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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 দোহার উপজেলা, ঢাকা 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 দ্রষ্টব্য : অনুমোদিত ডেভেলপমেন্ট প্ল্যান ও প্রতিবেদনের কপি নগর উন্নয়ন অধিদপ্তর, ৮২, সেগুনবাগিচা, ঢাকা-১০০০ এবং জেলা প্রশাসক, ঢাকা ও উপজেলা নির্বাহী কর্মকর্তা, দোহার 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।

....., উপ-পরিচালক, বাংলাদেশ ফরম ও প্রকাশনা অফিস,

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(২৮৪৯)

মূল্যঃ ৪.০

Preface

This is a great pleasure for all concerned that the **“Preparation of Development Plan for Dohar Upazila”** has been successfully completed jointly by Desh Upodesh Ltd in association with AAIMA International BD Ltd & Technical Support Services LTD (TechSus) under the supervision of 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 Infrastructure Development together with land use control, effective development and management of the Upazila. This Development Plan comprises of Five-tier in a hierarchical order. These 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 selected Action Area Plan for 5 Years.

The Consultants have successfully completed the most essential tasks such as topographic survey, land use survey, land suitability analysis, physical feature survey, socio-economic survey, traffic and transport studies, formal and informal economic study, drainage and environmental study and series of consultation meetings with stake holders for the preparation of the Plan. After the completion of the Draft Plan formal public hearing has been made to register public complaints and awareness through participatory planning approach with the Upazila and related stake-holders. Moreover Engineering geological data has been interfaced with land use data to prepare risk sensitive land use plan. 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) acknowledge the full support and cooperation of Dohar Upazila Authority, Member of Parliament, Stake-holders and Member of Civil Societies and the Common People of Locality with the deepest gratitude.

Dr. K. Z. Hossain Taufique

Director

Urban Development Directorate (UDD)
Ministry of Housing and Public Works
Government of the People’s Republic of
Bangladesh

EXECUTIVE SUMMARY

Dohar Upazila is the smallest upazila of Dhaka district. It occupies an area of 161.49 sq.km and bounded on the north by Nawabganj Upazila, east by Srinagar Upazila of Munshiganj Zilla, and Nawabganj Upazila, south by the Padma River and Sadarpur Upazila of Faridpur Zilla and west by the Padma River and Harirampur Upazila of Manikganj Zilla. Dohar was considered as a thana in 1926 and upgraded as a upazila in 1983. Dohar Upazila consists of one paurashava with 9 wards, 8 unions and 133 villages. Population of the Upazila is 1, 20, 43, 977 (2011) and the density of population is 8229 per sq.km. The rate of literacy in 2011 was over 60%.

Dohar Upazila Development Plan aims to develop the upazila with improved connectivity, better health and education facilities, modern agriculture and protection from natural disaster. The Upazila Development Plan contains five plans namely, **SUB-REGIONAL PLAN, STRUCTURE PLAN, URBAN AREA PLAN, RURAL AREA PLAN** and **ACTION AREA PLAN**.

Based on population projection and thematic maps (geology, hydrology, land use, physical feature, elevation and suitability), five-tier plan (**Sub-regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan**) has been prepared. Population of the urban and rural areas for the plan periods has been estimated for the years 2023 and 2033 respectively. Using the population of 2001 and 2011, the growth rate has been calculated for the two areas. Base on the growth rate rates, projections have been made for urban and rural areas for the years 2023 and 2033 respectively. Exponential Growth rate Method/Compound Growth Rate Method is used to calculate the projected population. Growth rate for the population projection of the urban and rural area is 2% and 1.45%. According to Population Census 2011, population of Dohar upazila is 226439. Population of urban and rural part of the upazila is 71,362 and 1,90,005. Projection shows, the population of the urban and rural area will be 90,707 in 2023 and 3,70,642 in 2033 respectively.

Existing land use data of the upazila has been collected from the field through detailed field survey. During land use data collection, the land prevailing uses were grouped into 16 types. Agricultural land use (40.08%) dominates in Dohar Upazila; followed by water body (26%), vegetation (13.92%), rural residential (8.88%), urban residential (4.08%), transportation network (1.17%) and Commercial (.5%).

According to physical feature survey, the upazila has 46700 kacha structures of various uses, majority being residential. The number of pucca and semi-pucca structures are, 7119 and 5809 respectively. The upazila has 38 primary schools, 25 high schools, 6 colleges and 45 madrasas of different categories (Dakhil, Alim and Fazil). Dohar Upazila has one health complex with 50 beds and 16 union health and family welfare Centers, 5 hospitals and 14 clinic and family planning Centers. But the local people are not satisfied with the health services provided by the health facilities. Among other community facilities, the upazila has one auditorium, 7 bank branches, 4 training Centers and a library etc. Dohar Upazila has

452.51km road system with 241.98 km pucca, 101.40 km katcha and 109.13 km HBB. Earthen roads make movement difficult for people and goods, particularly during monsoon.

Dohar Upazila stands in an earthquake zone that has medium probability of risk. Peak Ground Acceleration/Maximum Ground Acceleration refers to the location which is more effected after earthquake. Unions, like, Roypara, Dohar Pourashava, Mahmudpur, Narisha, Bilashpur are more sensitive to earthquake. Percentage of 1st degree, 2nd degree and 3rd degree sensitive area of Dohar upazila are 55.43%, 41.30% and 3.27%. The condition of the depth of the soil is found from the foundation layer condition. Ground soil study indicates, Nayabari, Muksudpur, Roypara and Sutarpara areas have the best soil condition in the upazila for high rise buildings. In these areas building foundation can be laid safely within a range of 3.44 m to 10.0 m. Above 10 m deep foundation has been found in Narisha, Dohar Pourashava, Bilashpur and Kushumhati areas which are not good for building foundation. Geological Suitability/Infrastructure Suitability refers to location which is suitable for further infrastructural development. Most of the area of Roypara union is highly suitable for development. Partial area of Nayabari, Muksudpur and Sutarpara union is moderately suitable for infrastructural development. Dohar Pourashava, Kushumhati, Mahmudpur, Bilashpur and Narisha are less suitable for infrastructural development. In this area, building should be constructed through deep foundation or piling.

Different categories of land levels (Main flood, sub flood, occasionally sub- flood, occasionally flood and flood free) have been found including the areas that get submerged during monsoon. About 24.22% and 7.75% of the area of the upazila are sub flood flow and main flood flow zone which goes under water during flooding. About 40.75% area are 2nd degree flooded zone and water depth of this zone is 0.3-0.9m.

The economy of Dohar Upazila is primarily based on agriculture as it is the main sources of income of the people. The main crops of the upazila are Boro paddy, Aman paddy, potato, jute, mustard, pulse. Total area of single, double and triple crop is 3285.39, 1447.72 and 5742.64 acres. Percentage of single, double and triple crop is 31.36%, 13.83% and 54.81%.

Land suitability analysis is important to find out suitable area for agriculture, human settlement and infrastructure development. The main reason of agriculture suitability is to identify the most suitable agricultural land for conservation. From this analysis, high, moderate and less suitable area has been found. Percentage of high, moderate and less suitable area for agriculture is 55.41%, 27.03% and 17.56%. Future development will be occurred in human settlement area which is found from human settlement suitability. Percentage of high, moderate and less suitable area for human settlement is 89.79%, 9.97% and .24%. Highly suitable land exists partly in Nayabari, Muksudpur, Roypara and Kusumhati Unions. On the other hand, percentage of high, moderate and less suitable area for infrastructure is 8.04%, 76.49% and 15.97 %. It has been found from infrastructure suitability.

The Sub-Regional Plan is a strategic plan covering the entire zilla including all its upazilas, apart from project upazila. The plan has 20 years duration and aims at over all development of the sub-region focusing on its economy, transport, agriculture, employment, environmental and other critical issues. It is mainly a policy plan about regional development. The plan lays down development proposals on regional connectivity by road connecting such areas as Dohar-Nawabganj-Dhaka/Dohar-Srinagar-Dhaka/Dohar-Harirampur-Manikganj.

Construction of new 80 ft 6 Lane Regional Highway (Nawabganj-Dohar-Srinagar) has been proposed which connects with Zilla Road Z8204 linking Nawabganj with Dohar. Widening (80 ft) proposal of existing ZKDH Road is included. This will enable western region traffic to use Padma Bridge. Zilla Road Z8207 (connecting Dohar with Keraniganj via Nawabganj) may be widened to 60 ft and 4 lanes to improve connectivity with Dhaka. Zilla Road Z8003 may be widened to 4 lanes and 50 ft to create a short cut to six lane expressway from Dohar-Nawabganj. Eco-critical zone has been created at Moinot Ghat to protect the ecosystems and develop Moinot ghat as a potential tourist zone. 35 acres area has been provided for the tourist zone in Mahmudpur union. Economic zone has also been provided in Narisha union with an area of 232.35 acres.

The **Upazila Structure Plan** is also 20 years strategic plan. The plan analyses the socio-physical setting of the upazila to set the context including its history. It reviews the demographic components of the upazila, and the available services and facilities and the critical issues of the upazila. Next, it sets forth policy recommendations for overall development of the upazila that also includes upazila broad land use zoning and the spatial development control issues. For future planned development of the upazila and as well as to protect natural resources including agriculture and major water body, a strategic land use zoning plan has been prepared for the entire upazila. The Upazila has been divided into 9 strategic zones, these are, agriculture (25.92%), circulation network (.88%), rural homestead (21.88%), urban settlement (9.39%), restricted zone (3.81%), water body (25.64%), water supply protection zone (1.58%), main flood flow zone (2.30%) and sub flood flow zone (8.58%). Major development proposals of the Plan are hospital with ICU and CCU facility (20 acres), industrial zone (150 acres), housing estate (150 acres), solid waste disposal site (10 acres) and mini stadium (20 acres). Padma river erosion is a menace for Dohar Upazila. Unions along the Padma river are subject to regular river erosion that destroys huge landed property including farm land, homestead and other structures and infrastructure. To get rid of this destruction strong embankment is needed along the river bank. This would also serve as road. This is needed to save huge land and property of the people living on the river bank. 50m buffer has been created from the edge of the rivers (Padma and Echamoti) to protect the rivers and construct continental embankment on that buffer zone. Major khals have been protected through 6m buffer zone alongside the edge of the khals. 425.37 acres area is provided for the river protection zone and 168.21 acres area is provided for the khal protection zone.

The 10 years **Urban Area Plan** is concerned with urban area development that also cover future land use zoning and development control. The plan recommends taking measures against climate change impacts, environment and urban poverty. The plan determines the priority development issues based on PRA results conducted in the Pourashava. The plan makes development proposals covering various sectors including, transport, urban infrastructure and services.

Major development proposals of the Urban Area Plan includes, a hierarchy of road network comprising RHD Road, primary road, secondary road and tertiary road connectivity and widening of existing narrow roads. The proposed width of RHD Road, primary road, secondary road and tertiary road is 80 ft, 50 ft, 30 ft and 25 ft. The plan also proposes a drainage network development with appropriate outfalls. Three types of drain have been proposed such as primary, secondary and tertiary drain. It proposes to excavate existing khals for improvement of drainage and reduce the risk of flooding. Other infrastructure and urban services proposals are, one ICT park, one amphitheatre, one vocational training center, one sludge treatment plant, Shilpokola academy, youth center, two waste transfer stations, two electric sub-stations, eight primary schools, one college, one slaughter house, two public toilets, two parks and five play grounds, one central mosque, one wholesale market, one common examination hall, one mini stadium, one graveyard, low cost housing for the poor, amusement park, hospital and one community clinic. Ward wise existing residential land use has been calculated. Area of residential land use is higher at ward no. 01, 02, 03, 04, 05, 08 and 09. As population density will increase at ward no. 01, 02, 03, 04, 05, 08 and 09 after 20 years, future urban growth will take place at these wards. Average density of population will be 21 persons per acre in Pourashava area. Three types of urban area such as core, potential and fringe urban area have been demarcated. Core urban area has been demarcated based on administrative structure, economic function (growth center) and population density of Pourashava area. In core urban area, administrative and economic function will be held as well as population density will be higher. Residential, commercial, institutional, mixed and other facilities will be increased in core urban areas. Core urban area is contained with an area of 875.53 acres. Potential and fringe urban area are contained with an area of 1802 acres and 2511.47 acres.

Rural Area Plan is concerned with rural area development with major focus on agricultural development. This is also a strategic plan proposed for a period of 20 years. It lays down strategies and policies for rural area development followed by some development proposals. It primarily focuses on rural-agricultural development with existing scenario review, expectation of the rural people, and finally strategies and policy recommendations for agricultural and rural infrastructure development. It lays stress on protection of valuable farm land for greater food safety of the country creating resilience to the impending climate change impacts. Major development proposals of the Rural Area Plan comprises, a cold storage for storing perishable agro-products, three wholesale markets, 8 community clinics, 48 primary schools, 8 colleges,, 8 community centres at union level, 9 neighbourhood parks, 8 waste

transfer stations in union headquarters, 8 electric sub-stations in union headquarters, two wholesale markets, one botanical garden and one fish processing center. Six rural sales and service centres have been proposed to store and sell local agro-products and fisheries.

Action Area Plan deals with priority development schemes under the development plan. This part revisits people's wish list and determines the priority development schemes. It is a process to select priority projects for implementation during the first five years of the structure plan. The duration of current action area plan will remain valid for 5 years.

The upazila development plan winds up with some **Implementation Mechanisms** that are concerned with the execution of the upazila development plan. It includes recommendations on such issues as, resource mobilization, capacity building, implementation responsibility fixation, plan dissemination.

PREPARATION OF DEVELOPMENT PLAN FOR DOHAR UPAZILA

TABLE OF CONTENTS

Preface	v
Executive Summary	VI
Table of Contents	XII
References	XX
Annexures	XX
List of Maps	XXI
List of Tables.....	XXII
List of Figures	XXIV
List of Pictures	XXIV
List of Abbreviations.....	xxvii
Glossary of Terms	xxviii
Unit of Equivalence.....	xxxv

PART-A: PROJECT BACKGROUND

<u>CHAPTER-1: PROJECT BACKGROUND AND APPROACH TO PLANNING.....</u>	<u>1</u>
1.0 Introduction.....	1
1.1 Project Background.....	1
1.2 Vision and Objectives	3
1.2.1 Vision	3
1.2.2 Objectives	3
1.3 Philosophy of the Development Plan.....	3
1.4 Planning Methodology.....	4
1.4.1 Approaches to Planning	4
1.4.2 Methodology	4
1.5 Content and Form of the Development Plan Report.....	8

PART-B: SUB-REGIONAL PLAN

<u>CHAPTER-2: SUB-REGION DELINEATION.....</u>	<u>10</u>
2.0 Introduction.....	10
2.1 Delineation of Sub-Region	10
2.1.1 Region and Sub-Region	10
2.1.2 Method of Delineation of Functional Region Using Data on Commuters	10
2.1.3 Shift share Analysis	11
2.1.4 Observation	11
2.1.5 District as the Sub-region.....	12
2.1.6 Introducing Dhaka Zilla as a Sub-Region.....	13

<u>CHAPTER-3: SOCIO-PHYSICAL SETTING OF THE SUB-REGION</u>	<u>16</u>
---	------------------

3.0 Introduction.....	16
3.1 Demography.....	16
3.2 Education	16
3.3 Employment.....	17
3.4 Drinking Water	17
3.5 Electricity Connection	17
3.6 Inter Region Connectivity.....	17
3.7 Hierachy of Settlements.....	19
3.8 Physiographic and Soil	20
3.9 River System.....	20

CHAPTER-4: OVERVIEW ON PROBLEMS AND OPPORTUNITIES OF THE SUB-REGION21

4.0 Introduction.....	21
4.1 Problems and Issues.....	21
4.1.1 Transport and Communication	21
4.1.2 Low Literacy Rate in Upazilas	22
4.1.3 Challenges of Agricultural Development	22
4.1.4 Climate Change Vulnerability and Disaster	22
4.2 Potentials of the Sub-Region	23
4.2.1 Huge Working Age Group Population	23
4.2.2 Impact of the Padma Bridge and Six Lane National Expressway	24
4.2.3 Creation of Productive Manpower.....	24
4.2.4 Opportunities for Raising Agricultural Production.....	24
4.2.5 Industrial Investment	24
4.2.6 Huge Dhaka Market for Local Agro Products.....	25

CHAPTER-5: REVIEW OF RELEVANT NATIONAL POLICIES AND PLANS26

5.0 Introduction.....	26
5.1 7th Five Year Plan	26
5.1.1 Review	26
5.1.2 Implications for the Current Project	27
5.2 Poverty Reduction Strategy Paper (PRSP)	27
5.2.1 Review	27
5.2.2 Implications for the Current Project	28
5.3 Millennium and Sustainable Development Goals and Bangladesh	28
5.3.1 Review	28
5.3.2 Implications for the Current Project	30
5.4 Urban and Regional Planning Act 2014 (Draft)	30
5.4.1 Review	30
5.4.2 Implications for the Current Project	31
5.5 National Plan for Disaster Management 2010-2015.....	31
5.6 National Urban Sector Policy, 2011 (Draft)	32
5.7 National Biodiversity Strategy and Action Plan for BGD, 2004.....	33
5.8 SME Policy 2005	35
5.8.1 Policy Review	35

5.8.2 Booster Sectors	36
5.8.3 Implications for the Current Project	37
5.9 Bangladesh Water Act, 2013	37
5.9.1 Review	37
5.9.2 Implications for the Current Project	39
5.10 Linking National Level Policies and Laws with Sub-regional Development.....	39

CHAPTER-6: POLICY RECOMMENDATIONS FOR SUB-REGIONAL DEVELOPMENT PLAN OF DOHAR UPAZILA.....41

6.0 Introduction.....	41
6.1 Policies and Components of Sub-regional Plan.....	41
6.1.1 Improved Connectivity	41
6.1.2 Biodiversity and Nature Conservation (Following National Biodiversity Strategy and Action Plan for BGD, 2004)	43
6.1.3 Community Resilience through Disaster Management (Following National Disaster Management Plan, 2015)	43
6.2 Promotion of Agriculture.....	48
6.3 Industrial Development.....	48
6.4 Water Management.....	50
6.5 Creation of Climate Change Resilience	50

PART-C: STRUCTURE PLAN

CHAPTER-7: INTRODUCING DOHAR UPAZILA52

7.0 Introduction.....	52
7.1 Location and Area.....	52
7.2 History and Background of the Upazila.....	52
7.3 Administrative/Geographic Unit.....	52
7.4 Dohar Upazila Basic Statistics.....	52
7.5 Physical and Socio-Economic Setting	54
7.5.1 Geology.....	54
7.5.2 Soil	56
7.5.3 Hydrology	57
7.5.4 Existing Land Use Pattern	59
7.6 Demography.....	61
7.6.1 Population Growth.....	61
7.6.2 Type of Housing Structure.....	61
7.6.3 Education	61
7.7 Health Facilities	62
7.8 Other Community Facilities.....	62
7.9 Physical Infrastructure	62
7.9.1 Transport and Communication	62
7.9.2 Drinking Water	63
7.9.3 Sanitation	63
7.9.4 Access to Electricity	63

CHAPTER-8: IDENTIFICATION OF CRITICAL ISSUES.....	64
8.0 Introduction.....	64
8.1 Critical Issues Identified	64
8.1.1 Issues and Problems Identified through Participatory Rapid Appraisal (PRA) at Union Level	64
8.1.2 Issues Identified through Participatory Rapid Appraisal (PRA) at Pourashava Level	65
8.1.3 Problems of Transport and Communication	66
8.1.4 Inadequate Public Healthcare	66
8.1.5 Problem of Development and Maintenance of Religious Facilities	66
8.1.6 Development and Maintenance of Education Facilities	66
8.1.7 Absence of Safe Drinking Water	66
8.2 Critical Issues Derived from Study Reports	67
8.2.1 Critical Issues of Dohar Formal and Informal Economy	67
8.2.2 Problems of Agriculture.....	70
8.2.3 Hydrological Problems	76
8.3 Summary of Critical Issues for the Upazila.....	77
8.3.1 Beneficiary Identified Issues.....	77
8.4 Impacts of the Padma Bridge and Other Development Initiatives	77
CHAPTER-9: STRUCTURE PLAN POLICIES AND RECOMMENDATIONS.....	79
9.0 Introduction.....	79
9.1 Structure Plan.....	79
9.2 Objectives of the Structure Plan	79
9.3 Planning Area Coverage and Plan Duration	79
9.4 Approaches to Planning	79
9.5 PRA Findings of the Priority Development Problems.....	80
9.5.1 Determination of Priority Development Problems at Union Level	80
9.5.2 Determination of Priority Development Problems at Pourashava Ward Level.....	80
9.5.3 Summary of Upazila Priority Development Problems	80
9.6 Summary of PRA Findings of the Priority Development Needs	80
9.6.1 Transport and Communication	81
9.6.2 Sanitation	85
9.6.3 Safe Drinking Water	86
9.6.4 River Erosion	86
9.6.5 Economy Scenario: Agriculture, Industry, Informal Economic Activities.....	86
9.6.6 Policy and Strategic Action	90
9.6.7 Strategic Land Use Zoning	91
9.6.8 Hydrology	95
9.6.9 Utility Services and Community Facilities	96
9.6.10 Policy and Strategic Action	96
9.6.11 Education	98
9.6.12 Climate Change, Environment and Disaster	100

CHAPTER-10: LAND USE AND SPATIAL DEVELOPMENT	106
10.0 Introduction.....	106
10.1 Necessity of Land use and Spatial Development Control	106
10.2 Present Scenario Analysis.....	106
10.3 Field Level Geological Investigation.....	107
10.3.1 MASW Test Results	107
10.3.2 SPT Log Analysis	107
10.3.3 Earthquake Probability.....	107
10.3.4 Foundation Layer Condition	109
10.3.5 Geological Suitability	111
10.4 Flood Scenario	114
10.5 Land Suitability for Spatial Development	115
10.5.1 Agriculture Suitability	116
10.5.2 Human Settlement Suitability	118
10.5.3 Infrastructure Suitability for human settlement	120
10.6 Policy Recommendations.....	122
10.6.1 Objective, Policy and Strategic Action.....	122
10.7 Tools of Land Use and Development Control and Power of Local Governments	122
CHAPTER-11: POPULATION PROJECTION AND PLANNING STANDARD	124
11.0 Introduction.....	124
11.1 Population Projection.....	124
11.1.1 Assumption	124
11.1.2 Population Projection for Rural Area	125
11.1.3 Population Projection for Urban Area	125
11.2 Determination of Planning Standard.....	126
11.2.1 Housing Area	126
11.2.2 Estimation of Land for Commerce-Industry	127
11.2.3 Estimation of Land for Commerce-Industry	128
11.2.4 Standard for Services and Facilities.....	128
PART-D: URBAN AREA PLAN	
CHAPTER-12: SETTING.....	133
12.1 Urban Area Plan Location and Plan Period	133
12.2 Objective of the Urban Area Plan	133
12.3 Present Situation Analysis	133
12.3.1 Population Growth.....	133
12.3.2 Occupation of Household Members	133
12.3.3 Monthly Income of the Households.....	133
12.3.4 Existing Land Use.....	134
12.3.5 Urban Infrastructure and Services	136

CHAPTER-13: REVIEW OF PREVIOUS MASTER PLAN, HIGHER LEVEL PLAN AND DETERMINATION OF CRITICAL ISSUES	138
13.0 Introduction.....	138
13.1 Review of Previous Plan.....	138
13.1.1 LGED Dohar Pourashava Master Plan 2011-2031	138
13.1.2 Observation	140
13.2 Review of Higher Level Plan: Dohar Upazila Structure Plan	141
13.2.1 Health Services	141
13.2.2 Transport and Communication	141
13.2.3 Economy: Agriculture, Industry, Informal Economic Activities.....	142
13.2.4 Land Use Zoning.....	143
13.2.5 Education Facility	143
13.2.6 Climate Change, Environment and Disaster	144
13.3 Critical Issues Based on Public Consultation	146
13.3.1 Dohar Pourashava Ward Level PRA Summary Findings of Problems	146
13.3.2 Appraisal of Problems.....	148
13.4 Pourashava Sample Survey Findings.....	149
13.4.1 Road Transport.....	149
13.4.2 Drainage	149
13.4.3 Healthcare	149
CHAPTER-14: URBAN TRANSPORT DEVELOPMENT PLAN	150
14.0 Introduction.....	150
14.1 Assessment of Existing Conditions	150
14.1.1 Existing Road Network	150
14.1.2 Analysis of Deficiencies	153
14.2 Future Traffic Projections	154
14.2.1 Travel Demand Forecasting	154
14.3 Transportation Network	154
14.4 Future Traffic Volume	155
14.5 Transportation Development Plan	155
14.5.1 Standard Road Design.....	155
14.5.2 Plan for Road Network Development.....	156
14.5.3 Plan for Transportation Facilities.....	158
CHAPTER-15: DEVELOPMENT PLAN FOR URBAN SERVICES	162
15.0 Introduction.....	162
15.1 Urban Basic Services Development Plan	162
15.1.1 Drainage	162
15.1.2 Water Supply	167
15.1.3 Sanitation	168
15.1.4 Solid Waste Management	169
15.1.5 Electricity	170
15.1.6 Educational Facilities.....	171
15.1.7 Ward Center	173
15.1.8 Low Cost Housing	173

15.1.9 Housing Estate	174
15.1.10 Neighborhood Parks.....	175
15.1.11 Playfield	175
15.1.12 Hospital with ICU and CCU Facilities	176
15.1.13 Other Proposals	176
CHAPTER-16: LAND USE ZONING	181
16.0 Introduction.....	181
16.1 Land Use Zoning.....	181
16.2 Purpose of Land Use Zoning Plan	181
16.3 Current Land Use Pattern in Dohar Pourashava	181
16.4 Land Use Suggested by Dohar Pourashava LGED Master Plan (2011-31)	182
16.5 LGED Master Plan Prescribed Land Use Zoning Review.....	183
16.6 Review of Higher Level Plan.....	184
16.7 Land Use Zoning of Dohar Pourashava	184
16.7.1 Policy Considerations for Organized Land Use Development	184
16.7.2 Land Use Zone Classification for Dohar Pourashava.....	185
16.7.3 Land Requirement Determination.....	185
16.7.4 Future Urban Area Calculation	186
CHAPTER-17: DEVELOPMENT CONTROL.....	189
17.1 Development Control of Dohar Pourashava	189
17.1.1 Development Permission under Land Use Zones	189
17.2 Execution of Land Use Plan	201
PART-E: RURAL AREA PLAN	
CHAPTER-18: OBJECTIVES, PROBLEMS AND CRITICAL ISSUES	202
18.0 Introduction.....	202
18.1 Rural Area Development Plan Objectives	202
18.2 Identification of Problems and Critical Issues	202
18.2.1 Infrastructure and Services Problem	202
18.2.2 Road Infrastructure	202
18.2.3 Education	203
18.2.4 Health Facilities	204
18.2.5 Agricultural Problem	205
18.3 Rural-Agriculture Related Problems as Found from PRA	209
CHAPTER-19: RURAL AREA DEVELOPMENT PLAN RECOMMENDATIONS.....	210
19.0 Introduction.....	210
19.1 Approaches to Preparation of the Rural Area	210
19.2 Rural Area Critical Issues	210
19.3 Rural Area Development Proposals.....	210
19.3.1 Improvement of Road	210
19.3.2 Facilitation of Education.....	211
19.3.3 Improvement of Health Facilities	213
19.3.4 Enactment of Law for Prevention of Non-Farm Development on Farm Land.....	215

19.3.5 Erection of Strong Embankment to Prevent River Erosion	215
19.3.6 Excavation and Maintenance of Khals for Drainage, Flood Protection and Water logging	218
19.3.7 Recommendations for Agricultural Development	218
19.4 Proposals for Community Facilities.....	223
19.4.1 Botanical Garden	223
19.4.2 Parks.....	223
19.4.3 Playfield	224
19.4.4 Community Center.....	225
19.4.5 Waste Transfer Station.....	226
19.4.6 Electric Substation	227
19.5 Some Major infrastructure Development Proposals	228
19.5.1 Road Infrastructure Development	228
19.5.2 Plan for Transportation Facilities.....	228
19.5.3 Proposal for Transportation Facilities.....	228
19.5.4 Terminal Facilities	230
19.6 Proposal of Rural Land Use	231

PART-F: ACTION AREA PLAN

CHAPTER-20: ACTION AREA PLAN234

20.0 Introduction.....	234
20.1 Conceptualization of Action Area Plan	234
20.2 Area Coverage of Action Area Plan	234
20.3 Considerations for Project Selection.....	234
20.4 Revisiting Union Level Wish List	235
20.5 Pourashava Level Wish List	235
20.6 Determination of Priority Development Needs for the Upazila	235
20.7 Phasing of Project Implementation	236
20.7.1 Phasing and Cost Estimation of Projects	236
20.7.2 Financing Project Implementation	238
20.8 Design and Estimation of Two Priority Projects	238
20.8.1 Tourism Site Development	238
20.8.2 Continental Embankment.....	243

CHAPTER-21: IMPLEMENTATION MECHANISM246

21.0 Introduction.....	246
21.1 Custodian of the Upazila Development Plan	246
21.2 Review, Amendment and Updating of the Development Plan	246
21.3 Implementation of the Development Plan	246
21.4 Development Coordination.....	247
21.5 Partnership Development with Other Agencies.....	247
21.6 Resource Mobilization	247
21.6.1 Options to Resource Mobilization	247
21.6.2 Raise Tax Collection.....	247
21.6.3 Government Grant	248

21.6.4 Betterment Levy on Properties	248
21.7 Governance Improvement for Plan Implementation.....	248
21.7.1 Capacity Building of Dohar Upazila Parishad.....	248
21.8 People's Participation	248
21.9 Legal Measure.....	249
21.10 Development Control in the Upazila	249
21.11 Plan Review Committee.....	249

References

Annexures

Annexure-I: Execution of Relevant Laws in the Plan

Annexure-II: Union Wise Proposed Maps

Annexure-III: Proposed Pourashava Map

Annexure-IV: Public Hearing Comments

Annexure-V: Related Pictures of Public Hearing Comments

Annexure-VI: Attainment of SDG Goals for Dohar Upazila Development Plan

Annexure-VII: Related Pictures and Tables of Attainment of SDG Goals for Dohar Upazila Development Plan

Annexure-VIII: Land Schedule of Dohar Upazila

List of Maps

Map-2.1 Dhaka Zilla/Sub-Region.....	13
Map-3.1: Inter Region Connectivity	18
Map-3.2 Hierarchy of Settlements	19
Map-6.1: Proposed Road Network of Dohar upazila	42
Map-6.2: Contingency plan for Dohar upazila	46
Map-6.3: Sub-regional plan of Dohar upazila	47
Map-7.1: Geotechnical Test Locations of Dohar Upazila	55
Map-7.2: Surface Geology of Dohar Upazila	56
Map-7.3: Inundation Map of Dohar Upazila	58
Map-7.4: Existing Land Use Pattern of Dohar Upazila.....	60
Map-9.1: Road Connectivity Map of Dohar Upazila.....	82
Map-9.2: Road Type Map of Dohar Upazila	83
Map-9.3: Road Width Map of Dohar Upazila	84
Map-9.4: Cropping Pattern Map of Dohar Upazila	88
Map-9.5: Upazila Structure Plan.....	94
Map-9.6: Educational Facilities of Dohar Upazila	99
Map-10.1: PGA Map of Dohar Upazila.....	108
Map-10.2: Foundation Layer Map	110
Map-10.3: Geological Suitability Map of Dohar Upazila	112
Map-10.4: Inundation Map of Dohar Upazila	114
Map-10.5: Agricultural Suitability Map of Dohar Upazila	117
Map-10.6: Human Settlement Suitability Map of Dohar Upazila	119
Map-10.7: Infrastructure Suitability for Human Settlement.....	121
Map-12.1: Existing Land Use of Dohar Pourashava	135
Map-14.1: Existing Road Network of Dohar Pourashava	151
Map-14.2: Proposed Road Network	157
Map-15.1: Existing Drainage Network of Dohar Pourashava	163
Map-15.2: Proposed Drainage Plan for Dohar Pourashava	166
Map-15.3: Urban Area Plan.....	180
Map-16.1: Proposed Land Use of Dohar Pourashava.....	188
Map-19.1: Water Protection Zone of Dohar Upazila.....	216
Map-19.2: Proposed Natural Drainage of Dohar Upazila.....	217
Map-19.3: Proposed Road Network of Rural Area of Dohar Upazila.....	229
Map-19.4: Proposed Land Use of Rural Area	233
Map-20.1: Tourist Site Development Plan of Moinot Ghat	239
Map-20.2: Resort Design	240
Map-20.3: Amusement Park	241
Map-20.4: Beach Site Design	242
Map-20.5: Joypara Bazar Design	244
Map-20.6: Embankment Section	245

List of Tables

Table-1.1: Fourteen Upazila Development Planning Project	3
Table-3.1 : Basic Demographic Information of Dhaka Zilla/Sub-region	16
Table-3.2: Population and literacy rate of 1981, 1991, 2001 & 2011	17
Table-3.3: General Household by Type of Structure in Dhaka City, 2001 and 2011.....	20
Table-4.1: Road Connectivity Situation in Dhaka Zilla	21
Table-4.2: Working Age Group Population.....	23
Table-6.1: Proposed Road of Dohar Upazila	43
Table-6.2: Proposed Location of Industrial and Economic Zone	49
Table-7.1 Dohar Upazila at a Glance.....	53
Table-7.2 Flooding Scenario of Dohar Upazila.....	59
Table-7.3: Existing Land Use Pattern of Dohar Upazila	59
Table-7.4: Dohar Upazila Demography.....	61
Table-7.5: Construction Type of Structures.....	61
Table-7.6: Available Community Facilities.....	61
Table-7.7: Community Facilities	62
Table-7.8: Upazila Road Facility	63
Table-8.1: Growth/ Decline of Cultivated Land in Dohar	70
Table-9.1: Road Category of Dohar Upazila	81
Table-9.2: Road type of Dohar Upazila.....	81
Table-9.3: Number of Growth Centre, Hat/Bazar, Poultry Farm, Dairy Farm, Nursery, Horticulture Centre, Brick Kiln, Decorator Service (2011).....	87
Table-9.4: Cropping Pattern of Dohar Upazila.....	87
Table-9.5: Upazila Strategic Land Use Zoning/Structure Plan	93
Table-9.6: Educational Facilities	98
Table-10.1: Earthquake Sensitive Area	109
Table-10.2: Geological/Infrastructure Suitability	111
Table-10.3: Suggested Land Use Suitability	113
Table-10.4: Flood Scenario Data	115
Table-10.5: Criteria of Agriculture Suitability	116
Table-10.6: Agriculture Suitability.....	116
Table-10.7: Criteria of Human Settlement Suitability	118
Table-10.8: Human Settlement Suitability	118
Table-10.9: Criteria of Infrastructure Suitability for Human Settlement	120
Table-10.10: Infrastructure Suitability for Human Settlement	120
Table-11.1: Population Projection for Rural Area.....	125
Table-11.2: Population Projection for Dohar Pourashava Up to 2023	125
Table-11.3: Gross Population Density of Population (2011)	126
Table-11.4: Estimation of Future Housing Area.....	127
Table-11.5: Estimation of Land for Business/Industry.....	128

Table-11.6: Planning Standard for Services and Facilities	129
Table-12.1: Pourashava Population Growth Trend	133
Table-12.2: Existing Land Use Pattern of the Pourashava	134
Table-12.3: Road Category of Dohar Pourashava	136
Table-12.4: Available Education Facilities in the Pourashava	137
Table-13.1: Summary of Major Problems by Wards Identified by the Participants	147
Table-14.1: Condition of Existing Roads	150
Table-14.2: Summary of Proposed Road Development for Dohar Pourashava	156
Table-15.1: Existing Drainage Network	162
Table-15.2: List of Proposed New Drains	165
Table-15.3: Proposed Overhead Tank	167
Table-15.4: Proposed Surface Water Treatment Plant	168
Table-15.5: Proposed Location of Sludge Treatment Plant and Composting Station	169
Table-15.6: Solid Waste Management Proposal.....	170
Table-15.7: Proposed Location of Electric Sub-stations in Pourashava.....	171
Table-15.8: Proposed Location of Primary Schools	172
Table-15.9: Proposed Location of College and Vocational Training Center	172
Table-15.10: Proposed Location of Ward Centers	173
Table-15.11: Proposed Location of Low Cost Housing	174
Table-15.12: Proposed Location of Housing Estate	174
Table-15.13: Proposed Neighborhood Parks	175
Table-15.14: Proposed Play Field.....	175
Table-15.15: Proposed Hospital with ICU and CCU Facilities	176
Table-15.16: Other Proposed Features for Dohar Pourashava	178
Table-16.1: Existing Land Use Pattern in Dohar Pourashava	182
Table-16.2: Land Use Pattern	183
Table-16.3: Proposed Land Use of Dohar Pourashava	186
Table-17.1: Development Permission under Land Use Zones	189
Table-17.2: Land Use Permitted for urban residential zone	191
Table-17.3: Land Use Conditionally Permitted for urban residential zone	191
Table-17.4: Land Use Permitted for commercial zone	192
Table-17.5: Land Use Conditionally Permitted for commercial zone	193
Table-17.6: Land Use Permitted for General Industrial Zone	194
Table-17.7: Land Use Conditionally Permitted for General Industrial Zone	195
Table-17.8: Land Use Permitted for Mixed Use Zone	196
Table-17.9: Land Use Conditionally Permitted for Mixed Use Zone	196
Table-17.10: Land Use Permitted for Administrative Zone	197
Table-17.11: Land Use Conditionally Permitted for Administrative Zone	197
Table-17.12: Land Use Permitted for Agricultural Zone.....	198
Table-17.13: Land Use Conditionally Permitted for Agricultural Zone.....	198
Table-17.14: Land Use Permitted for Flood Flow Zone.....	199
Table-17.15: Land Use Conditionally Permitted for Flood Flow Zone.....	199
Table-17.16: Land Use Permitted for Open Space	200
Table-17.17: Land Use Conditionally Permitted for Open Space	200
Table-17.18: Land Use Permitted for Water Retention Area	200
Table-17.19: Land Use Conditionally Permitted for Water Retention Area	201

Table-18.1: Condition of Roads.....	203
Table-19.1: Existing Educational Facilities in rural area of Dohar Upazila.....	211
Table-19.2: Proposed College.....	212
Table-19.3: Proposed Primary School	213
Table-19.4: Existing Health Facilities in Dohar Upazila.....	214
Table-19.5: Proposed Health Facilities.....	214
Table-19.6: Water Protection Zone.....	215
Table-19.7: Proposed Location of Wholesale Market in Rural area	220
Table-19.8: Proposed rural sales and service center.....	222
Table-19.9: Proposed fisheries and fish processing center.....	222
Table-19.10: Proposed Location of Botanical Garden	223
Table-19.11: Proposed Location of Neighborhood Parks.....	223
Table- 19.12: Proposed Location of Play Field	224
Table- 19.13: Proposed Location of Community Centers	225
Table-19.14: Proposed Location of Waste Transfer Stations	226
Table- 19.15: Proposed Location of Electric Substations.....	227
Table-19.16: Location of Proposed Bus Terminals	230
Table-19.17: Location of Proposed Truck Terminals.....	231
Table-19.18: Proposed Land Use of Rural Area.....	232
Table-20.1: List of Priority Development Schemes and Phasing of Project	236

List of Figures

Figure-1.1: Planning Methodology	5
Figure-1.2: Brief Methodology Flow Diagram	7
Figure-14.1: Proposed Primary Road with 80 ft RoW	155
Figure-14.2: Secondary Road with 60 ft RoW	156

List of Pictures

Picture-20.1: Foreshore	245
Picture-20.2: Geo Web Embankment	245

List of Abbreviations

AEZ	Agro-Ecological Zone
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka (Currency)
BM	Bench Mark
BWDB	Bangladesh Water Development Board
CBO	Community Based Organization
CS	Cadastral Survey
DOE	Department of Environment
DPHE	Department of Public Health Engineering
EMP	Environmental Management Plan
GCP	Ground Control Points
GIS	Geographic Information System
GPS	Global Positioning System
LGED	Local Government Engineering Department
MF	Ministry of Finance
MP	Ministry of Planning
MV	Motorized Vehicle
NGO	Non-Government Organizations
NH	National Highway
NMV	Non-Motorized Vehicle
O-D	Origin and Destination
PCU	Passenger Car Unit
PD	Project Director
PMO	Project Management Office
PRA	Participatory Rural Appraisal
PT	Public Transport
R.F.	Representative Fraction
RHD	Roads and Highway Department
ROW	Right of Way
RS	Revenue Survey
RSSC	Rural Sells & Service Center
RTK-GPS	Real time Kinematics Global Positioning System
SoB	Survey of Bangladesh
SPSS	Statistical Package for Social Science
TOR	Terms of Reference
UDD	Urban Development Directorate

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 bazaar there are some permanent trading houses, shops and these shops are open every day and buyers and sellers attend the bazaar 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 (Drainage) Area	: The area contributing surface water to a point on a 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.
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	<p>: 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.</p> <p>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.</p> <p>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.</p>
Development Control	<p>: The process whereby a local planning authority decides whether a planning application meets the requirements of planning policy, particularly as set out in development plans.</p> <p>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.</p>
Digital Elevation Model- DEM	<p>: The representation of continuous elevation values over a topographic surface by a regular array of z-values, referenced to a common datum. DEMs are typically used to represent terrain relief</p>
Dispersed Urban Development	<p>: Large plots of land situated in the countryside, often Green Belt, in proximity to an urban area and occupied by land uses that are urban in character and depend upon the nearby settlement. These may form the distal or outer advance zone of a fringe belt. They may also form a detached part of an arterial ribbon.</p>
Drainage Basin along a stream	<p>: The area of land that drains water to a common outlet at some point channel.</p>
Encroachments public land.	<p>: A structure that extends over the legal property line of other People or public land.</p>
EIA	<p>: 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.</p>

Façade : Any front of a building given architectural treatment.

Flash Flood : A rapid and short-lived increase in the amount of runoff water Entering a stream resulting in a flood.

Geographic Information System (GIS): A geographic information system merges information in a computer database with spatial coordinates on a digital map.

Global Positioning System - GPS: System used to determine latitude, longitude, and elevation anywhere on or above the Earth's 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's surface.

Ground Water Table : Surface of a body of underground water below which the soil or rocks are permanently saturated with water. It also is affected by withdrawing excessive amounts of water from wells or by recharging them artificially.

Growth Centre Market : Hats and bazaars 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 bazaars in every upazila through LGED. The markets which are already provided with such extra infrastructure facilities are called growth center market.

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 Hat is a rural trading center.

Hazard Area :A geographically identifiable area in which a specific hazard presents a potential threat to life and property.

Hazardous Waste : A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: 1. cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible serious illness, or 2. pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Highway Corridor: A path through which certain types of traffic are permitted or a path enhance the flow of traffic, both commuter and commercial, along this increasingly congested highway system.

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.

Human-made Disaster: A disasters or emergency in which the major direct cause or causes are intentional or unintentional human actions that result in civilian populations suffering casualties, loss of property, basic services, and means of livelihood as a result of war, genocide, or civil strife.

Kutch: 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.

Line Services: Urban services that are provided in lines, like, water, gas, electricity, drain.

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

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

Mahalla: Smallest identified area in municipalities with settlements of homogeneous group of people. For operational convenience statistical mahallas are delineated within wards.

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.

Nasimon: It is a vehicle locally developed by modifying diesel motors used by low lift irrigation pumps mostly used for both passengers and goods for short distance.

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.

Node :Node is a hub or centre of activity where two or more systems intersect. Transportation nodes are points where several transport systems converge.

O-D Survey: This survey is carried out to collect information about desired lanes to provide the most efficient transportation system for the traffic. The purpose of this study is to get the information on the purpose, time, destination and mode of travel.

On Street Parking: In this system vehicles are parked on the road sides, designed for this purpose. This type of parking is very convenient for the people who could find suitable place to park near the place of their business. It may lead to traffic congestion which may cause of several accidents. So adequate capacity should be needed while planning.

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

PCU: It stands for Passenger Car Unit. It is the method of expressing various types of vehicles having different characteristics in a common equivalent unit. Different vehicles having different vehicular and operational characteristics are also expressed in terms of standard unit is called Passenger Car Unit.

Planning Permit: Initial permit for development given before submission of the actual building plan. This also called land use permission given to an applicant intending to develop a structure for housing or other purpose in a certain land. This permission is based on land use zoning prepared as a part of the master plan. After getting this permission the applicant can proceed for designing the structure and submit it for approval. Part of the master plan. After getting this permission the applicant can proceed for designing the structure and submit it for approval.

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

Provider to Facilitator: When town authority provides serviced land (land with services) it is a housing provider, though directly housing. But when it develops road, drain school, bazaar, etc. In any area it helps the land owners to develop their own houses. So town authority is facilitating people's housing.

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

Site and Services Project: A housing project where site and services are provided. Site is the plot and services include road, drain, water supply, etc.

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.

Skyline: Outline of building, hills, etc. against the sky.

Sluggish Economic Growth: Slow economic growth.

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, special waste).

Spontaneously Developed Area: An area that develops naturally with public and community intervention. Almost all our settlements developed spontaneously. The opposite of Spontaneously Developed Area is planned developed area.

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.

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.

UNCHS: United Nations Centre for Housing and Settlement.

Upazilla/Thana: Sub - District administrative area.

Union: Smallest local administrative unit of rural area which is composed of Mauzas 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.

Upper Level Plan: Upper level plan is the higher-level plan, like, structure plan or master plan/urban area plan that serve as framework of the lower level plan.

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.

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)	= 2.47ac. = 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 = 1000000 watts
1 Nautical mile	= 1.854 mile

PART-A: PROJECT BACKGROUND

CHAPTER-1: PROJECT BACKGROUND AND APPROACH TO PLANNING

1.0 Introduction

This introductory Chapter deals with the fundamental issues of the development project. It contains background of the project, planning methodology, approach to planning, vision and objectives of the plan.

1.1 Project Background

Bangladesh has been marked as an emerging global market and one of the Frontier Five in the world economy (Wikipedia, 2015) by different international agencies ranking countries in the economic progress scale. Lately, it earned an average GDP growth rate of 7.24% (BBS, 2017) exceeding 6% between 2004 and 2014. The export oriented industrial sector leads the economy forward in earning valuable foreign exchange, where remittances from the Bangladeshi abroad provide vital foreign exchange source serving as engine of growth.

