003	10439	0.07
		034	003	10264	0.42
		034	003	10154	0.20
		034	003	10263	0.40
		034	003	10406	0.35
		034	003	9927	0.79
		034	003	9947	0.24
		034	003	10260	0.28
		034	003	10330	0.42
		034	003	9908	0.06
		034	003	9909	0.22
		034	003	9898	0.45
		034	003	10354	0.41
		034	003	9897	0.33
		034	003	10441	0.29
		034	003	9944	0.56
		034	003	10255	0.24
		034	003	10255	0.24
		034	003	9950	0.38
		034	003	9965	0.09
		034	003	10259	0.37
		034	003	9943	0.09
		034	003	10261	0.18
		034	003	9899	0.08
		034	003	10442	0.34
		034	003	9928	0.12

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10262	0.41
		034	003	10231	0.20
		034	003	10251	0.14
		034	003	9902	0.11
		034	003	10230	0.20
		034	003	9901	0.13
		034	003	9932	0.14
		034	003	10333	0.34
		034	003	9900	0.13
		034	003	10332	0.19
		034	003	10331	0.22
		034	003	10334	0.13
		034	003	10254	0.17
		034	003	10254	0.17
		034	003	10335	0.12
		034	003	9935	0.11
		034	003	10445	0.07
		034	003	9942	0.11
		034	003	9929	0.06
		034	003	10155	0.34
		034	003	9895	0.07
		034	003	9896	0.28
		034	003	10253	0.06
		034	003	10253	0.06
		034	003	10353	0.76
		034	003	10252	0.21
		034	003	9936	0.04
		034	003	10250	0.21
		034	003	10446	0.30
		034	003	10336	0.04
		034	003	10338	0.28
		034	003	10249	0.15
		034	003	10229	0.17
		034	003	10352	0.10
		034	003	10337	0.18
		034	003	9937	0.05
		034	003	10245	0.13
		034	003	9895	0.36
		034	003	10232	0.48
		034	003	9941	0.14
		034	003	10447	0.07
		034	003	9861	1.24
		034	003	10248	0.37
		034	003	9938	0.03
		034	003	9903	0.30
		034	003	9933	0.22
		034	003	9907	0.49
		034	003	9930	0.15
		034	003	10246	0.03
		034	003	9934	0.21

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10339	0.18
		034	003	10234	0.11
		034	003	9904	0.37
		034	003	9931	0.18
		034	003	10237	0.13
		034	003	10156	0.31
		034	003	10244	0.14
		034	003	10449	0.15
		034	003	10341	0.16
		034	003	10247	0.38
		034	003	10340	0.16
		034	003	10233	0.06
		034	003	10351	0.10
		034	003	10342	0.20
		034	003	10350	0.12
		034	003	10235	0.13
		034	003	10238	0.10
		034	003	10236	0.06
		034	003	9892	0.23
		034	003	9940	0.17
		034	003	10450	0.17
		034	003	10242	0.35
		034	003	10349	0.04
		034	003	10210	0.13
		034	003	10217	0.04
		034	003	9906	0.12
		034	003	10243	0.15
		034	003	9905	0.13
		034	003	10241	0.29
		034	003	9939	0.11
		034	003	10343	0.14
		034	003	9894	0.80
		034	003	10348	0.09
		034	003	9887	0.68
		034	003	10452	0.16
		034	003	10216	0.03
		034	003	10219	0.04
		034	003	10218	0.07
		034	003	10224	0.40
		034	003	10225	0.47
		034	003	10157	0.31
		034	003	10226	0.18
		034	003	10228	0.23
		034	003	10227	0.40
		034	003	10239	0.12
		034	003	10240	0.62
		034	003	10183	0.11
		034	003	10184	0.11
		034	003	9889	0.49
		034	003	10344	0.06

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	9891	0.49
		034	003	9890	0.23
		034	003	10185	0.43
		034	003	10454	0.07
		034	003	10220	0.06
		034	003	10215	0.24
		034	003	10223	0.26
		034	003	10182	0.15
		034	003	9878	0.14
		034	003	9893	0.34
		034	003	10214	0.42
		034	003	10159	0.21
		034	003	10211	0.23
		034	003	10181	0.14
		034	003	10186	0.05
		034	003	10158	0.06
		034	003	10209	0.16
		034	003	10179	0.13
		034	003	10173	0.09
		034	003	9888	0.51
		034	003	10347	0.65
		034	003	10174	0.05
		034	003	9877	0.12
		034	003	10197	0.22
		034	003	10180	0.06
		034	003	10171	0.04
		034	003	10162	0.51
		034	003	10178	0.05
		034	003	10161	0.18
		034	003	9867	0.13
		034	003	10170	0.03
		034	003	9886	0.94
		034	003	9868	0.47
		034	003	10175	0.09
		034	003	10168	0.16
		034	003	10187	0.41
		034	003	9885	0.13
		034	003	9876	0.14
		034	003	10177	0.39
		034	003	9882	0.22
		034	003	9884	0.23
		034	003	10169	0.19
		034	003	9866	0.15
		034	003	10176	0.43
		034	003	9883	0.05
		034	003	9862	2.18
		034	003	9881	0.09
		034	003	9880	0.10
		034	003	10188	0.23
		034	003	9879	0.10

Pauro_Union	Mouza	JL No	Sheet No	Plot No	Area_Acre
		034	003	10198	0.44
		034	003	9875	0.15
		034	003	10163	0.76
		034	003	10166	0.13
		034	003	10160	0.92
		034	003	9869	0.52
		034	003	9871	0.10
		034	003	9865	0.24
		034	003	9872	0.14
		034	003	9873	0.11
		034	003	9863	0.26
		034	003	10165	0.14
		034	003	9822	1.10
		034	003	9874	0.34
		034	003	10167	0.24
		034	003	9813	0.25
		034	003	9814	0.40
		034	003	9821	0.13
		034	003	9843	0.52
		034	003	12108	0.13
					131.66