Located in one of the most fertile regions on Earth, agriculture plays a crucial role in Bangladesh, where it ranks fifth in the global production of fish and seafood. The Bangladesh telecoms industry has witnessed rapid growth over the years. The IT sector is emerging as a vital export sector. The country has substantial reserves of natural gas and coal. Located at the crossroads of SAARC, BIMSTEC, the ASEAN+3 and the Indian Ocean, Bangladesh has the potential to emerge as a regional logistics hub. In 2017, per-capita income stands at USD 1,610 (BBS, 2017).

The medium and small urban centers are playing significant role in the process of economic growth. Improved connectivity and basic services are playing key role behind the changing status of the urban sector. But very often, urban based development accrues benefits to a selected section of the society living in and around the urban centers. This results regional imbalance within a upazila causing deprivation of sharing the fruits of development by the vast rural section of the upazila.

On the other hand least attention is paid to the vast rural areas that contribute to almost 60% of the country's employment. There is need for development of both rural and urban areas to ensure balanced development of the country. Development of small and medium urban centers with sufficient infrastructure and services can serve as counter magnets to large cities. If they can be developed as thriving centers of employment, large cities can be relieved them of their problems of arising from over population. On the other hand, they can also serve as focal points of development for development dissemination to vast undeveloped rural areas. Rural-urban interface is crucial for development of Bangladesh. Economic linkages between urban and rural areas are very important for national development. Major markets of agricultural surplus products are urban areas, while, all agricultural inputs, processed consumer goods and services, like, health and education are derived from urban areas.

An inclusive development strategy combining the urban and rural areas is the need of the time to make breakthrough in development imbalance. Due importance to planned development of urban centers and their rural hinterlands can produce better results in

improving livelihood of the people in general. Organized development of infrastructure and services and control of development can render urban centers congenial places for living and working and serving as the development disseminators to their vast rural hinterlands. So far, the secondary and small towns have not been properly addressed in the context of planned development in national policies and strategies. The urban Centers are likely to play a vital role in transforming the vast rural economy including its production and employment. Therefore, more attention is needed to be paid in developing infrastructure and services in smaller urban Centers integrated with their rural zone of influence. There is a need for comprehensive development of upazilas where the main focus would be to disseminate development to the vast undeveloped rural hinterland. The upazila headquarters has to be the focal point all social, administrative and economic and services of the entire upazila region and bring the services to the door steps of the citizens. To achieve this objectives the Urban Development Directorate (UDD) under the Ministry of Housing and Public Works of the government has taken up an initiative to go for comprehensive planned development of the entire upazila starting with fourteen upazilas initially divided under 5 packages. A particular focus of the plan would be the assessment of earthquake risk and vulnerability to suggest measures for hazard mitigation.

Desh Upodesh Ltd. in Association with AAIMA International BD Ltd. and Tech-SUS Ltd., has been awarded Package-1: Nawabganj, Dohar and Shibchar Upazilas.

This project is aimed to prepare a comprehensive development plan divided into several components, for the entire upazila and beyond, where apart from town development plan; an effort will be made to prepare strategic plan for a sub-region covering adjacent upazilas of the project upazilas and a rural development plan. The project will also prepare an urban area plan for urban part of the project upazilas apart from structure plan for the entire upazila and action area plans for selected priority projects.

It is observed that most of the small and medium towns of the country and vast rural areas are developing without having any comprehensive development plan. To ensure integrated development of upazilas and small towns, to make better places of habitation and investment, government undertook '**Preparation of Development Plan for Fourteen Upazilas**' was initiated in 2010 and approved in 2013.

Table-1.1: Fourteen Upazila Development Planning Project

Sl. No.	District	Upazila	Area(sq.km)			Population (2011)		
			Total	Urban	Rural	Urban	Rural	Total
1	Dhaka	Nawabganj	244.8	1.76	243.04	77590	410438	488028
2		Dohar	161.49	20.31	141.18	61793	129630	191423
3	Chittagong	Rangunia	361.54	37.08	324.46	53035	245335	298370
4	Cox's Bazar	Ramu	391.71	22.03	369.68	33334	169349	202683
5	Rajshahi	Bagmara	363.30	26.58	336.72	34632	285336	319968
6	Faridpur	Faridpur	402.02	23.45	383.57	101084	312401	413485
7	Mymensingh	Ishwarganj	286.19	15.82	270.37	30948	307132	338080
8	Madaripur	Shibchar	321.88	17.02	304.86	27877	296561	324438
9	Narsingdi	Shibpur	232.47	3.52	228.95	10426	303394	313820
10		Raipur	408.45	13.49	394.96	34411	420135	454564
11	Bogra	Saraikandi	432.60	3.58	429.02	17320	222763	240083
12		Sonatala	156.73	4.94	151.79	11405	156142	167547
13	Gaibandha	Saghata	225.67	6.38	219.29	15549	234720	250269
14	Meherpur	Gangni	341.98	22.86	319.12	23846	245239	269085

Source: BBS, 2011

1.2 Vision and Objectives

1.2.1 Vision

The vision of the current planning exercise is,

‘DEVELOPING THE UPAZILA WITH IMPROVED CONNECTIVITY, BETTER HEALTH AND EDUCATION FACILITIES ,MODEREN ISED AGRICULTURE AND PROTECTION FROM NATURAL DISATER.’

1.2.2 Objectives

The following objectives have been set to be achieved under the project:

- Prepare comprehensive development plan for the entire upazila including infrastructure, services, land use and agriculture under Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan.
- Prepare sub-regional plan for selected sub-region..
- Assess earthquake hazard, vulnerability and risk and make recommendations for mitigation measures.

1.3 Philosophy of the Development Plan

The philosophy behind Upazila Development Plan lies in the very motive to community welfare through a process of spatial organization, economic up building by facilitating services and improving quality of manpower conducive to development.

1.4 Planning Methodology

1.4.1 Approaches to Planning

The current planning project is a comprehensive development planning effort that blends together a wide range development issues prevailing in the project area that is vastly dominated by undeveloped rural-agricultural environment, where the social and economic problems are more acute than the environmental problems. However, in some areas disaster poses a threat apart from overall impact of climate change vulnerability. The approach to planning primarily relies on three basic issues,

- Vision
- Stakeholder consultation
- Addressing critical issues.

Keeping the vision in the forefront, the planning takes into account the expectations of the stakeholders as revealed thorough FGD, PRA and consultation with key stakeholders. Taking a stock of the expectations, the consultant put the most critical problems at the top of the list. However, reasons beyond control, some mega projects had to be accommodated in the plan that were expected to receive government fund for execution.

The plan integrates multiple development issues that are not only essential for smooth going of the everyday life of the people, but also to bring about positive changes in their livelihood including the future generations. Each of the development issues is intricately knotted together with the other. Farm products cannot be marketed, whatever good harvest is there, if the transport system is not good enough. If farmers fail to receive handsome dividends from their hard earned output their condition will remain unchanged. Agriculture cannot provide sustainable job security round the year, therefore, parents are keen to get their children educated to create opportunity to secure jobs outside farm for which they need good education facilities and quality education. People need safe drinking water and power supply, the two basic facilities in modern life. Among the five plan categories the first three are strategic plans that primarily deal with policies and recommendations. The rest two are action oriented where specific development proposals have been suggested based on the upper level plan policies. All the plans, however, primarily deals with infrastructure development that are the basic pre-requisites for any development. Each category of plan has some spatial and issue oriented function apart from their hierarchical variations.

1.4.2 Methodology

Upazila development planning is a unique plan typology that has been put into practice for the first time. Considering the importance of the upazila and its socio-physical character, there is need to adopt an integrated approach to planning where not only the urban and rural scenarios have to be integrated together to produce a total development plan for the upazila, but also the sub-regional aspects have also to be infused into the process to catch and redistribute the development overspill. The current planning initiative is a combination of long and short term planning having a hierarchical approach. As conventional planning process the activities move through survey-data collection stakeholder consultation- data analysis problem, opportunity expectation identification-planning.

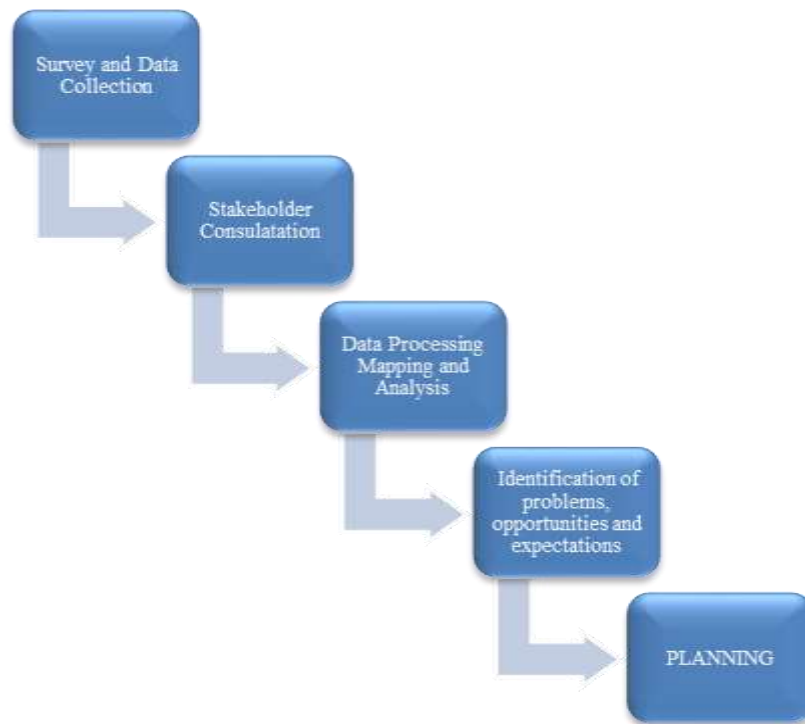


Figure-1.1: Planning Methodology

The planning process moves, conventionally, through a series of information gathering on multiple issues covering different sectors of development followed by analysis of situations. The analysis unveils issues, problems and opportunities to lead the way forward to planning. In designing the urban area plan efforts will be directed to create the upazila town as a centre wherefrom development can be radiated to its vast undeveloped rural hinterland. This will be achieved through provision of improved infrastructure and services, good internal and external connectivity. Improved infrastructure and services will attract investment in SME sector and improved connectivity will enable of better marketability of products. This will boost local economy and promote social development through higher job opportunities and income enhancement. Adoption of irrigation-fertilizer-seed technology will promote agricultural production and better connectivity will increase capacity of marketing adding more income to the cultivators. Thus a comprehensive upazila development plan when executed will bring about total change in the socio-economic scenario of the upazila. However, everything relies on the level and the speed the plan proposals are brought to the light.

An interlinking process has been applied where development policies presented in the upper level plans were addressed in the lower level plans. The sub-regional planning integrates the entire district including all the adjoining upazilas economically and socially to promote overall development of the sub-region benefiting all the involved upazilas.

Sub-Regional Plan as a policy plan, has the highest aerial coverage encompassing the entire Zilla under which all the upazilas exist and function as local government units. It has a wider

context than the upazila because social and economic issues have no boundaries. It deals with issues that are broad based and have linkage with inter upazila and beyond.

Upazila Structure Plan concentrates on limited issues covering the entire upazila. It is also a strategic plan providing policy guidelines to lower level plans that also highlights some major projects.

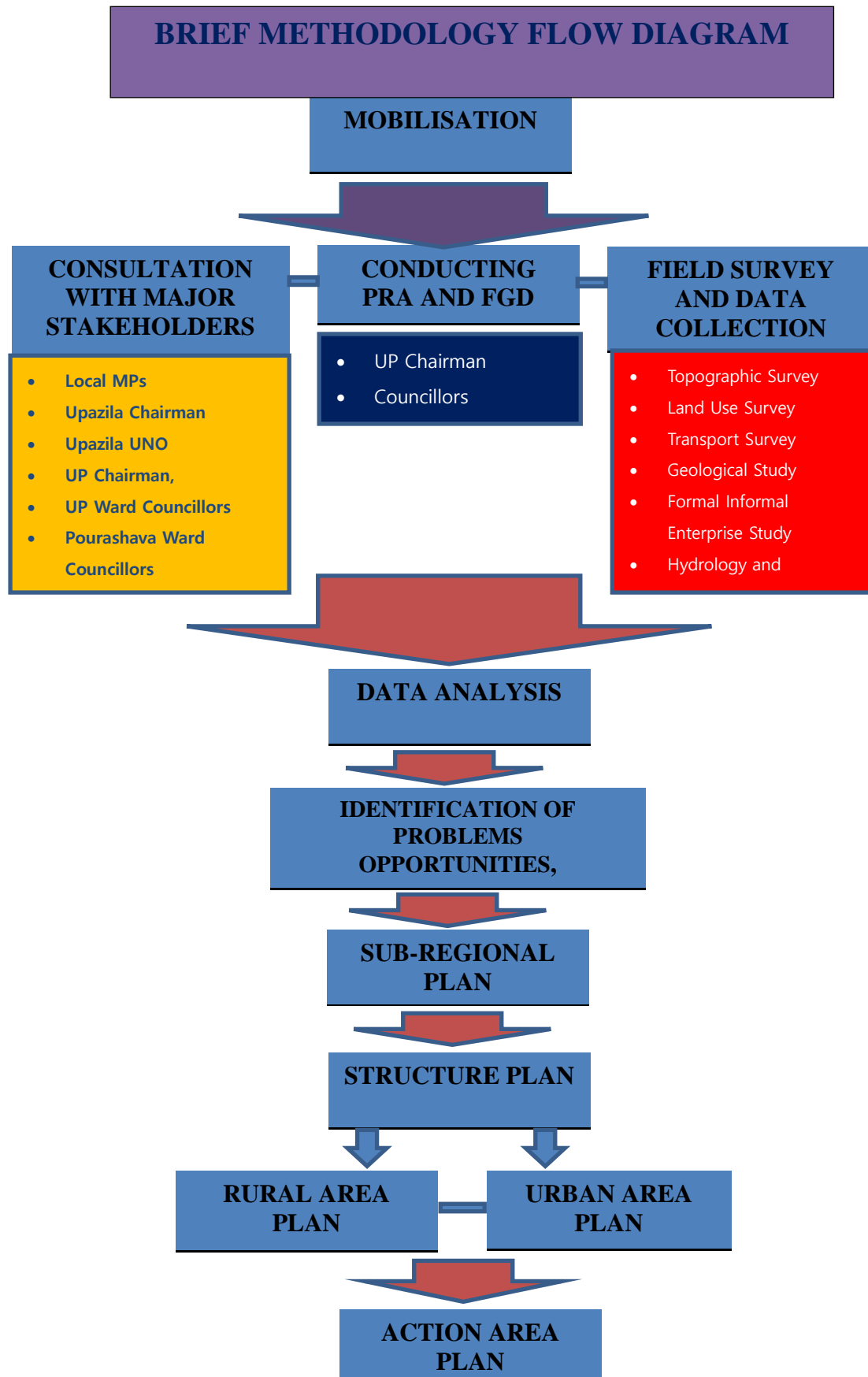
Regional Plan and Structure Plans are the upper level plans that feed the Rural Area Plan and the Urban Area Plan as lower level plans with policies.

Urban Area Plan is about urban development of the urban part of the upazila that is the Pourashava or the main mauza in which upazila headquarter is located. Development planning for the urban part of the upazila is a clear indication of the government policy to render the upazila headquarters as the focal point of upazilla development.

The Urban Area Plan attempts to create a lively and functional space for future generations imbued with major infrastructure and services conducive to generating economic growth.

Rural Area Plan is exclusively meant for rural part of the upazila where stress is on protection and promotion of agriculture including rural homestead and resilience to climate change. The Rural Area Plan, apart from infrastructure development proposals, makes recommendations about agricultural development which is the key source of livelihood of the rural people.

Figure-1.2: Brief Methodology Flow Diagram



Finally, the Action Area Plan picks up the most demanding proposals as projects for executing in the first five years of the plan period. Action Area Plan concerns the priority projects that have to be implemented with immediate effect to resolve urgently.

The development plan gives its focus on the people's opinions as the source of making development proposals. The finding of PRA that gives the wish list of the participant has been used as the main source of opinion. Each plan has different time scale for execution which has been determined on the basis of the function each category of plan plays and the dynamics of spatial growth.

The methodological process of planning is illustrated in **Figure-1.2**.

1.5 Content and Form of the Development Plan Report

The development plan of Dohar Upazila Development Plan is divided into 24 Chapters under 7 parts. Here are the details of contents of the development plan report.

PART-A: PROJECT BACKGROUND gives project background, objectives and the content and form of the development report.

PART-B: SUB-REGIONAL PLAN contains 5 chapters and are concerned with such issues as, area delineation, setting, problems and opportunities, review of national policies and plans and finally the strategies and policies about regional plan.

Sub-Regional Plan is a strategic plan covering the entire zilla including all its upazilas, apart from project upazila. The plan has a 20 year duration and aims at over all development of the sub-region focusing on its economy, transport, agriculture, employment, environmental and other critical issues.

It delineates and introduces the sub-region, makes review of problems and opportunities of the sub-region; reviews the relevant national policies, plans and legal documents and finally, sets for the policy recommendations about comprehensive development of the sub-region.

PART-C: UPAZILA STRUCTURE PLAN has 3 chapters that deal with introduction and present situation of the upazila, critical issues and development policies and recommendations.

Upazila Structure Plan is also a strategic plan covering the entire subject upazila. It has also duration of 20 years. Upazila Structure Plan analyses the socio-physical setting of the upazila to set the context including its history. Makes review of demographic components of the upazila, and the available services and facilities. Analysing the current situation the plan report unveils the critical issues of the upazila. Next, it sets forth policy recommendations for overall development of the upazila that also includes upazila broad land use and the spatial development control issues.

PART-D: URBAN AREA PLAN is concerned with urban area development plan. This part begins with introduction of the urban area and its present situation analysis. It gives a population project and the planning standards for providing urban basic services. It also determines priority issues, suggests land use zoning plan, transport sector plan, plan for basic

urban services. It also calls for measures about climate change issues, environment and urban poverty.

Urban Area Plan is a detailed area development plan that moves through analysing the current scenario of the Pourashava/urban area of the upazila including its demography, economy, employment. It studies the current land use and proposes future land use as vital instrument for development control of the urban area. The plan determines the priority development issues primarily based on PRA results conducted in the Pourashava. Next, the plan makes development proposals covering various sectors including, transport, urban infrastructure and services with particular emphasis on poverty and climate change issues. It has duration of 10 years.

PART-E: RURAL AREA PLAN is about rural development where more emphasis has been laid on agricultural development. This part of the report contains 5 chapters that deal with such issues as, rural area definition, problems and critical issues of the rural area, agricultural development plan, rural infrastructure and services development plan and rural land use regulation.

Rural Area Plan is a strategic plan proposed for a period of 20 years that lays down strategies and policies for rural area development. Rural Area Plan primarily focuses rural-agricultural development with existing scenario review, expectation of the rural people, and finally strategies and policy recommendations for agricultural and rural infrastructure development. It lays stress on protection of valuable farm land for greater food safety of the country creating resilience to the impending climate change impacts.

PART-F: ACTION AREA PLAN deals with priority development schemes under the development plan. This part revisits people's wish list and determines the priority development schemes.

Action Area Plan is usually prepared for local areas under the framework of a higher level plan. However, in terms of ToR of the current project action area plan is in fact not a conventional type of plan; rather it is a process to select priority projects for implementation during the first five years of the structure plan. In this sense its typology is absolutely different from what the other agencies (like LGED) are preparing in the name of 'action area plan'. The duration of current action area plan will remain valid for 5 years.

PART-G: IMPLEMENTATION MECHANISM is the last and the final part of the development plan report. It is about follow up actions to be taken for execution of the upazila development plan. It includes recommendations on such issues as, resource mobilization, capacity building, implementation responsibility fixation, plan dissemination plan updating.

PART-B: SUB-REGIONAL PLAN

CHAPTER-2: SUB-REGION DELINEATION

2.0 Introduction

Chapter two of the development plan deals with delineation of Sub-Region including definition and method of determination of sub-region and finally, describes the characteristic features of the sub-region that is Dhaka District.

2.1 Delineation of Sub-Region

2.1.1 Region and Sub-Region

In geography, a region is defined as an area that possesses uniform physical characteristics, and or human impact characteristics with interaction of humanity and the environment. Geographic regions and sub-regions are mostly described by their imprecisely defined and sometimes transitory boundaries.

As a way of describing spatial areas, the concept of regions and sub-region are important and widely used among the many branches of knowledge.

Regions may be divided into smaller units of sub-regions. A region/sub-region has its own features that are immovable. The first feature is its natural environment. The second feature is the physical elements that were built by people the area in the past. The third feature is the socio-cultural context that could not be replaced by new immigrants (*Guimarães, 2010*).

In Bangladesh, except some geographically distinct areas, like, hill tracts, haor, barind and coastal areas, almost the entire country exhibits uniform geographical, cultural and economic features. So it is hardly possible to delineate a region or sub-region in general flood plains. The only possible way is to use some economic and employment indicators to delineate functional region/sub-region.

2.1.2 Method of Delineation of Functional Region Using Data on Commuters

A functional region is a territorial unit resulting from the organization of social and economic relations characterized by high frequency of intra-regional interactions. This uniform territorial unit often presents an important platform for development strategies of the country or region, and should combine different functions and their interactions on different scales.

For their delineation one may consider different methods and different directly or indirectly geo-referenced data, such as population flows, trade in goods and services, communications, traffic flows, service connections, newspaper circulation, financial flows, etc.

Three Methods of Region Delineation

In this study, three methods to delimitate the commuting (functional) regions have been discussed:

1. Local labour market approach,
2. Commuting zone approach, and,
3. Commuting aggregation approach.

Under the first approach a functional region is determined by how far laborers move from one urban centre to other urban centre of places for everyday work. It means the distance of flow of labor force from any particular point of an area.

The second approach for delineation of functional regions based on commuting flow of people to different areas. The commuting zones are built from the existing mutual dependence between urban Centers rather than from one-way dependence.

The last method called Commuting aggregation approach is based on the share of people moving from one urban center to any other urban center. The maximum share (commuting flow) is used to aggregate the 1st urban center to the 2nd other urban center, which is the provider of working places for the maximum flow of commuters. (*MihaKonjar, 2006*).

2.1.3 Shift share Analysis

Terms of Reference of the project calls for using shift share method to delineate region/sub-region. Shift share method as stated by Rob Sentz is “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. Shift share helps answer why employment is growing or declining in a regional industry, cluster, or occupation.” (*Rob, 2011*). The method determines what portions of regional economic growth or decline can be attributed to national, economic industry, and regional factors. The analysis helps identify industries where a regional economy has competitive advantages over the larger economy.

The above descriptions of shift and share method do not give any indication of delineation of a region or sub-region. Rather it clearly states how much job is created in the region as its own and how much is due to the national economic growth. So this method has nothing to do with delineation of a region or sub-region.

2.1.4 Observation

It is well understood from above analysis that the shift share is not a method for determining region/sub-region. The first three methods are actually the ways to determine a region or sub-region. But, as can be observed from the first three methods, extensive flow of movement data is required to determine the zone of influence or the extent the laborers/people move from place to places. The nature of the first methods call for extensive data about movement of laborers from one urban centre/area to the other for seeking/doing jobs. To apply second method also needs data about commuting flow of people to different areas. The last method is based on the share of people moving from one urban centre to any other urban centre. This approach also needs huge data about the number of people moving from one urban centre to

another urban centre. But terms of reference did not keep any provision to collect such data from the field that can be used to determine functional region/sub-region. This circumstance compels the consultant to use its own judgment to determine sub-region under the present project.

2.1.5 District as the Sub-region

Considering the above problems of delineating sub-region, the consultants concerned Dhaka District as the Sub-region. Following are the justification of taking Dhaka District as the sub-region for the current planning perspective.

First, Dhaka District is the most important urban center with which the people of Dohar interacts for administrative, judicial, cultural and political purposes.

Second, there is direct connectivity between Dohar and the district headquarters by Zilla road.

Third, all other upazilas of the Dhaka district are also directly connect with the district headquarters by Zilla road.

Fourth, all upazilas of the Dhaka District are connected with each other through road network and have economic transactions.

Therefore, the consultant thinks it is well justified to consider Dhaka District as the sub-region for the present planning purpose.

Map-2.1 Dhaka Zilla/Sub-Region



Source: LGED

2.1.6 Introducing Dhaka Zilla as a Sub-Region

2.1.6.1 Origin of Dhaka

Dhaka City is the main urban centre of Dhaka district/Zilla and the capital of Bangladesh. There are several myths on the origin of the name Dhaka. One myth says, the name came following the establishment of Dhakeshwari temple by Raja Ballal Sena in the 12th century CE and Dhakeswari is the name of a Goddess. According to other views, Dhakeshwari stands the meaning of Goddess of Dhaka; so the temple must have been named after the region. Another myths says that the Dhak (a membranophone instrument) is used as part of the Durga Puja festival in this temple and hence the name Dhaka. Yet another one says the name originates from the plant named Dhak (*Buttea Frondosa*) which was widely found in that

area. But the more credible one comes from the source of Rajatarangini written by a Kashmiri Brahman, Kalhana. According to him, the region was originally known as Dhakka. The word Dhakka means watchtower. Bikrampur and Sonargaon — the earlier strongholds of Bengal rulers were situated nearby, and they most likely used Dhaka as the watchtower for the fortification purpose.

2.1.6.2 Location and Area

Dhaka district is situated almost at the middle place of the country and the Dhaka (city) stands on the bank of the river Buriganga. The sub-region Zilla is bounded on the north by the Tangail and Gazipur Zillas, east by Narayanganj Zilla, south by Munshiganj and Faridpur Zillas.

The total area of Dhaka Sub-Region about 1463.50 sq. km. (565.10 sq. miles).

- Administrative : 5 upazilas, 79 unions, 2001 villages and 2 City Corporations and 3 Pourashavas
- Population (2011 : 1,20,43,977
- Urban Population : 62%
- Economy : Urban based economy; 58.30% employed in service sector
- Literacy rate : 59.25%
- H/H Electricity connection : 100%

Source: BBS, 2011

2.1.6.3 Archaeological Heritage and Relics

Dhaka has a rich archaeological heritage. Famous of them are:

- Lalbagh fort and the tomb of Bibi Pari (1668),
- Bara Katra (1641) and Chhota Katra and the tomb of Bibi Champa (1663),
- ancient fort and the palace of the Nawab (jail hospital, 1638),
- Ahsan Manzil (1872), Husaini Dalan (1642), Binod Bibi Mosque (1456 ad),
- Seven domed Mosque (1676), Chawk Mosque (1676),
- Shree Shree Sani Ashram and Math (1199 ad), Dhakeshwari Mandir (eventeenth century), Jaykali Mondir, Bahadur Shah Park, Nimtali Deuri (Asiatic society of bangladesh, 1765) etc. are archaeological heritage and relics of this district.

2.1.6.4 Historical Events

Ancient Dhaka was ruled by the Hindu Kings, the Pala and the Sena dynasties for many years. During early fourteenth century the Muslim rulers invaded Bengal and captured it and made Dhaka as the capital of Bengal. In 1610 Mughals captured Dhaka it was renamed as Jahangirnagar after the name of Emperor Jahangir. During 18th century Dhaka lost its political importance when the capital of Bengal from Dhaka was transferred to Murshidabad. Dhaka is very closely related with the post 1947 politics of the region. Remarkable historical events, like, Language Movement in 1952, Six-point Program movement in 1966, Mass upsurge in 1969, historic speech of Bangabandhu Sheikh Mujibur Rahman on 7 March 1971, signing the document of surrender of Pak Army on 16 December 1971, took place in Dhaka city. During the War of Liberation the Pak army conducted massive killings and plundering in Dhaka. Once indigo was being cultivated centering round Joypara of Dohar upazila of this district. Avay Ashram was established at Dohar in 1922-23 following the ideals of Gandhi.

Gandhi came to Malikandha of Dohar upazila in 1940 on occasion of all India Convention of Gandhi Seba Sangha.

Dhaka marks of the War of Liberation and have many mass graves and war monuments, like, one near Kalampur Bazar (Dhamrai), South Kamlapur (Dhaka), National Martyrs' Memorial (Savar), mass killing site at Rayerbazar, Memorial Monument for intellectuals at Mirpur.

2.1.6.5 Economy

The Dhaka district economy is sharply divided into agriculture and non-agriculture. Dhaka rural area is agro-based and Dhaka urban area is industry based. Out of total 2,266,479 holdings of the district (2011) 10.65% are farm, producing varieties of crops and various fruits; and varieties of fishes. Besides, farm families also raise livestock and poultry as additional sources of household income.

The urban part of Dhaka district or the Dhaka city is the largest centre for commerce and industry. It is the most industrialized part of the country and the major employment centre. It is the most important centre for higher learning and health services. People from all over the country rush towards the city for all these services apart from employment. This has caused population boom in Dhaka City that stand about 1.5 crore, and makes Dhaka as one of the most populous city in the world.

CHAPTER-3: SOCIO-PHYSICAL SETTING OF THE SUB-REGION

3.0 Introduction

Chapter 3 of the development planning report is concerned about socio-physical setting of the sub-region. It deals with such issues as, demography, education, economy and employment, agriculture and other basic service like, sanitation, drinking water, and electricity.

3.1 Demography

The total population of Dhaka Sub-region/Zilla is 1,20,43,977, according to 2011 national population census.

Table- 3.1 : Basic Demographic Information of Dhaka Zilla/Sub-region

Area	Population			Density	Literacy
	Male	Female	Both Sex		
Dhaka Metropolitan	4931802	3974237	8906039	30551	74.6
Dhamrai	207078	205340	412418	1342	50.8
Dohar	107041	119398	226439	1402	57.5
Keraniganj	421809	372551	794360	4760	58.5
Nawabganj	149298	169513	318811	1302	57.8
Savar	738764	647146	1385910	4948	68.0
Total	6555792	5488185	12043977	8229	70.5

Source: Population Census 2011

Dhaka Zilla/region has higher literacy rate because of the large urban center where large number of literate people live and work.

3.2 Education

Table- 3.1 shows the steady growth of literacy in Dhaka Zilla, which is much higher than the national average. In 1981 the rate of literacy was 45.4% in the Dhaka Zilla that rose to 53.9% in 1991. And in 2011 the rate was 59.25%, the highest in all districts. But in Dohar, the rate was 57.5% in 2011.

In 2011 Dhaka Zilla had 399 non-government secondary schools with 8575 teachers and 84871 students. There were 65 students per teacher. Of the students 51.23% were female. Nationally the percent of girl's student is 53.31%.

In Bangladesh there is one primary school for every 7852 population, in Dhaka Zilla there is one primary school for every 10,5028 population, which is much lower the national standard.

Table- 3.2: Population and literacy rate of 1981, 1991, 2001 & 2011

Metro Dhaka/Upazila	Population (000)				Literacy rate (%)			
	1981	1991	2001	2011	1981	1991	2001	2011
Dhaka Metropolitan	2835	4174	6483	8906	61.2	63.9	69.2	74.6
Dhamrai	275	313	350	413	20.8	29.5	43.9	50.8
Dohar	149	176	191	226	27.6	32.9	49.3	57.5
Keraniganj	374	530	603	794	29.4	37.7	51.8	58.5
Nawabganj	250	269	297	319	26.5	34.5	54.4	57.8
Savar	270	378	587	1386	25.2	37.8	58.2	68.0
Total	4153	5840	8511	12044	45.4	53.9	64.8	70.5

Source: Dhaka District Statistics, 2011

The reason for slow pace of progress in the education in Bangladesh lies in its low rate of spending in education sector. Bangladesh spends only 2 percent of GDP in the education sector, while Afghanistan spends 4.6%, India spends 3.8% and Pakistan spends 2.5% of their respective GDP for education.

3.3 Employment

Out of total 1,20,44,000 population of Dhaka Zilla (7+years, not attending school), 11,26,309 of both sex area employed ;of them 8,05,865 are males and 3,20,444 females. Of the males 1,09,595 are employed in agriculture, 1,74,498 in industry and 5,21,772 are employed in service sector (BBS,2011).In Dhaka Zilla above 54% of both sexes above 7 years are employed.

3.4 Drinking Water

In Dhaka Zilla 66.4% households use running water, whole 31.9% households use tube well water. The reason for high rate of tap water users in Dhaka Zilla is that overwhelming majority of the households live in Dhaka city where there are facilities for tap water. Tube well is used as source of water in rural part of the Zilla.

3.5 Electricity Connection

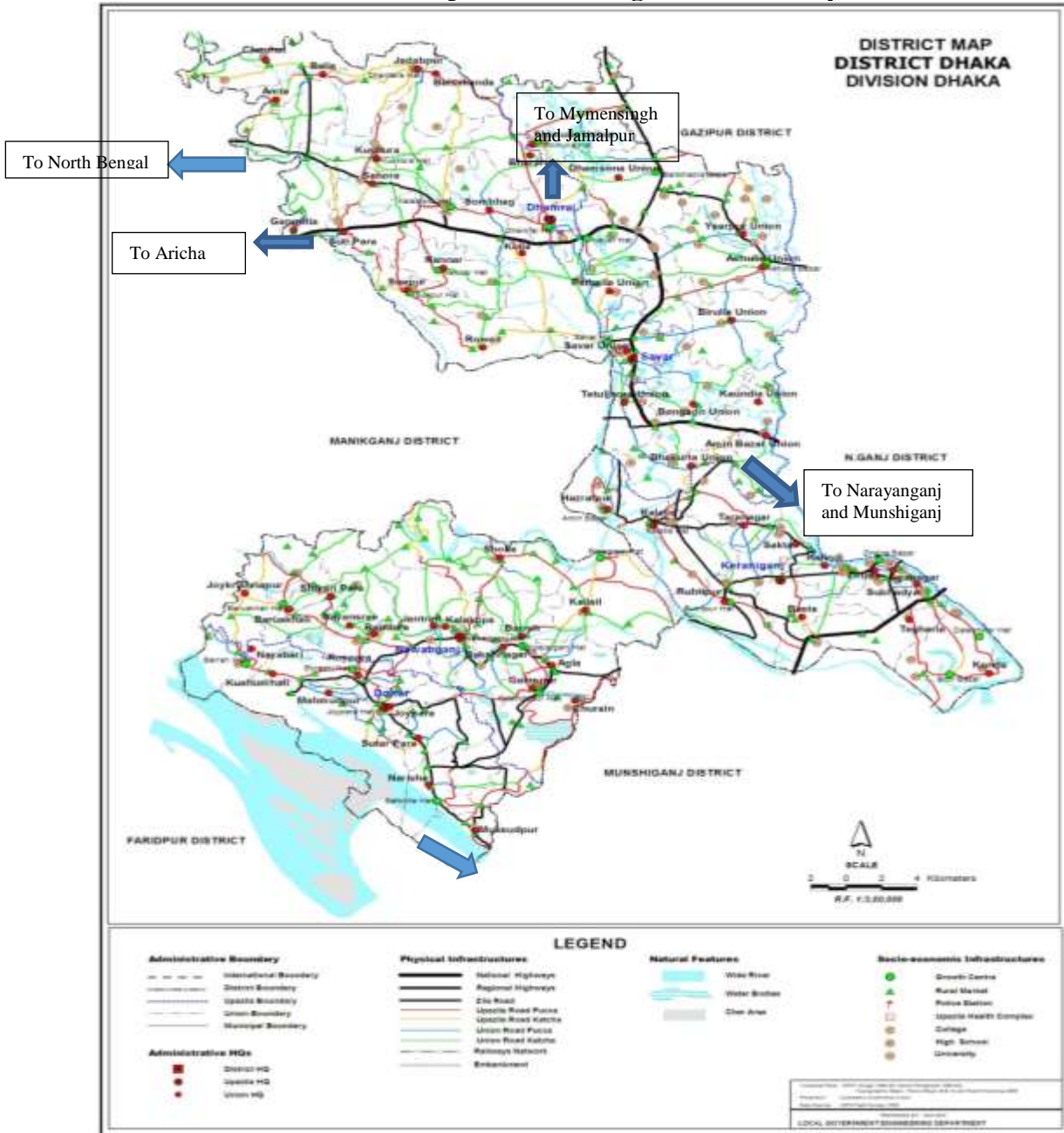
In Dhaka Zilla, 97% of the households have electricity connection. Earlier there were irregular power supply; as a result load shedding was a regular phenomenon. Now the power supply has become steady.

3.6 Inter Region Connectivity

With its centrality of location in the country, Dhaka district is well connecting with all other districts by rail, road and water. It is connected by 7 points- north-west highway connects with north Bengal districts via Jamuna Bridge. A northern highway connects Dhaka with Mymensing and Jamalpur. Another northwest connection through Aricha connects the district with western districts. On the south, Mawa highway connects south and south western

districts. At this point Padma Bridge is being built. On the east, there are three roads- Dhaka-Munshiganj road connects Dhaka with Munshiganj and Narayanganj; Chittagong Road connects Dhaka with eastern districts including Narayanganj. Newly built 300 ft. road joins Dhaka with eastern districts including Sylhet and Chittagong.

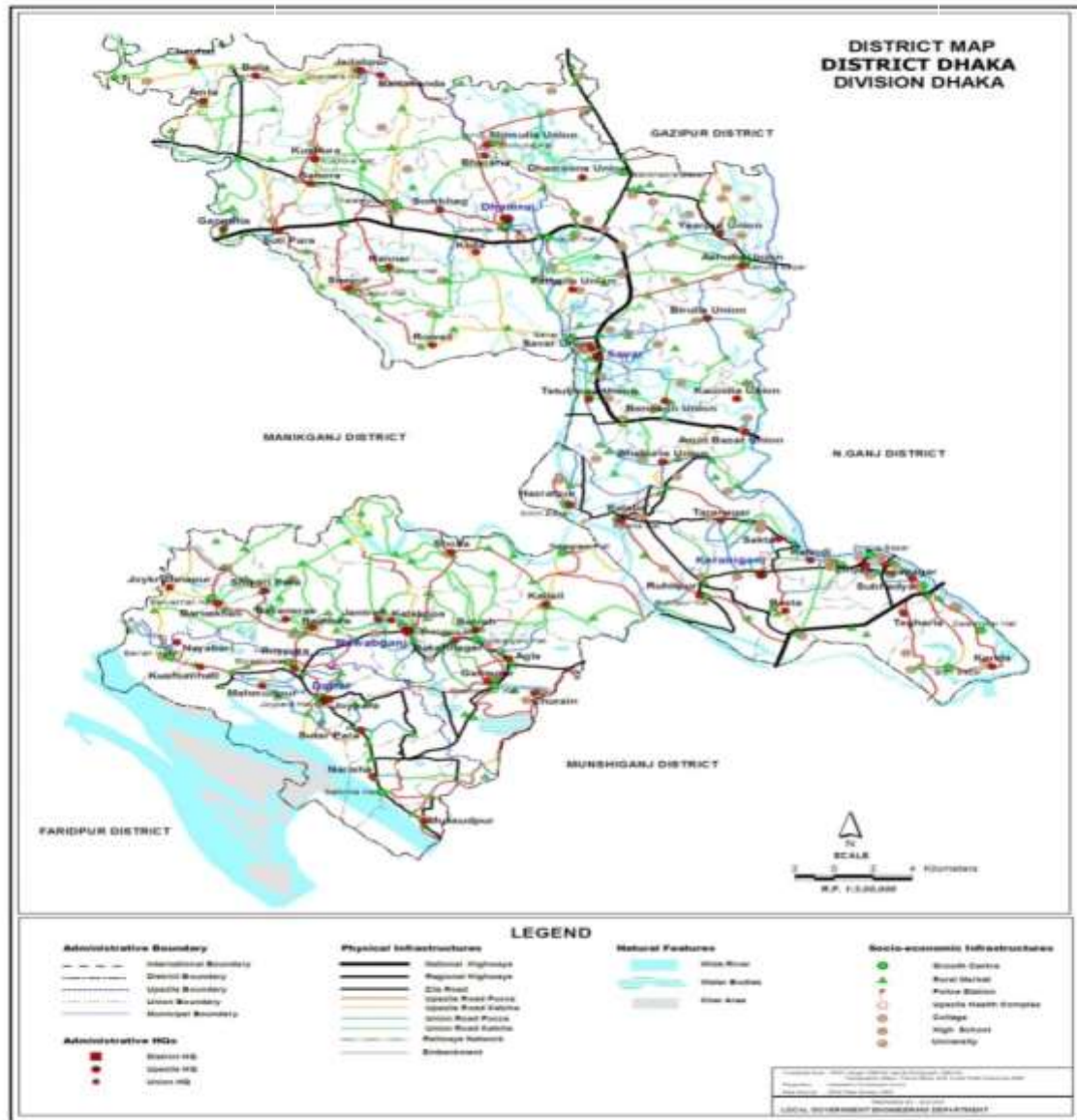
Map- 3.1: Inter Region Connectivity



3.7 Hierachy of Settlements

There is very clear hierarchy of settlements within Dhaka district. Dhaka is the capital as well as mega city of the country with a population of over 1.5 crore. The next hierarchies are the Pourashava towns in surrounding upazilas. Except Savar, population in all other upazila towns are very similar. **Map-3.2** shows the hierarcgy of settlements within the district.

Map- 3.2 Hierarchy of Settlements



Source: LGED.

Dhaka city is the most urbanized part in the country; only 4.74% of the structures of the Zilla are pucca. Over 78% structures of the Zilla is still kacha, while, 15.57% have been found semi-pucca (2011) as the **Table-3.3** shows.

Table-3.3: General Household by Type of Structure in Dhaka City, 2001 and 2011

Structure Type	Zilla	
	2011	2001
	Percent	Percent
Pucca	4.74	0.61
Semi-Pucca	15.57	2.17
Kutch	78.47	92.43
Jhupri	1.22	4.79
Total	100.00	100.00

Source: Population Census 2011 and 2001; Zilla Series, Dhaka District, BBS, 2014.

3.8 Physiographic and Soil

Dhaka Zilla falls in the Low Ganges River Floodplain comprising the eastern half of the Ganges River Floodplain which is low lying. The region has a typical meander floodplain landscape of broad ridges and basins. Soils of the region are silt loams and silty clay loams on the ridges and silty clay loams to heavy clays on lower sites. General soil types predominantly include Calcareous Dark Grey and Calcareous Brown Floodplain soils. Organic matter content is low in ridges and moderate in the basins. Soils are calcareous in nature having neutral to slightly alkaline reaction. General fertility level is medium.

The proportions of sandy, silty and clay alluvium vary from place to place and from year to year. Organic matter contents are low, especially in sands and the soil reaction is moderately alkaline. Seven general soil types occur in the region, but only three cover significant areas. Low Ganges River Floodplain has predominantly developed calcareous soils. The Zilla has a high proportion of soils with clay topsoil, so runoff is rapid during heavy rainfall, causing water levels to rise rapidly in basin centers. With the fall of external flood levels, drainage is rapid from ridge sites. However, basin centers remain wet for part the whole of the dry season. Basin clays are relatively more extensive in this region. Brown and dark grey ridge soils are calcareous and moderately alkaline throughout. Basin clays usually have a strongly or very strongly acid cultivated layer overlying a slightly acid to neutral subsoil. Some heavy clay in basin centers remains strongly or very strongly acid. Organic matter content in the cultivated layer range from less than about 1.5 percent in brown ridge soils to 2-5 percent in darkest grey soils and more than 5 percent in some basin centers soils which stay wet for most or all of the dry season.

3.9 River System

The main rivers flowing through the Dhaka district are the Padma, the Buriganga, the Dhaleswari and the Turag. Among the rivers, the Padma, the Buriganga, the Dhaleswari and the Turag are very important and almost navigable throughout the year. The small rivers are the Bangshi, Turag, Balu, Elamjani, Alam, Bherujkha, Ramkrishnadi, Elisamari, Tulsikhali etc.

CHAPTER-4: OVERVIEW ON PROBLEMS AND OPPORTUNITIES OF THE SUB-REGION

4.0 Introduction

In Chapter 4, the sub-region plan report sheds light on the problems and issues of the sub-region. It unveils the problems and opportunities to give an understanding about how to make the plan more a document of problem solving taking into account the available opportunities of the sub-region.

4.1 Problems and Issues

4.1.1 Transport and Communication

Easy and efficient connectivity is a pre-condition for, moving regional development forward. It helps smooth flow of goods and services and movement of people for social interaction. Good connectivity promotes transaction of goods and flow of income and thus promoting employment. Paved road is a good indicator of the capacity for easy and quick mobility of people and goods and services. Quick movement helps better distribution and transaction of cash from hand to hand resulting in multiplier effect in the economy. In Bangladesh, regarding road density, according to 2003 BBS data, there is 1837.8 Km of roads per 1000 km² of land area. However, in Dhaka, road density is much higher than that in Bangladesh as a whole. The area of Dhaka Zilla is 1463.60 sq.km and population 1,20,43,977. This gives a density of population in Dhaka Zilla as 8229 persons/sq.km. The percent of paved road in Bangladesh is 9.5 % (2003) of all road categories, while in Dhaka Zilla the rate of paved road is 40% of the all road categories.

Table- 4.1: Road Connectivity Situation in Dhaka Zilla

Area	Construction Type (km)			Total (km)
	Unpaved	Semi-paved	Paved	
Dhaka Metropolitan Area	533	104	1594	2231
Dhamrai	409	0	237	646
Dohar	228	228	266	722
Keraniganj	778	91	254	1123
Nawabganj	716	113	134	1101
Savar	760	114	273	1147
Total	3424 (50.12%)	650 (9.51%)	2758 (40.37)	6832

Source: Dhaka District Statistics, BBS, 2014

- Only about 40% of the roads of the region is metalled, which is not sufficient for smooth movement of traffic.
- In Dohar about 62% roads is unpaved which creates problem in transportation of agro-products to markets.
- Dohar upazila has one of the lowest (722 km) lengths of roads in the Zilla.

4.1.2 Low Literacy Rate in Upazilas

Dhaka as a zilla has not been able to show any commendable progress in raising the level of literacy. The average literacy rate of the region is 59.25%, though highly urbanized Dhaka Metropolitan area has a literacy rate (2011) of 70.50%. But in upazilas of Dhaka Zilla, the average literacy rate is only 48% (2011).

4.1.3 Challenges of Agricultural Development

Crop agriculture is still the mainstay of Dhaka. It is not only the dominant source of employment in rural areas, but is also the source of national food security. Agriculture, therefore, demands development priority. However, local agriculture faces a number of challenges towards its development as stated below.

- Low level of soil fertility,
- Lack of capital for investment in farming,
- Lack of farmers' access to technologies,
- Farm labor crisis, and finally,
- Lack of incentives due to improper marketing facilities.

Continuous use of the same soil for selected crops is depleting its nutrients like, zink and nitrogen. If this trend is not reversed, agricultural production will make decrease in coming years.

Most of the farmers are marginal in nature that has scarcity of capital. For want of capital, many farmers are unable to purchase farm inputs like, fertilizer, irrigation and seed in time. Adoption of modern technology is prerequisite for raising agricultural production. But farmers are mostly illiterate and do not have much awareness about the modern technology. This is a handicap to modernization of agriculture.

Labor demand in agriculture sector is seasonal. With increasing urbanization and increasing demand for labor in non-farm activities, farm laborers are migrating to urban areas for higher income. This is creating scarcity of labour in rural areas hampering agricultural production.

Lack of organized market for selling farm produce is a problem for the zilla. The poor infrastructure, lack of cool chains, inadequate transports, storage and processing facilities, poor local roads and communication system, unfair practices of intermediaries, etc. are major marketing problems. There are too many intermediaries in agricultural marketing. This deprives the farmers from getting fair price of their products. The marginal and small farmers are the most affected by the marketing problems. They are often deprived of fair price due to existence of trade syndicates. Proper mechanism has not yet been evolved by the government for proper marketing of farm products ensuring their logical profit margin.

4.1.4 Climate Change Vulnerability and Disaster

Climate change is disaster slowly engulfing the country and striking right into the livelihood process of the people. Agriculture is still the source of livelihood of over 78% of the people of Bangladesh and climate change is going to affect the agriculture most.

Bangladesh is termed as one of the most severe victims of climate change impacts. The net results of climate change will come in the form of excess rainfall, extremely scarce rain and Drought; high temperature; increase in natural disasters, like, flooding, earthquake, cyclone, river erosion. Excess rainfall will cause flooding damaging standing crops and affecting livelihood of millions depending on agriculture. Drought will also affect crops. River erosion displaces riverside residents and devours their farm land every year in Shibchar area beside the Padma River. Extreme temperature rise will increase demand for water; more ground water extraction means inviting the menace of arsenic contamination. Natural disaster led crop failure will exacerbate poverty among the marginal farmers who don't have any other option to livelihood. These poor destitute, in search of survival avenues will swarm into the large cities imposing greater burden in their infrastructure and services.

4.2 Potentials of the Sub-Region

Traditionally, Dhaka Zilla/Sub-region has much potential that would be further enhanced in coming days. It is the most urbanized part of the country that plays major role in export earning; it is culturally rich and political and economic hub of the country. Here are some major opportunities of Dhaka Zilla/Sub region utilization which can bring positive changes in the life of the people of Dhaka Zilla.

4.2.1 Huge Working Age Group Population

Number of working age group population is a blessing for any country. Because this age group contributes to the economy and are not dependents. The age group below or under this age group are actually dependent age group as they are unable to contribute to income earning. So, higher the number working age group population it is better for the household as well as the national economy.

Table- 4.2: Working Age Group Population

	Age Group (Years)/Data in Percent					Working age group population
	15-19	20-24	25-29	30-49	50-59	15-59
Dhaka Zilla	10.2	13.0	12.7	26.9	5.4	67.77%
Dohar Upazila	9.0	9.0	8.8	22.6	6.5	56.00%

Source: National Population Census 2011

Data in **Table-4.2** shows, about 68% of the population of Dhaka Zilla belongs to the age group, 15 to 59 years. While 56% of Dohar Upazila is in the working age group. This is a good opportunity for any area country to engage its human resources to productive avenues. This is the prime working age group for a population life cycle. If this population can be put to productive activities, the country can be quickly taken forward, as this population can contribute substantially to the national economy. To absorb this work force there is need for substantial investment in the industrial sector, in particular, that can employ labor en mass. Since domestic investment is not forthcoming at expected rate, government should explore

ways and means to attract foreign direct investment (FDR) to create more jobs for the huge labor force. Recent government initiative to set up 100 Special Economic Zones (SEZ) in the country is a timely step in this regard. Successful execution of SEZ programme will generate large scale employment to absorb the growing working age population. Local political leaders should try to pursue local investors to set up Economic Zones in Dhaka area, so that local youths are absorbed in the industrial concerns set up in SEZs.

4.2.2 Impact of the Padma Bridge and Six Lane National Expressway

The Padma Bridge mega project along with six lane Postagola-Bhanga National Express way will have huge impact on the Dhaka Zilla. It would bring the southern zillas closer to the Dhaka city. Interaction with capital city will increase manifold because of easy and quick communication. The number of commuters will increase substantially. Business transaction will experience huge growth. To take advantage of huge Dhaka market, southern region upazila livestock, fishery and horticulture industry will get a boost. This would help reduce cost of production giving better edge in the market competitiveness. More jobs would be generated absorbing the youths of the locality.

4.2.3 Creation of Productive Manpower

The average literacy in the district is 59.25%. Effective education programme can render the huge population of the district into productive resources. Incentives for female education can help bring more family members under literacy. Because, when these educated females would become mothers, they would put their utmost effort to get their children educated to create a better future for them. In this way the sub-region would be blessed by skilled and more productive manpower, and they would not only contribute more to their families but also the country as a whole. Creation of education opportunities for the under privileged groups with extension of incentives like, food for education, financial assistance to children attending regularly, can cause excellent academic performance

4.2.4 Opportunities for Raising Agricultural Production

Following areas of agriculture can contribute overall economic growth of the sub-region.

- ▣ Current intensity of cropping has been raised with extension of irrigation and flood protection facility.
- ▣ The entire Zilla can be made self-sufficient in food.
- ▣ production of poultry, fishery and livestock can be raised targeting huge Dhaka market.

There is huge scope for raising agricultural production in the Zilla. Current cropping intensity of the Zilla is 92%, however, it can be raised further bringing more land under irrigation.

4.2.5 Industrial Investment

Cheap land price, cheap labor and proximity to Dhaka market can attract new manufacturing entrepreneurs in Dhaka, particularly in Dohar, Nawabganj, Keraniganj Upazilas . Industrialization will have a chain effect in the social and economic life of the local people. Demand for housing will rise causing boom in the construction sector. Retail business will flourish to serve the growing population. Demand for health and education services will increase. More and more footloose industries will grow to meet local demand for goods.

4.2.6 Huge Dhaka Market for Local Agro Products

Dhaka is a huge market for all kinds of goods and services. Agro-products grown in Dohar, Nawabganj, Dhamrai, Keraniganj and Savar can find easy markets in Dhaka. Investors can invest in upazilas of Dhaka Zilla taking advantage of cheap land value and labor. In Dhaka Zilla over 67% of the population is now in working age group.

CHAPTER-5: REVIEW OF RELEVANT NATIONAL POLICIES AND PLANS

5.0 Introduction

The content of the Chapter 5 is about reviewing the national policies and plans that include among others, Poverty Reduction Strategy Paper (PRSP), Millennium Development Goals and Bangladesh, Urban and Regional Planning Act 2014 (Draft).

5.1 7th Five Year Plan

5.1.1 Review

The latest five year plan of the country is the seventh five-year development plan. The plan sets the annual average growth target at 7.4 per cent during the period between fiscal year (FY) 2015-16 and FY 2019-20. The plan focuses, among issues, on higher growth, conversion of population into a large pool of skilled manpower, promotion of infrastructural facilities and building a strong social safety net. It lays an investment target Tk.31.9 trillion. About 80% of this projected level of investment would be generated from the private sector, come from the private sector. The target for economic growth has been set at of 8.0 per cent in the terminal year of the new medium-term plan. The plan aims at improving in the following sectors of the nation.

1. Improving Access of the Poor to Financial Services
2. Strategy for Development of SME in Bangladesh
3. Strategy for Education and Training Final Version
4. Improving Land Administration and Management Final
5. Prospect and Strategy for Tourism Development
6. Strategy for Mobilizing Foreign Resources
7. Strategy for Export Diversification
8. Fiscal Management and Revenue Mobilization
9. Financial Market Developments and Challenges in Bangladesh
10. Strategy for Infrastructure Development
- 11a. Climate Change and Disaster Management
- 11b. Environment, Forestry and Biodiversity Conservation
12. Governance and Justice _Final Draft
13. Strategy on Local Government Strengthening
14. Strategy for Food Security and Nutrition
15. Lagging Regions Study
16. Gender Equality and Women's Empowerment
17. Agriculture Sector Development Strategy
18. Achieving Digital Bangladesh by 2021 and Beyond
19. Strategy for Ocean and River Resources Management
20. South Cooperation in the Regional Context
21. Health Strategy for 7th FYP
22. Impact of Demographic Transition on Socioeconomic Development
23. FINAL Nutrition Background Paper for 7th Five Year Plan
24. Linking Equity and Growth in Bangladesh
25. Ending Extreme Poverty in Bangladesh

As the plan is a huge document covering a wide range of issues, it would be an uphill task to go for a total review of the document. Therefore, the consultant makes a brief review of the

infrastructure strategies of the plan which is the most relevant sector for the current development plan.

Infrastructure is a key issue for any development which is also important for 14 upazila project. The plan terms infrastructure as the key pillars for economies like Bangladesh. Comparison among developing Asian countries shows that despite overall progress Bangladesh is still substantially lacks quality of infrastructure. Bangladesh has to lay more emphasis on effective implementation of infrastructure investments coupled with necessary institutional changes relating to implementation, regulation, and policy formulation.

Regarding strategies for infrastructure development the plan calls for,

- fixation of infrastructure investment priority to get the best results;
- take up integrated transport development policy ;
- demand based transport development;
- continue to repair, maintain, improve and expand existing roads on a priority basis;
- construction of Padma Multipurpose Bridge to be completed by 2018;
- continuation of investment to reform and modernize railways;
- construction of circular rail road track around Dhaka city and development of MRT,BRT to meet growing travel demand;
- construction of a sea port and an LNG terminal at Moheshkhali;
- strengthen fleet capacity while making Biman a profitable organization - by improving its management and enhancing the capacity of passenger transport;
- take up more ppp projects to finance infrastructure development;
- improve procurement system;
- make improvement in institutional system for better management of infrastructure development.

5.1.2 Implications for the Current Project

The aim of 7th five year plan is the overall development of the nation, covering all issues that affect people's lives. The current development project covers almost all issues being pursued by the 7th FYP. In this sense the 14 Upazila Development project is supportive to achieving the goals of the 7th five year plan. Implementation of the Upazila Development will help achieve the goals of the 7th Five Year Plan at the Upazila level.

5.2 Poverty Reduction Strategy Paper (PRSP)

5.2.1 Review

In 1999 the World Bank (WB) and the International Monetary Fund (IMF) expressed their opinion that there should be 'poverty reduction strategies' for low income countries as the basis for providing all their concessional lending and eligibility for their debt relieves. So the Heavily Indebted Poor Countries Debt Relief Initiative (HIPC) was launched in 1996 to allow developing countries to come out of the burden of unsustainable debts. Poverty Reduction Strategy Paper (PRSP) was perceived to become a national plan of action to reduce poverty and promote growth LDCs. This was a three-year rolling plan prepared in 2005 that became basis of all social, macroeconomic and structural development of a nation. In this series of PRSPs Bangladesh prepared its own PRSP for the first time titled 'Unlocking the Potential.'

It aimed at unlocking the potential the potentials of social and economic energies of the nation. From such a perspective, the medium term strategic agenda for Bangladesh to attain the goal of accelerated poverty reduction targeted to improve the following issues:

- Employment
- Nutrition
- Quality Education (particularly in primary, secondary and vocational levels with strong emphasis on girls' education)
- Local governance
- Maternal Health
- Sanitation and Safe Water
- Criminal Justice Monitoring

It is recognized in the PRSP that, both, in their individual essence and in their potential synergies, this eight-point strategic agenda would provide the key to ‘a comprehensive acceleration in the pace of poverty reduction.’ However, other priorities are also to be attended, ‘but it is on these eight that the strategic gaze of the nation has to be unwavering,’ the report said.

Critics raise some questions about Bangladesh PRSP with respect to its process, content and the philosophy. Empirically it is proved that the neo-liberal approach of ‘growth maximization’ does not always bring ‘trickle down’ benefits on the poor. Following this approach PRSP, in fact, has raised social inequality. The growth achieved did not guarantee adequate payoff for the labour market in Bangladesh. The critics are of view that, in this milieu, employment should be considered as a fundamental escape for poverty. Thus, poverty reduction strategy of Bangladesh is irrational when it fails to emphasize on equitable distribution of income and land reform as they have direct relation to the capacity building of labor and thus to reduction of inequality.

5.2.2 Implications for the Current Project

PRSP was prepared, primarily, aiming at reducing the rate of poverty to a reasonable level. Data indicates that the rate of poverty has gone down substantially in the country. The issues of the current project are going to have long term impact on poverty reduction in the upazila. Higher rate of education will create productive manpower and raise income of the people. Healthy life with better health facilities will make people more productive. Better connectivity will promote business and more profit to the producers. Development of the agricultural sector will increase income of the farmers in rural areas and generate more employment in the agricultural sector.

5.3 Millennium and Sustainable Development Goals and Bangladesh

5.3.1 Review

The **Millennium Development Goals(MDGs)** are eight international development goals that were established for developing countries following the Millennium Summit of the United Nation since 2000, following the adoption of the United Nations Millennium Declaration. In the summit 1989 United Nations member states at that time and at least 23

international organizations, committed to help achieve the following Millennium Development Goals by 2015:

1. To eradicate extreme poverty and hunger
2. To achieve universal primary education
3. To promote gender equality
4. To reduce child mortality
5. To improve maternal health
6. To combat HIV/AIDS, malaria and other diseases
7. To ensure environmental sustainability
8. To develop a global partnership for development

In 2015, more than 190 world leaders committed to 17 **Sustainable Development Goals (SDGs)** to help us all end extreme poverty, fight inequality & injustice, and fix climate change. The SDG's have been developed through consultative process that brought national governments and millions of citizens from across the globe. 17 goals of SDG's are:

GOAL 1: No Poverty

GOAL 2: Zero Hunger

GOAL 3: Good Health and Well-being

GOAL 4: Quality Education

GOAL 5: Gender Equality

GOAL 6: Clean Water and Sanitation

GOAL 7: Affordable and Clean Energy

GOAL 8: Decent Work and Economic Growth

GOAL 9: Industry, Innovation and Infrastructure

GOAL 10: Reduced Inequality

GOAL 11: Sustainable Cities and Communities

GOAL 12: Responsible Consumption and Production

GOAL 13: Climate Action

GOAL 14: Life Below Water

GOAL 15: Life on Land

GOAL 16: Peace and Justice Strong Institutions

GOAL 17: Partnerships to achieve the Goal

As evident from the Household Income and Expenditure Survey of 2010, the incidence of poverty in Bangladesh is declining at a rate of 2.47 percent per year since 1991-92. The target of reducing population living below the poverty line by half is already achieved in 2012. The country is paying greater attention now to hunger-poverty reduction and employment generation, increases in primary school completion and adult literacy rates, creation of decent wage employment for women, increase in the presence of skilled health professionals at delivery, increase in correct and comprehensive knowledge on HIV/AIDS, increase in forest coverage, and coverage of information and communication technology.

About MDGs critics are of the opinion that it lacks of analysis and justification behind the chosen objectives; it is difficult or lack of measurements for some goals and uneven progress. Despite developed countries' assistance in achieving the MDGs, it rose during the challenge period, more than half went for debt relief and much of the remainder going towards natural disaster relief and military aid, rather than further development.

5.3.2 Implications for the Current Project

The elements of millennium development goals are all imbued in the five year plans and currently the SDG. It only covers some selected issues needed for human development. Better health facilities stressed in the current project can reduce mother and child mortality. Improved education can help bring gender equality, promote employment and reduce poverty. Protection of agricultural land, river and khals, as aims of the current project, will have positive implications on environment and ecology. Advanced steps in creating climate change impacts will reverse the negative impacts of climate on the lives of the people and in the economy. (See **Annexure VI**)

5.4 Urban and Regional Planning Act 2014 (Draft)

5.4.1 Review

Bangladesh Jatiya Sangsad has lately passed the long awaited Urban and Regional Planning Act 2014 which was prepared by Urban Development Directorate of the Ministry of Housing and Public Works with a view to preparing short, medium and long term plans for proper urbanization in Bangladesh, control of land use and integrated spatial development plan. The law would serve as the legal framework for urban planning in Bangladesh and give UDD a total control over urban and regional planning system of the country.

According to the as soon as the act is approved the government shall create a council comprising 18 secretary from 11 ministries and senior secretaries from two ministries. Minister, Housing and Public Works shall serve as the Chairman of the Parishad while, Director, Urban Development Directorate shall be Member Secretary. There will be a 19 member 'Urban and Regional Executive Council' to provide technical support, execution and coordination of the act through scrutiny and review.

Following are the key features of the act.

- a. Urban Development Directorate shall issue No Objection Certificate (NOC) concerned with urban and regional planning and land management and related development to public sector bodies and individuals.
- b. Urban Development Directorate shall serve as the formulator of urban and regional plans of the country and shall serve as the coordinator of the same.
- c. Under the act the government shall, on advice of the council, engage any government body to serve as development control authority in any particular area.
- d. For integration and coordination, any concerned development agencies must have prior permission from the council for preparation of their respective national, regional and local plans; preparation of special land use plan and control of development.
- e. Any person/agency violating, any provision of the 'Urban and Regional Planning Act 2014' shall be considered as an offence under the Code of criminal Procedure, 1998 and may be subject to punishment for imprisonment for one to five years and a minimum fine of taka 5 lakh.

The act will give Urban Development Directorate total power to control urban and regional level planning, land use and development control in the country. However, this might necessitate major institutional development and capacity building of UDD to handle the huge tasks imposed by the legal document.

5.4.2 Implications for the Current Project

The act is going to give power to UDD for execution of all physical development plans prepared by itself as well as by other planning agencies of the government. Implementation assurance of plan means there are going to be positive changes in the physical environment as well as in the lives of the people.

5.5 National Plan for Disaster Management 2010-2015

National Disaster Management Plan 2008-2015 was approved by Disaster Management Bureau Ministry of Food and Disaster Management in April 2010. It aims to address the key issues of disaster like, risk reduction, capacity building, climate change adaptation, livelihood security, gender mainstreaming, community empowerment and response and recovery management. The plan will also serve as basic guideline for all relevant agencies in coordinating disaster management activities and enhancing mutual cooperation.

This plan has been a step forward to supplement traditionally measures to manage the natural hazards like, climate change adaptation, drought, desertification and human induced hazards in national policy and plans was very much required. The plan, in a comprehensive way, for the first time, includes, both, the natural and human induced hazards in its action plan involving government and non-government organizations, and private sector.

The key focus of the Plan is to establish institutional accountability in preparing and implementing disaster management plans at different levels of the country. It includes Disaster Risk Reduction and Hazard Specific Multi-sectoral Plans, which have rendered the plan an exclusive tool for reducing risk and achieving sustainable development.

A participatory approach was adopted in preparing the plan. Several consultations with different categories of stakeholders have been made, that established a road map of effective

partnership with the organizations working in local, national and regional levels. It is expected that this plan will contribute towards developing and strengthening regional and national networks.

The plan articulates the long-term strategic focus of disaster management in Bangladesh. It addresses the key issues of risk reduction, capacity building, information management, climate change adaptation, livelihood security, issues of gender and the socially disadvantaged, etc. iii. Show the relationship between the government vision, key result areas, goals and strategies, and to align priorities and strategies with international and national drivers for change. It also describes in its plan, detailed road map for the development of disaster management plans by various entities. The plan illustrates to other ministries, NGOs, civil society and the private sector, their responsibility and ways to contribute to the achievements of the strategic goals and government vision on disaster management. The plan suggests disaster management plans at various administrative level, like, district disaster management plan, upazila disaster management plan, union management plan and pourashava/city corporation disaster management plan. It also recommends incorporation of disaster element in various plans and development projects of different ministries.

5.6 National Urban Sector Policy, 2011 (Draft)

Draft National Urban Sector Policy, was drawn up in 2011 to streamline and manage country's urbanization process. The policy was set with a vision to strengthening the beneficial aspects of urbanization and effectively dealing with its negative consequences. The objectives to achieve the vision are to,

- regional balance in urbanization;
- economic development and poverty reduction by means of urban infrastructure development;
- optimum utilization of land resources;
- protect and preserve urban environment;
- ensure effective local urban governance

Policies were drawn up on such issues as,

- Pattern and process of urbanization.
- Local Economic development.
- Urban Local Finance and Resource mobilization.
- Urban Land Management.
- Urban Housing.
- Urban Poverty and Slum Improvement.
- Urban Environmental Management.
- Infrastructure and Services.
- Urban Transportation.
- Health and Education.
- Social Structure.
- Gender Concern.

- Recreation, Playground, Park, Open Space and Graveyards.
- Cultural and Aesthetic Development.
- Rural-Urban Linkage.
- Law and Order.
- Legislation.
- Urban Governance.
- Urban Research, Training and Information.

The draft urbanization policy adopts a holistic approach to draw up the policies. The policy encompasses almost all possible issues present in the urban scenario of the country. However, the policy seems to have overlooked the issue of high demographic concentration in a few large urban Centers. It failed to address decentralization of urban agglomeration and consequences of high rural-urban migration large cities only.

5.7 National Biodiversity Strategy and Action Plan for BGD, 2004

According to the Convention on Biological Diversity (CBD), biodiversity is defined as “the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”. Biodiversity is key to human livelihoods, especially in a country like Bangladesh, where a large proportion of the population depend on natural resources for their livelihoods, while living in fragile ecosystems subject to frequent natural disasters.

The National Biodiversity Strategy and Action Plan (NBSAP), 2004 was designed as a national framework to conserve and make sustainable use of biodiversity, and equitable sharing of benefits derived from it. The guiding principles for the document are mainly derived from the principles of the Convention on Bio Diversity (CBD), 1992 to which Bangladesh is contracting party. Besides, the document also takes into consideration, the Poverty Reduction Strategy Papers (PRSP) of the government of Bangladesh, the Millennium Development Goals of UNDP, related sector wise policies of the country and other international obligations. Preparation and implementation of respective National Biodiversity Strategy and Action Plan (NBSAP) is a major commitment of the Contracting Parties to the Convention.

Overall Goal and Major Objectives of NBSAP

The overall goal of the NBSAP has been worked out as to conserve Bangladesh’s biological diversity in order to ensure that its various components are utilized in a sustainable manner for attaining progress and socio-economic development of the nation and ensuring livelihood security of the people for present and future generations.

The major objectives of the NBSAP are to:

- conserve, and restore the biodiversity of the country for wellbeing of the present and future generations;
- ensure that long-term food, water, health and nutritional securities of the people are met through conservation of biological diversity;
- maintain and to improve environmental stability for ecosystems;

- ensure preservation of the unique biological heritage of the nation for the benefit of the present and future generations;
- guarantee the safe passage and conservation of globally endangered migratory species, especially birds and mammals in the country; and
- stop introduction of invasive alien species, genetically modified organisms and living modified organisms

Sixteen strategies have been developed to shape and direct the actions towards achieving the goals and objectives of the NBSAP. These are:

- **Strategy 1:** Recognize the value and importance of biodiversity for the Bangladesh people and document properly its components, distribution and value.
- **Strategy 2:** Conserve ecosystems, species and genetic pool of the country to ensure that the present and future wellbeing of the country and its people are secure
- **Strategy 3:** Restore ecosystems and rehabilitate endangered species
- **Strategy 4:** Adopt national measures and standards to deal with invasive alien species and genetically modified organisms.
- **Strategy 5:** Promote equitable sharing of biodiversity conservation costs and benefits among different sectors of the society.
- **Strategy 6:** Contribute to raising awareness and building capacity of biodiversity conservation among the different sectors of the society
- **Strategy 7:** Promote use of traditional knowledge for conservation, use and protection of the local communities' intellectual property rights
- **Strategy 8:** Establish institutions for inter-sectoral implementing mechanism for the Bangladesh National Biodiversity Strategy and Action Plan.
- **Strategy 9:** Enhance Protected Area management, recognizing the benefits of collaboration with local communities in their management (co-management).
- **Strategy 10:** Ensure wise use of wetland resources.
- **Strategy 11:** Establish participatory mechanisms to receive and utilize the inputs from private sector, civil society, academia and local communities about the different processes leading to biodiversity conservation, use and sharing of benefits.
- **Strategy 12:** Review and develop biodiversity related legislation(s) and establish a specific branch in the Judiciary to deal with biodiversity and environmental issues
- **Strategy 13:** Establish an open and transparent monitoring and reporting system status and trends of implementing the principles of CBD
- **Strategy 14:** Develop a financial strategy that is innovative and sustainable.
- **Strategy 15:** Address issues of synergies with other Multilateral Environmental Agreements (MEAs) and processes that deal with climate change, disaster management, livelihoods, food security and sustainable development
- **Strategy 16:** Integrate biodiversity conservation into the national development making, planning and processes

The financing strategy for execution of the NBSAP focuses on increasing of public budget allocations; use of domestic instruments like taxes on water, timber, levies from road, rail and air passenger tariffs; linking biodiversity with markets and business; debt swap trust funds and development partners' contribution.

It emphasizes development of a stronger and more effective clearing house mechanism using as many channels of communication as possible; support development of folk theatre to reach more people and establishing links to the on-going activities on awareness raising and information dissemination.

The NBSAP is a 'living document' in the sense that it is responsive, flexible and practical. Implementation and monitoring will run simultaneously with provisions for periodical reporting and reviews. Revision of the NBSAP is needed at least every six years to respond to changing conditions.

5.8 SME Policy 2005

5.8.1 Policy Review

In order to create more jobs by boosting the country's economy, government in 2005 formulated small and Medium Enterprises (SME) development policy. The SMEs have historically been playing significant role in local as well as global economy. SME brings growth with clear benefits for poverty reduction in the very process of economic growth. It is believed the over-riding vision must be for setting up a market-based economic order with a level playing field for all enterprises, in which SMEs can aspire to opportunities of growth and wealth-creation commensurate with their own endowments and diligence, innovation and management commitment.

SME is viewed as the vehicles for quality of life improvement, economic growth and poverty alleviation of the common people. The primary role of the Government shall be that of a facilitator to aid naturally growing SME's through removing market and policy obstacles, and secondly providing necessary promotional support.

The broad objectives of the SME policy strategies are to:

1. Accept SMEs as an indispensable player in growth acceleration and poverty reduction, worthy of its total commitment in the requisite overall policy formulation and execution;
2. The SME policy strategies shall essentially be linked with broad-based and integrated manner in line with the poverty reduction strategy paper of the Government of Bangladesh.
3. Encourage and induce private sector development and promote the growth of FDI, develop a code of ethics and establish good governance, ICT based knowledge management and customer supremacy in the market alliances.
4. Identify and establish the network of infrastructure and institutional delivery mechanisms that facilitate the promotion of SMEs;
5. Re-orient the existing fiscal and regulatory framework and government support institutions towards bolstering the goals of SME policy;
6. Nurture and partner civil-society institution(s) having credible management teams in terms of the delivery of needed services, leadership, initiation, counselling, mentoring

and tutoring; etc.

7. Create innovative but meritocratic arrangements so that deserving and especially small enterprises with desired entrepreneurial antecedents and promise can be offered financial incentives within industries prescribed on some well-agreed bases.
8. Help implement dispute settlement procedures that proactively shield small enterprises especially from high legal costs and insidious harassment.
9. Take measures to create avenues of mobilizing debt without collaterals to match (either using debt guarantee schemes or mapping intellectual-property capital into pseudo-venture capital) in order to assist small enterprises in dealing with their pervasive lack of access to finance.
10. Accord, systematically, precedence to small versus medium enterprises, within the limitations of government's resources.
11. Harness information & communications technologies, Internet Protocol (IP)-based infrastructure, and electronic-governance in an effort to parlay regulatory services, all kinds of useful information and mentoring inputs, with an accent on increasing the viability of SMEs in all sectors of the economy.

5.8.2 Booster Sectors

The policy identified 11 booster sectors for promotion. These are:

- i. Electronics and Electrical;
- ii. Software Development
- iii. Light Engineering
- iv. Agro-processing and related business
- v. Leather and Leather goods VI. Knitwear and Ready Made Garments
- vi. Plastics and other synthetics
- vii. Healthcare and Diagnostics
- viii. Educational Services
- ix. Pharmaceuticals/ Cosmetics/ Toiletries
- x. Fashion-rich personal effects, wear and consumption goods.

The promotional activities for SME include,

- Tax holiday incentives
- Credit distribution package and venture capital market
- Quality assurance certification

In its tactical plan of action a package promotional programmes have been suggested. These are:

- a. Strategic skills upgrading
- b. Creating enabling environment
- c. Development of supply chain for techno premiership
- d. Development of SME Web Portal
- e. Creation of a virtual SME front-office
- f. Providing exports-friendly content on the SME portal
- g. Electronic-governance with a human touch

- h. High-performance communications backbone
- i. International technology-exchange programs

The policy also recommended for capacity building with specific programmes that include development of specialized professional expertise, re-skilling boot camps; institutional capacity building for training; development of capacity for coordination among multiple institutions; providing technical assistance and investment; promoting private-public collaboration; curriculum development for vocational training.

Upazilas are hinterlands of larger urban Centers. Promotion of SME at upazila level with efficient connectivity with larger cities can boost local economy. At upazila level manufacturing can be done at a much lower cost than in big cities. With adequate credit, energy supply and training, manufacturing units can be set up at upazila level. Produces can be easily transported to the markets at larger urban Centers, thus boosting the local economy. This will help absorb local surplus agricultural labor and reduce migration to larger urban Centers.

5.8.3 Implications for the Current Project

The policies of SME are conducive for local investors in this sector. Investors may invest in import substitute products for local markets. The consultant has suggests development of industrial estate to promote industrial investment and business at upazila level. Policies of SME sector will be highly conducive to development of industrial base at upazila level helped by the industrial estate. The policies will also help growth of SME investment in mixed use and general industrial areas proposed by the upazila development plan.

5.9 Bangladesh Water Act, 2013

5.9.1 Review

The recently published Water Act 2013 is based on the National Water Policy, and designed for integrated development, management, extraction, distribution, usage, protection and conservation of water resources in Bangladesh. In general, if one takes a critical look at the Act, the new law has provided the right framework for better management of water resources in the country.

The formation of the high-powered National Water Resources Council (henceforth termed as the Council) with the prime minister as the head implies the importance the government is paying to the management of this precious resource. An Executive Committee under the Ministry of Water Resources will implement the decisions taken by the Council. The intention to take initiatives for a basin-scale, integrated water resources management of trans-boundary rivers, and exchange of data on flooding, drought, and pollution with co-riparian countries are good steps in the right direction. Following is review of act:

- a. As per this Act, all forms of water (e.g., surface water, ground water, sea water, rain water and atmospheric water) within the territory of Bangladesh belong to the state.
- b. The private landowners will be able to use the surface water inside their property for all purposes in accordance with the Act. A worthwhile initiative is the requirement for permits/licenses for large scale water withdrawal by individuals and organizations

- beyond domestic use.
- c. The Act does not allow extract, distribute, use, develop, protect, and conserve water resources; they will not be allowed to build any structure that impede the natural flow of rivers and creeks without prior. However, what maximum amount of surface water or groundwater can be withdrawn by individuals or organizations is not mentioned in the Act.
 - d. Setting up a priority order for water usage in an area where the water resources is in critical condition is also a significant step. It should be noted that only drinking water and domestic usage are considered as basic rights.
 - e. In view of water resources protection and conservation, the Act adopted a timely decision to address the water needs in irrigation and urban areas in the context of available surface water, groundwater, and rainwater.
 - f. The situation of drinking water supply in Dhaka City is a good example in this context. For instance, Dhaka City annually receives about 2000 mm of precipitation, of which about 80% occurs during the rainy season. If the rainwater is harvested and distributed after proper treatment then the water needs during this time period can easily be met.
 - g. The need for water resources management in the context of natural drainage pattern has also been correctly highlighted in the Act.
 - h. Management of water resources within the territory of the country in rivers, creeks, reservoirs, flood flow zone, and wetlands has been assigned to the Executive Committee under the Ministry of Water Resources, which is another noteworthy decision.
 - i. Draining of wetlands that support migratory birds has been prohibited by the Act. Consequently, without prior permission from the Executive Committee, building of any structure that can impede the natural flow of water has been prohibited; however a few activities, including dredging of rivers for maintaining navigability, land reclamation projects by filling wetlands, flood control and erosion control structures will be exempted pending prior permission. These are good steps to make better use of wetlands.
 - j. It is not clear as to how or if the government will address the issue of land grabbing and encroachment that are clear impediment to natural flow in the flood flow zone, wetlands, and foreshore of rivers.
 - k. Public hearing for the proposed national water management plan is also a good provision, provided it is practiced diligently.
 - l. The Act provides provisions for punishment and financial penalty for non-compliance with the Act, including negligence to abide by government policy, ordinance, non-cooperation with government officials, refusal to present necessary documents, providing false information, affiliation with perpetrators, and protection measures for water resources management.
 - m. The maximum penalty for violations is set to five years of imprisonment and/or monetary penalty of Tk.10, 000. The amount of monetary penalty has been set at Tk. 500,000 in the draft proposal of the Act in 2012. This drastic reduction in monetary

penalty may encourage many people to pay the penalty instead of abiding by the law. Punishment related to water quality degradation caused by industrial discharge and other sources of pollution is not adequately addressed in the Act.

- n. Water pollution issues are deferred to the provisions of the Environmental Protection Act of 1995 without much clarification. The Act remains nebulous without a clear commitment by the government to ensure the quality of water for various beneficial uses as outlined in the Environmental Protection Act. The Act does not address the need for establishing effluent treatment plants or the maximum contaminant levels that will be allowed for discharge to receiving bodies of water by industries and other potential sources of pollution. Since the Act outlines various punishable activities, it is expected that provisions for punishment and penalty for water quality degradation be included in future amendments.
- o. No court can accept any law suit under the provision of this Act without a written complaint from the Director General of Water Resources Planning Organization or his appointee, which is a severe drawback of this Act.
- p. Although the Act is formulated to protect the quality and quantity of the water resources that belong to the people, no individual or organization will be allowed to file a law suit against other individuals, organizations, or government authority if even they violate various provisions of the Act.
- q. The Act provides unlimited power to the Executive Committee to take any action that they deem necessary to implement various provisions of the Act.
- r. The Act also exempts the government authority of any violation, non-compliance, negligence, wrongfully causing financial damage to individuals or organizations, and/or avoidance to implement this Act in the name of good faith.
- s. Limitless power of the Executive Committee without any provision for check against such power may lead to wrong-doing and anarchy. Although an accused will be allowed to defend oneself in the court, there is no clear provision to appeal against any judgment given out by a court.
- t. To protect foreshore area 50m buffer zone will be created from the edge of the river.

5.9.2 Implications for the Current Project

Water is one of the most valuable resources a country has. The Water Act is aimed to make best possible use of this valuable resource. The current Upazila Development Project, calls for increasing use of water for greater agro production. It suggests excavation of silted khals for protection from water logging and flooding. This will also help irrigation during dry season. For urban areas, the plan recommends reduction if dependency on ground water and more use of surface water and rain water. These recommendations are in conformity with the Water Act.

5.10 Linking National Level Policies and Laws with Sub-regional Development

Over the years the subsequent governments of Bangladesh formulated a number of national level policies, strategies and acts to promote national social welfare, economic development and promote a livable environment. These documents have profound impact in protecting and

promoting societal interests. Most of these documents are intended to control human and natural activities that are harmful for community interests. Again, many of the policies and legal documents help promote community interests brining common welfare.

Though all these documents have been prepared at national level but they have profound impact and implications at local level. Because communities living in local administrative entities like sub-region, Zilla, upazila finally make up the entire nation. Zilla is a mid-level stratum in the national administrative hierarchy. Zillas comprise upazilas and Pourashavas. Whatever the policy or act is formulated, its execution starts at the local level. Several upazilas make up a Zilla and several Zillas make up the state of Bangladesh. Performance of execution of policies, strategies and legal documents are counted from local government level at the upazila, the pourashava and city corporation within a zilla. They are all added up to prepare overall performance of the zilla.

However, almost all the zillas have vast rural hinterlands and as such many national level policies and strategies have little implications to zillas. National 3R strategy of waste management has very little implications at this moment for upazilas. Because they hardly produce enough waste to apply 3R strategy. This strategy is meant for high density large cities where waste management is a critical problem. But national level policies and strategies concerning conservation of ecologically sensitive areas is highly applicable for zillas and upazilas where there still exist conservable areas. Performance of hygienic sanitation policy starts from the upazilas. Their combined performance makes up the nation's performance.

Therefore, the capacities of the zillas and local governments like, upazila, Pourshava and union parishad should be strengthened with manpower and logistics apart from financial resources so that they are more capable to apply the nationally formulated policies and strategies effectively. Because they are aimed at national welfare, and when welfare of the zillas and upazilas will be achieved through application of policies and strategies the welfare of entire nation will be accomplished.

CHAPTER-6: POLICY RECOMMENDATIONS FOR SUB- REGIONAL DEVELOPMENT PLAN OF DOHAR UPAZILA

6.0 Introduction

This chapter of the Dohar Upazila Development Plan report is concerned with policy recommendations. The recommendations have been placed under selected sectors of development.

6.1 Policies and Components of Sub-regional Plan

Dhaka Sub-Region is a part of greater south-central region of the country comprising the same characteristic features as found in vast flood plains. There is hardly any unique feature that can isolate this sub-region from the greater part of the country except the administrative boundary. The current sub-region development plan is prepared with some particular components to fulfill. These are:

- ☐ Connectivity and Transportation Network
- ☐ Biodiversity and Nature Conservation
- ☐ Community Resilience through Disaster Management

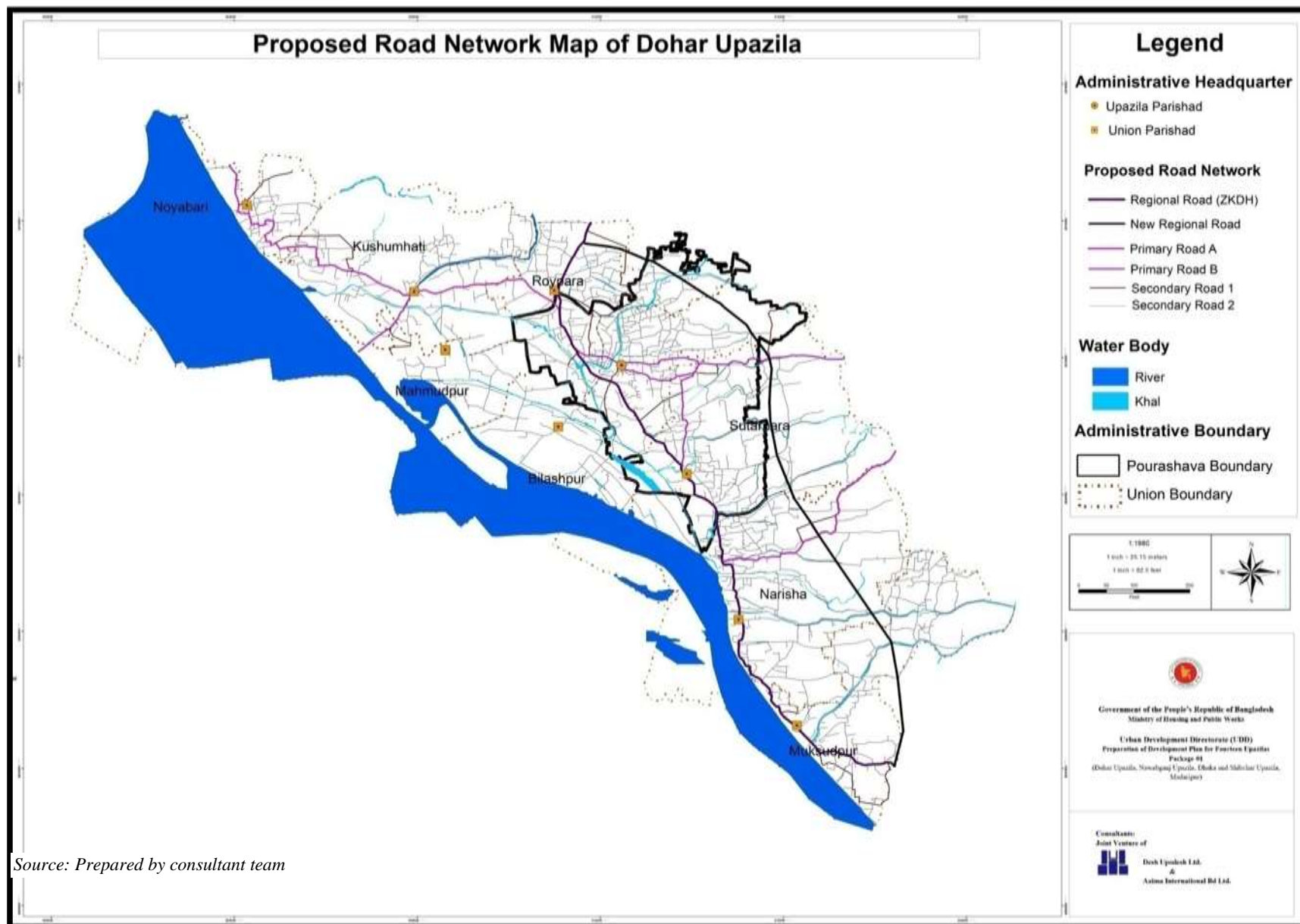
6.1.1 Improved Connectivity

The most important prerequisite for holistic development is to create effective and workable connectivity. Currently, the Dhaka Sub-region is served by national, regional, zilla, upazila, union and village roads of different hierarchies. To create further interaction, there is need to connect all the upazila headquarters with each other including the hats and bazars. However, the most important current necessity is to ensure quality of the roads through improvement of pavements and paving the unpaved roads. Particular attention is suggested to develop a new regional connectivity. The following recommendations may be considered.

- ☐ Construction of new 80 ft 6 Lane Regional Highway (Nawabganj-Dohar-Srinagar), connects with Zilla Road Z8204 linking Nawabganj with Dohar and widening (80 ft) of existing ZKDH Road. This will enable western region traffic to use Padma Bridge.
- ☐ Widening of Zilla Road Z8207 (60 ft) to 4 lanes connects Dohar with Keraniganj via Nawabganj to improve connectivity with Dhaka.
- ☐ Widening of Zilla Road Z8004 (50 ft) to 4 lanes creates a short cut to six lane expressway from Dohar-Nawabganj.

Improvement of road connectivity is expected to promote local economy through transportation of goods and services.

Map-6.1: Proposed Road Network of Dohar Upazila



Source: Prepared by consultant team

Table- 6.1: Proposed Road of Dohar Upazila

Road Category	Average Existing Width (ft)	Proposed Width (ft)	Length (Km)
Regional Road (ZKDH)	22.68	80	16.28
New Regional Road (Nawabganj-Dohar-Srinagar)		80	14.18
Primary Road A (Z8207)	19.67	60	15.73
Primary Road B (Z8004)	18	50	8.06
Secondary Road 1	12	30	22.17
Secondary Road 2	10	25	357.28

Source: Field Survey, 2016

6.1.2 Biodiversity and Nature Conservation (Following National Biodiversity Strategy and Action Plan for BGD, 2004)

Policy 1: Conserve natural/environmental resources like water body.

River and Khal protection zone has been created to protect existing water body. 50m buffer zone has been created from the edge of the river and 6m buffer zone has been created from the edge of the khals. Continental embankment, road and beautification with tree plantation have been proposed in this buffer zone. It will protect the river and khal from further development.

Policy 2: Execute land use planning for the enhancement of ecosystem and species diversity.

Eco-critical Zone has been created in the char area alongside Moinot ghat to protect char area from further development such as construction of continental embankment. This zone will preserve the natural condition of Moinot Ghar area and attract tourist more. 260 acres area has been demarcated as eco-critical zone.

6.1.3 Community Resilience through Disaster Management (Following National Disaster Management Plan, 2015)

Policy 1: Identification of seismic hazard prone zones.

Policy 2: Identification of flood hazard prone zones and river erosion areas.

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

6.1.3.1 Contingency Plan for Earthquake

A **contingency plan** is a plan devised for an outcome other than in the usual (expected) plan. It is a forward planning process in which managerial and technical actions are defined. It is a potential response system to prevent or better respond to an emergency situation such as earthquake. It is often used for risk management when an exceptional risk that, though unlikely, would have catastrophic consequences. Contingency plans are often devised by governments or businesses. During times of crisis, contingency plans are often developed to explore and prepare for any eventuality. Identification of vulnerable structures, emergency services for emergency response plan, evacuation shelter and evacuation route are the factors of contingency planning for earthquake.

6.1.3.1.1 Identification of vulnerable structures and building vulnerability assessment

Vulnerable structures have been found for building vulnerability assessment. This data is important to prepare contingency plan. Using this data, risky structures (high, medium and low) have been found which is used to prepare risky zone for earthquake.

Risk Assessment survey was done to find out building condition of Dohar Upazila. As per FEMA (Federal Emergency Management Agency) guideline 8 (eight) types of Vulnerability Assessment Criteria/factors such as Overhanging, Soft Story, Pounding, Set Back, Short Column, Mobile Tower, tilting and Ground Set has been collected for those structure which has more than 1 floor and number of those building were 1651. Irregular shape of structures is also vulnerable for earthquake.

Overhanging: An overhang in architecture is a protruding structure which may provide protection for lower levels. This type of structure is constructed with cantilever beam. These structures are vulnerable for earthquake. Total 1285 (77.83%) buildings have overhanging condition. According to overhanging data, building condition is vulnerable for earthquake in Dohar Upazila.

Soft Storied: A soft storey building is a multi-storey building in which one or more floors have windows, wide doors, large unobstructed commercial spaces, or other openings in places where a shear wall would normally be required for stability as a matter of earthquake engineering design. Number of soft storied building is 101 (6.1%).

Pounding: Pounding between adjacent structures is very complex phenomenon and very risky for earthquake. For pounding condition about 77.71% building has safe distance from another building. 368 (22.29%) buildings have pounding condition.

Short Column: Short columns usually fail by crushing and it is vulnerable for earthquake. 533 (32.28 %) building has short column in Dohar upazila.

Mobile Tower: Installing mobile tower on the roof of the building is vulnerable for earthquake. Only 31(1.8%) buildings have mobile tower at their roof.

Ground Set: 9 (.55%) buildings have ground set in Dohar upazila. Based on this data building condition is not vulnerable.

Set Back: 1131 (68.5%) buildings have enough space beside their boundary line. About 31.5% building break set back rules.

Tilting: About 37(2.24%) buildings have tilting effect. According to tilting data building condition is not vulnerable for earthquake at Dohar Upazila.

Using building vulnerability assessment, 319 structures have been found high risky whereas 208 and 1124 structures have been found moderate and less risky. By using these structures, risky zone has been identified. (See **Map-6.2**)

6.1.3.1.2 Emergency Services

Emergency services are important for emergency response plan such as preparation, mitigation and post-event recovery measures. Fire services, Police stations and health facilities are regarded as emergency services during and after earthquake.

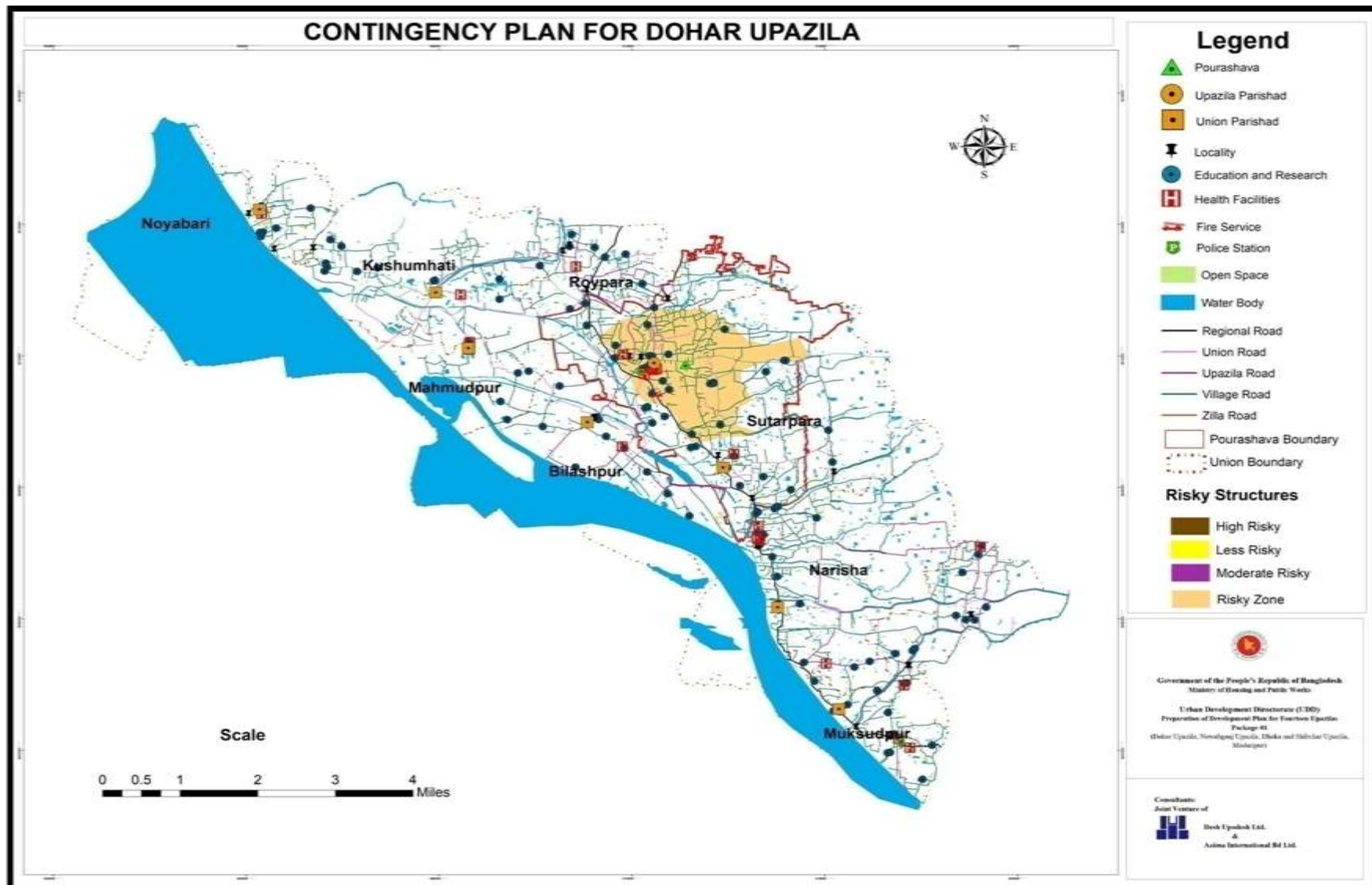
6.1.3.1.3 Evacuation Shelter

Emergency evacuation shelter is needed after earthquake. On this purpose, educational institutions such as schools and colleges should be used as evacuation shelter. Open spaces can also be used as evacuation shelter for local people.

6.1.3.1.4 Evacuation Routes

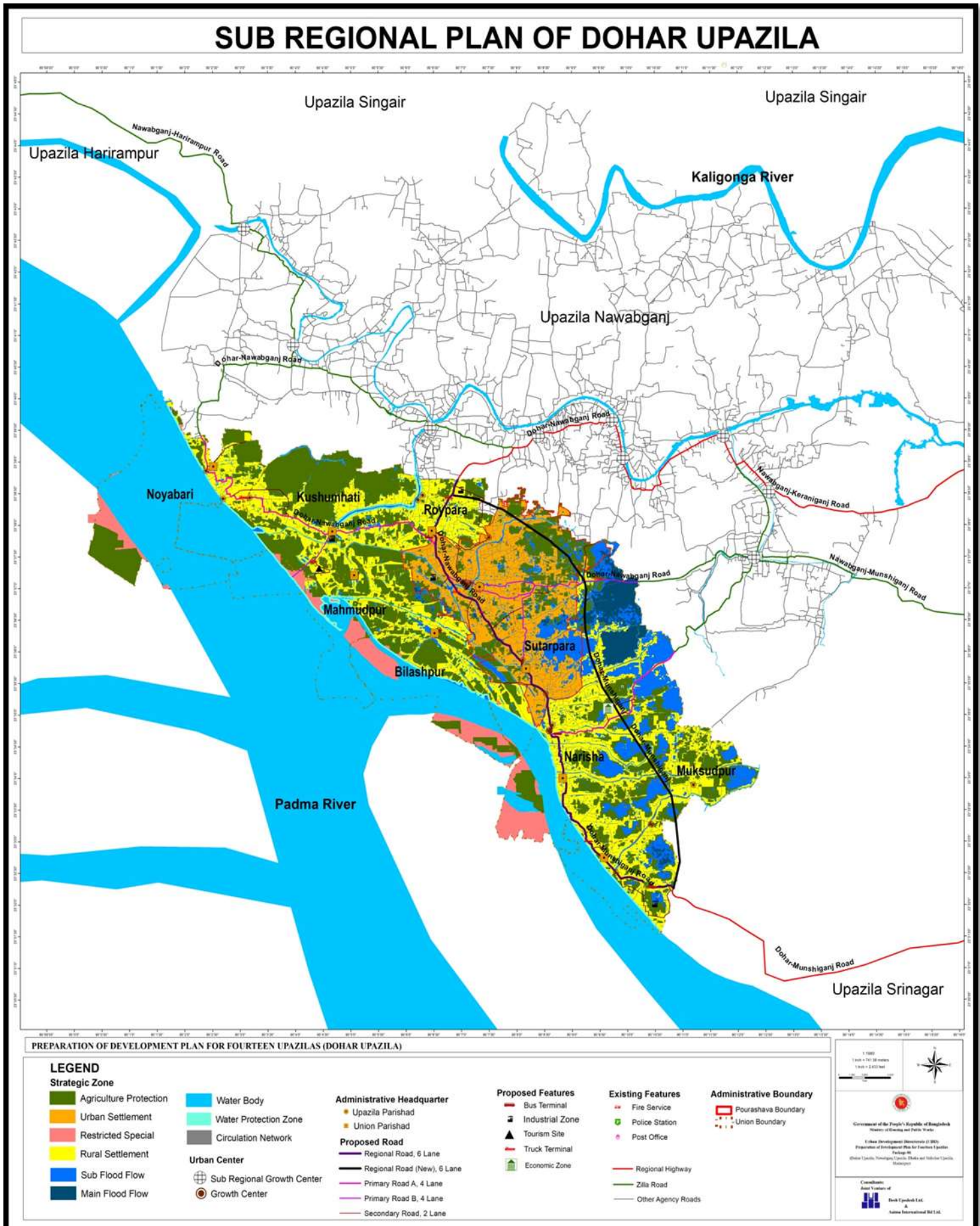
Evacuation route is necessary for emergency evacuation of local people. So existing roads should be developed and widened. New roads should be constructed on this purpose.

Map-6.2: Contingency plan for Dohar upazila



Source: Prepared by consultant team

Map-6.3:Sub-regional plan of Dohar upazila



6.2 Promotion of Agriculture

Agriculture is still providing employment to over 78% of the people of the sub-region and is the main livelihood of the people. Besides, it is the source of food supply for the people. Therefore, for overall development of the sub-region, utmost priority should be given to agriculture. Agriculture should be developed by way of,

- modernizing farm practices;
- brining greater farm land under irrigation and raising the intensity of cropping;
- promoting seed, irrigation and fertilizer technology;
- preventing natural disasters like, flooding and river erosion;
- improving marketing facilities through development of infrastructure and services and creation of farmers marketing Cooperatives.

6.3 Industrial Development

Local government authorities' responsibilities would be to provide all basic urban infrastructure and services to promote industrialization in the region that would help absorbing the growing unemployed youths. To attract industrial investment, the priority areas of intervention would be to,

- make uninterrupted power supply;
- allow free flow of traffic on the highways avoiding local and slow moving traffic;
- Develop economic zones provided with all basic facilities to enable investors start their business quickest possible time and bring return to their investment.

Develop Industrial Estates provided with all basic facilities to attract Industrialist to invest the Upazila. The Location of the proposed Economic Zone and Industrial Zone have been shown in **Table 6.2**.

Table-6.2: Proposed Location of Industrial and Economic Zone

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet no	Plot No	Proposed Area (acres)
Economic Zone	1	Narisha Union	Shimuli a	075	001	1,2,5,6,7, 13-28,	234.17
			Monshikanda	065	000	133,158-168, 213-216, 223-249,251-255, 259-320, 321, 357-359,	
			Jhanki	066	001	365, 367, 370-381	
					002	1078, 1081, 1082, 1087, 1088, 1089, 1089-1378, 1419, 1422-1487, 1492-1517, 1550-1601, 1609, 1611, 1614, 1617, 1619	
Industrial Zone	4	Dohar Pourashava (Ward No.04)	Lotakhol	043	002	2156-2217,2322-2332, 2394-2410, 2414, 2415, 2420, 2903, 2916, 2921, 2930	24.43
		Muksudpur Union	Bethua	082	000	92,94,96,97,98,196, 112,116,118,120,122 3-139,143,144,149,200,205212,213,214,189,208,209,210,277 - 288,289,294,295,306,309,316,325,332-337,349,353,354,690,694	68.10
		Roypara Union	Bara Ekrashi	037	002	1734,1737,1738,1740,1741,1746, 1755-1761,1907-19131958-1965,1007,2007,2018,2145,2147	31.36
		Kushumhati Union	Char Balia	020	000	36,37,38,39,40,41,77,78,79,80,81	16.82

Source: Prepared by Consultant Team

Applying Small and Medium Enterprises (SME) development policy 2005, promote development of enterprises under 11 booster sectors as follows:

The policy identified 10 booster sectors for promotion. These are:

- i. Electronics and Electrical;
- ii. Software Development
- iii. Light Engineering
- iv. Agro-processing and related business
- v. Leather and Leather goods
- vi. Knitwear and Ready Made Garments
- vii. Plastics and other synthetics
- viii. Healthcare and Diagnostics Services
- ix. Pharmaceuticals/ Cosmetics/ Toiletries
- x. Fashion-rich personal effects, wear and consumption goods.

The promotional activities for SME include,

- Tax holiday incentives
- Credit distribution package and venture capital market
- Quality assurance certification

Local governments in the sub-region and the Ministry of Youth Development may initiate training programs for skill development including entrepreneurship development followed by credit for development of productive enterprises.

6.4 Water Management

Water in Bangladesh is life for all living beings. Therefore, water deserves protection and preservation to carry on livelihood of the people. Water should be carefully managed not to make over use or waste. Lack proper water management may lead to flooding and loss of valuable property including agriculture. Water scarcity may cause loss of agriculture and make life difficult for all. Water in the vast flood plains of the sub-region should have integrated development, management, extraction, distribution, usage, protection and conservation following the guidelines of national Water Policy 2012, National Water Management Plan 2004 and the Water Act 2013. Following the water Act 2013,

- All natural drainage systems should be maintained and preserved; Excavate Necessary Channel for smooth flow of water during Rainy season to avoid water logging and flood.
- Prohibit draining of wetlands that support migratory birds. Consequently, without prior permission from the appropriate authority, prohibit building of any structure that can impede the natural flow of water.
- As per Act ensure punishment and financial penalty for non-compliance with the Act, including negligence to abide by government policy, ordinance, non-cooperation with government officials, refusal to present necessary documents, providing false information, affiliation with perpetrators, and protection measures for water resources management.

6.5 Creation of Climate Change Resilience

With the gradual global warming, the climate all over the world is showing changes. Such changes are variable in the context of local geography, ecology, environment and climatic

condition. But the pinch of change is observable everywhere in the globe with variable intensity. Bangladesh is said to be one of the most severe victims of climate change impact. Climate change has already started showing its ugly faces in the form of extreme heat, delayed rainy season, prolong rainfall and seasonal changes. Climate change would have long term impacts on the sub-region affecting its agricultural production process and infrastructure. Seasonal changes would affect the entire agricultural production pattern; prolonged Drought will cause crop loss; over rainfall would cause destruction of standing crops. All these events will severely affect livelihoods of millions of farmers depending on agriculture for their living. In erosion prone areas, excess rainfall would lead to further erosion causing loss of livelihood of the people living beside the river. To minimize the impacts of climate change proactive actions are needed. Government has formulated.

Conservation of water bodies is essential to protect the eco-system, which, in turn, will reduce adverse consequences from water logging. Conservation of water bodies would improve the drainage system; provide fresh water, increasing water retention capacity during monsoon. They also help preserve biodiversity and recharge groundwater. **(See Map-19.1 and 19.2)**

PART-C: UPAZILA STUCTURE PLAN

CHAPTER-7: INTRODUCTION OF DOHAR UPAZILA

7.0 Introduction

Chapter 7 of the Dohar Upazila Development Plan introduces the upazila, including its background and basic social and physical information.

7.1 Location and Area

Dohar Upazila occupies an area of 161.49 sq.km and bounded on the north by Nawabganj Upazila, east by Srinagar Upazila of Munshiganj Zilla, and Nawabganj Upazila, south by the Padma River and Sadarpur Upazila of Faridpur Zilla and west by the Padma River and Harirampur Upazila of Manikganj Zilla.

7.2 History and Background of the Upazila

Dohar was made an thana in 1926 and upgraded as a upazila in 1983. In terms of area and population it is the smallest upazila in Dhaka Zilla. The name Dohar came from a legendary incident about settling of a group of performers. In the past it was a Hindu majority area. The Hindu Zamindar was fond of songs. The performers who acted as second party in performing lyrical songs were popularly known as **Dohar**. Zamindar allowed these people to settle down in the area and gradually, the area came to be known as Dohar.

7.3 Administrative/Geographic Unit

The Dohar Upazila consists of 1 Pourashava with 9 wards, 8 unions and 133 villages. The average population of each ward and mahalla are 2684 and 1421 respectively. The other hand, the average size of population of each union 23751 and in village is 1429.

7.4 Dohar Upazila Basic Statistics

Table-7.1 gives selected basic statistics about the Dohar Upazila. It is evident from the table that there has been 41.51% increase in the population of Dhaka Zilla in 10 years from 2001 to 2011. However, data shows there has been less increase in the population size of Dohar and it was 18.29% during the same period. It is observed that the rate of urbanization is on rise, both, in Zilla and in the Upazila between 2001 and 2011. The rate of urbanization, however, was lower in both the cases between these two years. The rate of literacy increased in both the cases. In 2011 over 60% of the Zilla households lived in urban areas, while during the same period, only 16.30% households used live in urban areas in the upazila.

Key Indicators	Table- 7.1 Dohar Upazila at a Glance			
Population (Enumerated)				
Both Sex	1,20,43,977	85,11,228	2,26,439	1,91,423
Male	65,55,792	47,12,330	1,07,041	94,046
Female	54,88,185	37,98,898	1,19,398	97,377
Urban	74,23,137	77,34,825	36,434	61,793
Other Urban	18,93,906	59,261	-	-
Rural	27,26,934	7,17,142	1,90,005	1,29,630
Annual growth rate (%)	3.48	3.84	1.67	0.85
Sex Ratio				
Total	119	124	90	97
Urban	125	127	95	100
Other Urban	118	111	-	-
Rural	107	98	89	95
Household				
Total	27,86,133	17,96,950	49,400	36,693
Urban	16,84,986	16,39,806	8,056	11,683
Other Urban	4,52,261	12,719	-	-
Rural	6,48,886	1,44,425	41,344	25,010
Household Size (General)				
Total	4.21	4.66	4.56	5.20
Urban	4.26	4.64	4.54	5.28
Other Urban	4.15	4.52	-	-
Rural	4.15	4.93	4.56	5.16
Area sq. km.	1463.60	1459.55	161.49	161.49
Area sq. mile	565.10	563.53	62.35	62.35
Density per sq. km.	8,229	5,831	1,402	1,185
Density per sq. mile	21,313	15,103	3,632	3,070
Urbanization (%)	77.36	91.57	16.09	32.76
Literacy Rate (7 years and above)				
Both Sex	70.5	64.8	57.5	49.3
Male	73.6	69.6	56.9	50.5
Female	66.9	58.7	58.0	48.2
School Attendance (5 to 24 years) (%)				
Both Sex	47.3	38.2	53.7	45.7
Male	49.6	40.1	55.8	47.3
Female	44.8	36.2	51.8	44.2
Population (Adjusted)				
Both Sex	1,25,17,361	90,36,647	2,35,572	2,00,898
Male	68,13,453	50,03,350	1,11,366	98,708
Female	57,03,908	40,33,297	1,24,206	1,02,190
Administrative/Geographic Unit				
Upazila/Thana	46	27	1	1
Union	79	75	8	7
Mauza	1,007	1,019	80	91
Village	2,001	1,864	133	109
City Corporation	1	1	-	-
City Ward	92	90	-	-
City Mahalla	837	731	-	-
Paurashava	3	2	1	1
Ward	27	18	9	9
Mahalla	126	99	26	44

Source: Population and Housing Census, Community Series: Dhaka Zilla, 2011;BBS.

Note: 1. Mauza refers to populated mauza in 2011.

2. General refers to general households in 2011 and dwelling household in 2001.

3. Dash (-) denotes data not available due to non-existence of City Corporation and other urban areas.

7.5 Physical and Socio-Economic Setting

7.5.1 Geology

The greater part of Bangladesh is covered by alluvium deposited by three mighty rivers, the Ganges, the Meghna and the Brahmaputra and their large number of tributaries. The Bangladesh part of the Bengal basin is divided into three main structural units. These are,

- A. Pre-Cambrian Platform or the Buried Indian Shield.
- B. The Deeper Basin.
- C. The Folded Flank of the Chittagong Trough.

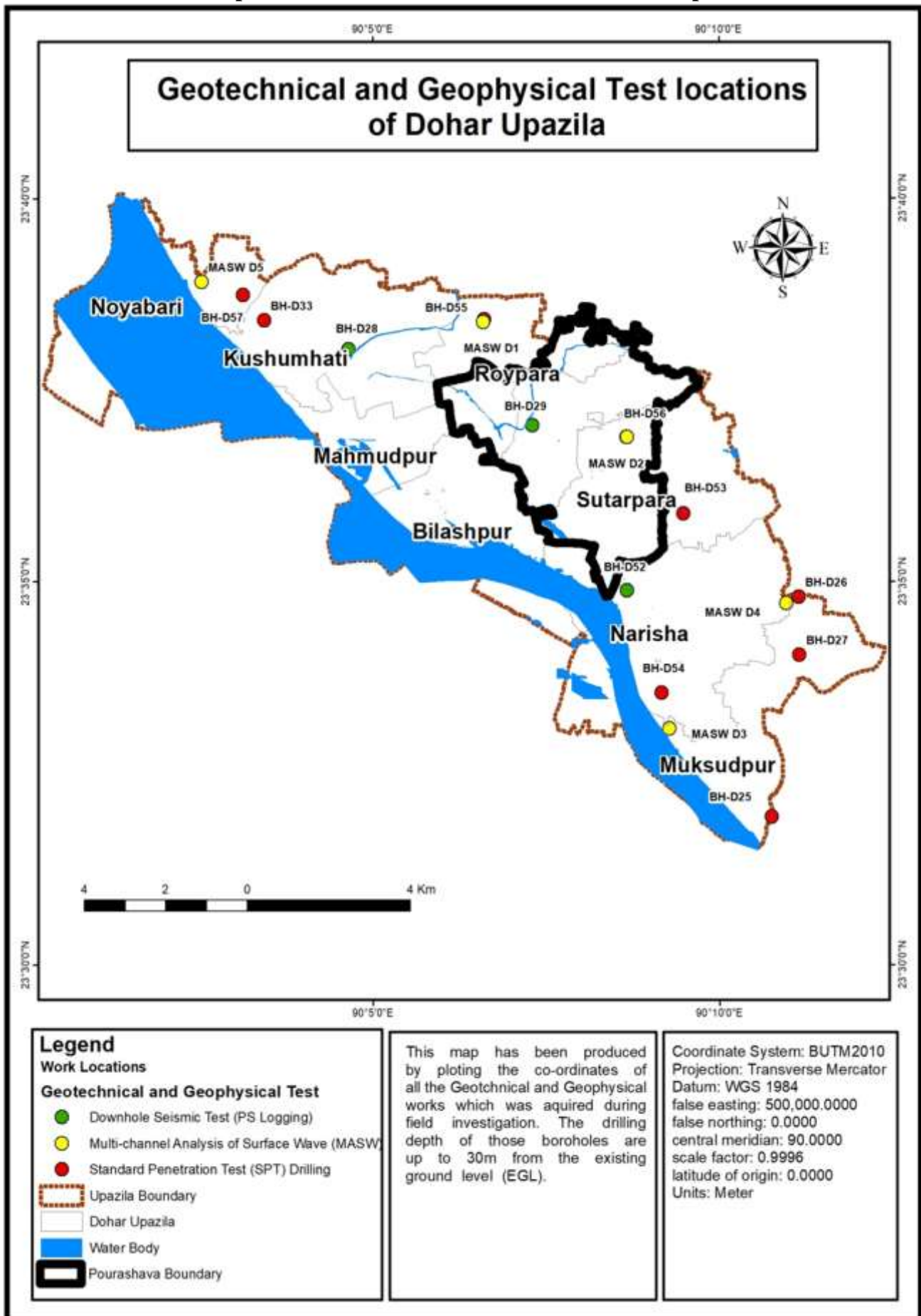
The Pre-Cambrian Platform is separated from the Deeper Basin by the Eocene Hinge.

Based on geological, geophysical and drill well data of Petro Bangla, the Deeper Basin is sub-divided into three big depressions. These are, Sylhet and Faridpur, and Chittagong, and two considerable uplifts, namely, the Barisal and Tripura. The Sylhet and Faridpur troughs are elliptical depressions almost adjacent to the Eocene Hinge belt and are identified geophysically by gravity minima. Both these troughs are filled up by enormous amount of Tertiary sediments. Madaripur including Dohar as a part of Greater Faridpur falls in Deeper Basin structure.

Knowledge of subsurface geological and geotechnical information is necessary to ensure a durable and sustainable urban environment. Sub-surface geological and geotechnical information determine subsurface soil condition of the project area and evaluating of natural geological and hydro-meteorological hazards such as earthquake, landslide and ground failure. These information help make appropriate design of the infrastructure to ensure safety of the structures. The consultant conducted two categories of geological investigations at sub-surface level in the entire upazila. These are, Multi-Spectral Analysis of Surface Waves (MASW) and Geotechnical Investigation with SPT boring.

In Geomorphologic Field Survey, boreholes have been drilled and borehole logs have been prepared. Disturbed and undisturbed soil sample has been collected as per standard guideline. Standard Penetration Tests (SPTs) has been conducted. Total 12 borehole (SPT) has been installed. Down-hole Seismic Test (PS logging) has been conducted through drilling of boreholes and casing by PVC pipe. Total 3 PS Logging has been installed in Dohar Upazila. After that, Multi-channel Analysis of Surface Wave (MASW) has been conducted. Total 5 MASW test has been completed.

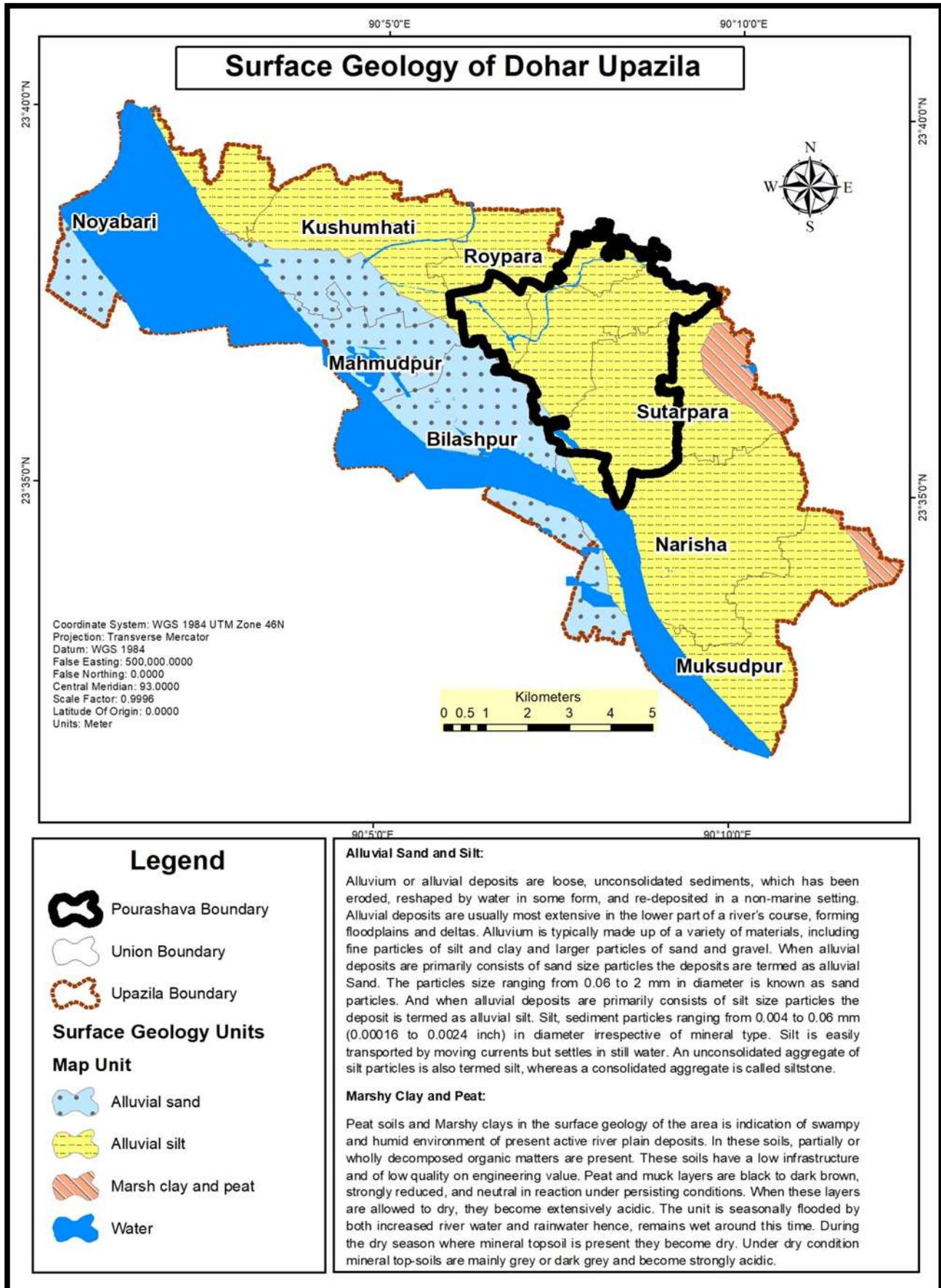
Map-7.1: Geotechnical Test Locations of Dohar Upazila



Source: Field Survey, 2016

7.5.2 Soil

Map-7.2: Surface Geology of Dohar Upazila



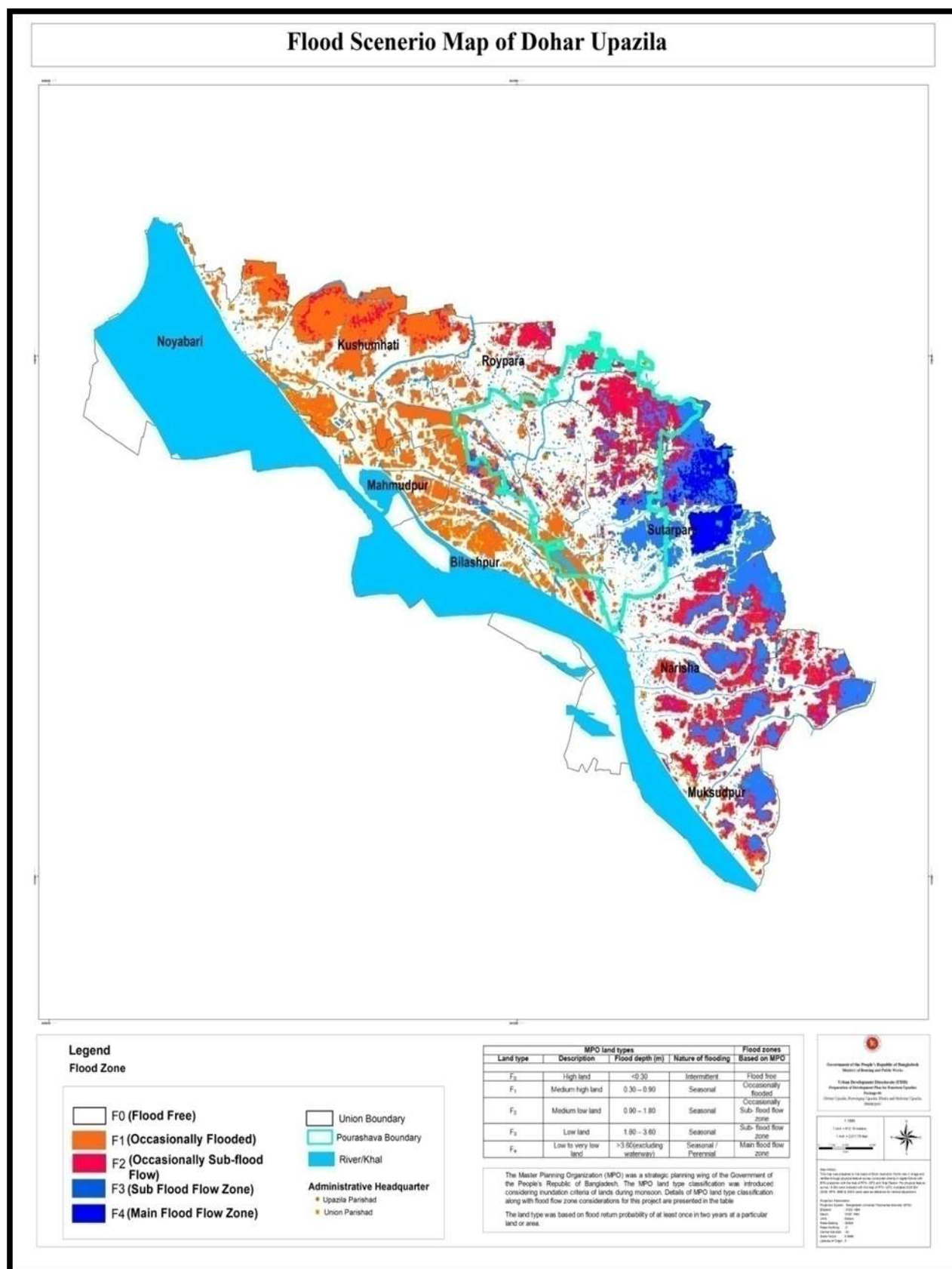
Source: Field Survey, 2016

The soil of the upazila shows, complex admixture of calcareous sandy and clay alluvium, with some shallowly developed brown loamy soils on ridges and dark grey clay in depressions on older alluvial areas. The proportion of sandy, silty and clay alluvium shows place to place variation. It also changes from year to year. Organic matter content in the cultivated layer range from less than about 1.5 percent in brown ridge soils to 2-5 percent in most dark grey soils and more than 5 percent in some basin centers soils which stay wet for most or all of the dry season. Organic matter contents are low, especially in sands and the soil reaction is moderately alkaline. Though there are seven general soil types, but only three cover significant areas. Low Ganges River Floodplain has predominantly developed calcareous soils. The general soil pattern is olive-brown silt loams and silty clay loams on the highest parts of the floodplain ridges and dark grey silty clay loams to heavy loams to heavy clays on lower areas. Basin clays are found relatively more extensive. Brown and dark grey ridge soils are calcareous and moderately alkaline. Basin clays usually have a strongly or very strongly acid cultivated layer overlying a slightly acid to neutral subsoil.

7.5.3 Hydrology

In **Map-7.3** different categories of land levels have been shown including the areas that get submerged during monsoon. Areas with dark blue colors show the lands having lowest levels. The deep blue areas belong to river, khal and perennial water bodies. About 25% of the upazila goes under water during flooding.

Map-7.3: Inundation Map of Dohar Upazila



Source: Field Survey, 2016

Table- 7.2 Flooding Scenario of Dohar Upazila

Different Flooding Scenario				
Flooded Land Category	Water Height (m)	Area in acre	Percentage (%)	Remarks
1st Degree Flooded area (F0)	0-0.3	445.03	3.84	
2nd Degree Flooded area (F1)	0.3-0.9	4723.86	40.75	
3rd Degree Flooded area (F2)	0.9-1.8	2715.51	23.42	
4th Degree Flooded area (F3)	1.8-3.6	2924.44	24.22	Sub Flood Flow Zone
5th Degree Flooded area (F4)	>3.6	783.12	7.75	Main Flood Flow Zone

Source: Field Survey, 2016

7.5.4 Existing Land Use Pattern

The existing land uses of Dohar Upazila are presented in **Table-7.3**. The table shows, about 40.08% of the land of the upazila is devoted to agriculture. About 26% land goes to water body, followed by about 11.75% land under vegetation. About 6.04% and 9.07% of the land are devoted to urban and rural residential area.

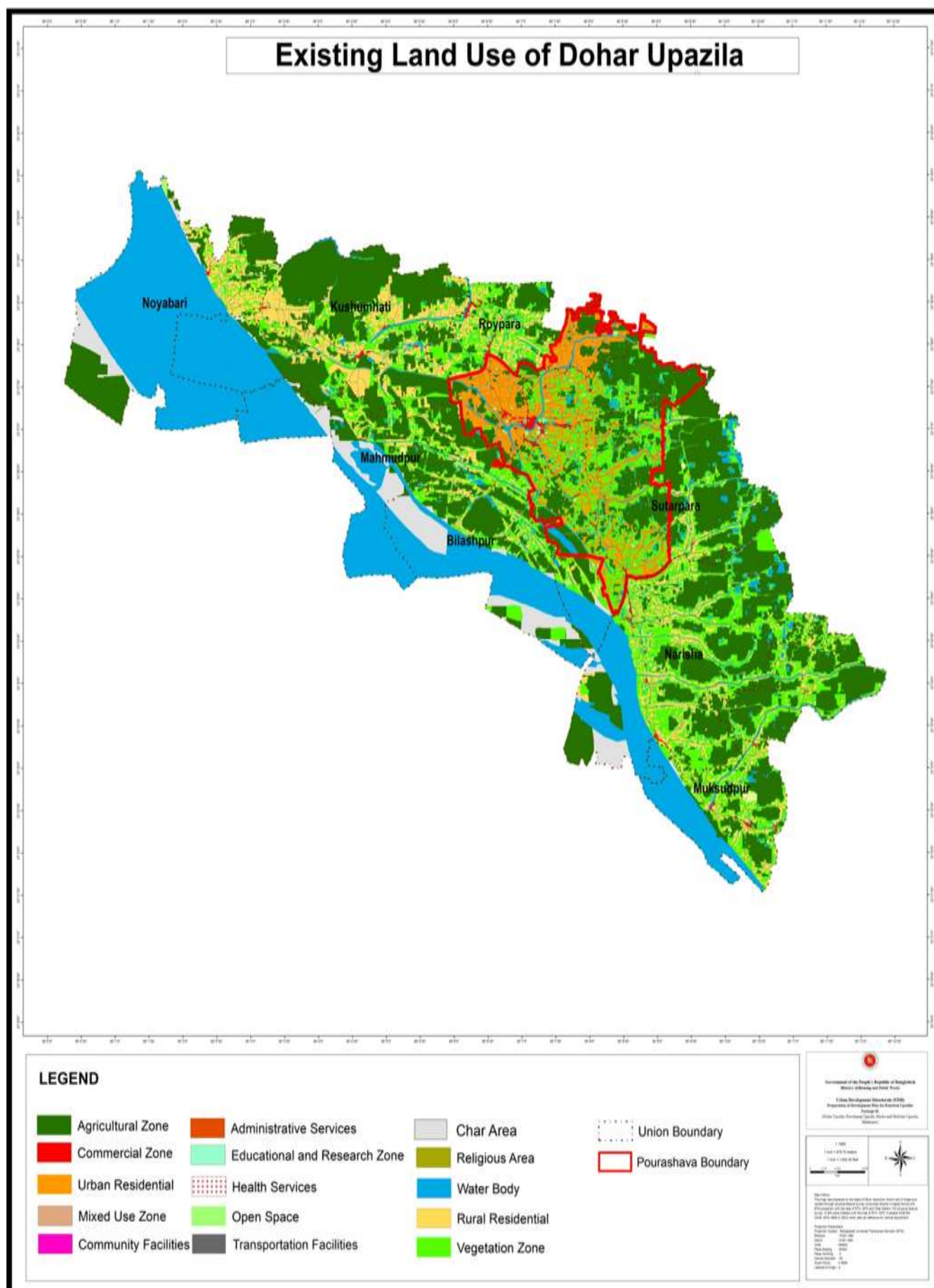
SI. No.	Land use Category	Existing Land use	
		Area (acre)	%
1.	Urban Residential	1832.07	6.04
2.	Rural Residential	2731	9.07
3.	Agricultural Zone	12152.92	40.08
4.	Commercial	150.75	0.5
5.	Char Area	1101.9	3.70
6.	Community Facilities	0.4	0.001
7.	Education	35	0.12
8.	Administrative Services	4.69	0.02
9.	Health Facilities	1.77	0.005
10.	Mixed Use	63.71	0.21
11.	Open Space	198.93	0.66
12.	Religious	208.4	0.68
13.	Transportation	355.57	1.17
14.	Water body	7882.83	26
15.	Vegetation	3564.49	11.75

	Total	30321.42	100
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Table-7.3: Existing Land Use Pattern of Dohar Upazila

Source: Field Survey, 2016

Map-7.4: Existing Land Use Pattern of Dohar Upazila



Source: Field Survey, 2016

7.6 Demography

7.6.1 Population Growth

According to 2001 population census the population of Dohar Upazila was 1,91423. Dohar Upazila has a density of 1185 persons/sq.km (2001). The population census of 2011 shows population of the upazila is 2,26,439 and population density in 2011 is 1402 persons per square km.

Table 7.4: Dohar Upazila Demography

Year	Union	Population	Density (per sq km)	Literacy (%)	Rate
2001	8	191423	1185	57.5	
2011	8	226439	1402	49.3	

Source: Bangladesh Population Census 2001, 2011, Bangladesh Bureau of Statistics (BBS)

7.6.2 Type of Housing Structure

As revealed by physical feature survey conducted by the consultant, the upazila has 46700 katcha structures of various uses, majority being residential. The number of pucca and semi-pucca structures is, 7119 and 5809 respectively (**Table-7.2**).

Table-7.5: Construction Type of Structures

Structure Type	Number
Katcha	46700
Pucca	7119
Semi-pucca	5809
Total	59628

Source: Field Survey, 2016

7.6.3 Education

According to BBS data, average literacy of the upazila in 2001 was 57.5%, while literacy rate fell to 49.3% in 2011. According to physical feature survey, the upazila has 38 primary schools, 25 high schools and 6 colleges. The upazila has 45, madrasa of different categories (Dakhil, Alim and Fazil) (**Table-7.2**).

Table-7.6: Available Educational Facilities

Educational Facilities	No. of Facilities
Primary School	38
Kindergarten/Nursery School	10
High School	25
College	6
Madrasa	45

Source: Field Survey, 2016

7.7 Health Facilities

Dohar Upazila has one health complex with 50 beds, 5 hospitals and 14 clinic and family planning Centers. But the local people are not satisfied with the health services provided by the health facilities. There is acute shortage of medical staff, medicine and other medical equipment in all these facilities. As a result people have to take services from the private clinics that are often too expensive and unaffordable by the poor.

7.8 Other Community Facilities

Among other community facilities, the upazila has one auditorium, 7 bank branches, 4 training Centers and a library etc. For details please consult **Table-7.7**

Table-7.7: Community Facilities

Community Facilities	Number
Auditorium	1
Bank	7
Cinema Hall	1
Clinic	9
College	6
Community Center	1
Fire Service	1
Government Services	27
High School	25
Hospital	3
Library	1
Madrasah	43
Market	20
NGO	10
Pourashava	1
Primary School	38
Shahed Minar	1
Thana	1
Training Center	4
Total	200

Source: Field Survey, 2016

7.9 Physical Infrastructure

7.9.1 Transport and Communication

Dohar Upazila has 452.51km road system with 241.98 km pucca, 101.40 km katcha and 109.13 km HBB. Earthen roads make movement difficult for people and goods, particularly during monsoon.

Roads and Highways Department (RHD) has a number of roads passing through Dohar Upazila. These are, R820, Z8207, MNG66, and MNG77.

Table-7.8: Upazila Road Facility

Road Type	Length (KM)
Katcha	101.4
Pucca	241.98
HBB	109.13
Total	452.51

Source: Field Survey, 2016

Dohar has very good road communication with adjacent Zilla and upazila headquarters including Dhaka and Munshiganj Zilla sadar. Dhaka is about 1.5 hours of time distance from Dohar.

7.9.2 Drinking Water

In Dohar upazila, all household secure their everyday drinking water from tube-well. Many families collect water from pond and river.

7.9.3 Sanitation

According to BBS, 89.7% household of the upazila use sanitary latrine, 12.3% non-sanitary latrine.

7.9.4 Access to Electricity

All the unions of the upazila have brought under the Rural Electrification Program. A total of 83.7% household have electricity connection in the entire upazila in 2011 according to BBS.

CHAPTER-8: IDENTIFICATION OF CRITICAL ISSUES

8.0 Introduction

The chapter identifies critical issues of the upazila mainly based on findings of the PRA participants' opinions. Critical issues have also been derived from various studies conducted by the consultant.

8.1 Critical Issues Identified

It is necessary to understand the problems that the local people think are most critical to them. The best way to identify them is to interact directly with the local people and their representatives. The consultant conducted a series PRA, both, at Union and Pourashava level, to understand perception of the people about their problems.

8.1.1 Issues and Problems Identified through Participatory Rapid Appraisal (PRA) at Union Level

The current section highlights the critical issues the upazila people are facing, identified through PRAs conducted at union and Pourashava levels and the studies conducted on selected issues. Through PRA at Union level, the participants identified their priority problems that reflect their perception about local problems they face in their everyday life. The top four problems identified by the PRA participants of the unions are,

- Problem of transport and communication
- Inadequate electricity connection
- Lack of health care facilities and services
- Problem of arsenic contaminated drinking water.

8.1.1.1 Problem of Transport and Communication

The problems of daily mobility were pointed out by all the union participants as their most critical problem. They have to carry on their day to day mobility using roads. But most roads at union level are in precarious state. They are mostly earthen or HBB. The PRA participants of all unions put the road connectivity problem on the top of priority list because they bear the pinch of everyday mobility in their day to day life. The poor condition makes journey difficult, time consuming and costly. Manually operated and vehicular traffic cannot move on these unpaved roads easily. An earthen road is not at all suitable for any kind of transport, manually operated or vehicular. It is extremely hardship to walk on a muddy road during monsoon. Moving on earthen road is also plight for pedestrians. Brick soling road is another menace, though better than earthen road, not cosy for manually operated transport like, rickshaw and van. These roads are very widely found in rural areas. It is often precarious to carry farm products from field to home or market. Thus poor road condition affects their everyday living and earning. Apart from poor road condition, the participants mentioned about the need for new road connectivity linking various important place. Social Map

prepared by the PRA participants reflects all these issues of road communication, which they consider as one of their priority problems.

8.1.1.2 Electricity Connection

Electricity is a one of the prime needs in our everyday life that have also penetrated deep into the villages, but not all the villages have power supply in Dohar Upazila. As the life is changing in rural areas, they are also becoming accustomed to using electricity in their daily life. With increased income, people in rural areas are using electronic appliances including refrigerator and television. So, the demand for electricity is rising fast. But currently, there is insufficient power coverage in rural areas, against increasing demand. This is hampering, study by students and business and running industrial plants as well. In modern days it is extremely difficult to think a single day without electricity. They now understand very well how electricity can make their life easier, make them productive and can promote economic activity. They ask for areas extension of electricity coverage.

8.1.1.3 Public Health Services

Lack of proper medical facilities is a crying need in almost all the unions as reported by the PRA participants. The primary causes of poor medical service include absence of doctor and other support staff in public medical facilities, lack of medical equipment including medicine and inadequate physical infrastructure. All these cause suffering to the rural people in having proper medical services. Now days, people are very concerned about their health. They want that health facilities are well equipped including regular presence of doctor. But unfortunately this is not the case in public health facilities far away from large cities. Be it upazila health complex or union level Community Clinic, all are ill equipped, no medicine, no health equipment and irregular presence of doctors. The situation is no better for private's facilities as well. As people are deprived of public health facilities, they have to spend extra money to secure improved health facility.

8.1.1.4 Lack of Safe Drinking Water

Putting **want of safe drinking water** in the major problem list by 14 unions of Dohar Upazila indicates that the people are very conscious about their health now. They are, no longer ready to drink water from a tube well which is contaminated by arsenic, They also know that, and a deep tube well, that penetrates further deep into the ground and extracts arsenic free safe water. So, they rightfully seek for deep tube wells to have safe drinking water in their everyday life.

8.1.2 Issues Identified through Participatory Rapid Appraisal (PRA) at Pourashava Level

Identification of priority problems by the PRA participants at pourashava wards reflects their perception about local problems they face in their everyday life. The major common problems identified by the participants of the unions are,

- Problem of transport and communication
- Lack of health care facilities and services
- Problem of development and maintenance of religious facilities
- Development and maintenance of education facilities
- Absence of safe drinking water.
- Drainage problem

8.1.3 Problems of Transport and Communication

Despite being an urban area, roads in most parts of the pourashava are not paved. Due to lack of budget the pourashava cannot develop all the roads. People living in settlements in the outskirts of the town often have to live a few years in miserable condition without paved roads. Earthen roads become muddy during monsoon and movement becomes extremely difficult for all kinds of road transport including the pedestrians. Potholes are often created in muddy roads by the movement of vehicular traffic that deteriorates road condition further.

8.1.4 Inadequate Public Healthcare

Public healthcare system is traditionally ill maintenance areas outside large cities of the country. Lack of proper medical facilities is a crying need in the entire Pourashava as reported by the PRA participants. The primary causes of poor medical service include absence of doctor and other support staff in public medical facilities, lack of medical equipment and inadequate physical infrastructure. All these cause suffering to the people in having proper medical services. Now days, people are very concerned about their health. They want that health facilities are well equipped including regular presence of doctors. But unfortunately this is not the case in public health facilities far away from large cities. Public health facilities are ill equipped, without having adequate supply of medicine, health equipment and irregular presence of doctors. Poor people often have to private medical facilities spending extra money. This extra expenditure often turns heavy burden on the poor and makes him poorer.

8.1.5 Problem of Development and Maintenance of Religious Facilities

Religious facilities are usually developed on community initiatives. They hardly have any regular income to finance their recurring expenses. So they chronically suffer from financial crisis. PRA participants want that local government allocate regular fund to subsidize their expenses. The religious facilities include, mosque, madrasa, temple, *asram*, etc.

8.1.6 Development and Maintenance of Education Facilities

Like religious facilities, educational institutions are also mostly developed on community initiative. Government facilities are exceptional and adequate compared to demand. Privately developed education facilities always suffer from financial crisis. Because they cannot pay for their recurring expenses from the fees paid by the students. Though government is now paying a large part of the teacher's salary of the recognized private education facilities, but that is not enough.

8.1.7 Absence of Safe Drinking Water

Safe drinking water is not available in all pourashavas, where tube well is the primary source of water. Water has been found contaminated by arsenic in many places. Putting **want of safe drinking water** in the major problem list indicates that the people are very conscious about their health now. Six wards (Ward No.1, Ward No.2 Ward No.3 Ward No.4 Ward No.6 Ward No.7) of the Pourashava mentioned safe drinking water as a major problem. They called for setting up more deep tube wells as sources safe water.

8.2 Critical Issues Derived from Study Reports

The current project, in its terms of reference, called for conducting five study reports on various issues of the upazila. These are,

1. Dohar Upazila Formal-Informal Economic Survey Report
2. Report on Agricultural Survey of Dohar Upazila
3. Report on Hydrological Survey of Dohar Upazila
4. Geological Survey Report of Dohar Upazila

Each of these study reports were prepared based on data collected thorough direct field investigation apart from secondary sources of information. The reports studied existing conditions in selected issues, analyzed them and unveiled critical issues and finally made recommendations to overcome problems. In this part of the chapter, the consultant highlights the critical issues faced by the upazila regarding selected aspects as identified by the studies.

8.2.1 Critical Issues of Dohar Formal and Informal Economy

The formal economic sector comprises the economic activities that are registered with any public sector agency and those who pay taxes. These include, wholesale and retail shops in bazars/ hats, shopping centers; business agencies, bank, insurance companies and registered NGOs. However, there are also primary level information collected directly from the field. Direct inquiries of large employers, Chamber of Commerce and Industries, trade organizations, owners associations and labor unions. Besides, relevant Government agencies (Bureau of Statistics, Ministry of Industry) published reports on employment; investment, production, etc. have been analyzed. Furthermore, Official records of Dohar Pourashava have also been valuable sources of information.

Informal sector economic activities are those that occur informally without having any registration with any government agency and those who don't pay taxes for their income. These are usually small investment and take place on others land, mostly on public space.

For collecting informal sector data at first, reconnaissance survey was conducted across the Upazila. Activities were mostly found in the service sector, with a small number of manufacturing units. Sample surveys were conducted at the household level and the business unit level in trading centers with the help of two separate sets of questionnaire. The household surveys were designed to collect information on employees, type and nature of employment, income level, etc. The business unit level survey was conducted to collect information on investment, production, products for local consumption and export. Under Informal Sector Economic Survey trader/sellers operating in different locations, both in rural and urban areas of the upazila, were interviewed.

Under the current project, the consultant studied three areas of the formal economic sector. These are, Bank and Insurance, NGOs, Industry and Hats and Bazars. The following sections height the critical issues relating to formal and informal sector in the upazila as identified by

the Formal and Informal Sector Study.

a. Bank and Insurance Company

In Dohar Upazila, the total number of Bank and Insurance Companies in operation stands at 22- 12 Banks and 10 Insurance Companies. Ten banks and ten insurance companies have been studied by the consultant. Total number of Bank subscribers is 69,770 in the upazila. Total loan disbursed by all the banks is Tk. 83 crore 4 lakhs. Total Agricultural loan disbursed by the Banks in the study area is Tk. 16 crore 30 lakh. The number of insurance service recipients is 2,300. Total number of premiums due to the subscribers is 1,315 and total premium collected in current year is Tk. 8,35,000.

b. NGO Activities and their Problems

In the formal sector, NGO activities play important role in income generation, particularly, in rural areas as well as in disaster prone areas. They help improving the livelihood of the have-nots. In Dohar 10 NGOs are functioning. They mostly provide micro-credit for income generating investments.

On discussion with NGOs and CBOs the consultant has revealed a number of problems faced by them. A major function NGOs and CBOs is disbursing credit to the low income families to raise their income. The NGOs and CBOs complain that in many cases the members taking credit fail to repay them in schedule time. This puts the NGOs and CBOs in fund crises to deliver further credit to other those who need. The non-payers have been recorded by 50% of the interviewees. Another problem faced by the NGOs and CBOs is that after training and awareness building the trainees are often found reluctant to follow instructions and fail to cooperate with them in attaining objectives of the project. The NGOs and CBOs also face non-compliance by the members of the programmes and lack of government cooperation.

c. Industrial Sector Problems

There is no formal type of industry in the upazila in real scenario. The available so called industries are mostly processing units. During interview with industry owners, questions were asked about the problems they were usually facing. The owners mentioned about following major problems:

- Poor condition of road network is problem in transportation of goods for import of raw materials and export of finished products.
- Insufficiency of fuel, extortion, waste disposal, bureaucratic hassle, lack of skilled man power, lack of capital, insufficiency of loan.
- A handful have trade license except those who are operating in Pourashava area.
- None have (those who need) any EIA and permission from DoE.
- Only a few industry owners provide financial assistance to workers during severe medical cases.
- The industries don't have any formal training system for workers. They learn through working after appointment.
- The industry owners complain of bad communication, waste disposal problem,

bureaucratic hassle, dearth of skilled manpower, lack of capital.

d. Hat and Bazar Problems

Under **Formal Economic Activity Survey** of selected hats and bazars, data were collected from 10 hats and bazars (out of existing 40 hats and bazars) using standard questionnaire and also through focus group discussion and personal interview. It is found that 60% of the hats and bazars are operated and managed by the bazar owners themselves. They also own the bazar land. In 100% cases transportation of goods is done through roadway. Bazar wastes are mostly dumped in nearby fallow land or wet land/roadside areas. Each markets, on average, daily makes a transaction of about Tk. 31 lakh 85 thousand. All markets enjoy power supply facility. All bazars use tube well for extracting ground water.

On enquiry with hat and bazar shop keepers and traders it is revealed that they suffer from multiple problems during business operation. However, here, only the major problems have been highlighted.

- Almost all bazars, except growth Centers have allegation about poor condition of internal roads of bazars that affect movement of goods in and out of bazar. About 30% shop owners made such allegation.
- Poor drainage condition often causes water logging in different places of bazars during monsoon. This has been a major problem in 30% bazars.
- Most bazars do not have any waste disposal facilities not even a dumping site. They dispose their waste indiscriminately that lead to environmental pollution. However, they feel that over the period this might turn into a critical environmental problem in bazaar areas.
- Irregular power supply and poor condition of structures are also problems in bazars.

e. Informal Sector

The consultant carried out a survey of informal sector investor enterprises operating their business on streets or other people's lands.

- Interview with the ten entrepreneurs' reveals that the amount of capital rolling in informal sector businesses varies from Tk. 8,000 to Tk. 30,000 depending on the size of business. About 60% invested amount between Tk. 8,000 to 12,000. Rest of the 40% invested amount between Tk. 15,000 to Tk. 30,000.
- They trade on a large variety of goods and services and sale them at low price.
- Over 60% of their consumers belong to low income groups.
- About 50% have permanent establishments and rest does business either on open sky or under temporary structure or on mobile vehicles.
- Except a few, most of them do business round the year 7 days a week.
- About 60% of the investors earn an income between Tk. 5,000 to Tk 10,000 in a month.
- About 30% have problems of poverty.

f. Problems Faced by Informal Sector Business Entrepreneurs

Doing business in the informal sector is not smooth and easy. They have to encounter a host

of problems in their day to day business. Problems they face in respect of doing trade are as follows:

- The low income informal traders sometimes have to shift business or occupation due to various reasons, like, poverty, self-employment, extortion, personal physical problem or police harassment etc.
- About 30% pointed to poverty, 20% indicated to self-employment and according to 20% respondents, adverse weather is their major problem.
- One who is doing business occupying road space or on other land without permission, has to remain vigilant all the time of intervention either by police or by the land owner. Police intervention often turns into harassment.
- The traders doing business with permanent or temporary makeshift structures on public property are always in a risk of eviction. In case of any demolition of structures, they build them again. Sometimes for safety they have to make arrangements with the land owning authority personnel. If any trader finds doing business in the unused private land profitable, he negotiates with land owner and pay rent for the space.

8.2.2 Problems of Agriculture

8.2.2.1 Land Suitability

Suitability of land for crop production depends on its elevation, flooding depth, soil characteristics, land type & topography, risk factors and socio-economic interventions.

8.2.2.2 Crop Suitability

On the basis of AEZ characteristics, Land and Soil Utilization Guidelines developed by SrDI,2001, purposive visits and discussion with DAE and leading farmers crop suitability of Dohar has been prepared.

8.2.2.3 Land Utilization Pattern in Dohar

Out of the total area of 16149 ha total 13537 ha is land area and 2582 ha is water area.

8.2.2.4 Growth and Decline of Crop land during Last 10 Years

Due to urbanization and rural settlement and other infrastructure net cropped area declined over the last 10 years. But necessity knows no bounds. To combat the situation farmers are intensifying crop land use by producing more than one crop in a year. Therefore the total cropped increased during the last decade (**Table-8.1**).

Table-8.1: Growth/ Decline of Cultivated Land in Dohar

Upazila	Total Cultivated Area (ha)			
	2005-06	2015-16	Growth/Decline (ha)	Growth/Decline (%)

Total	25257	23900	-1357	5 % Declined
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Source: DAE, Dohar, 2016

8.2.2.5 Food Security Status

Dohar upazila is deficit in food grain production. Annual food grain demand is about 33060 tons and annual production is 18814 tons. Total food shortage is about 14244 tons . Among the unions, only Bilashpur is surplus when the rest unions and Dohar Municipality are deficit in food production.

8.2.2.6 Crop Agriculture Challenges

Despite favorable agro-climatic condition crop agriculture of the upazila is confronting various natural and manmade challenges. These are,

- ◆ Despite favourable agro-climatic condition crop agriculture of the upazila is confronting various natural and manmade challenges. These are,
- ◆ Low level of soil fertility,
- ◆ Lack of capital for investment in farming,
- ◆ Lack of farmers' access to technologies,
- ◆ Farm labour crisis, and finally,
- ◆ Lack of incentives due to improper marketing facilities.

8.2.2.7 Problems of Raising Agricultural Production

Following reasons have been identified for low yields in food grain production.

a. Agricultural Practices

Majority of the people of Dohar are engaged in farming, but the farming practices are obsolete. They are not used high yielding technologies. Many traditional crop varieties are either disappeared or in the verge of extinction. In addition, the practice of mono cropping has caused serious deterioration of soil characteristics and a decline in soil fertility as well as productivity. There are also competing demands on land for non-agricultural uses.

b. River Bank Erosion

Riverbank bank erosion is the most common geomorphologic process played by the river Padma and the Arial Kha. Riverbed depth gradually decreases due to accumulation of sediments of eroded materials from the upstream accelerate flood and riverbank erosion. Bank erosion and channel shifting of the untrained rivers are big problems to the local socio-economy and environment. It has a widespread effect on human settlement and agricultural land. It causes displacement of people and loss of farm alnd. PRAs conducted and informal and formal discussions with local people and representatives of service providing agencies revealed that the unions situated partly or entirely on the bank of the mighty river Padma are prone to river bank erosion. Every year hundreds of families lose their valuable household assets, lands and livelihood due to river bank erosion, resulting into migration to other places

or in urban areas. These conditions affect local food production. Most affected unions are Nayabari, Mahmudpur, Narisha, Bilashpur and Muksudpur.

c. Monsoon Flood

Annual flooding during monsoon is common in the floodplains like, Dohar that sometimes become highly devastating. Due to river siltation, the drainage capacity of the rivers and canals is reduced and the narrow outlet created by siltation prolong the duration of flooding. Devastating floods occur in 2/3 years interval that has negative impacts on crop, livestock and fisheries.

d. Water Logging

The main cause of water logging is the siltation in the natural waterways. Low lands are usually being flooded in the early monsoon. Due to inadequate drainage system, and or silted up of drainage channels or illegal encroaching by the influential persons for their interest, water cannot move out. As a result, the low laying areas of the upazila remain inundated for three to four months in the monsoon season. Other causes of water logging are human interventions like, construction of embankments, construction of many unplanned housing and village road networks. Moreover, the problems become acute when people have a common tendency to encroach and/or blocking the waterways for making houses, shops or fish culture etc. Water logging usually remain confined to medium low land to low land areas. In addition to the damage of agricultural crops, drainage congestions affect transportation system. Additionally, it affects surface water quality, causing spread of water borne diseases and other health hazards. Water logging is a acute problem of Dohar Pourashava (Ward no. 1,2 and 5).

e. Brick Fields in Agriculture Land

Brickfields are known to be leading cause of land degradation. Rapid urbanization increases demand for brick and people are establishing brickfields in medium high agricultural lands near the roads. These are fertile lands capable of growing 2-3 crops in a year. Operation of brickfields in the agricultural land is carried out through collecting soils from a depth of about 1- 2 meter from agricultural land. Brickfields in Dohar is degrading topsoil and polluting environment. The brick kilns emit toxic fumes containing suspended matters rich in carbon particles and high concentration of carbon monoxides and oxides of sulphur that are harmful to eye, lungs and throat, which stunt the mental and physical growth of children. A significant amount of wood of this upazila is used for burning bricks every year, causing deforestation. Brick burning not only alters the physio-chemical properties and habitats of the nearby soils, but also contributes to the pollution of environments and ecosystems. The topsoil nutrient elements and soil biota are destroyed through brick burning. Brick burning also increases the concentrations of greenhouse gases in the atmosphere. Evolved heat damages the forest and vegetation surrounding the brickfields and ultimately degrades the natural ecosystem. Smoke, dust and heat generated from the brickfields operation are the

major issues of environmental hazards. Smoke and dust pollute the air of the surrounding areas that affect human settlements, educational institutions, office, market places, etc.

f. Expansion of Settlement, Infrastructure and Industries

Majority of the agricultural land in Dohar Upazila is medium highland and medium land those are suitable for double or triple crops. But due to increased population, these fertile lands adjacent to roads are being converted into settlements, infrastructure, industries, hat-bazar, road etc. These unplanned development of roads and infrastructure are gradually being developed everywhere within the upazila. The people are neither aware of planned township nor they care about the future consequences of land loss for food security of the next generation. These sort of human interventions are aggravating water logging situation. Rapid and unplanned expansion of housing has been considered as one of the great challenges for sustainable agricultural production including the homestead forest. So, increased demands of housing and settlement, infrastructure, industries etc. are reducing the area of agriculture land. It threatens the ecological balance and leads to environmental degradation.

g. Obsolete Agricultural Practices

Majority of the people of Dohar are engaged in farming, but to grow more crops from less areas farmers are practicing high yielding technologies in inappropriate way. Many traditional crop varieties are either disappeared or in the verge of extinction. In addition, the practice of mono cropping has caused serious deterioration of soil characteristics and a decline in soil fertility as well as productivity. There are also competing demands on land for nonagricultural uses.

h. Improper Use of Fertilizer and Agro-Chemicals

Although fertilizer is one of the most important agricultural inputs to increase crop production, the soil health has deteriorated in recent years due mainly to imbalanced use of fertilizers. In our condition, urea is used in disproportionate dosages, while the other fertilizers like TSP & MoP are used in much lower dosages than the requirement. This imbalanced use of chemical fertilizers is mostly due to a lack of appropriate knowledge of the farmers for cultivation of different crops, non-availability of site-specific soil fertility information and high prices. Sometimes, unavailability of required fertilizers during peak demand periods and their defective distribution system impeded the use of fertilizers in required quantity.

As proper pest management is a contributing factor for increasing production. Pesticides of all types are available but there is a marked lack of quality control. Consequently, excessive and haphazard use highly poisonous pesticides deteriorating quality of food crops as well as the environment. In most cases farmers do not follow recommended doses. Indiscriminate use of chemical pesticides and excessive use of chemical fertilizers increase water pollution cause declining the aquatic bio-diversity.

i . Supply of Poor Quality Seeds

Seed situation is another serious constraint on raising yields. The availability of quality seed is far from satisfactory level. It is estimated that only 5% of the seeds used in the region are of good quality. People involved in agricultural business agree that the seed issue is also to a larger extent a question of quality. Stagnation or decline in the yields have been partly attributed to the fact that farmers use too much retained seeds from earlier harvests rather than renewing the seed and also that many modern varieties are losing their vigor.

8.2.2.8 Fishery

Fishery sector has been marked with following problems.

- ◆ Degradation of Wetland Ecosystems
- ◆ Siltation of Riverbed
- ◆ Catching of Brood Stocks and Juveniles of Hilsa
- ◆ Loss of Biodiversity

a. Degradation of Wetland Ecosystems

Wetlands are among the productive and economically valuable ecosystems. Wetlands prevent flooding by holding water mass like a sponge. It holds water during monsoon and releases in drought. Both natural factors and manmade unplanned interventions are mainly responsible for the degradation of terrestrial and aquatic ecosystems. Due to tremendous pressure of population with limited economic resources, the ecosystems have gone under modification and alteration by human activities at various levels. The major elements of destruction are siltation, building infrastructure with inadequate drainage facilities, destruction of forest, wetland filling, improper fishing practices, water hyacinth, drying up of wetlands etc. In addition, people are converting low lying areas of the upazila for multipurpose commercial use, filling up fertile lands to build housing and similar other activities. This illegal practice is degrading the nature of wetland ecosystems.

b. Catching of Breed Stocks and Juvenile Hilsa

The Jatka is the juvenile form of Hilsa fish. The biology and ecology of the Jatka are distinct from the adult Hilsa. Conservation of Jatka is important as juvenile species should not be fished before they reach maturity. Removing the fish before breeding age prevents reproduction processes, and therefore reduce continued growth of the Hilsa species. Economically, Jatka are smaller, therefore, has considerably less market value too. It migrates into the Padma River and its tributaries from the Bay of Bengal for breeding and nursing. Man-made influences, river siltation, closure of migratory routes, over-fishing, uses of damaging fishing gears, pollution, hydrological and climatic changes are responsible for the decline of Hilsa fish. Hilsa have significant ecological, economic and cultural importance, and are currently the focus of conservation efforts to preserve the sustainability of the fisheries.

c. Loss of Biodiversity

Dohar upazila has been rich in biodiversity. But due to both natural and manmade factors like

siltation of water channels, abuse of wetlands and disruption of aquatic network by constructing unplanned roads, embankments, expansion of housing and blocking of water channels, etc. the abundance and diversity of extremely valuable open water fisheries resources of this region are in declining trend. On the other hand, polluting the open water by runoff coming from over doses of fertilizers and pesticides/insecticides in the agricultural land etc. greatly influence the degradation of the aquatic environment and its resources. Indiscriminate using of destructive fishing gears like set bag net and current net, wetlands declined due to irrigation, destructive gears, industrial effluents, increased population, unplanned interventions for spawning & nursing and vice versa. Almost all the unions and the Dohar municipality is more or less affected by bio-diversity loss phenomena.

8.2.2.9 Livestock

Substandard feeding and improper management practices negatively affecting the productivity of the livestock and poultry sub-sector.

- ◆ Technical and Management Problems
- ◆ Inadequate Coverage of Animal Health Service
- ◆ Scarcity of Feeds and Fodder

Marketing of Agro-commodities

- i) Presence of large numbers of middlemen ii) Farm holdings are very small and scattered
- iii) Lack of sustaining power of farmers and access to storage and credit facilities
- iv) Unsatisfactory condition of the rural markets and unregulated market practices
- v) Lack of transport facilities
- vi) Poor handling, Packing, Packaging and Processing Facilities
- vii) Inadequate Storage Capacity and Warehousing Facilities
- viii) Adulteration of produce and Malpractices in the Market
- ix) Lack of farmers' organization.

a. Technical and Management Problems

The agriculture of the upazila suffers from some technical and management problems as follows.

- Most small farmers lack financial resources to establish dairy, poultry units. Absence livestock production-related extension service (e.g., upazila-level livestock service is limited to mostly clinical veterinary services, and a limited breeding service is available).
- Unavailability of high growth rate and high meat yielding beef cattle/ doe for fattening. Farmers are mostly unaware of semi-intensive system of goat production.
- Poultry farmers lack technically skilled manpower, shortage of quality chicks/ breeding materials,

b. Inadequate Coverage of Animal Health Service

The ratio of veterinary surgeons to farm animal and poultry is as low as 1/100,000 for livestock and 1/2,000,000 for poultry. The problem is again aggravated with poor transport network leaving 80 percent of the farmers outside of veterinary service. Only about 15-20 percent of farm animals are occasionally vaccinated. Private sector investment in the animal health sector remains low and is unlikely to expand in the future, unless provided adequate policy support and extension service. While the quality and quantity of vaccine, medicine and veterinary service delivered by the DLS are inadequate, the private sector is not coming up. There is no independent authority to check the quality of domestically produced or imported vaccine, medicine, feed and other inputs and there are no provisions for control of movement and quarantine during disease outbreak or epidemics.

c. Scarcity of Feed and Fodder

Acute shortage of feeds and fodder is one of the single most important obstacles to livestock development in Bangladesh. Feed resources for livestock are primarily derived from crop residues and by-products such as straw, grass and tree leaves. Supplementary and concentrate feed are provided rarely and inadequately. This has resulted in stunted growth, reproduction and reduced productivity. Most of the dairy, poultry and fish farmers are facing the problem of adulterated and inferior quality of commercial feeds and feed ingredients. Feed labeling and control is inadequate. Most feed millers do not disclose the necessary information on the packaging with regards to feed composition, ingredients, date of manufacturing, date of expiry, storage guidelines, energy levels, and protein and vitamin contents. Further, poor packaging causes quicker spoilage and deteriorating quality and threatening livestock, fish and human health. High price of feeds and fodder are also a problem for the smallholder livestock and fish farmers.

d. Marketing of Agro-commodities**i. Crop**

Lack of organized market for selling farm produce is a problem for the upazila. The salient features of agricultural product markets of the region are poor infrastructure, with lack of cool chains, inadequate transports, storage and processing facilities, poor local roads and communication system, unfair practices of middlemen, etc. The farmers of char lands are suffering with inadequate transport and with small number of petty traders (farias). The marginal and small farmers are often facing problem of marketing their products and are not getting fair price due to existence of trade syndicates.

ii. Supply Chain Management of Fisheries

Although aquaculture production has experienced remarkable growth recently, a business-friendly supply chain still lags behind. Due to long and complex marketing system, producers are not getting proper price for their farm products, where consumers are paying more. As fish and fish products are most perishable goods, but there is a dearth of physical facilities

and infrastructure necessary for postharvest management of fish and fish products in the upazila.

8.2.3 Hydrological Problems

Following hydrological problems have been found:

- River erosion on areas close to the Padma river is devouring agricultural land, establishment and homestead property.
- Local khals being silted up due to sedimentation, causing drainage and irrigation problem.
- As water cannot pass, drainage congestion is created posing impediment to land cultivation.

8.3 Summary of Critical Issues for the Upazila

8.3.1 Beneficiary Identified Issues

Analyzing the findings of PRA, both, at Union and Pourashava level, shows that some issues are common in both the areas. In Pourashava ' Development and Maintenance of Religious Facilities' has come as a major problem. The consultant has the feeling that this is not a well thought issue, as almost all these facilities are established and maintained by the local communities themselves. The consultant aims to focus on the problems associated with public sectors provided facilities and services. So, the issue Development and Maintenance of Religious Facilities' has been excluded from the priority problem list. Finally, the consultant has come to the following list of critical issues for the upazila as ascertained through public consultation:

- Problem of Transport and Communication
- Electricity Connection
- Public Health Services
- Lack of Safe Drinking Water
- Development and Maintenance of Education Facilities

The above issues have already been discussed in the preceding sections.

The above critical problems have been highlighted by the beneficiary people of the upazila that they encounter in their everyday life. But these issues are not enough to be addressed to bring about a comprehensive and inclusive development of the upazila. This necessitates expert view about other problems and issues that have been left out by the beneficiary people. In the following sections, other major critical issues have been focused with a view to address them in the Structure Plan.

8.4 Impacts of the Padma Bridge and Other Development Initiatives

Government is undertaking major transport sector development projects in the southern region. These will have impact on Dohar and adjoining areas as stated below:

1. Travel time from Dohar to Dhaka and southern region will be reduced. Easy and quick mobility will increase transportation of goods and passengers.
2. Business in local markets will be enhanced, new shopping Centres, markets and industries will crop up.
3. Quick and cheap connectivity will enhance import and export of the upazila from and to Dhaka.
4. New development will cause rise in land value, benefiting the large land owners. These will also enhancement of government revenue in the form of capital gains tax and holding tax.
5. Conversion of agricultural land to non-agriculture will increase. This will cause reduction in farm land reducing of local crop and vegetable production.
6. Many farm families will become rich selling their land and change their occupation from agriculture to non-agriculture.

CHAPTER-9: STRUCTURE PLAN POLICIES AND RECOMMENDATIONS

9.0 Introduction

Chapter 9 of the development plan states about policy recommendations. It begins with definition of the structure plan and determines vision and objectives of the plan. The Chapter states about planning and duration, followed by approach to planning. It determines the development priority and next states the policy recommendations and strategic actions.

9.1 Structure Plan

Structure Plan is one of the five plan components under this plan package. Structure Plan is a strategic plan that sets forth long term development policies and strategies covering a single or multiple issues. It is an indicative and flexible plan mostly in written form; it may also show major development proposals through design and maps in indicative manner. Structure Plan is often supported by maps and diagrams to illustrate the themes presented in the plan. Structure Plan with its policies and recommendations provides guidelines for lower level plans.

9.2 Objectives of the Structure Plan

Structure Plan has some definite tasks to perform in the total development initiative of the upazila. The main purpose of the Structure Plan is, actually, to serve as a guide to detailed development plans. It sets out a set of guiding principles for future development of the upazila. Following are the broad objectives of the Dohar Upazila Structure Plan:

- (i) Determination of a set of long-term policy guidelines for future development of the upazila.
- (ii) Translation of National and Regional policies at local level.
- (iii) Make best use of land resources and conservation of environment and ecology.
- (iv) Ensure organized development through control and regulation of development.

9.3 Planning Area Coverage and Plan Duration

Present structure plan covers 161.49 sq km of the entire Dohar Upazila, including all its unions and the Pourashava. This Structure Plan is prepared for a period of 20 years. It will remain valid up to 2038.

9.4 Approaches to Planning

The primary objective of the current planning initiative is to formulate a 20 year Structure Plan for Dohar Upazila that will reflect the aspirations of the local people for next twenty years mitigating the problems they face in their everyday life as well as to fulfill their future aspirations. Again, during addressing the issues of the desires, the consultant shall take into account the relevant national development policies and strategies as well. However, for a holistic development of the upazila it would not be enough to stop by fulfilling the local selected desires only, but go further to meet the total development needs of the upazila. But the aspirations and desires expressed by the local people shall always remain at the top of the

list. To understand aspirations of the people, the consultant carried out extensive PRA sessions at Union and Pourashava levels. These sessions revealed the local problems, potentials and development needs of the people. Analyzing the PRA findings the consultant shall determine the priority needs of the upazila people. Besides, the consultant also conducted study report on various issues of the upazila that also reveals problems and issues of the upazila in the relevant fields. A vision has been developed for the current planning exercise considering the aspirations of the people.

9.5 PRA Findings of the Priority Development Problems

9.5.1 Determination of Priority Development Problems at Union Level

- Problem of transport and communication
- Problem of safe drinking water
- Infrastructure Problem in educational institutions
- Problem of river erosion

9.5.2 Determination of Priority Development Problems at Pourashava Ward Level

- Problem of transport and communication
- Absence of safe drinking water.
- Development and maintenance of education facilities
- Problem of water logging and drainage
- Problem of Development and Maintenance of Religious Facilities

9.5.3 Summary of Upazila Priority Development Problems

- Problem of transport and communication
- Problem of safe drinking water
- Infrastructure Problem in educational institutions
- Problem of river erosion
- Problem of water logging and drainage

9.6 Summary of PRA Findings of the Priority Development Needs

The consultants asked the PRA participants to identify their priority development needs for three phases of their execution-short term, mid-term and long term periods of execution. The intention is to select top three demands as identified through PRA for three phases of implementation.

It is evident that the participants, both, in rural and urban areas stressed on **Development of road communication** in short and mid-term phases. It means, this facility is highly demanded by the local people. So this will come as the top most priority. For next priorities, the participants identified **improved sanitation** as the most critical one. So, this problem demands priority in the development list. They also listed **Safe drinking water** as a major priority consideration in the development list. **Improvement of drainage** is an urban area development need as drainage system extremely poor in the Pourashava.

So, the final development priority list is as follows:

- Development of road communication

- Improved sanitation
- Safe drinking water
- Prevention of river erosion
- Improvement of drainage

9.6.1 Transport and Communication

9.6.1.1 Present Scenario

According to physical feature survey, the upazila has, a total, 452.51 km of road network with 241.98 km pucca road and 101.4 km earthen road. About 66.37% road is however eastern Dohar is well linked with surrounding upazilas and districts including the capital city Dhaka. One regional highway (ZKDH) passes through Dohar and joins Dhaka-Mawa Highway through Srinagar. But condition of the road is poor. The pavement condition of other roads is also bad which causes strain in making vehicular journey.

Table-9.1: Road Category of Dohar Upazila

Road Category	Length (Km)
Regional Road	16.63
Zilla Road	22
Upazila Road	43.10
Union Road	47.28
Village Road	323.50
Total Length	452.51

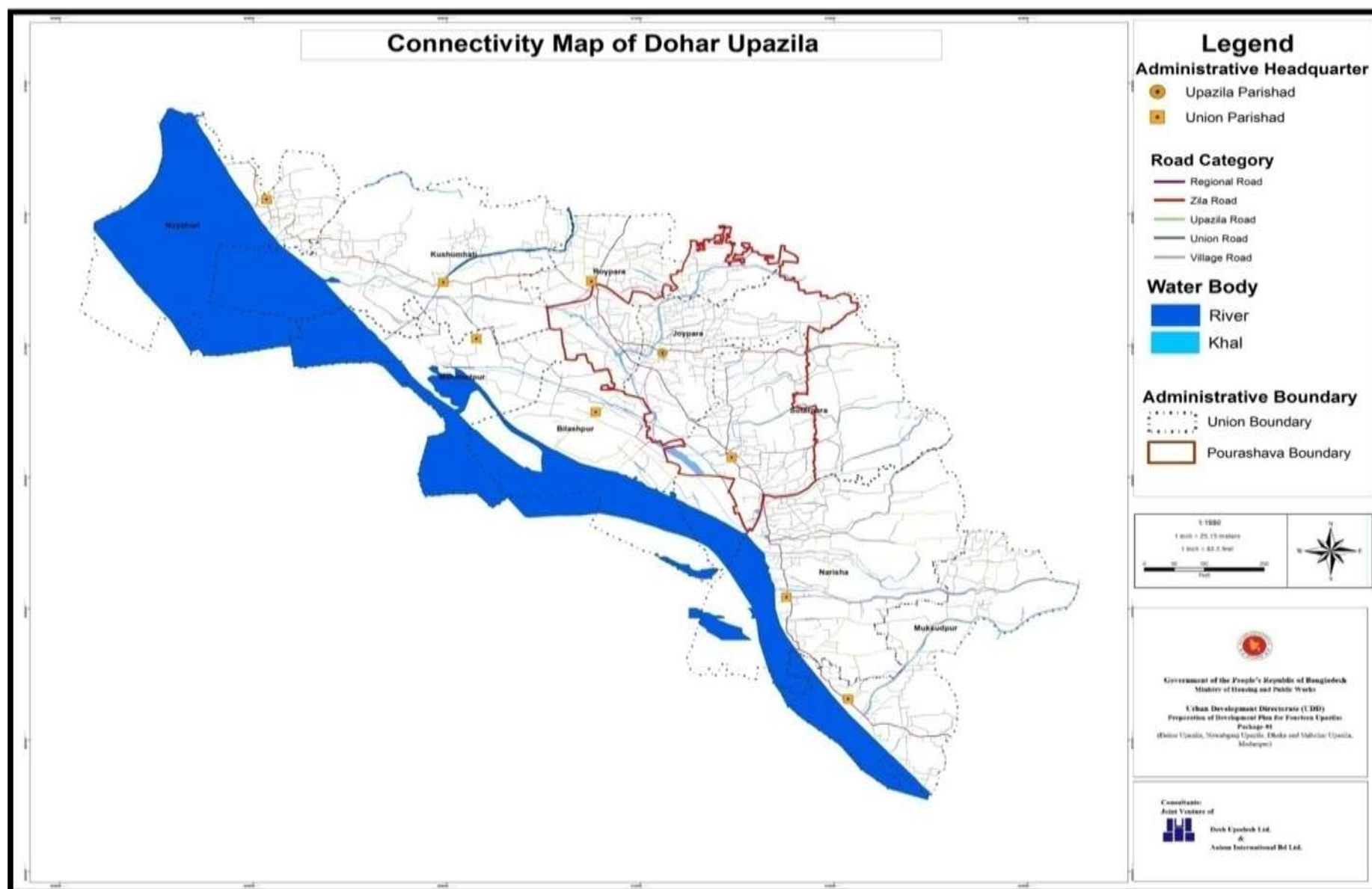
Source: Field Survey, 2016

Table-9.2: Road type of Dohar Upazila

Road Type	Length (KM)
Kacha	101.4
Pucca	241.98
HBB	109.13
Total	452.51

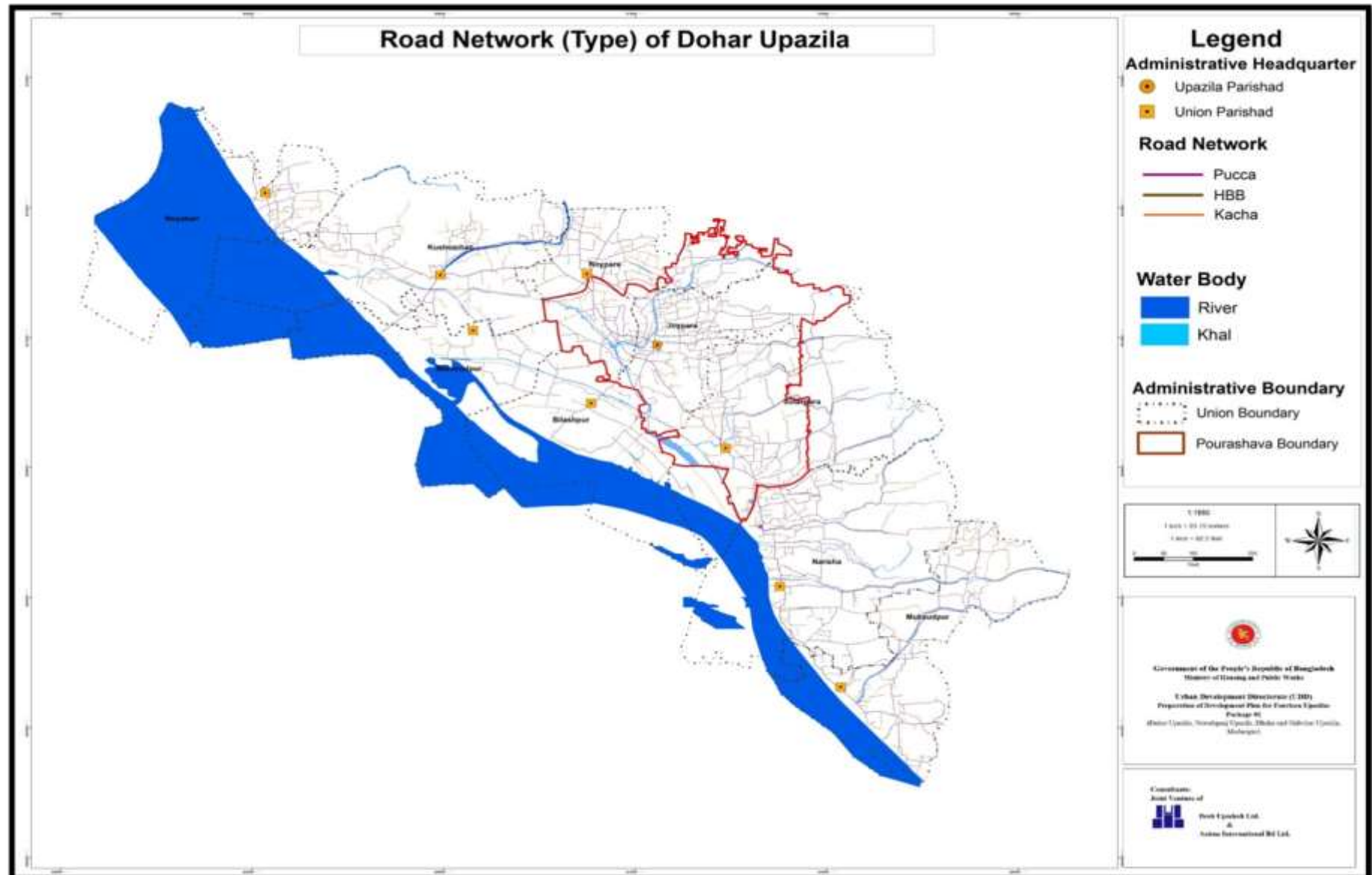
Source: Field Survey, 2016

Map-9.1: Road Connectivity Map of Dohar Upazila



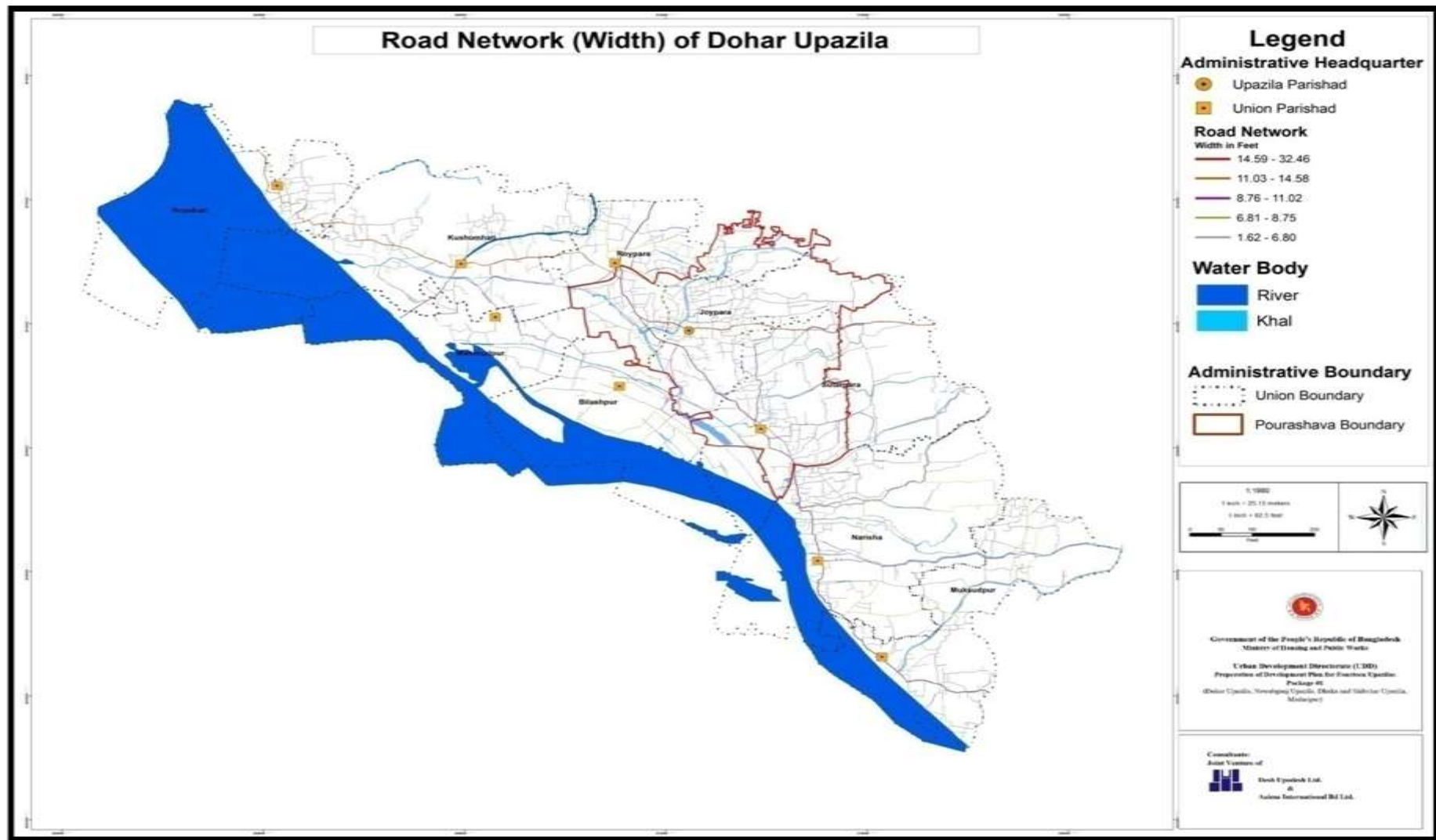
Source: Field Survey, 2016

Map-9.2: Road Type Map of Dohar Upazila



Source: Field Survey, 2016

Map-9.3: Road Width Map of Dohar Upazila



Source: Field Survey, 2016

9.6.1.2 Policy and Strategic Action**Policy-TRANS/ 1: ENSURE SMOOTH TRAFFIC MOVEMENT IN NATIONAL AND REGIONAL HIGHWAYS THAT PASS THROUGH BAZAR/HAT/COMMERCIAL AREAS**

This is necessary to ensure easy and uninterrupted mobility of passengers and goods within and across the upazila to keep the wheels of progress on move. Easy and faster mobility would gear up human interaction and better distribution of goods and services, thereby promoting economic progress including generation of employment.

Strategic Action

1. Creation of physical segregation of the highway from the local activities and local traffic including manually operated vehicles.
2. Service roads can be created on both sides with physical barrier from the main highway.
3. Highway can be elevated in activity area.
4. Allocation of fund for highway development.

Responsible Agency: RHD

Policy TRANS-2: ENHANCE CONNECTIVITY WITH THE CAPITAL CITY**Strategic Action**

1. Development of quality regional highway connecting Dhaka.
2. Service roads can be created on both sides with physical barrier from the main highway to allow easy movement of inter-regional.
3. Allocation of fund for highway development.
4. Develop a bus terminal in Dohar.

Responsible Agency: RHD, LGED, Pourashava

TRANS-3: ENHANCE CONNECTIVITY AMONG LOCAL HATS AND BAZARS

Improved connectivity among hats/bazars/growth Centers will ease and increase transaction of goods and services promote business and increase employment.

Strategic Action

1. Development of Quality Regional Highway/Feeder Road and Local Roads connecting local hats and bazars.
2. Allocation of fund for road development.
3. Road can be developed on incremental basis- acquisition of land first and road development later on when the road would be highly needed.

Responsible Agency: RHD, LGED, Upazila Parishad

9.6.2 Sanitation**9.6.2.1 Present Scenario**

Dohar Upazila had 49110 households in 2011; 86.00% had sanitary latrines of different kinds. Only 12.8% did not have any kind of sanitary latrine and 1.2% did not use any latrine at all. Among the sanitary latrine users, 28.5% used water sealed latrine and 58.00% used non-water sealed latrine. In PRA people showed eagerness to improve their latrine conditions and put it in their priority desire list.

9.6.2.2 Policy and Strategic Action**Policy-SANI/1: PROVIDE SOFT CREDIT FOR HAVING SANITARY LATRINE BY ALL HOUSEHOLDS.**

Healthy manpower is needed because a healthy house can provide healthy manpower for productive use and healthy sanitation is conducive to healthy manpower.

Strategic Action: 1. Bangladesh Bank can undertake a project to provide soft credit for purchasing healthy sanitation.

9.6.3 Safe Drinking Water**9.6.3.1 Present Scenario**

Drinking water is contaminated by arsenic in some parts of the upazila. People of that areas are concerned about their health. They demand mitigation of the problem.

Policy-WATER/1: POPULARISE ALTERNATIVE AND SUSTAINABLE SOURCES OF WATER

Sustainable solution to arsenic problem does not lie in deep tube well, as believed by the common people. Sustainable solution lies in renewable sources of water.

Strategic Action:

1. People in arsenic prone areas should be adapted to surface water use and rain water use.
2. Measures should be taken to popularize both sources.

Implementing Agency: Upazila Parishad, Pourashava, NGO

9.6.4 River Erosion**Policy-EROSION/1: TAKE PERMANENT AND SUSTAINABLE MEASURES FOR PREVENTION OF RIVER EROSION**

Dohar is situated on the bank of the river Padma. The Padma is the largest river that carries huge upstream water from the north during monsoon. Its banks at different points are subject to regular erosion that causes loss of land and properties in it. People, subject to erosion, lose their everything, source livelihood and shelter. This is a major cause of poverty in this region.

Strategic Action: 1. Build strong embankment cum road all along the Padma bank.

Implementing Agency: BWDB

9.6.5 Economy Scenario: Agriculture, Industry, Informal Economic Activities**9.6.5.1 General Economy**

Regarding employment in this upazila, 52.64% is engaged in agriculture, 11.04% in industry and 36.32% in the service sector (Dhaka Zilla Community Tables, BBS and Population Census 2011).

The upazila has one animal husbandry treatment centre with 3 doctors, 1 artificial breeding centre, 96 poultry farms and 22 livestock farms. Main exports of the upazila are, Jute and paddy.

Trading in the upazila is carried out through 24 hats and bazars and 10 bank branches. The upazila has 781 cottage industries and 3 medium scale manufacturing units.

Table-9.3: Number of Growth Centre, Hat/Bazar, Poultry Farm, Dairy Farm, Nursery, Horticulture Centre, Brick Kiln, Decorator Service (2011)

Item	Number
Hat/Bazar	24
Poultry farm	96
Dairy farm	22

Source: Field Survey, 2016

9.6.5.2 Agriculture

a. Crop Agriculture

The economy of Dohar Upazila is primarily based on agriculture as it is the main sources of income of the people. The main crops of the upazila are Boro paddy, Aman paddy, potato, jute, mustard, pulse. Extinct crops are, Aus paddy, tobacco.

Main fruits of the upazila are mango, guava, papaya, jack fruit, coconut, litchi, banana, etc. Following is the present agriculture scenario of the Upazila:

- ◆ Total land area is 9216 ha dominated by medium lowland (3025 ha) followed by Low land (2810 ha);
- ◆ The area is flooded up to 3-6 m in the monsoon; depressions are observed where water remains round the year.
- ◆ Almost all the rivers used to over flow and submerge the plain lands during monsoon; due to erection of embankment on the bank the Padma has stopped flooding in most of the adjacent areas
- ◆ Dohar has excellent reserve of ground water both at the lower and upper aquifers.
- ◆ General soil types predominantly include Calcareous Dark Grey and Calcareous Brown Floodplain soils.
- ◆ The soil nutrient condition is moderate.
- ◆ During the last 10 years about 7% cultivable land has been lost due urbanization and other non-agricultural purposes; decrease in cultivated land is maximum in Nayabari, Municipality and Bilashpur.
- ◆ Poor farmers, 17342 (39% marginal and 31% small farmers dominate the farming community.
- ◆ Present Cropping intensity is about 162 % with highest intensity in Narisha, Kushumhati unions and municipality area
- ◆ Dohar upazila is deficit in food grain production. Annual food grain demand is about 33060 tons and annual production is 18814 tons; total food shortage is about 14244 tons.

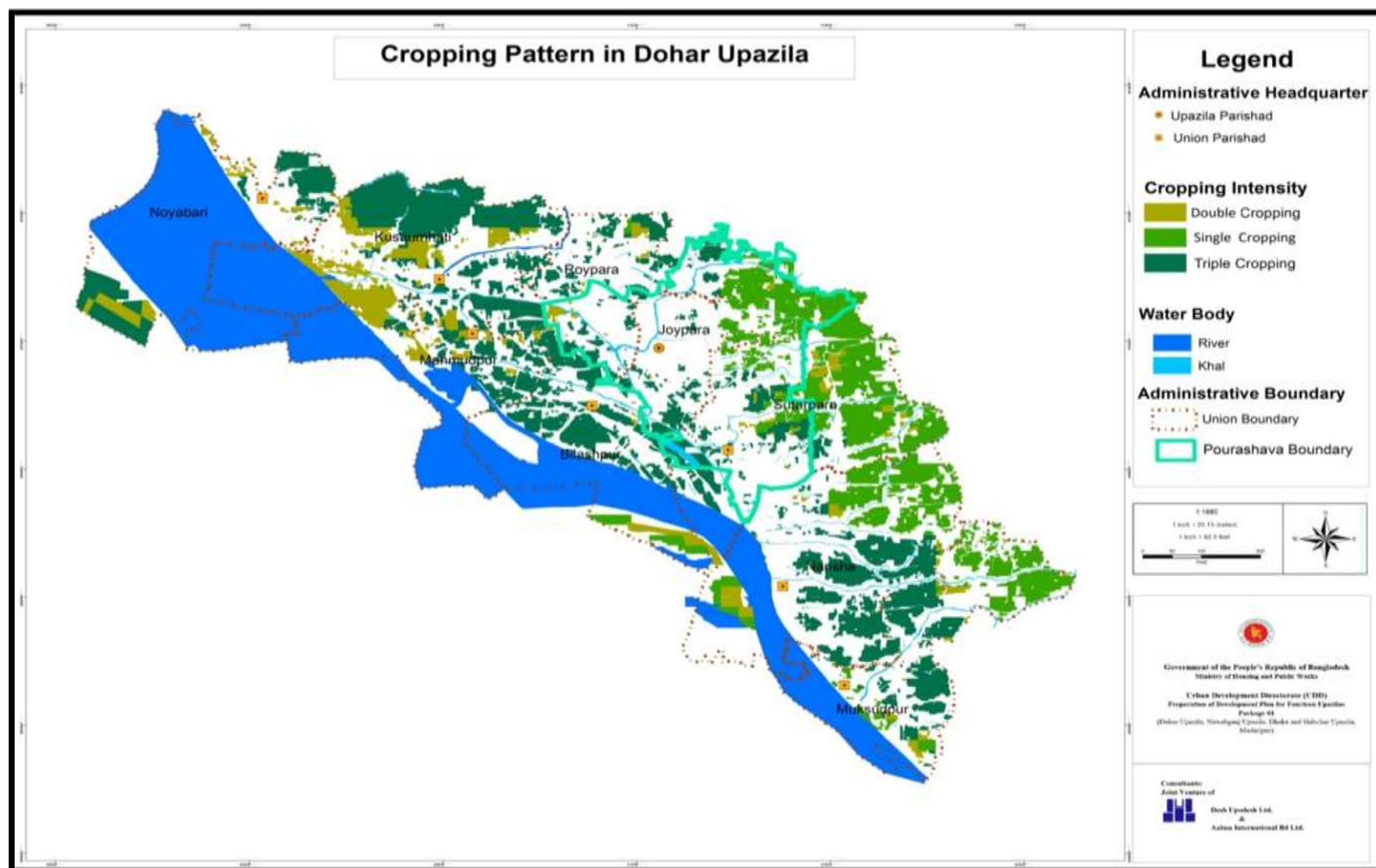
Cropping Pattern	Area in sqkm	Area in acre	Percentage (%)
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Table-9.4: Cropping Pattern of Dohar Upazila

Single Cropping	13.2955	3285.3987	31.36
Double Cropping	5.5857	1447.7240	13.83
Triple Cropping	23.239	5742.6495	54.81

Source: Field Survey, 2016

Map-9.4: Cropping Pattern Map of Dohar Upazila



Source: Field Survey, 2016

b. Livestock and Poultry

- ◆ Animal farming emerging as an important economic sector in the rural economy;
- ◆ Livestock sub-sector comprised of cattle, buffalo, goat & sheep rearing as well as poultry/duck farming;
- ◆ Cattle Farming: there are 50 small scale and 248 large cattle farms and total population of cattle is 1490 in the upazila.
- ◆ There are 128 Beef Fattening Farms with total capacity of 640 cattle heads.
- ◆ There are 185 small 114 large poultry farms are operating in the upazila.
- ◆ Goat Farming: There are 60 small 134 large goat/sheep farms in the upazila.

c. Inland Aquaculture

- ◆ The landscape of Dohar upazila comprised of the floodplains of Ganges and the Arial Beel posses' potentials for inland fisheries.
- ◆ Pond culture, capture fisheries canals, dishes, etc. are common practices in the upazila.
- ◆ At present fish culture in the paddy fields are gaining popularity are gaining popularity in the upazila .
- ◆ During the last 10 years fish production decreased by 26 %.

9.6.5.3 Industry

There is no industry in the upazila in its real sense. No notable industrial concern exists in the upazila. Commonly, the small scale processing units are termed as industry where less 10 persons are engaged as workers. Cottage industries, like, Goldsmith, blacksmith, weaving, handloom, embroidery, wood work, bamboo work is available. The upazila has only 781 hand loom factories and 3 other industries.

9.6.5.4 Informal Economic Activities

In a developing country like Bangladesh with huge population and high illiteracy rate, low level of technology and low investment, it is normal that a large section of the population cannot be absorbed in the formal sector of employment. According to World Bank Chief, if Bangladesh can attain a GDP growth rate of 8%, its unemployment problem would be substantially solved. Upazilas are the grass root level development units where economic activities are taking place, both, at formal and informal levels, but the informal sector is still far ahead of the formal sector. The entire agriculture sector and the rural business sector are informal in nature.

Over 60% of their consumers belong to low income groups. About 50% have permanent establishments and rest does business either on open sky or under temporary structure or on mobile vehicles.

Except a few, most of them do business round the year 7 days a week. About 60% of the investors earn an income between Tk. 5,000 to Tk 10,000 in a month.

The most important aspect of informal sector is that they are the sources of livelihood of millions of rural families in an environment where there is acute scarcity of employment. Doing business in the informal sector is not smooth and easy. They have to encounter a host of problems and challenges every day in doing business as evident from the study conducted by the consultant. These are:

- I. As they usually do business on street side and on public land as a result they are always at risk of eviction. About 30% have to face hoodlum including police harassment. One who is doing business occupying road space or on other land without permission, has to remain vigilant all the time of intervention either by police or by the land owner. Police intervention often turns into harassment. The traders doing business with permanent or temporary makeshift structures on public property are always in a risk of eviction. In case of any demolition of structures, they build them again, after the demolishers are gone.
- II. The low income informal traders sometimes have to shift their business or occupation due to various reasons, like, bad weather, eviction, locational disadvantage.
- III. About 60% of them invested amount in informal business is between Tk. 8,000 to Tk. 12,000.
- IV. About 100% of the investor had to take credit for doing business.
- V. About 30% have problems of poverty. The low income informal traders sometimes have to shift business or occupation due to various reasons, like, poverty, self-employment, extortion, personal physical problem or police harassment.

The government policy should aim at gradually formalizing the informal sector activities by strengthening their capacity. Formalising the informal sector activities will boost not only the economic status of individual families, but also add to the government revenue as they would attain the capacity of paying taxes. It is the responsibility of the government policy makers to gradually make the informal sector stronger so that revenue can pour in greater extent to the government account that can be put into further development of the country. Informal sector is still, the largest sector of employment for huge unskilled and underemployed labour force. It is also playing a key role in supplying the cheap labour to the formal sector and help generating extra profit for the entrepreneurs.

9.6.6 Policy and Strategic Action

There is continuous growth labour force in rural areas of Dohar. a strong rural economy can absorb a substantial part of the growing rural labour force. The educated rural residents usually find jobs in the urban job market, while a large segment of the illiterate and impoverished group remain in rural areas. A strong and vibrant rural economy can make use of the growing rural labour force, reducing the rate of rural unemployment. The following policies, strategies and actions are worth consideration for revitalizing the rural economy.

Policy RU/ECON-1: LAY STRONG EMPHASIS TO DEVELOP RURAL INFRASTRUCTURE

Development of infrastructure, like, road, power, irrigation, prevention of river erosion and flood protection will boost rural economy. Surplus rural capital will be invested in farm and non-farm activities creating new jobs.

Strategic Action

1. Gear up infrastructure development activities with domestic and foreign funding.
2. Greater role to be played by REB, BADC, Krishi Bank, LGED, BWDB by taking up more development projects.

Responsible Agency: Upazila Parishad, REB, BADC, Krishi Bank, LGED, BWDB

Policy RU/ECON-2: IMPOSE BAN ON NON-FARM DEVELOPMENT ON FARM LAND

To protect valuable farm land it is urgent that ban is imposed on development in farm land. This is necessary to ensure food and cash crop security of the nation.

Strategic Action

1. Enact law on protection of farm land and execute it without further delay.
2. Finalize the draft law on protection of farm land already prepared and get it approved in the Parliament.

Responsible Agency: Ministry of Agriculture, Ministry of Housing and Public Works, Ministry of Law and Parliamentary Affairs, Upazila Parishad.

Policy RU/ECON-3: INTRODUCE PERMIT SYSTEM FOR CONSTRUCTION IN RURAL AREAS

To protect valuable farm land and organize development to ensure livable environment a system of permission for any development should be introduced for rural part of the upazila. .

Strategic Action

1. Enact regulations on building permission in rural areas.
2. Amend Bangladesh Building Construction Act 1952 incorporating necessary regulations for building permission in rural areas. .

Responsible Agency: Ministry of Agriculture, Ministry of Housing and Public Works, Ministry of Law Parliamentary Affairs, Upazila Parishad,

9.6.7 Strategic Land Use Zoning**9.6.7.1 Present Scenario**

Present land use of the upazila is dominated by agricultural land. About 40.08% of the total upazila is under agriculture. The next land use is water body including river, khal and pond constituting about 26%; rural homestead covers 8.88%. In Urban part a total chaos is observed where mixed land use is observed. This is again subject to continuous change due to many socio-economic factors. Conversion of housing to commercial is more prominent in commercial areas.

9.6.7.2 Objective, Policy and Strategic Action

a. Objective

To create a broad land zoning with the aim mainly to conserve agricultural land and environmentally sensitive areas.

b. Policy and Strategic Action

Policy Land/Use-1: CREATE BROAD LAND USE ZONING TO IMPOSE CONTROL ON HAPAHZARD DEVELOPMENT

To protect valuable farm land and organize development to ensure livable environment a broad land use zoning is necessary.

Strategic Action

1. Enact regulations on building permission in rural areas.
2. Amend Bangladesh Building Construction Act 1952 incorporating necessary regulations for building permission in rural areas.

Responsible Agency: Ministry of Agriculture, Ministry of Housing and Public Works, Ministry of Law and Parliamentary Affairs, Upazila Parishad,

Policy Land/Use-2: PREPARE MORE DETAILED LANDUSE ZONING FOR POURASHAVA AREAS.

Land use development is more intensive in Pourashava areas. So, more detailed zoning is necessary for urban part of the upazila.

Strategic Action

1. Apply Pourashava land use zoning for controlling building permission.
2. Maintain maximum possible flexibility in the land use to enable development where pressure high for development permission.

Responsible Agency:

Ministry of Agriculture, Ministry of Housing and Public Works, Ministry of Law and Parliamentary Affairs, Upazila Parishad, Ministry of LGRD and the Dohar Pourashava.

9.6.7.3 Strategic Land Use Zoning

For future planned development of the upazila and as well as to protect natural resources including agriculture and major water body, the consultant has prepared a strategic land use zoning plan for the entire upazila. The Upazila has been divided into 11 strategic zones, these are, **Agriculture, Circulation Network, Water Supply Protection Zone, Rural Homestead, Core Urban Area, Potential Urban Area, Fringe Urban area, Restricted Special Zone, Water Body, Main and Sub Flood Flow Zone.**

Agricultural lands are cultivated and cultivable lands that have to be protected for food safety of the country. It is about 24.22% of the total upazila area; circulation network (1.92%) covers all roads and other transport facilities; conservation zone covers the highest amount (39.17%) of land of the upazila that include, main flood flow zone, sub-flood flow zone, restricted special, water supply protection zone and water body that will have to be brought under control. Char area is included in restricted special zone as future development won't be occurred in this area. Rural homestead (20.44%) encompasses rural housing structures and

surrounding vacant land and vegetations. Urban settlement (14.25%) includes the entire pourashava area as core urban area (2.41%), potential urban area (4.95%) and fringe urban area (6.89%) (**Table-9.5**). Major development proposals of the Plan are hospital with ICU and CCU facility (20 acres), industrial zone (150 acres), housing estate (150 acres), solid waste disposal site (10 acres) and mini stadium (20 acres).

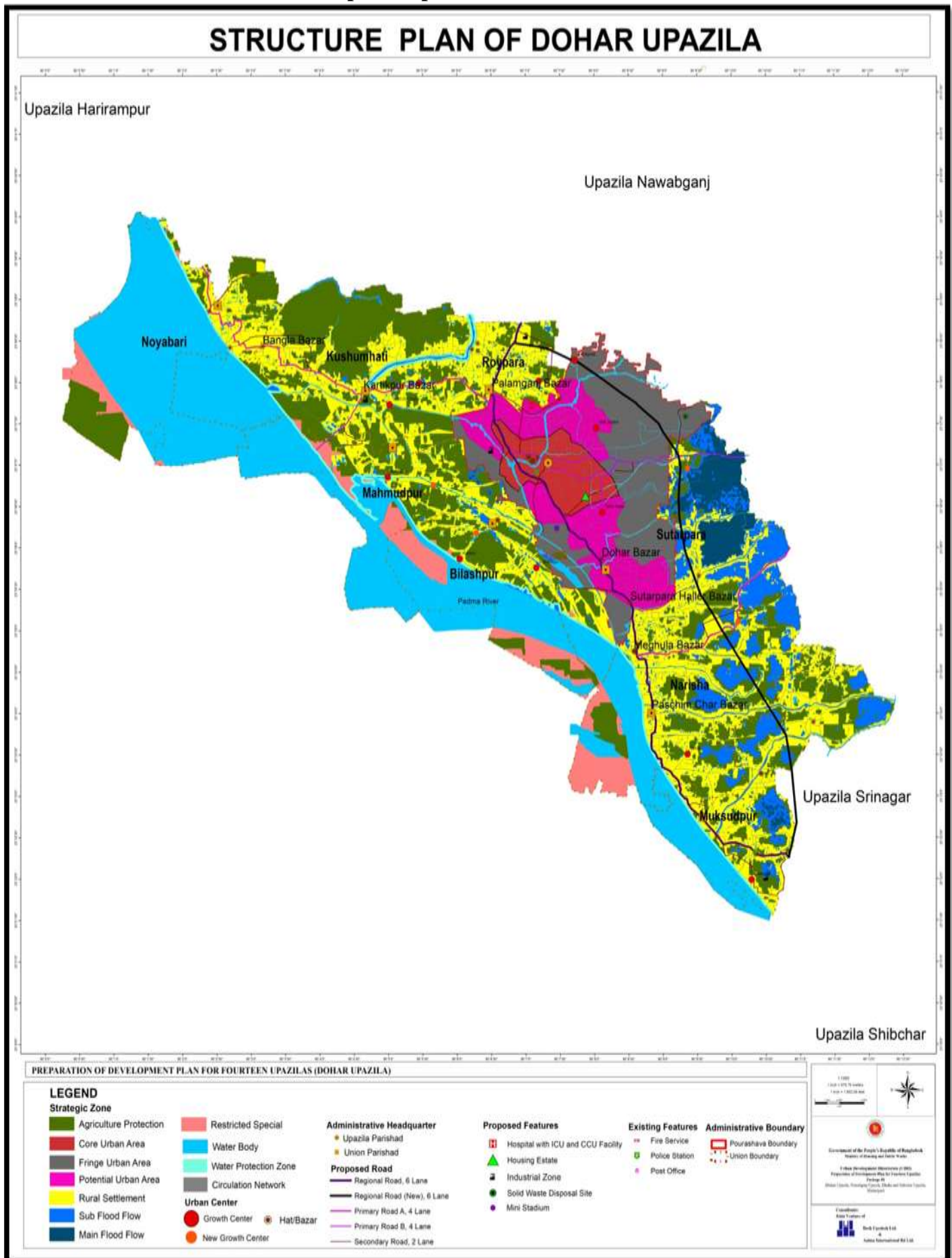
Table- 9.5: Upazila Strategic Land Use Zoning/Structure Plan

Strategic Zoning	Area(Acre)	Percentage
1.Agriculture	8816.409	24.22
2.Circulation Network	697.109	1.92
3.Main Flood Flow Zone	781.495	2.15
4.Restricted Special	1297.439	3.56
5.Rural Settlement	7442.289	20.44
6.Sub Flood Flow Zone	2918.378	8.01
7.Core Urban Area	875.53	2.41
8.Potential Urban Area	1802	4.95
9.Fringe Urban Area	2511.47	6.89
10.Water Supply Protection Zone	539.021	1.48
11.Water Body	8723.227	23.97
Total	36404.37	100.00

Source: Field Survey, 2016

See **Annexure-VIII** for detail land scheduling of Structure Plan of Dohar Upazila.

Map-9.5: Upazila Structure Plan



9.6.8 Hydrology

9.6.8.1 Present Scenario Analysis

The PRA participants from rural areas complaint about water logging in the farm land that prevent cultivation of lands. Virtually, filling of rivers and khans are the main reason for water logging. In rural areas rivers and khals get filled up due to sedimentation. During monsoon, water penetrating into the rivers and khals bring huge sediments that settle down on the bed. Gradually, rivers and khal beds get raised losing capacity to carry or hold water.

Hydrology is very important, both, for rural and urban areas. As a country, subject to heavy rainfall and river erosion, appropriate hydrological polices are necessary to save crop, fishery and property.

9.6.8.2 Policy and Strategic Action

The Structure Plan recommended three policies about hydrology. These are,

Policy Hydro-1: PROTECT ALL RIVERS AND KHALS FROM ENCROACHMENT AND FILLING

The 1st policy, therefore, calls for encroachment and filling of khals and rivers. Encroachment is more in urban areas where land values shows constant rise. The only way is regular excavation and monitoring and action against encroachers.

Strategic Action: 1. Take stringent action according to law against the encroachers.

Implementing Agency: BWDB, Zilla Administration, Upazila Parishad, and Pourashava.

Policy-Hydro-2: ENSURE CONNECTION OF THE KHAL MISSING LINKS WITH CATCHMENT AREAS

In this policy importance has been laid on ensuring connectivity of khals and tributaries with the catchment areas. This is to ensure that all the excess water from the catchment area get drained out to prevent water logging and flooding, at the same time water can enter the catchment areas for irrigating farm land. Khals will be connected following the flow direction of water of Dohar Upazila. (See Map-14.2)

Strategic Action: 1. Allocate fund for khal development.

Implementing Agency: BWDB, Zilla Administration, Upazila Parishad, Pourashava.

Policy-Hydro-3: TAKE EFFECTIVE MEASURES TO PREVENT RIVER EROSION

Dohar is a river erosion prone area upazila, particularly, the area adjacent to the river Padma. Unions, like, Narisha, Noyabari, Mahmudpur and Bilashpur are subject to regular erosion by the Padma. The third policy calls for taking preventive measures against erosion which devastating. It devours all lands and everything on land surface and makes victims totally helpless and destitute.

Strategic Action: 1. Allocate fund for construction of embankment cum road.

Implementing Agency: BWDB, Zilla Administration, Upazila Parishad, and Pourashava.

9.6.9 Utility Services and Community Facilities

9.6.9.1 Present Scenario

a. Electricity: In Dohar upazila 83.7% households have electricity connection. But still many households do not have electricity connection. In PRA sessions people from areas deprived of power supply stressed for extension of power supply.

b. Drinking Water: In the upazila most households have access to tube wells. The sources of drinking water are, tube-well 96.85 (Population Census Report, 2011). Drinking water is still not a major problem in areas that are not affected by arsenic contamination. But, for reducing dependency on ground water use of surface water should be popularized including rain water harvesting.

c. Water body and Recreational Open Space

Water body forms not only an important part of the eco-system, but also source water and livable environment. River, khal, pond and the wetland land form the water body. There are a number of khal and a major branch of the Padma in the upazila. Physical feature survey has identified 2622 pounds of different sizes in the upazila. Playgrounds are the primary recreational open space. Such open spaces are essential for the juvenile and the youth for their mental and physical growth. Open space also helps to refrain the youth from drug addiction and social unrest. Physical feature survey has identified 9 playgrounds in the upazila. However, most of these are parts of education facilities, where there is no access of general public. But the most important is that 9 playgrounds are highly inadequate for a population of the upazila.

9.6.10 Policy and Strategic Action

a. Power Supply

Power is a part of modern living. Progress in all respect cannot be moved forward without adequate power supply. This is an essential part of everyday life.

Policy POWER/-1: EXTENSION OF POWER SUPPLY TO UNSERVED RURAL AREAS

Government has to take steps to extend power supply to rural areas through REB. Necessary budget should be sanctioned in this regard. If it is delayed alternative measures may be promoted.

Strategic Action

1. Take up power supply as major national development policy.
2. Crush programme by REB with necessary budget allocation.

Responsible Agency: Ministry of Power and Energy, REB.

Policy POWER/-2: PROMOTION OF USE OF SOLAR ENERGY

Take necessary steps to promote solar energy as alternative national power supply. Involve private sector to meet the supply gap through sustainable energy.

Strategic Action

1. Involve private commercial agencies and energy sector NGOS to supply domestic solar system.
2. Introduce soft credit facility for users to purchase solar system.

Responsible Agency: Ministry of Power and Energy, NGOs.

b. Drinking Water

About 95.85% of the upazila households have access to tube well (Population Census Report, 2011). But rampant use of ground should not continue for safety of ground water reserve. Use of surface water and rain water harvesting should be popularized.

Policy WATER/-1: TAKE NECESSARY STEPS TO ADOPT SURFACE WATER EXTRACTION FROM RIVERS ABANDONING DEPENDENCY ON GROUND WATER

Dependency on ground water need to be reduced to avoid long term impact of depletion of Water source.

Strategic Action

1. Popularize ground water use through easy treatment mechanism.
2. Demonstration project initiative by the Pourashava to use surface water.
3. Initiative by the Pourashava to use surface water.

Responsible Agency: Pourashava, DPHE, NGOs.

Policy WATER/-2: EDUCATE PEOPLE ABOUT THE LONG TERM IMPACT OF GROUND WATER EXTRACTION

This will and attempt to prevent ground water extraction by making aware about the danger of ground water depletion.

Strategic Action

1. Involve NGOS in awareness building system.

Responsible Agency: NGOs.

Policy WATER/-3: POPULARISE USE OF RAIN WATER USE EVOLVING AFFORDABLE AND EASY TECHNOLOGY FOR HARVESTING RAIN WATER.

This is a way to reduce dependency on ground water. Harvesting rain water is least costly.

Strategic Action

1. Diversification of water supply sources, instead of dependency on ground water only.
2. Popularize rain water harvesting in collaboration with concerned NGO including taking up
3. Popularize rain water harvesting in collaboration with concerned NGO including a demonstration project.

Responsible Agency: Pourashava, DPHE, NGOs.

9.6.11 Education

9.6.11.1 Present Scenario

Average literacy of Dohar Upazila in 2001 was 49.30%. In 2011, literacy rate rose to 57.50. The upazila has 1 primary school for every 1348 population, while nationally there is one school for every 1380 population. Among educational institutions, the upazila has 10 colleges, 48 secondary schools, 168 primary schools and 29 madrasas.

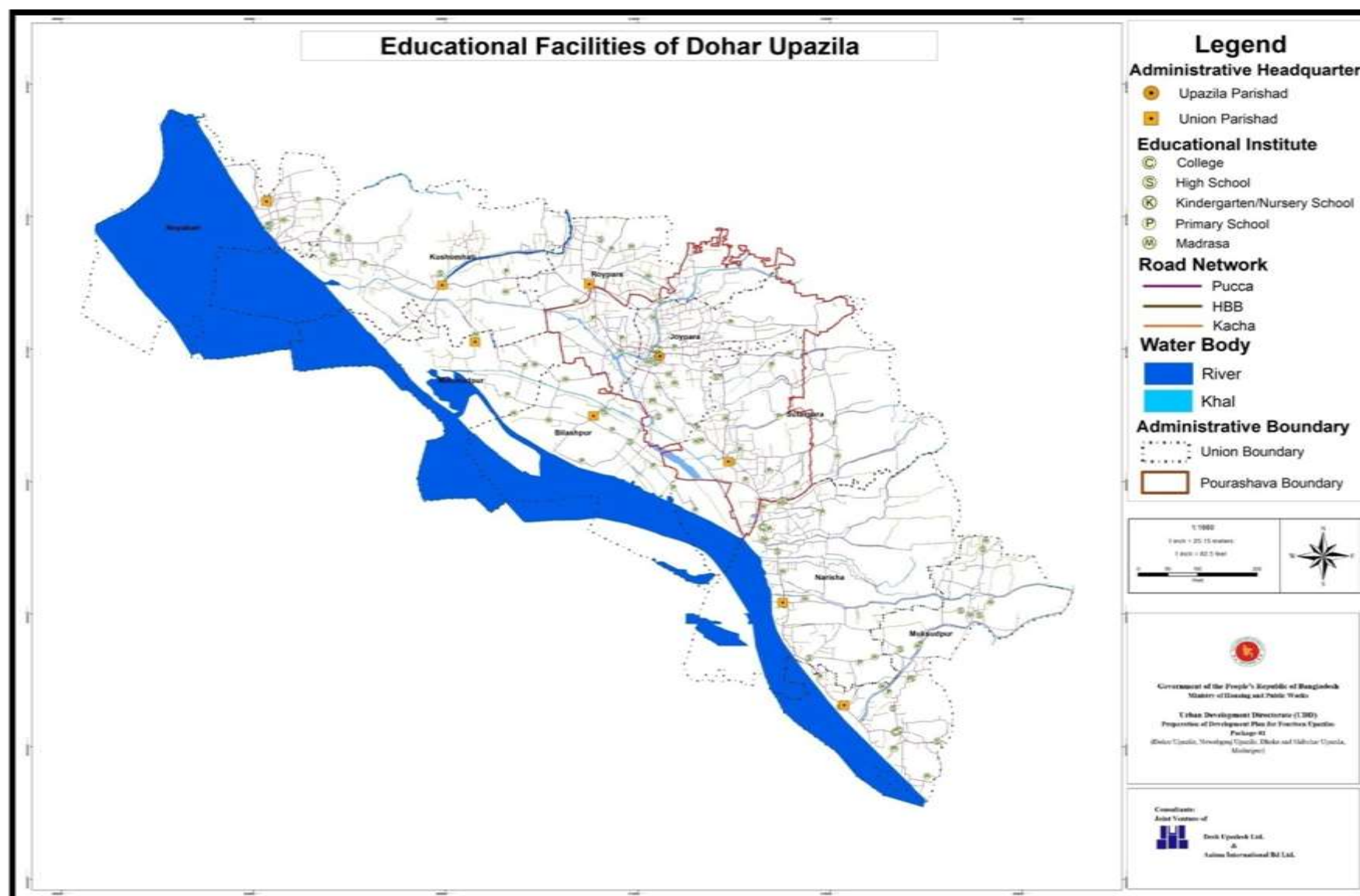
From the number of education facilities, the position of the upazila fairly good. But field observation and PRA findings three important lapses of the local education. First, the quality of education is not up to standard; second, infrastructure, logistics and maintenance of the education facilities is poor, irrespective government and private; and the third, the education facilities are not well distributed. For government facilities, there is inadequate budget allocation to meet up all the limitations mentioned above. Private facilities are set up on individual donations. However, the donations are not regular to maintain the facilities, pay for teacher and staff salary and provide necessary logistics. In PRAs, the participants marked maintenance of schools and facilities as a major problem.

Table- 9.6: Educational Facilities

Educational Facilities	No. of Facilities
Primary School	38
Kindergarten/Nursery School	10
High School	25
College	6
Madrasa	45

Source: Field Survey, 2016

Map-9.6: Educational Facilities of Dohar Upazila



Source: Field Survey, 2016

9.6.11.2 Policy, Strategy and Action**Strategy: Increase national budget allocation for education.****Policy/EDU/1: MAKE SUFFICIENT GOVERNMENT BUDGET ALLOCATION FOR ALL KINDS OF EDUCATION FACILITIES**

Education is the backbone of a nation that can lead the nation forward. To carry on 'knowledge based development' greater attention is needed in the education sector.

Strategic Action:

1. At least 2.5% of the GDP for education sector.
2. Make separate allocation for infrastructure and logistics and maintenance.

Responsible Agency: Ministry of Education.**Policy-EDU/2: LAY GREATER EMPHASIS TO IMPROVE QUALITY OF EDUCATION.**

Quality education will produce more talents highly needed for national development.

Strategic Action

1. Employ quality teachers.
2. Arrange regular training for teachers including continuing education.
3. Take annual exam for testing quality improvement of teachers.
4. Provide financial incentives for quality improvement.
5. Government should allocate more funds for education promotion.

Responsible Agency: Ministry of Education.**Policy-EDU/3: MAKE BALANCED DISTRIBUTION OF EDUCATION FACILITIES BASED ON POPULATION CONCENTRATION**

Balanced distribution will make greater access to education facility.

Strategic Action

1. Devise standard and principles for setting up education facility.
2. Government should not accord recognition to education facilities unless they meet conditions.

Responsible Agency: Ministry of Education.**9.6.12 Climate Change, Environment and Disaster****9.6.12.1 Climate Change**

The widely talked issue of climate change means a change in average weather conditions currently prevailing. With the change of climate there will be variation around longer-term the average conditions of weather. Though things are not very clear yet, but this may lead to more or fewer extreme weather events. Climate change occurs due to the interplay of such factors as, as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Besides, certain human activities have also been identified as significant contributors to recent climate change. This is often referred to as global warming.

a. Climate Change Impact on Bangladesh

It is well known that Bangladesh is one of the most climate induced disaster prone countries in the world. Flood, cyclone, storm surge and Drought are the regular phenomena in this country. With the change in climate these events are likely to emerge more frequently and severely. Climate change impacts will not be uniform all over the country. Impacts on rural areas will be different than that in urban areas. There will be high overall level of vulnerability on its population. However, disruption in everyday life due to disaster will affect the poor most. Temperature rise will increase demand for water for almost all purposes, affect bituminous roads. Increase in intensity of tropical storms will destroy temporary housing structures that are larger in number in, both, rural and urban areas. Indirectly, this will impose extra financial burden on the low income people.

b. Likely Climate Change Impact on Dohar Upazila

The intensity and the degree of climate change impacts is decided, not only how a particular natural event interacts with a specific ecosystem, but also on exposure and vulnerability characteristics of the population and assets in any particular area.

Not all the climate change events, mentioned above, would impact Dohar Upazila. Temperature rise, heavy rainfall, flooding and waterlogging, increase in intensity of tropical cyclone and earthquake are likely to have effects on this Upazila. The main climate change impacts on Dohar Upazila are associated with increased rainfall; river flooding; rain driven drainage congestion, urban flooding, river erosion and earthquake. During monsoon, flash flooding is likely to increase driven by heavy rainfall and upstream water in the rivers. This will impact fisheries and water supply, and exacerbate the challenges associated with agriculture, transport infrastructure, drainage, community health and energy supply. Agricultural production might will decline due to crop failure leading to food crisis. Impact of earthquake would be severe in urban areas than in rural areas. There will be damage and degradation of the ecosystems related to water bodies, water sources, biodiversity and infrastructure. This will affect the income earning activities of, both, urban and rural households. Flooding and erosion might destroy poor people's houses, infrastructure including road communication affecting local economy and livelihood.

c. Climate Change Adaptation and Resilience

Resilience is described as the capacity to resist and recover from loss caused by disasters. It is a reactive ability to 'bounce back' in appropriate time from adverse impacts of climate induced disaster. It is a response to changes in conditions and as a result it can fluctuate over time. Resilience is used as an approach for understanding the dynamics of disasters caused by natural hazards.

For application of resilience concept in the entire Upazila, the context has to be taken into account. As an Upazila is composed of urban and rural areas, the impact will be different in two places.

An urban area comprises dynamic systems capable of evolving and adapting to survive, and even thrive in the face of unexpected shocks or stresses. Urban resilience, therefore, revolves around the ability of a city's infrastructure and service systems to continue essential urban functions under stresses or shocks they encounter. It is the adeptness of communities and municipal institutions to manage the preparation and aftermath of these shocks and stresses. On the other hand, rural areas, due to its particular mode of production and interrelation of the eco-system in a vast land mass, immediate response are more difficult and therefore slower. Adaptation response to changes in conditions comes slowly over the years.

The degree of vulnerability of an area to changes in conditions depends on the frequency and intensity of climate related events it experiences, as well as the local capacity to anticipate and respond to these climate impacts and hazards. Political and socio-economic structures, as well as access to proper infrastructure are important factors as urban areas are an agglomeration of interdependent systems.

Adaptation refers to the adjustments made by communities as they deal with the impacts of a variable climate and develop an initial set of strategic adaptation responses. With its interdependent infrastructure and services, the adaptation strategies involve two aspects. The first is the structural interventions for directly limit the climate change impacts, such as installation of a river embankment. The second focuses on increasing the resilience of existing systems in order to minimize the potential harm of new risks and stressors to the population. Examples include, land use planning frameworks and building codes that take into account the state (i.e., absence, inadequacy, and adequacy) and level of access of the population to current infrastructure, as well as non-structural measures that address the underlying causes of population vulnerability.

In an Upazila there may be a number of infrastructure development projects that can be considered to be structural adaptation projects, like, sluice gates, embankments and the drainage canals, flood protection structures. These structures are used to reduce risks of the upZilla from disaster it is likely to face. The current status of the upazila adaptation system can be assessed by five dimensions, each serves to frame an aspect of resilience that indirectly interprets current adversity and more importantly, the capacity to address them. The dimensions are as follows:

1. **Access to Infrastructure:** Is there sufficient access to basic services through appropriate infrastructure under regular conditions?
2. **Socio-Demographic:** To what degree is the population at-risk from an unexpected climate driven events?
3. **Competence of the Authority and Communication:** Does the Upazila authority accurately recognize the climate risks posed, and is it actively increasing its information base and its outreach in order to reduce physical exposure through leadership and prioritization of response and recovery?

4. **Climate and Environmental Services:** Does the Upazila authority accurately recognize the climate risks posed, and is it actively reducing physical exposure through stewardship and effective proactive planning?
5. **Economic Conditions:** Does the Upazila have the economic capacity to withstand the potential impact of climate events on trade and transport and has it ensured that the community asset base is sufficiently diverse?

With measurement indicators assigned to each dimension to identify the adaptive strategy or intervention required.

d. Present Scenario

Experts view that many of the signs of climate changes are already apparent in Bangladesh. The conventional six seasons of the country does not seem to be operating as usual. The rainfall has reduced substantially in recent years. There have been more frequent cyclones than previous years. Experts are predicting of severe earthquake any moment of time, which is likely to cause havoc in urban areas. Dohar, in particular, is experiencing river erosion in unions by the river Padma. These events give clear indication that slow changes in the weather conditions is underway that might, at one point of time, result in disasters exerting severe impact on the livelihood of the people. Before that happens it is high time to take up proactive measures to create resilience against the ensuing odds.

9.6.12.2 Environment

Dohar Upazila is vastly dominated by rural environment. Except small urban are in the upazila headquarters, the vast area of the upazila has natural environment imbued with green crop land intersected by rivers and khals, having patches of indigenous homesteads as rural settlements marked by low density of population. The conventional environmental degradation arises mostly from man-made environment which is yet to emerge in a visible manner in the vast rural areas of the upazila. Even in the only urban centre of the upazila, population density is much lower than those in large cities, to cause serious environmental degradation except the drainage system. Following are the main concerns of environmental degradation in urban and rural context:

9.6.12.3 Disaster

Disaster arising from climate change or non-climate change phenomena is very common in Bangladesh. People of the country are highly resilient to disasters like, flood, cyclone, and river bank erosion, Drought. Remarkable disasters that strike Dohar Upazila are river bank erosion. River erosion is the most disastrous of all the disasters they face. It takes away everything, their means of livelihood and the shelter. Flood disaster is another important disaster that occasionally visits the Upazila. Flooding is caused by over flow of the rivers and excessive rainfall. The upazila is located on the mighty river, the Padma. River overflow submerge the crop land often destroying the standing crops, making the poor farmers even poorer.

9.6.12.4 Objective, Policy and Strategic Action

Climate Change, Environment and Disaster are interrelated issues. Environmental degradation arises mainly due to irresponsible behavior of men. Disasters are not only caused by disorder in the natural system, but also due to mistreatment of the nature by men. There are also climate change induced disasters. Environmental degradation may also lead to disaster.

Objective: To create resilience against climate change, protection of environment and prevention and mitigation of disaster and its application in the field.

Policy-CLIMATE/1: TAKE NECESSARY MEASURES TO EDUCATE PEOPLE ABOUT THE DANGERS OF CLIMATE CHANGE IN ALL SPHERES OF LIFE

Awareness would cause people to take proactive measures to create resilience against the negative impacts of climate change.

Strategic Action:

1. Programme initiative by the Upazila Parishad and Pourashava in collaboration with the Department of Disaster Management to educate people about climate change and its consequences.

Responsible Agency: Upazila Parishad, Pourashava, Department of Disaster Management, NGOs.

Policy-CLIMATE/2: ADOPT CLIMATE CHANGE RESILIENT PRODUCTION TECHNOLOGY IN AGRICULTURE INCLUDING SEED

To avoid disaster in agricultural production, prior action to evolve new agro-tech in agriculture is necessary to cope with climate change.

Strategic Action

1. Research programme initiative by BADC and BRRI to evolve new technology and paddy resilient to climate change.

Responsible Agency: BADC, BRRI, Department of Agricultural Extension.

Policy CLIMATE/-3: DEVELOP CLIMATE CHANGE RESILIENT INFRASTRUCTURE INCLUDING ROAD AND HYDROLOGIC STRUCTURE

As proactive action sustainable infrastructure is necessary to tackle climate change impacts.

Strategic Action

1. Prepare guidelines for designing climate change resilient infrastructure.
2. Direct Pourashava and other Upazila level public sector development agencies to follow guidelines during development of infrastructure.

Responsible Agency: Pourashava, PWD, LGED, RHD.

Policy- ENVIRON /-1 PROTECT ENVIRONMENTALLY SENSITIVE AREAS

Preservation of environmentally sensitive areas can serve as safe guard to bio-diversity and disaster.

Strategic Action: 1. Earmark environmentally sensitive areas in the master Plan.
2. Control development in those areas; take over land if possible to preserve the areas.

Responsible Agency: LGED, Zilla Administration, Upazila Parishad, Pourashava.

Policy- ENVITON/2. PROTECT AND PRESERVE NATURAL WATER COURSES

Preservation of natural water courses will reduce the risk of flooding and water logging.

Strategic Action

1. Mark water channels in the Master Plan.
2. Recover the encroached water courses as marked in the mouza map.

Responsible Agency: District Commissioner, Upazila Parishad, Pourashava.

Policy-DISASTER/1: ORGANISE AND KEEP ACTIVATED THE DISASTER MANAGEMENT COMMITTEES AT VARIOUS LEVELS OF THE ADMINISTRATION

Regular meeting of Disaster Management Committees will keep members conscious about their responsibilities.

Strategic Action:

1. Hold regular meeting of Upazila, Union and Pourashava Disaster Management Committees.

Responsible Agency: Upazila Parishad, Union Parishads and Pourashava.

CHAPTER-10: LAND USE AND SPATIAL DEVELOPMENT

10.0 Introduction

Chapter-10 of the report is concerned about existing land use scenario (geology, hydrology and land suitability), future land use zoning policy and development control issues.

10.1 Necessity of Land use and Spatial Development Control

A community is comprised of individuals with varied needs, interests and lifestyles. Some needs are very common, like, sanitation, fresh air, clean water, and open space for recreation. These have a direct impact on the quality of life of its citizens. Under planning, control of land use and development control is done for ensuring the quality of life of its citizens and continues their livelihood. Upazilas in Bangladesh are composed of rural and urban environment, where rural environment is vastly dominating. Land use and development control helps attaining the following benefits:

- Important natural resources and ecologically sensitive areas are preserved;
- Means of livelihood of rural people that is agricultural land is preserved;
- The economy is supported by maintaining a hierarchy of business Centers;
- Community services, facilities and open space are fairly distributed; and
- Incompatible land uses are separated.
- Urban Centers are developed in organized and environment friendly manner.
- Buildings are developed congenial to environment and livability.

Control of land use and building development is necessary because the way individual land owners wish to develop and make use of their land may not match the needs or aspirations of the broader community. The use of regulation to control land use and buildings promotes compliance and certainty that would not exist if there were no statutory basis for these controls. Land use and building controls aim to protect **environmental values, economic values and social values**.

10.2 Present Scenario Analysis

Dohar Upazila is a typical Bangladeshi administrative unit composed of vast rural agricultural landscape with scattered rural homesteads, market places and an urban centre where the administrative headquarter is located. Economy is entirely based on agriculture where over 70% of the labour force is employed. Land use survey conducted by the consultant all over the upazila exhibits major land uses of the upazila as, 40.08% land under agricultural use, 12.96% to rural and urban housing and 26% occupied by water body. It is apprehended that every year about 1% of the agricultural land is being converted to non-farm use mostly for developing rural homestead by increasing rural population. This gradually depletes country's valuable agricultural land which would never be possible to get back. If this continues uninterrupted, country's food safety would be endangered.

On the other hand except Pourashava, control over building construction is not in practice at all. Currently, permanent buildings are being developed in small urban Centers, in bazar areas and even in rural areas. These building owners hardly care for air and sanitation of their

buildings. They always try to maximize use of space to accrue more profit from the building. This kind of mindless development is destroying urban livability. Before things go out of control, immediate control should be imposed rampant and free for all construction.

10.3 Field Level Geological Investigation

10.3.1 MASW Test Results

Multi-spectral analyses of surface waves (MASW) are popularly used to predict subsurface shear-wave interval velocities. Shear wave velocities can also extract additional velocity-related information such as mechanical properties of soils and rocks. In general, MASW data compare favorably to other geophysical methods for predicting interval velocities during an earthquake. Furthermore, comparisons to vertical seismic profiles correlate well with MASW predicted shear wave interval velocities. In this perspective, MASW test has been completed at five different locations at Dohar Upazila. According to MASW test result, shear wave velocity of the project area shows soft to moderate soil condition for structure foundation. MASW-01, MASW-02 and MASW -04 test results are showing more than 180 m/s but others two locations the average velocity is below 180m/s.

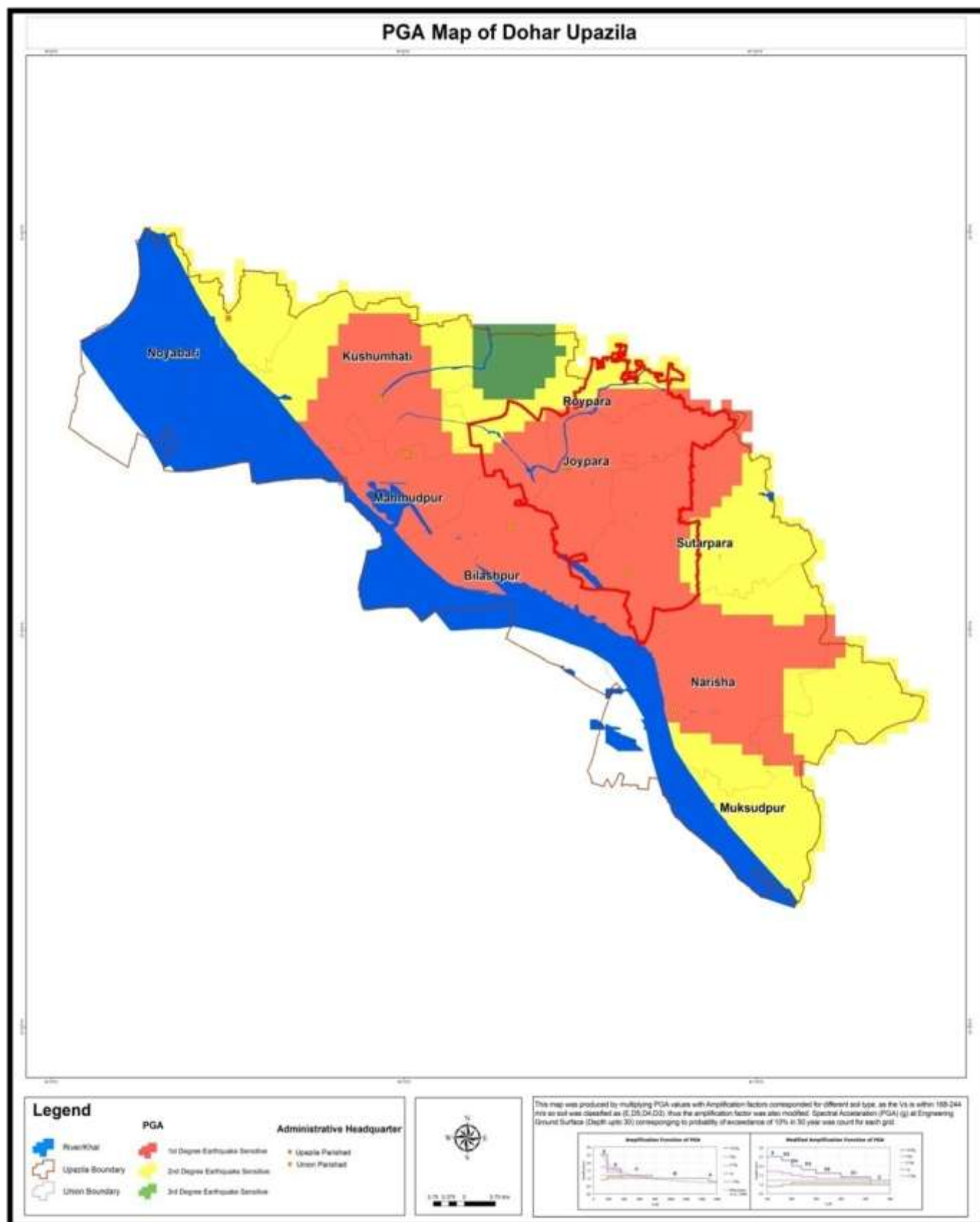
10.3.2 SPT Log Analysis

To ensure safety of human beings and materials, geotechnical investigations have become an essential component of every construction, it includes a detailed investigation of soil strength, composition, water content, and other important soil characteristics. Investigation borings with standard penetration test were conducted in order to know vertical geological conditions. The borings with SPT were carried out at 24 points in Dohar Upazila. SPT is a common in-situ testing method used to determine the geotechnical engineering properties of subsurface soils. Geological, geotechnical and geophysical investigations have been carried out such a pattern as to cover all morphological units. Boring findings show that Dohar Upazila and its adjoining areas mostly comprised of monotonous flood plain except few depressions. Soil quality of the project area varies according to morphological differences. Above investigation and outcomes give a clear idea about the geo-hazard status of particular landscape to help design urban development projects or any other mega infrastructure project. The investigation also gives idea about the vulnerability of existing build up infrastructure of a particular area. Based on these results, proper management techniques as well as other necessary adaptation process could be adopted before or after the development activities in the studied area. These information will also the long-term maintenance cost of infrastructure and the developed structure will be able to withstand against the potential natural hazards if the infrastructures are built following the risk informed physical land-use plan.

10.3.3 Earthquake Probability

Dohar Upazila stands in an earthquake zone that has medium probability of risk. Consultant carried out Peak Ground Acceleration (PGA) for the entire upazila. Peak Ground Acceleration/Maximum Ground Acceleration refers to the location which are more effected after earthquake. **Map-10.1** shows, Unions, like, Roypara, Dohar Pourashava, Mahmudpur, Narisha and Bilashpur are more sensitive to earthquake.

Map-10.1: PGA Map of Dohar Upazila



Earthquake Sensitivity	Area in acre	Percentage (%)
1st Degree Sensitive	13884.23	55.43
2nd Degree Sensitive	10347.53	41.30
3rd degree Sensitive	818.54	3.27

Source: Field Survey, 2016

Table-10.1: Earthquake Sensitive Area

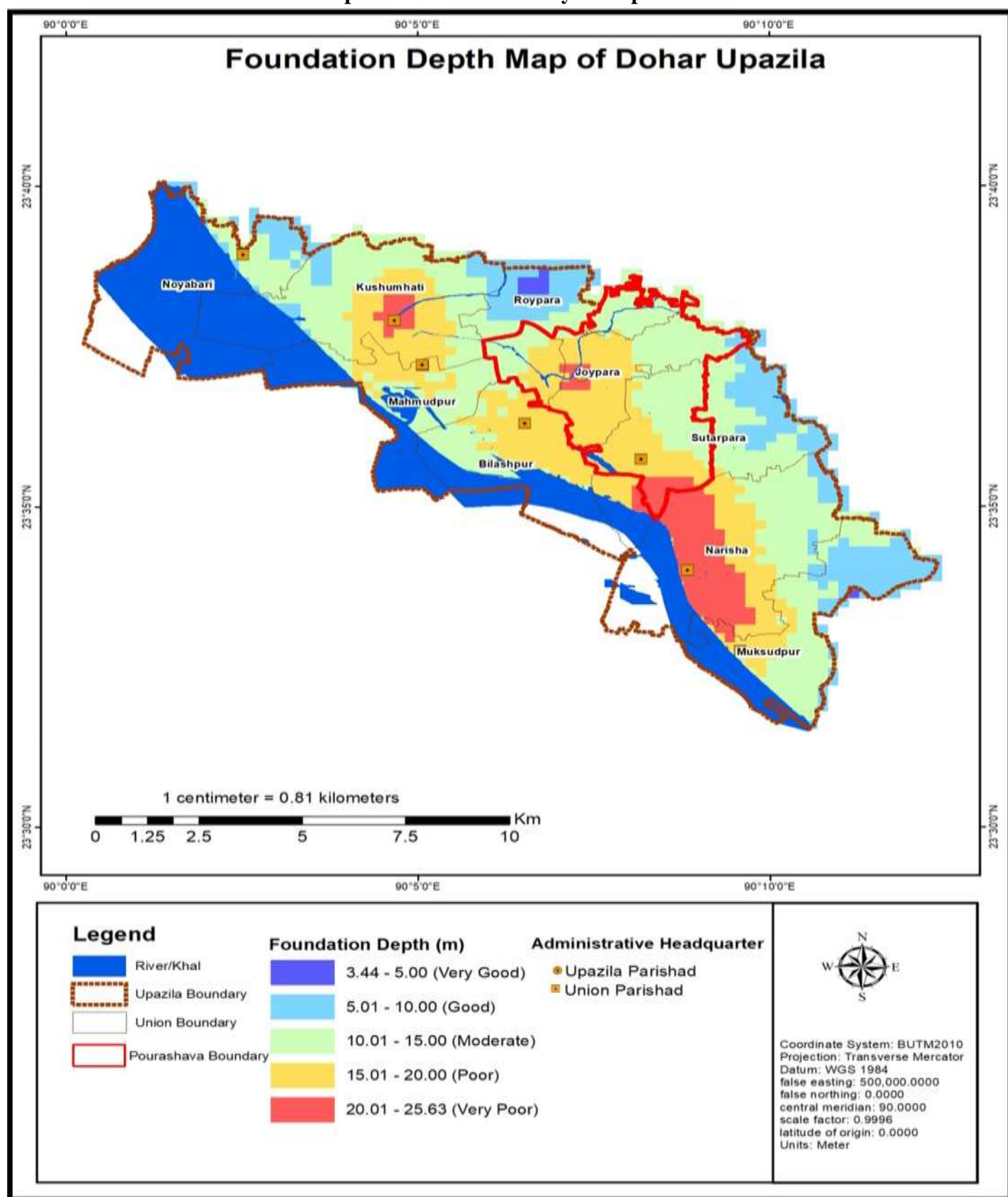
Source: Field Survey, 2016

10.3.4 Foundation Layer Condition

The condition of the depth of the soil is found from the foundation layer condition. Ground soil study indicates, Nayabari, Muksudpur, Roypara and Sutarpara areas have the best soil condition in the upazila for high rise buildings. In these areas building foundation can be laid safely within a range of 3.44 m to 10.0 m. Above 10 m deep foundation has been found in Narisha, Dohar Pourashava, Bilashpur and Kushumhati areas. Please see **Map-10.2** for more details.

Using the soil property data as presented in Foundation Layer Map, a summary map has been prepared as presented in **Map-10.2** where the entire upazila land has been classified as ‘Very Good’, ‘Good’, ‘Moderate’ and ‘Poor’ in respect of soil condition for construction. From the map it is evident that soils of Roypara and Nayabari union are good for all kinds of building construction. South of Narisha union has the worst quality soil for construction of buildings. In ‘Very Good’ marked areas, all kinds of 4 to 6 storey light buildings can be constructed with a foundation depth upto 2 m. In ‘Good’ marked areas, 5m depth foundation will be required for 4 to 6 storey light buildings. In ‘Moderate’ areas, 4 to 6 storey light buildings can be developed with deep pile foundation. For ‘Poor’ areas detailed sub-soil investigation and proper foundation design is required for all types of buildings. Soil in these areas has low bearing capacity with potential hazard.

Map-10.2: Foundation Layer Map



Source: Field Survey, 2016

10.3.5 Geological Suitability

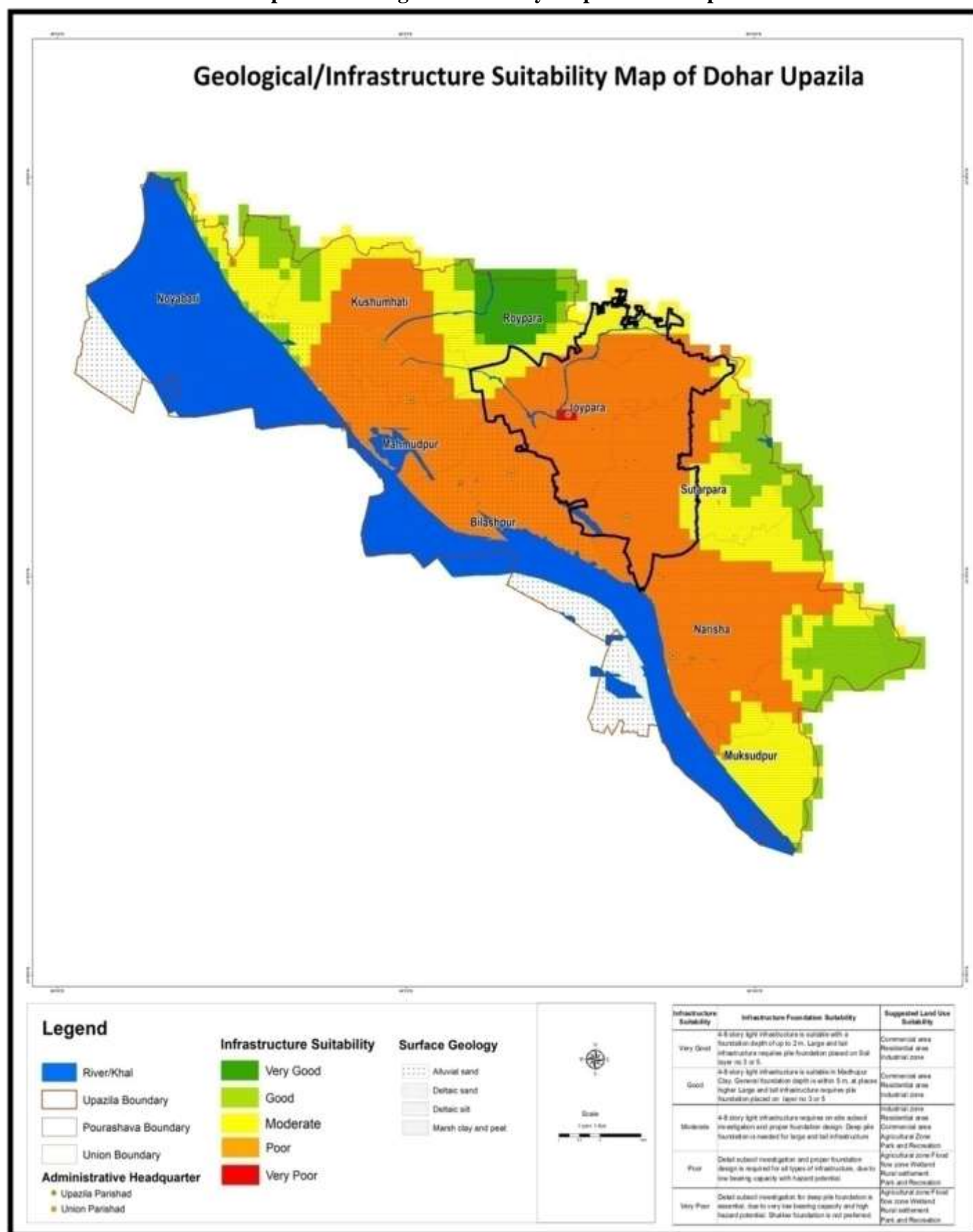
Geological Suitability/Infrastructure Suitability refers to location which are suitable for further infrastructural development. From the **Map 10.3**, most of the area of Roypara union is highly suitable for development. Partial area of Nayabari, Muksudpur and Sutarpara union is moderately suitable for infrastructural development. Dohar Pourashava, Kushumhati, Mahmudpur, Bilashpur and Narisha are less suitable for infrastructural development. In this area, building should be constructed through deep foundation or piling.

Map-10.2: Geological Suitability Map of Dohar Upazila

Geological Suitability	Area in acre	Percentage (%)
Very Good	818.54	3.27
Good	3706	14.82
Moderate	6559.64	26.22
Poor	13930.67	55.69
Total	25014.85	100

Source: Field Survey, 2016

Map-10.3: Geological Suitability Map of Dohar Upazila



Source: Field Survey, 2016

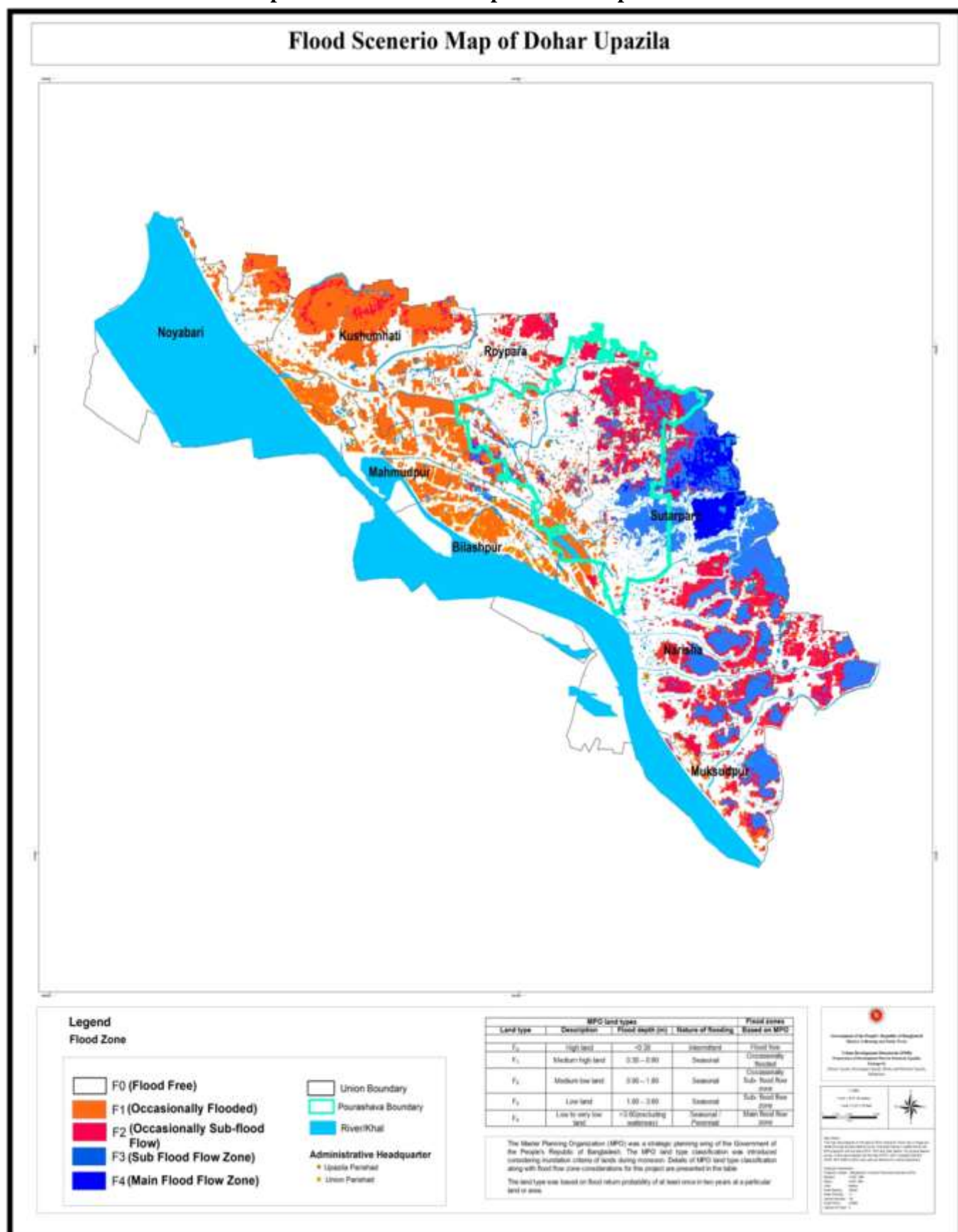
Table-10.3: Suggested Land Use Suitability

Infrastructure Suitability	Subsurface Sediments	Infrastructure foundation suitability	Suggested land use suitability
Very Good	Tipam Sandstone (Neogene), Dupi Tila Formation (Pleistocene and Pliocene),	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.	Commercial area Residential area Industrial zone
Good	Dihing and Dupi Tila Formations undivided	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	Commercial area Residential area Industrial zone
Moderate	Dihing Formation (Pleistocene and Pliocene)	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
Poor	Girujan Clay (Pleistocene and Neogene)	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.	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

10.4 Flood Scenario

Map-10.4: Inundation Map of Dohar Upazila



Source: Field Survey, 2016

In **Map-10.4**, different categories of land levels have been shown including the areas that get submerged during monsoon. Areas with blue colors show the lands having lowest levels. The deep blue areas belong to river, khal and perennial water body. About 24.22% and 7.75% of the area of the upazila are sub flood flow and main flood flow zone which goes under water during flooding. About 40.75% area are 2nd degree flooded zone and water depth of this zone is 0.3-09 m.

Different Flooding Scenario				
Flooded Land Category	Water Height (m)	Area in acre	Percentage (%)	Remarks
1st Degree Flooded area (F0)	0-0.3	445.03	3.84	
2nd Degree Flooded area (F1)	0.3-0.9	4723.86	40.75	
3rd Degree Flooded area (F2)	0.9-1.8	2715.51	23.42	
4th Degree Flooded area (F3)	1.8-3.6	2924.44	24.22	Sub Flood Flow Zone
5th Degree Flooded area (F4)	>3.6	783.12	7.75	Main Flood Flow Zone

Table-10.4: Flood Scenario Data

Source: Field Survey, 2016

10.5 Land Suitability for Spatial Development

For the plan preparation of Dohar Upazila suitability analysis is an essential step. Through this analysis suitable area for agriculture, human settlement and infrastructure development has been identified.

Lands other than agriculture and conservation in the Dohar Upazila, are characterized by different conditions, but mostly flood plains. Some lands are subject to annual inundation, others are at higher elevation. Lands with loose soil give a poor foundation for building construction. Lands on the higher elevation with original soil are usually free of inundation and flood and form most suitable for building construction. The consultant with examination of the soil properties and land elevation has classified lands in urban area and urban control area into 4 classes based on their suitability for construction. These are, poor, moderate and good.

10.5.1 Agriculture Suitability

To identify the best suitable area for agriculture an analysis has been done. It is derived from the data of water depth and cropping intensity. The main reason of this analysis is to identify the most suitable agricultural land for conservation. The statistic has been given below:

Table-10.5: Criteria of Agriculture Suitability

Criteria	Weightage
Cropping Pattern	60%
Flood Depth	40%

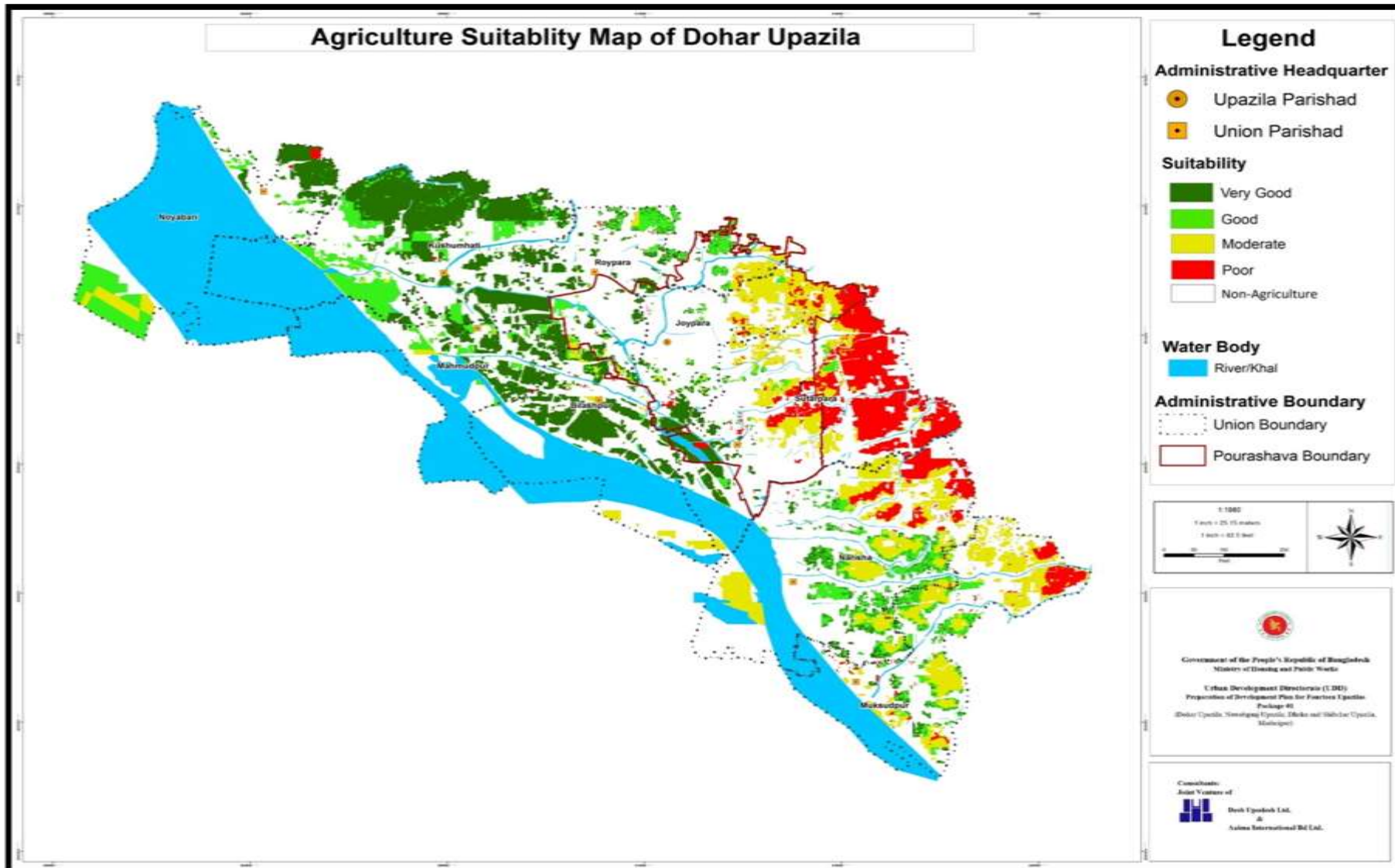
Source: Prepared by consultant team

Table-10.6: Agriculture Suitability

Suitability	Area(Acre)	Percentage (%)
Very Good	3322.06	33.97
Good	2096.63	21.44
Moderate	2641.72	27.02
Poor	1716.46	17.56

Source: Prepared by consultant team

Map-10.5: Agricultural Suitability Map of Dohar Upazila



Source: Prepared by consultant team

10.5.2 Human Settlement Suitability

For the identification of human settlement suitable area some criteria has been fixed which are proximity road, DEM, geological suitability and inundation. In which area these criteria has met the considerations those area are human settlement suitable area. The statistics has been given below:

Table-10.7: Criteria of Human Settlement Suitability

Criteria	Weightage
Proximity Road	35%
Geological Suitability	25%
DEM	25%
Inundation	15%

Source: Prepared by consultant team

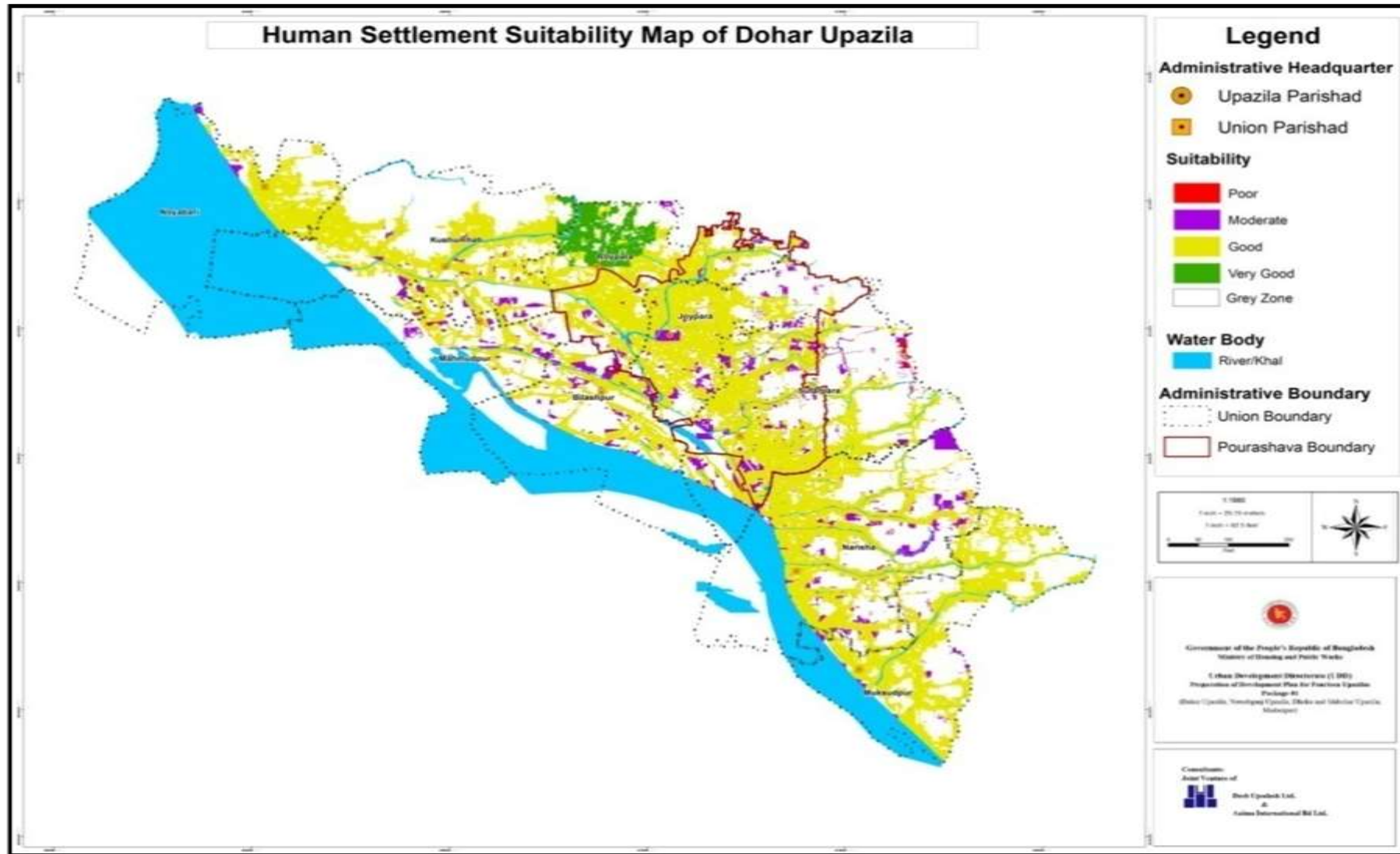
Based on land property, inundation and earthquake vulnerability, the consultant has worked out lands suitable for development according to unions. The **Table-10.8** shows, highly suitable land exist partly in Nayabari, Muksudpur, Roypara and Kushumhati Unions. Moderately suitable land have been found in Bilashpur (part), Roypara(part), Kushumhati(part), Mahmudpur (part), Muksudpur(part), Narisha(part) and Nayabari(part) Unions.

Table-10.8: Human Settlement Suitability

Suitability	Area(Acres)	Percentage
Very Good	470.92	4.42
Good	9106.68	85.37
Moderate	1063.86	9.97
Poor	25.81	0.24

Source: Prepared by consultant team

Map-10.6: Human Settlement Suitability Map of Dohar Upazila



Source: Prepared by consultant team

10.5.3 Infrastructure Suitability for human settlement

For the identification of infrastructure suitability for human settlement area some criteria has been fixed which are geological suitability, inundation and proximity road, In which area these criteria has met the considerations those area are infrastructure suitable area. The statistics has been given below:

Table-10.9: Criteria of Infrastructure Suitability for Human Settlement

Criteria	Weightage
Geological Suitability	45%
Inundation	35%
Proximity Road	20%

Source: Field Survey, 2016

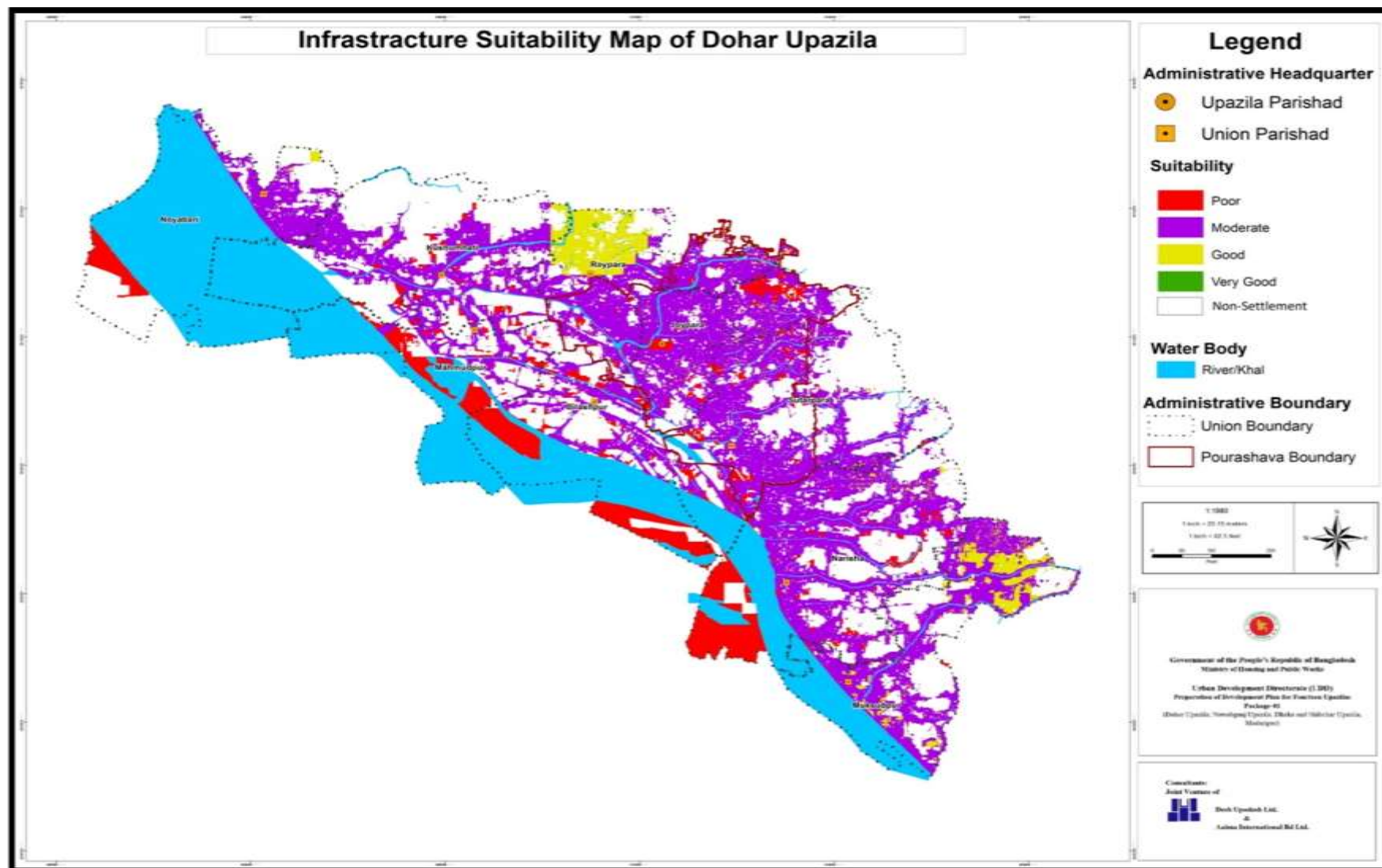
Table-10.10: Infrastructure Suitability for Human Settlement

Suitability	Areas(Acres)	Percentage (%)
Very Good	25.87	0.196344
Good	1035.48	7.858936
Moderate	10078.83	76.49484
Poor	1243.58	15.979377

Source: Field Survey, 2016

Partial area of Roypara union is highly suitable for infrastructure development while partial area of other unions is moderately suitable. (See **Map-10.7**)

Map-10.7: Infrastructure Suitability for Human Settlement



Source: Prepared by consultant team

10.6 Policy Recommendations

10.6.1 Objective, Policy and Strategic Action

Objectives:

- a. To promote sustainable land use management, protection of environment, and natural resources and resilience against climate change impact.
- b. To protect valuable agricultural land for food security of the country.
- c. To promote congenial living and working environment by controlling building development.

Policy-Control/01: ENSURE PROTECTION OF LAND AND ENVIRONMENT THROUGH CONTROL OF DEVELOPMENT ON LAND

Strategic Action:

1. Empower Upazila Parishad with land use and building control for areas outside Pourashava.
2. Build capacity of the Upazila Parishad for exercising land use and building control powers.

Policy-Control/02: IMPOSE BAN ON DEVELOPMENT ON AGRICULTURAL LAND AND ENVIRONMENTALLY SENSITIVE AREAS

Strategic Action:

1. Incorporate the provision of preparing Master Plan by Upazila Parishad, in the Upazila Parishad Act 2009.
2. Prepare land use plan for the upazila, except Pourashava, delineating agricultural and conservation areas.

Policy-Control/03: MAKE PEOPLE AWARE TO DEVELOP IN AREAS MOST SUITABLE FOR DEVELOPMENT

Strategic Action:

1. Create access to information about land suitability for development through publicity.
2. Make people aware about cost implications in development in unsuitable areas.

10.7 Tools of Land Use and Development Control and Power of Local Governments

Legal and statutory documents are required to control land use and building development. Mainly two categories of tools are used for control. These are,

- a. Statutory Plan
- b. Land use Plan prepared under Master Plan and,
- c. Acts and Rules.

A statutory plan is a kind of plan, prepared under the legal provision of an act. There must be provision in an act to prepare the plan. The current Upazila Structure Plan is not a statutory plan as no act calls for preparing Upazila Structure Plan. And therefore, the land use plan that designates use of land for imposing control, prepared under the Structure Plan will not have any legal validity.

Bangladesh Building Construction Act 1952 contains the legal provisions for control of building construction. This act was promulgated in 1952 'for the prevention of haphazard construction of buildings and excavation of tanks and cutting of hills....' The act is operable in

whole of Bangladesh [Section 1(2)], but before exercising the power by any concerned authority, government has to issue notification in this regard and publish it in the official gazette [Section 1(3)(b)]. The act offers such power as,

- Restriction on construction of building and excavation of tank;
- Restriction on improper use of lands and buildings;
- Direction for removal of construction, etc;
- Power of removal of temporary building;
- Power of removal of building under construction;
- Eviction of occupier;

10.8 Section 18 of the act empowers government to prepare rules for control of building construction

Based on this power, government prepares Building Construction (BC) Rules and Building Code. Currently, one building and two BC Rules are in prevalence. One prepared in 1996 applicable for areas other than RAJUK area and BC Rules 2008 prepared exclusively for greater Dhaka City or RAJUK area.

Presently, building construction control power is exercised by some big city development

- Removal of building, etc;

authorities, City Corporations and Pourashavas. City Corporations and Pourashavas are empowered by their respective legal document to control building construction.

Local Government (Pourashava) Act 2009, in its **Schedule 2, Section 35** empowers Pourashava to control building construction. The Pourashavas, applying the BC Rules 1996 and other provisions of Building Construction Act 1952, exercises power to building plan approval, unauthorized structure removal and demolition and impose penalty on the defaulters. Using above powers, only Pourashava holds legal power to control building construction. As a local government Upazila Parishad is not empowered to control building construction. To empower Upazila Parishad to exercise power of building plan approval, unauthorized structure removal and demolition and impose penalty, a government notification would be required. Apart from power to control building construction, effective capacity building would be necessary to handle the whole process of building construction control.

CHAPTER-11: POPULATION PROJECTION AND PLANNING STANDARD

11.0 Introduction

This chapter is concerned about demographic issues including future population and planning standards needed for providing major future land use and basic urban services.

11.1 Population Projection

11.1.1 Assumption

The basic objective of the study is to estimate the population of the Rural and Urban Areas for the plan periods that is 2033 and 2023 respectively. Using the population of 2001 and 2011, the growth rate was calculated for the two areas. Based on the growth rate rates, projections were made for rural and urban areas for the years 2033 and 2023 respectively. The projection is made on the basis of past trends in population growth observed in the past, and looking at the development prospects in future

The other important issues to be considered are;

- The natural growth;
- Composition of the population, particularly the age breaks;
- Net migration;
- The annexation of new areas with existing city;

The data found from the several sources is arranged in different formats according to their requirement and analysis. So, comparison of data between different sources is very difficult. When it is calculated for the projection then the output shows the separate result.

Migration information is not available in population census by BBS. It only considers the natural growth rate. But actual population projection requires both natural growth rate and migration rate. For this unavailability of migration rate, population projection becomes very difficult. To avoid this problem, population estimation has done here as alternate of

population projection. Exponential Growth rate Method/Compound Growth Rate Method is used to calculate the projected population.

The formula for calculation of the population projection is -

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

Where,

P_o = the base year (2011)

P_n = the projected year (2038)

n = time period (27 years)

r = annual growth rate

On the basis of the above formula Union wise population of Dohar Upazila and Pourashava wards has been estimated upto the year 2033 and 2023 respectively. **Table-11.1** and **Table-11.2** shows the union wise and ward wise projection of population for Dohar upazila with data generated from BBS.

11.1.2 Population Projection for Rural Area

According to population census 2011, population of Dohar upazila is 226439 and population of rural part of the upazila is 1,90,005. Projection shows, population of the rural area will be 2,42,689 in 2023 and 3,70,642 in the year 2033. Growth rate for the population projection of the rural area is 1.45%.

Table-11.1: Population Projection for Rural Area

Union	2011	2023	2033
1. Bilaspur	14268	18224	26881
2. Kushumhati	22246	28414	41912
3. Mahmudpur	16846	21517	31738
4. Muksudpur	23780	30373	44802
5. Narisha	39029	49850	73532
6. Nayabari	14183	18115	26721
7. Roypara	24988	31916	47078
8. Sutarpara	34665	44276	65310
Total	1,90,005	2,42,689	3,70,642

Source: Estimated by the Consultant

11.1.3 Population Projection for Urban Area

According to 2011 National Population Census Report, population of Dohar Urban Area (Pourashava) is 71362. Projection has been made for 2018 and 2023, at the end year of the UAP. Projection shows, the population of urban area will be 81252 in 2018 and 90707 in 2023. Growth rate for the population projection of the urban area is 2%. (See **Table-11.2**)

Table-11.2: Population Projection for Dohar Pourashava Up to 2023

Ward	2011	2018	2023
1	8467	9725	10738
2	11319	13002	14355
3	6778	7785	8596
4	6983	8021	8856
5	6370	7317	8078
6	4823	5540	6116
7	4911	5641	6228
8	8898	10221	12284
9	12185	13996	15453
Total	71362	81252	90707

Source: Estimated by the Consultant

Table- 11.3: Gross Population Density of Population (2011)

Name of the Administrative Unit	Area	Population (2011)	Gross Density (per sq.km.) in 2011	Gross Density (per acre) in 2011
Dhaka Metropolitan Area	302.92 sq. km	89,06,039	34692	140
Dhaka District	1463.60 sq.km	1,20,43,977	8,229	13
Dohar Upazila	161.49 sq.km 62.35 sq.m	1,90,005	1402	5
Dohar Upazila Rural Area	141.71 sq.km	1,53,571	1084	2
Dohar Pourashava	19.78 sq.km	71362	3608	3

Source: BBS, 2011

Almost all Upazila level towns in Bangladesh have rural based urban settings. Absence of industries and low level of commercial activities is reasons for very little migration in this kind of Upazila level towns. Because, migration is mostly prompted by employment. **Table-11.3** shows, while in Dhaka Metropolitan area, the gross density of population is 34692 persons per sq.km, Dhaka district as whole has 8,229 persons per sq.km, Dohar Upazila has 1402 persons per sq.km and the Dohar Pourashava has a gross density of 3604 persons/sq.km.

11.2 Determination of Planning Standard

Planning Standards are required for systematic allocation of space for infrastructure and services. Usually, the targeted future population is considered as the basis of determining the standards. Some standards are designed according to need. Here, the consultant used projected population of 2023 of the Pourashava as the basis for determining planning standards.

In most cases, the consultant devises its own standard on project basis, reviewing the standards proposed in other similar plans. The standards suggested below are to be used as reference only. For practical reasons, in most cases, it is not possible to follow the standards as they are for practical reasons. So, the standards will be used in a flexible way. Changes may be made whenever necessity demands. Following are the standards suggested for the current plan.

11.2.1 Housing Area

The present population of the rural area has been estimated as 1,90,005 (2018). The future housing area needs to be based on a recommended planning standard density of 50 persons per acre. With this standard, the estimation shows, the land required to accommodate total projected population (3,70,642) in the year 2033 will be $(3,70,642 \div 50)$ 7412.84 acres. But survey of existing residential land use has been identified as 2731 acres. The consultant, therefore, calculates the existing housing land for the year 2033 and new land is proposed for residential use. Therefore, 4681.84 acres of additional land will be as rural homestead in the year 2033.

Table- 11.4: Estimation of Future Rural Housing Area

HOUSING LAND USE					
Land Use	Recommended standard	Projected Population	Estimated Land Requirement By 2033	Existing Housing Land	Additional Land Requirement 2033
Rural Homestead/Housing	50 persons/acre	3,70,642 (2033)	7412.84 acres	2731 acres	4681.84 acres of additional will be needed.

Source: Estimated by the Consultant

11.2.2 Estimation of Land for Commerce-Industry

It is expected that there would be a rise in business activities in next 10 years in Dohar Pourashava because of rise of average income of the people. Construction of the Padma Bridge and the 6 lane National Highway will also have some impact on local investment and employment. The current land under business/trading use in rural area is only 52.53 acres that cover retail shopping and bazar areas. Assuming approximately, 10% annual rise in business activities and proportionate rise in business area each year, about 340.87 acres of additional land will be added to commercial land use in next 20 years (2033) in rural part of the upazila

giving a total commercial land as 393.40 acres. So, additional 340.87 acres of additional land will have to be added as commercial for 2033. Land use survey shows no industrial land use in the entire upazila. Land delineated for commerce may be used for small scale processing units/industries and economic zone in rural part of the upazila.

Again, assuming 15% annual increase in commercial land use of the urban area by the year 2023 (10 years) additional 299.13 acres of land will be added, giving a total 397.36 acres of commercial land by the year 2023. So, for Urban Area Plan additional 299.14 acres will have to be added to the existing commercial land. Again, assuming 30% annual increase in mixed land use of the urban area by the year 2023 (10 years) additional 569.75 acres of land will be added, giving a total 615.15 acres of mixed land by the year 2023.

The consultant feels that, this particular Upazila must have a designated area for BISCIC type Industrial Estate for general industrial development. This may vary from 100 to 200 acres.

Table -11.5: Estimation of Land for Business/Industry

BUSINESS/INDUSTRY				
Land Use	Recommended Standard	Estimated Total Land Requirement (acres)	Existing Land (acres)	Additional Land Requirement (acres)
Urban Area Projected Population: 90,707 (2023)				
Commercial Land Use	15% increase of existing business land use each year.	397.36	98.22	299.13
Mixed Land Use	30% increase of existing mixed land use each year	615.15	45.4	569.75(Commercial-300 acres, Others-269.75 acres)
Wholesale Market	Lump Sum 5.00 acres	5.00	-	5.00
Retail Bazar	One bazar for every 30,000 population (0.3 acre for each bazar)	No. 3 2.45	-	No additional bazar is required according to standard.
Rural Area Projected Population : 3,70,642 (2033)				
Commercial Land Use	10% increase of existing business/industry land use each year.	393.40	52.53	340.87

BUSINESS/INDUSTRY				
Mixed Land Use	20% increase of existing mixed land use each year	546.67	18.31	528.36(Commercial-250 acres, Others-278.36 acres)
Wholesale Market	Lump Sum 5.00 acres	5.00	-	5.00
SME Industrial Estate /Economic Zone	150 acres for the upazila	150 acres	-	Any suitable location, preferably near major road/waterway.

Source: Estimated by the Consultant

11.2.3 Estimation of Land for Commerce-Industry

Physical Feature Survey conducted by the consultant shows no industrial land in the Pourashava. But there is reason to believe that investment in this sector will show major rise after construction of the Padma Bridge and construction of 6 lane express way. The consultant proposes **150 acres Industrial Zone for organized development of new industries.**

11.2.4 Standard for Services and Facilities

Following are the estimation of land requirement standards for services and facilities to be provided in urban and rural areas.

Table-11.6: Planning Standard for Services and Facilities

EDUCATION FACILITIES				
Use/Facility	Recommended Standard Provision(unit)	Existing No.	Total Required and Land	Addition No.al Needed
Urban Area Projected Population: 90,707 (2023)				
Primary School	2.00 acres/5000 population	12	No. 20 39.96 acres	8
High School	5.00 acres/ 20,000 population	7	No.5 25.00 acres	None
College	10.00 acres/30,000 population	2	No.3 30.00 acres	None
Vocational Training Centre	5 - 10 acres / Upazila	None	5.00 acres	1
Rural Area Projected Population : 3,70,642 (2033)				
Primary School	2.00 acres/5000 population	26	No.74 148 acres	48
Secondary/High School	5.00 acres/ 20,000 population	18	No.18 92.66 acres	None

Pourashava Road				
Road Category		Right of Way		
RHD Road		80 ft		
Pourashava Primary Road		50 ft.		
Pourashava Tertiary/Access Road		30 ft.		
Upazilza Road				
Regional Highway	standard	80 ft		
Urban Road-A		Projected Population: 90,707 (2023)		There is no play field for public use. Most fields are attached to education facilities for their own use.
Play field	3.00 acres/20,000 pop ⁿ	No.18	55.59 acres	
Secondary Road	10.00 acre /10000 pop ⁿ	No.2	24.98 acres	
Park	10.00 acre /40,000 population	No.9	92.66 acres	
Mini Stadium	10 – 20 acres	20 acres		
EDUCATION FACILITIES				
College	10.00 acres/30,000 population	4	No.12 123.54 acres	8

Source: Estimated by the Consultant

COMMUNITY, SOCIAL AND ADMINISTRATIVE FACILITIES			
Use/Facility	Recommended Standard	No. and Land Requirement (acre)	Remark
Urban Area Projected Population: 90,707 (2023)			
Central Graveyard, and Cemetery	10.00 acre / One for Pourashava	No.1 10.00 acre	
Swasan	3.00 / Pourashava	3.00	
Cemetery	2.00 acres/ Pourashava	2.00	
Central Graveyard	10.00 acre / One for Pourashava	No.1 18.00 acre	
Ward Centre	One in each ward/0.50 acre	0.50 x 9	

Rural Plan Area		Projected Populatio : 3,70,642 (2033)	
Central Graveyard, and Cemetary	10.00 acre / One for Union Centre	No.1 10.00 acre	
Swasan	3.00 /Union	3.00 acre	
Cemetery	2.00 acres/ Union	2.00	

Source: Estimated by the Consultant

SOCIAL ,ADMINISTRATIVE AND INSTITUTIONAL FACILITIES WITH LUMP SUM LAND ALLOCATION		
Facility	Allotted Land	Remark
1. Jail	15.00 acres	Pourashava
2. 200 bed Hospital with ICU and CCU facility.	20.00 acres	Pourashava
3. Low cost housing of poor destitute –site and service project	200.00 acres	Suitable location in the upazila
4. Sludge treatment plant- 1.5 acre- Practical action design, cost tk.3 crore	1.50 acres	Pourashava
5. ICT Park	2.5 acres	Pourashava
6. Amphi theatre	.0.50 acres	Pourashava
7. Central /Amusement Park	20.00 acres	Pourashava
8. Botanical garden	50.00 acres	Suitable location in the upazila
9. Examination hall/development fair.	0.50 acre	
10. Community clinic	0.50 acres	One in each ward of the Pourashava and one in each Union
11. Central mosque	0.50 acre	Pourashava
12. Food godown	0.50 acres	
13. Cold storage	0.50 acres	
20. Slaughter House	0.30 acre	Pourashava
14. Mini stadium	20.00 acres	Pourashava
15. Graveyard/Swasan/Swasan	10.00 acres	Pourashava/Union Centre
17. Industrial Estate	150.00 acres	Any where in the upazila
18. Tourism Site	40 acres	Alongside Moinot Ghat
19. Community Center	0.50 acre	In Urban area/Pourashava/ Union
20. Housing Estate	150 acre	Rural Area
21. Shilpokola Academy	0.50 acre	In Urban area/Pourashava
22. Youth Center	0.20 acre	In Urban area/Pourashava

SOCIAL ,ADMINISTRATIVE AND INSTITUTIONAL FACILITIES WITH LUMP SUM LAND ALLOCATION		
Facility	Allotted Land	Remark
23. Fisheries	10 acre	Rural Area
24. Common Examination Hall	0.5 acre	In Urban area/Pourashava
25. Wholesale Market	2.00 acre/50,000 population	Area: 15.00 acres
26. Retail Market/ Rural Sales and Services	One bazar for every 30,000 population (1 acre for each bazar)	Total Area: 15 acres Existing: 10 acre Additional: 5 acre
27. Solid Waste Disposal Site	10 acre	
28. Economic Zone	250 acre	Rural Area

Source: Estimated by the Consultant

PART-D: URBAN AREA PLAN

CHAPTER-12: INTRODUCTION OF DOHAR URBAN AREA

12.1 Urban Area Plan Location and Plan Period

Urban Area Plan is prepared for urban part of the Upazila. Pourashava is the only consolidated urban part of the area where substantial urban population live with urban based services and amenities. The area coverage of the current planning assignment is the Pourashava boundary including all its nine wards. Therefore, the total planning area will be 19.78 sq. km that is the area of the Dohar Pourashava covering 9 Wards. Urban Area Plan has been prepared for a period of 10 years. It will remain valid from 2018-2028.

12.2 Objective of the Urban Area Plan

The Urban Area Plan is meant for the urban part of the upazila, that is, for the area covered by the Pourashava and its extension, if any. This plan aims to achieve the following objectives:

1. To ensure organized development of the land uses of the Pourashava.
2. To enable systematic and planned development of infrastructure and services.
3. To ensure environmental quality and liveability of the town.

12.3 Present Situation Analysis

12.3.1 Population Growth

According to 2011 population census, the total population of the Pourashava was 71362. In 2001 the Pourashava Population was 58494.

Table-12.1: Pourashava Population Growth Trend

Year	Population	Density			
		Persons Sq.km	Per	Persons Acre	Per
2001	58494	3027		12	

2011	71362	3608	15
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Source: National Population Census 2001, 2011, BBS.

12.3.2 Occupation of Household Members

The sample survey conducted by the consultant reveals that the occupations (as the main source of income) among the urban population of Dohar Upazila are, business, technical job, private job and day-labor. Other activities that people of both urban and rural areas are engaged in are, study/education and domestic work. The percentage of unemployed workforce is around 08% both, in urban and rural areas.

12.3.3 Monthly Income of the Households

Socio-economic survey shows, as many as 55.20 percent of the respondents from the Urban areas have monthly income ranging from Tk. 10,001 to Tk. 20,000, while 26.10 percent of the respondents from the Urban areas have monthly income ranging from Tk.20,001 to Tk. 30,000. On the other hand, 10.40 percent of the respondents from the urban areas have monthly income ranging from Tk. 5,001 – Tk. 10,000.

As against these, 56.40 percent of the respondents from the Rural areas have monthly income ranging from Tk. 10,001 to Tk. 20,000, while 20.60 percent of the respondents from the Rural areas have monthly income ranging from Tk.20,001 to Tk. 30,000. On the other hand, 12.90 percent of the respondents from the rural areas have monthly income ranging from Tk. 5,001 – Tk. 10,000. For more details, please see

12.3.4 Existing Land Use

Existing land use data of the Pourashava has been collected from the field through detailed field survey. During land use data collection, the land prevailing uses were grouped into 14 types as shown in **Table-12.2** below. It is clearly evident from the table that agricultural land use (39.05%) still dominates the Pourashava area; followed by residential (35.29%), water body (7.41%), transportation network (2.90%) and Commercial (1.90%).

For details about existing land use please see **Table-12.2** below.

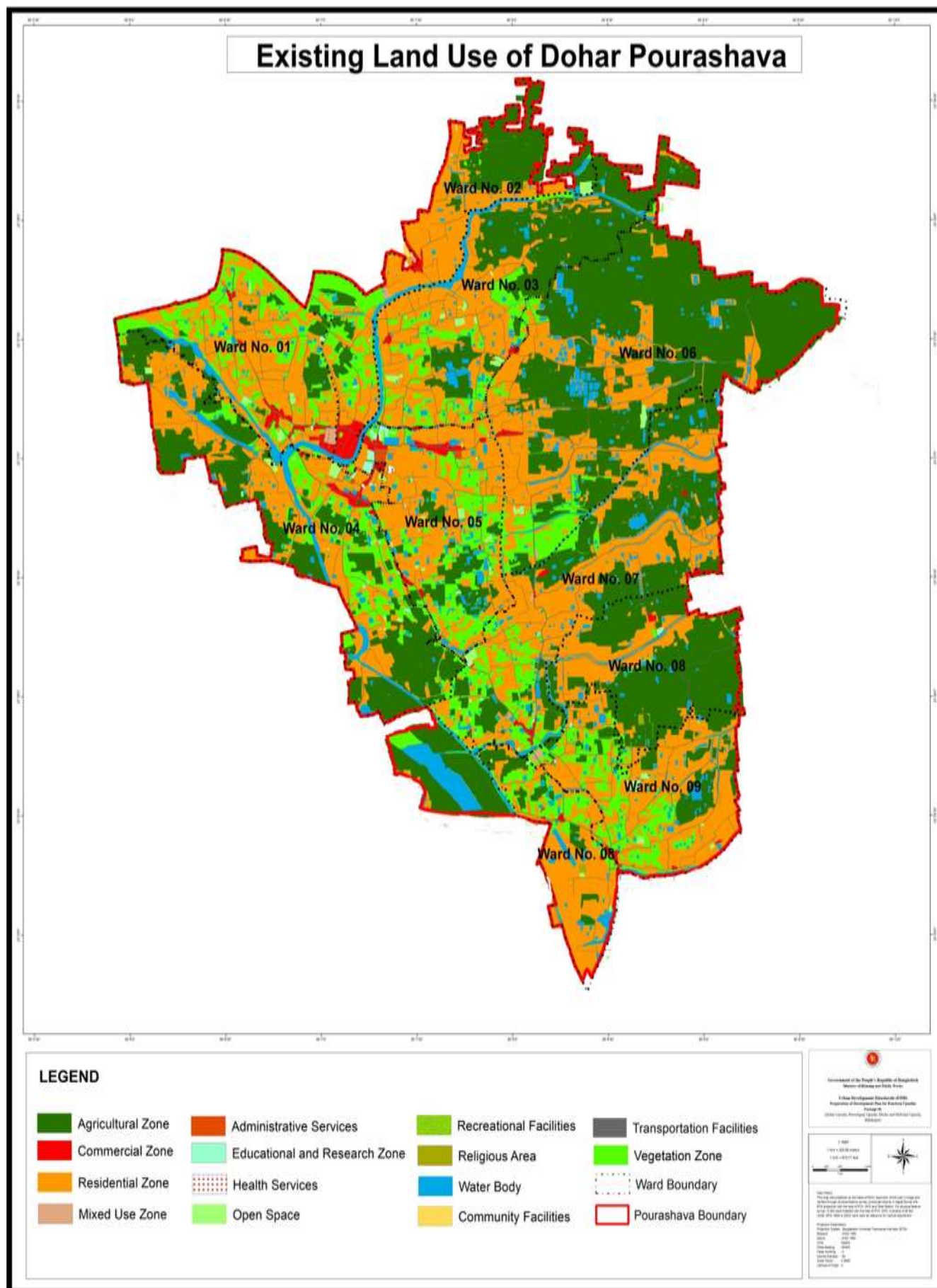
Table-12.2: Existing Land Use Pattern of Dohar Pourashava

SI. No.	Land use Category	Existing Land use Area	
		Area (acre)	%
1.	Residential Zone	1832.07	35.29
2.	Agricultural Zone	2027.08	39.05
3.	Commercial	98.22	1.90
4.	Recreational	0.39	0.007
5.	Community Facilities	0.4	0.008

6.	Education	22.58	0.43
7.	Government Services	4.1	0.08
8.	Health Facilities	3.17	0.06
9.	Mixed Use	45.4	0.8
10.	Open Space	53.38	1.02
11.	Religious	9.9	0.2
12.	Transportation	137.87	2.90
13.	Water body	387.93	7.41
14.	Vegetation	568	10.84
	Total	5189.42	100

Source: Field Survey, 2016

Map-12.1: Existing Land Use of Dohar Pourashava



Source: Field Survey, 2016

12.3.5 Urban Infrastructure and Services

12.3.5.1 Condition of Road

The survey also investigated the condition of road near to the respondent's house. It has been found that, in urban areas, the condition of road near to respondents' houses is of different types. About 38.80 percent of the households in urban areas reported that roads close to their houses are bituminous. On the other hand, 79.10 percent of the urban area respondents reported that the road condition as not in good shape.

Table-12.3: Road Category of Dohar Pourashava

Road Category	Length (Km)
Regional Road	6.7
Zilla Road	7.16
Upazila Road	6.82
Union Road	11.13
Village Road	114.17

Source: Field Survey, 2016

12.3.5.2 Drainage

Regarding availability of drainage facility, 8.20 percent of the respondents from urban areas replied affirmative. Regarding benefits derived from the drainage facilities, 54.50 percent of the urban respondents having drainage facilities replied affirmative. But, 72.70 percent respondents from the urban area respondents from the rural areas mentioned that there was block somewhere in the drain. It has 197.40 meters of open drains that includes khals as primary drain and 3970.59 meters of closed drain that are mostly man made.

12.3.5.3 Education Facility

The Physical Feature Survey conducted by the consultant shows, the Pourashava has 2 colleges, 7 high schools, 12 primary schools, 3 kindergarten and 13 madrashas.

Table-12.4: Available Education Facilities in the Pourashava

Category	No.
College	2
High School	7
Primary School	12
Kindergarten	3
Madrasha	13

Source: Field Survey, 2016

12.3.5.4 Sanitation

Cent percent of the urban area respondents told in the sample survey said that they had their own toilets. According to 61.90% urban area respondents have got sanitary latrines. As reported, according to 38.10 percent respondents of the urban area have got non-sanitary latrines, overall being 32.00 percent

12.3.5.5 Water supply

Pourashava does not have any water supply network for its citizens. Hand tube well is the main source of water supply. Most households have their own hand tube wells for water for drinking and cooking purposes. About large number of households use river and pond water for washing and bathing purposes. The Pourashava has about 5500 hand tube wells, many of them provided by the Pourashava for public use.

12.3.5.6 Economic Activity

The economic activity of the pourashava is operated by 23 bank branches and 23 bazars. The pourashava has 8 cottage industries and 3 medium scale industries.

12.3.5.7 Health

Health facility is one of the basic urban facilities for a community living. However, Dohar Pourashava is embedded with 3 hospitals and 4 clinics serving its 71362 population.

12.3.5.8 Open Space Facilities

Recreational open space facilities are the sources of physical social and mental health. It helps relax physical and mental stress and get rid of the monotony of the daily urban life. Survey findings show existence of 9.76 acres of recreational open space in the form of schools play field and other open space. But there is no open space for use of general people. It is observed that whatever open space facilities area available, they are not well distributed all over the Pourarashava. Ward No. 7 and 8 are devoid of any play field.

CHAPTER-13: REVIEW OF PREVIOUS MASTER PLAN, HIGHER LEVEL PLAN AND DETERMINATION OF CRITICAL ISSUES

13.0 Introduction

This chapter deals with review of previous master plan of the Pourashava prepared by LGED and the higher level plan of the current plan package that is, Upazila Structure Plan. The Chapter also determines the critical issues of the project area as revealed by the local beneficiary stakeholders during consultation and on the basis of expert view.

13.1 Review of Previous Plan

13.1.1 LGED Dohar Pourashava Master Plan 2011-2031

Of the three project pourashavas of the Package 1, Shibchar and Dohar Pourashavas have their master plans prepared under the UTIDP project of LGED. An initial review of Dohar Pourashava master plan has been carried out in the following sections, focusing on the ,

- area coverage of the plans;
- the context and the kind of proposals made; and
- the basis of making proposals.

Dohar Pourashava Master Plan was prepared by LGED contracting consultant under its Upazila Town Infrastructure Development Project (UTIDP) in 2013. The intention behind formulation of the master plan was to prepare a comprehensive development plan of the Pourashava and undertake infrastructure development projects in a systematic and organized manner. It is supposed to serve as the guideline for infrastructure development of Dohar Pourashava, together with land use and development control. Development Design Consultant (DDC) Ltd. Was assigned to prepare the Dohar Pourashava Master Plan.

The master plan consists of three hierarchical components,

- Structure Plan for 20 years;
- Urban Area Plan for 10 years and
- Ward Action Plan for 5 years.

13.1.1.1 Structure Plan

Structure Plan component was prepared for a period of 20 years that lays down the policy framework for subsequent lower level plans. The duration of Urban Area Plan is 10 years. It means another urban area plan will have to be prepared within the duration of Structure Plan. Action Area Plan is for 5 years, so in the same way, three more action area plan will be needed for the Pourashava within the validity of the Structure Plan.

Structure Plan begins with projection of future population highlights the development problems of the Pourashava and identifies the most critical issues. As an essential component of master plan, Structure Plan works out land use zoning policy followed by sectoral development policies covering such issues as,

- economy and employment;
- housing and slum improvement;
- social and community facilities;
- tourism and recreation;
- transport;

- flood control and drainage;
- environment and natural resources;
- sanitation and
- hazard

13.1.1.2 Urban Area Plan (UAP)

Based on the policies and strategies, spelled out in the Structure Plan, Urban Area Plan formulates development proposals including land use regulations in the form of plan. Following are the details of the major features of the Urban Area Plan :

- In the land use plan, Urban Area Plan, estimates the future land requirement for different purposes based on projected future population. It makes broad classification of the future land uses and makes land development regulations to execute land use plan.
- As a part of sectoral development plan, Urban Area Plan, makes development proposals for the transport sector that includes, proposals for roadway, public transport, mode of transport and traffic management. However, before making proposals, the plan makes an estimation of traffic demand.
- The plan suggests about 23 km of new secondary and access roads and about 3 km narrow road widening.
- Regarding transport facilities, it suggests 2 bus terminals, one truck terminal and 3 auto stands in the town. It also suggests footpath on selected major roads.
- Recommendations are there for development of waterway facilities.
- Under drainage and environmental plan, the Urban Area Plan makes a review of the current situation and then proceeds to make proposals for drainage and environmental plan.
- The plan suggests hierarchical drainage network for the town including detailed design of different categories of drains.
- Suggestion has also been made for sluice gates, regulators and navigation locks wherever necessary.
- It suggests over 48 km of primary and secondary drains to ease drainage problems including 10 culverts and 2 sluice gates.
- As a part of environmental protection it suggests to protect open space, wetland and other environmentally sensitive areas.
- No brickfield should be allowed within the jurisdiction of the Pourashava, the plan recommends.
- Regarding solid waste management the plan first makes assessment of the current situation and the gaps. Then suggestion for improvement of management has been made. The Urban Area Plan makes suggestion for two dumping sites and two transfer stations.
- Regarding water supply UAP suggests establishing water treatment plant, a desalinization plant and a water reservoir.

- About electricity the plan suggests a power station and extension of power network to unserved areas.

13.1.1.3 Ward Action Plan (WAP)

WAPs are'.....a series of detailed spatial development plans of different use and facilities.' said the Dohar Pourashava Master Plan 2011-2031. The plan makes the following ward wise development proposals for five years.

- WAP makes land use zoning proposals under 17 classifications for wards.
- Recommends new roads and widening of existing roads at ward level.
- Makes recommendation for such facilities as, transport stand, waste transfer station, playground and education facility, graveyard, health facility, drainage network, bazaar, slaughter house.

In WAP at the end proposes some implementation guidelines for implementing various development proposals including the land use zoning.

13.1.2 Observation

The consultant makes the following observations on the Dohar Master Plan 2011-2031:

1. The plan makes a poor assessment of the Pourashava with respect to its demographic and spatial growth, economic condition and expected future growth. Basic data about the plan are missing.
2. The plan makes finds over 58% as agricultural land within pourashava area, while residential area is 30%.
3. Indicative prescription of Policy for Pourashava in the Light of Different Urban Policies, Laws, Regulations and Guidelines'. It suggests policies and strategies in this regard. But, it seems that the plan has a confusion about what is a policy and what is a strategy. There is hardly any difference between a 'policy' and a 'strategy' suggested.
4. There is limitation in application of land use zoning. For 'Urban Residential Zone' it says, 'housing predominates.' What are the other land uses that may be allowed and they will be permitted in a housing zone is not clear. Same applies to other land uses as well.
5. In a declared urban area there is hardly any necessity for separate provision for rural settlements. Because, over the time all of them are going to be converted to urban settlement. The same applies for agricultural lands. Agricultural lands may be considered as future urban land reserve. So, it should be thought anyway that these lands should be preserved for food production. Even if, Pourashava wants to preserve them its attempt would not be successful. Because the land belong to the private individuals. With mere land use regulation it is not possible to control use or development. The only way is to take over possession through compulsory acquisition of the land. But the compensation cost will be so prohibitively high that Pourashava will not be able to bear it.
6. The plan calls for implanting the development projects through multi-sector investment planning (page-129). But the concept of 'multi-sector investment planning' has not yet been executed within the government programmes. There is doubt how this would be materialized.

7. The plan suggests coordination of development activities, which is a worthy suggestion. But does not say how this would be worked out.

The urban area plan during its development proposal formulation will adhere, as much as possible, to the above policies and prepared by the Upazila Structure Plan. These policies will serve as guidelines for urban area development.

13.2 Review of Higher Level Plan: Dohar Upazila Structure Plan

Dohar Upazila Structure Plan is the higher level plan for current Urban Area Plan, where policies regarding development of the upazila, mainly based on wish list of the PRA participants has been presented. This section of the report makes a brief review of the policies relevant to the urban area development.

13.2.1 Health Services

Health was a major issue during PRA sessions. People expressed their dissatisfaction about health services being provided by the public health facilities. Absence or lack of medicine, irregular presence of medical staff, lack of medical equipment, lack of bed were the common complaints. On review of the grievances of the people the consultant proposed two policies for adherence by the relevant government body. These are,

- **ENSURE STANDARD MEDICAL SERVICES AND FACILITIES FOR ALL IN RURAL AND URBAN AREAS**
- **ENSURE PRESENCE OF MEDICAL STAFF IN MEDICAL FACILITIES**

In the first policy the Structure Plan called for ensuring standard medical services in all public sector health facilities, both, in rural and urban areas of the upazila. In the second policy, the plan asks to ensure regular presence of all categories of medical staff in the station. The plan stresses that, access to medical services is a basic right of all citizens and it is responsibility of the Government to take all necessary measures to provide minimum medical services to upazila people in general. As strategic Action, the plan made some specific suggestions, like, provide all necessary manpower and logistics to the medical facilities and ensure strict vigilance regarding attendance of medical personnel in work stations and proper use of logistics; strengthen existing medical facilities with logistic and personnel; appoint all categories of medical staff in all public health facilities of the upazila; provide the staff with all necessary facilities to make them regular stay in the station.

13.2.2 Transport and Communication

Transport was a major concern of the PRA participants which was rightly reflected in the transport sector policies of the Structure Plan. In transport sector, the Structure Plan recommended 4 policies. These are,

- **ENSURE SMOOTH TRAFFIC MOVEMENT IN NATIONAL AND REGIONAL HIGHWAY PASSING THROUGH BAZAR/HAT/COMMERCIAL AREAS**
- **ENSURE**
- **ENHANCE CONNECTIVITY WITH THE CAPITAL CITY**
- **ENHANCE CONNECTIVITY AMONG LOCAL HATS AND BAZARS**

- **ENHANCE QUALITY OF ROADS CONNECTING UNION PARISHAD AND UPAZILA HEADQUARTERS**

The first policy aims to ensure easy and uninterrupted mobility of passengers and goods within and across the upazila to keep the wheels of economic progress on move. Because easy and faster mobility gears up human interaction and better distribution of goods and services, thereby promoting economic progress including generation of employment. As strategic action, the suggested creation of physical segregation of the highway from the local activities and local traffic including manually operated vehicles; development of service roads on both sides of highways with physical barrier from the main highway to prevent access of local traffic in the highways; of necessary highways can be elevated in activity areas.

The 2nd policy is aimed at enhancing connectivity with the capital city. This would serve two way purpose, reduce pressure of population on the capital city, as more people would prefer to commute from home to the city rather living there, which is very expensive live; secondly, better interaction with capital city would enable easy transfer of goods and services, ideas and technology to backward areas. As strategic action, the plan recommended developing quality regional highway with services lane connecting Dhaka; facilitate private transport operators to introduce bus service between Dohar and Dhaka develop a bus terminal in Dohar town.

The policy aims to improved connectivity among hats/bazars/growth Centers to ease and increase transaction of goods and services promote business and increase employment. The strategic actions recommended are, development of quality Regional Highway/Feeder Road connecting local hats and bazars; development of roads on incremental basis- acquisition of land first and road development later on when the road would be highly needed.

To execute policy 4, the plan suggested strategies as, paving all Union Parishad to Upazila Parishad roads as RCC roads.

13.2.3 Economy: Agriculture, Industry, Informal Economic Activities

For economic uplift economy of the upazila, the Structure Plan recommended three policies, mostly aiming at strengthening rural economy which is primarily based on agriculture. The policies are,

- **LAY STRONG EMPHASIS TO DEVELOP RURAL INFRASTRUCTURE**
- **IMPOSE BAN ON NON-FARM DEVELOPMENT ON FARM LAND**
- **INTRODUCE PERMISSION FOR CONSTRUCTION IN RURAL AREAS**

People often complains about poor road network in rural areas of the upazila. To redress this issue, the Structure Plan proposed the 1st policy where stress has been laid on development of infrastructure, like, road, power, irrigation, prevention of river erosion and flood protection to boost rural economy. The strategic action recommended are, gearing up infrastructure development activities with domestic and foreign funding; greater role to be played by REB, BADC, Krishi Bank, LGED, BWDB.

The 2nd policy calls for ban on development on farm land. This to protect valuable farm land and ensure food security of the nation. Strategic actions are, enactment of law on protection of farm land and execute it without further delay.

The 3rd policy is about introduction of a system of building permission for rural part of the upazila well.

The strategic recommended for this policy are, enactment of regulations on building permission in rural areas through amendment of Bangladesh Building Construction Act 1952.

13.2.4 Land Use Zoning

In order to streamline and organize land use development to create a livable and functional environment, the plan recommended two policies as follows,

- **CREATE STRATEGIC LAND USE ZONING TO IMPOSE CONTROL ON HAPAHZARD DEVELOPMENT**
- **PREPARE MORE DETAILED LANDUSE ZONING FOR POURASHAVA AREAS.**

The 1st policy on land use zoning aims to protect valuable farm land and organise physical development in the entire upazila to ensure livable environment. The plan suggested amendment of Bangladesh Building Construction Act 1952 incorporating necessary regulations for zoning and building permission in rural areas.

The second is about preparing land use zoning plan for urban areas. Strategic actions recommended are, apply Pourashava land use zoning for controlling building permission; ensure maximum possible flexibility in the land use to enable development where pressure is high for development permission.

13.2.5 Education Facility

Education is a major area of concern for, both, rural and urban community. Their concern mainly goes for maintenance of the education facilities and better services. The Structure Plan recommends three policies for education promotion. These are,

- **MAKE SUFFICIENT GOVERNMENT BUDGET ALLOCATION FOR ALL KINDS OF EDUCATION FACILITIES**
- **LAY GREATER EMPHASIS TO IMPROVE QUALITY OF EDUCATION.**
- **MAKE BALANCED DISTRIBUTION OF EDUCATION FACILITIES BASED ON POPULATION CONCENTRATION**

Policy for education recommends more allocation for education facilities to enable maintenance, better salary of staff and providing modern education equipment to improve learning process.

Government should allocate at least 2.5% of GDP for education purpose. Make separate allocation for infrastructure development and maintenance of facilities.

The second policy is about ensuring quality education on order to produce quality manpower. This would necessitate employment of quality teacher, regular training of teachers including continuing education and financial incentives for quality teachers.

The third policy calls for balanced distribution of education facilities. Balanced distribution facilities will make greater access to education facility. This can be achieved through devising standard and principles for setting up education facility. Government should not accord recognition to education facilities unless they meet conditions.

13.2.6 Climate Change, Environment and Disaster

13.2.6.1 Climate Change

Climate change is likely to cause long term variation in the average conditions of weather. Not all the climate change events, mentioned above, would impact Dohar Upazila. Temperature rise, heavy rainfall, flooding and water logging, increase in intensity of tropical cyclone and earthquake are likely to have effects on this Upazila. The main climate change impacts on Dohar Upazila are associated with increased rainfall; river and rain driven drainage congestion and urban flooding, river erosion and earthquake. During monsoon, flash flooding is likely to increase driven by heavy rainfall and upstream water in the rivers. This will impact fisheries and water supply, and exacerbate the challenges associated with agriculture, transport infrastructure, drainage, community health and energy supply. Impact of earthquake would be severe in urban areas than in rural areas. There will be damage and degradation of the ecosystems related to water bodies, water sources, biodiversity and infrastructure. This will affect the income earning activities of urban households. Flooding might destroy poor people's houses, infrastructure including road communication affecting local economy and livelihood.

Resilience is the capacity to resist and recover from loss caused by disasters. It is a reactive ability to 'bounce back' in appropriate time from adverse impacts of climate induced disaster. It is a response to changes in conditions and as a result it can fluctuate over time. Resilience is used as an approach for understanding the dynamics of disasters caused by natural hazards.

To apply resilience concept in the entire Upazila, the context has to be taken into account. An Upazila is composed of urban and rural areas with variable physical and social dimensions. So the impact will be variable in these two places. An urban area comprises dynamic systems capable of evolving and adapting to survive, and even thrive in the face of unexpected shocks or stresses. Urban resilience, therefore, revolves around the ability of a city's infrastructure and service system to continue essential urban functions under stresses or shocks they encounter. It is the adeptness of communities and municipal institutions to manage the preparation and aftermath of these shocks and stresses. Adaptation response to changes in conditions comes slowly over the years.

Experts view that many of the signs of climate changes are already apparent in Bangladesh, such as, the conventional six seasons of the country does not seem exist; the rainfall has reduced substantially in recent years. There have been more frequent cyclones than previous years. Experts are predicting of severe earthquake any moment of time, which is likely to cause havoc in urban areas. Dohar, in particular, is experiencing river erosion in unions by the river Padma. These events give clear indication that slow changes in the weather conditions is underway that might, at one point of time, result in disasters exerting severe impact on the livelihood of the people. Before that happens it is high time to take up proactive measures to create resilience against the ensuing odds.

The following policy suggestions were made by the Structure Plan:

- **TAKE NECESSARY MEASURES TO EDUCATE PEOPLE ABOUT THE DANGERS OF CLIMATE CHANGE IN ALL SPHERES OF LIFE.**
- **ADOPT CLIMATE CHANGE RESILIENT PRODUCTION TECHNOLOGY IN AGRICULTURE INCLUDING SEED.**
- **DEVELOP CLIMATE CHANGE RESILIENT INFRASTRUCTURE INCLUDING ROAD AND HYDROLOGIC STRUCTURE.**

Awareness would cause people to take proactive measures to create resilience against the negative impacts of climate change. Programme initiative may be taken by the Upazila Parishad and Pourashava in collaboration with the management to educate people about climate change and its consequences.

13.2.6.2 Environment

Dohar Upazila is vastly dominated by rural environment. Except small urban area, in the upazila headquarters, the vast area of the upazila has natural environment imbued with green crop land intersected by rivers and khals, having patches of indigenous homesteads as rural settlements marked by low density of population. The conventional environmental degradation arises mostly from man-made environment which is yet to emerge in a visible manner in urban area. Population density in the only urban center of the upazila is much lower than those in large cities, to cause serious environmental degradation. The poor drainage system indicates alarming future. The recommendations about environment were the following:

- **PROTECT ENVIRONMENTALLY SENSITIVE AREAS**

Preservation of environmentally sensitive areas can serve as safe guard to bio-diversity and disaster. Earmark environmentally sensitive areas in the master Plan. Control development in those areas; take over land if possible to preserve the areas.

- **PROTECT AND PRESERVE NATURAL WATER COURSES**

Preservation of natural water courses will reduce the risk of flooding and waterlogging. Mark water channels in the Master Plan. Recover the encroached water courses as marked in the mouza map.

13.2.6.3 Disaster

Remarkable disasters that strike Dohar Upazila are, river bank erosion prominent. River erosion is the most Unions that are on the river Padma. Since Pourashava is away from the river it is free of erosion danger. Flood disaster occasionally visits the Upazila including the urban area. Flooding is caused by over flow of the rivers and excessive rainfall. Flood submerge roads and destroy poor people's houses making the poor farmers even poorer.

To avoid disaster in agricultural production, prior action to evolve new agro-tech in agriculture is necessary to cope with climate change. Research programme initiative by BADC and BRRI to evolve new technology and paddy

Resilient to climate change will help tackle climate change impacts. As proactive action sustainable infrastructure is necessary to tackle climate change impacts. Prepare guidelines for designing climate change resilient infrastructure. Direct Pourashava and other Upazila level public sector development agencies to follow guidelines during development of infrastructure.

- **ORGANISE AND KEEP ACTIVATED THE DISASTER MANAGEMENT COMMITTEES AT VARIOUS LEVELS OF THE ADMINISTRATION**

Regular meeting of Disaster Management Committees will keep members conscious about their responsibilities. Hold regular meeting of Upazila, Union and Pourashava Disaster Management Committees.

13.3 Critical Issues Based on Public Consultation

The consultant conducted extensive ward wise PRA in the Pourashava with cross section of the people. There were open discussions about local problems, potentials and expectations of the people over the short, medium and long term periods. Open discussion revealed the ward wise problems and issues of the Pourashava.

13.3.1 Dohar Pourashava Ward Level PRA Summary Findings of Problems

Table-13.1 shows the five major problems according to wards of the **Dohar Pourashava as found from the PRAs**. The most common major problem, according to the PRA participants from all the wards, **road transport problem** is the most critical problem of the Pourashava. Absence of **Safe drinking water** comes as the second most important problem. This problem received votes from 6 wards. **Problem of Maintenance of education facilities** receiving 6 votes stands as the third important problem. **Problem of Drainage and water logging** is the fourth major according to the PRA participants.

Table-13.1: Summary of Major Problems by Wards Identified by the Participants

Sl. No.	Major Problems	Affected Wards	No. of Wards
1.	Problems of drug abuse	Ward No. 1	1
2.	Problems of Road (Narrow)	Ward No.1, Ward No.2, Ward No.3, Ward No.4, Ward No.5, Ward No.6, Ward No.7, Ward No.9	8
3.	Problem of Safe drinking water.	Ward No.1, Ward No.2, Ward No.3, Ward No.5, Ward No 6, Ward No.7	6
4.	Problem of infrastructure in education facilities	Ward No.1, Ward No.2, Ward No.3, Ward No.5, Ward No.7, Ward No.9	6
5.	Problem of infrastructure in religious facilities.	Ward No.1, Ward No.6, Ward No.7	3
6.	Drainage problem + water logging	Ward No.2, Ward No.4, Ward No.7, Ward No.9	4
7.	Sanitation problem.	Ward No. 2	1
8.	Want of pucca ghat in Padma shakha river.	Ward No. 3	1
9.	Absence of government primary school.	Ward No. 4	1
10.	Need ICT tanning center for young people.	Ward No. 4	1
11.	Absence of river bank protection dam.	Ward No. 5	1
12.	Poor health service	Ward No. 6, Ward No. 9,	2
13.	Electricity expansion problem.	Ward No. 9	1

Source: PRA, 2017

13.3.2 Appraisal of Problems

Identification of priority problems by the PRA participants at pourashava wards reflects their perception about local problems they face in their everyday life. The major common problems identified by the participants of the unions are,

- **Transport and Communication problem**
- **Absence of safe drinking water.**
- **Development and maintenance of education facilities**
- **Drainage and water logging problem**

Following is a brief review on the above problems as identified by the PRA participants.

13.3.2.1 The Misery of Everyday Movement

Despite being an urban area, roads in most parts of the Pourashava are not paved. Due to lack of budget the pourashava cannot develop all the roads. People living in settlements in the outskirts of the town often have to live a few years in miserable condition without paved roads. Earthen roads become muddy during monsoon and movement becomes extremely difficult for all kinds of road transport including the pedestrians. Potholes are often created in muddy roads by the movement of vehicular traffic that deteriorates road condition further.

13.3.2.3 Absence of Safe Drinking Water

Though a Pourashava, safe drinking water is not available in all Pourashavas where tube well is the primary source of water. Piped water is yet to be introduced in the Pourashava. Ground water has been found contaminated by arsenic in many places. Putting **want of safe drinking water** in the major problem indicates that the people are very conscious about their health now. Six wards of the Pourashava mentioned safe drinking water as major problem of the ward. They are, no longer ready to drink water from a tube well which is contaminated by arsenic, when they know that arsenic causes health problem. They also know that, and a deep tube well, that penetrates further deep into the ground and extracts arsenic free safe water. So, they rightfully seek for deep tube well to have safe drinking water in their everyday life. Because they are concerned about their health and water is a basic necessity of life.

13.3.2.4 Development and Maintenance of Education Facilities

Like religious facilities, educational institutions are also mostly developed on community initiative. Government facilities are exceptional and adequate compared to demand. Privately developed education facilities always suffer from financial crisis. Because they cannot pay for their recurring expenses from the fees paid by the students. Though government is now paying a

large part of the teacher's salary of the recognized private education facilities, but that is not enough.

13.3.2.5 Problem of Drainage and Water logging

The problem of drainage congestion results in water logging in many parts of the Pourashava. The main reason for drainage is that, the Pourashava does not have a comprehensive network of drainage with a defined outfall. As a result rain water cannot pass into the river with adequate pace. Another major problem is the filling of primary dins(khals) that does not allow water to pass quickly. Blockage of drains by waste is yet another problem.

As the above problems have been marked by the people's representatives they genuinely present problems of the people in general. Therefore, these problems demand priority action. However, the Pourashava has other problems that might turn critical which the PRA participants could not anticipate now. It is the responsibility of the planners to identify those problems with their expertise and recommend actions at appropriate time. The consultant, keeping this issue in mind, will address those vital issues after all the priority issues have been taken care of.

13.4 Pourashava Sample Survey Findings

The consultant conducted a sample survey in the Pourashava to ascertain household level perception about major problems. Survey identified some major urban area problems as perceived by the respondents.

13.4.1 Road Transport

The main problems with road transport are, they are mostly unpaved and narrow. Many drains do not have drainage system. As a result they get submerged during heavy rains. Unpaved roads cause misery during monsoon when they get muddy, making difficult to move.

13.4.2 Drainage

The town does not have any drainage system at all. Most drains are unconnected without having any network to the outfall. As a result rain water cannot pass and causes water logging in different places of the town that remains for hours. The water cannot pass mainly because existing drains are blocked by garbage disposed in the drains. Another reason is that the primary drains that is khals at many places have been occupied by adjacent land owners and have been filled up.

13.4.3 Healthcare

There is inadequate public health facilities in the town compared to the size of population. The only Health Complex has to provide services to the entire upazila people apart from the Pourashava. Besides, the facility is under staff and lacks logistics and medical equipment.

CHAPTER-14: URBAN TRANSPORT DEVELOPMENT PLAN

14.0 Introduction

Transportation is critical for efficient functioning of any town and contribute to effectively to its productivity and economic growth. A good hierarchical road network coupled with an efficient transport management system can make substantial contribution to the "working efficiency" of cities and towns and enable them to become catalysts for social and economic development. On the other hand a poor urban transport system is manifested in terms of traffic congestion, delays, accidents, high energy consumption, high pollution of the environment and inequitable access to services. The current chapter of the planning report deals with Transportation and Traffic Management Plan up to the year 2028.

14.1 Assessment of Existing Conditions

14.1.1 Existing Road Network

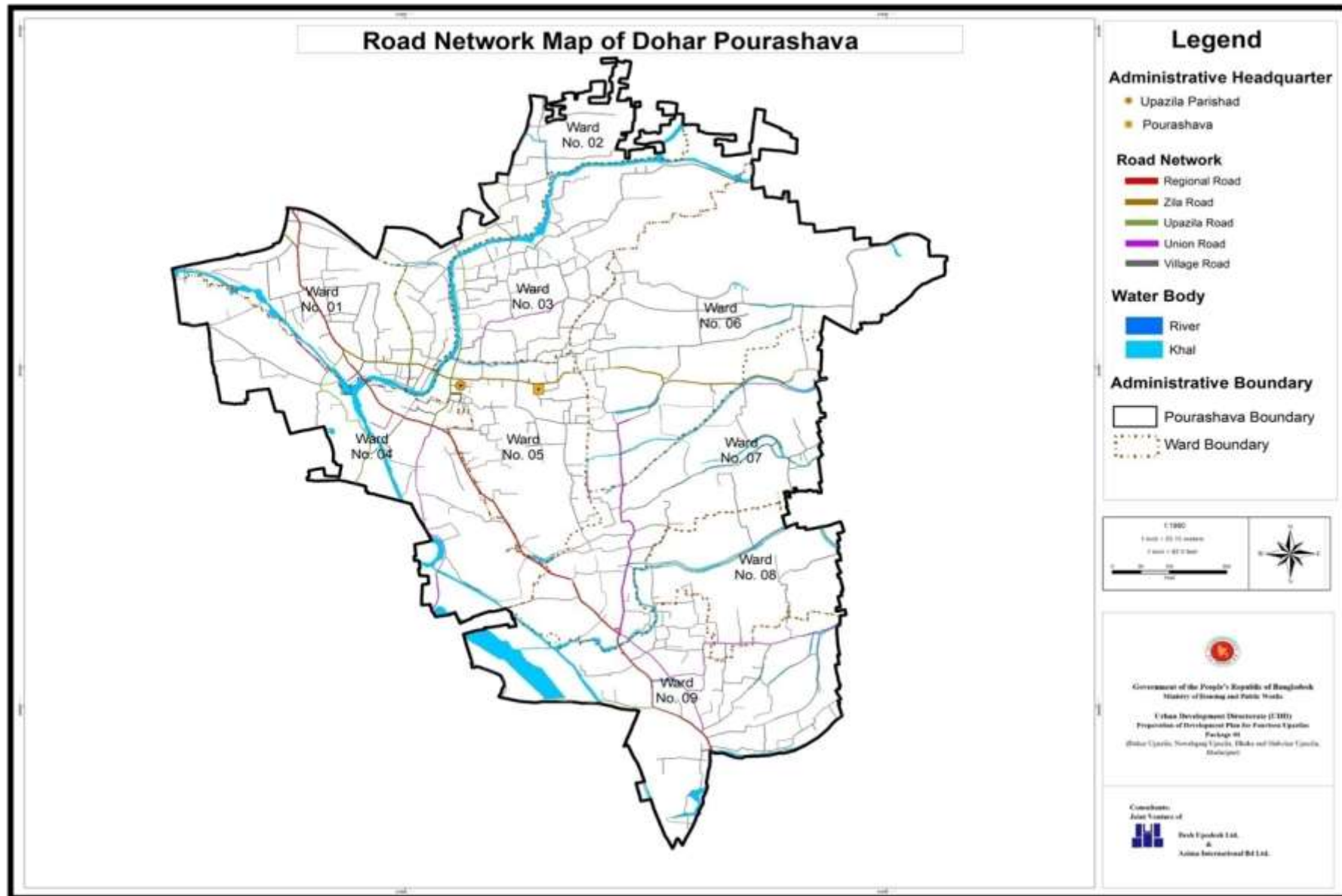
The length of total roads in the Urban Area/Pourashava is 146.3 km with 81.88 km of pucca road, 36.79 km of semi-pucca and 27.63 km of kacha. **Map-14.1** shows the circulation network of Dohar Pourashava.

Table- 14.1: Condition of Existing Roads

Road Type	Length (KM)
Kacha	27.63
Pucca	81.88
HBB	36.79
Total	146.3

Source: Field Survey, 2016

Map-14.1: Existing Road Network of Dohar Pourashava



Source: Field Survey, 2016

14.1.1.1 Mode of Transport

Pourashava has road traffic of different varieties. The modes vary from manually operated rickshaw to car. There are rickshaw and rickshaw van as slow moving manually operated road traffic that carry passengers and goods respectively. Vans carry goods, to even long distances. Among vehicular traffic, there are tempo, easy bike, auto-rickshaw and bus as public transport. Well to do people have personal cars. Trucks are also there to carry goods. Mahindra tempo and battery is operated autos operate mostly on route basis. These are very popular among the people, because they are cheaper and fast. All of them operate on shared basis.

14.1.1.2 Intensity of Traffic Volume

Dohar is a small upazila town with very low level of economic activity. So, traffic movement is also very thin in the town. A Zilla Road passes through the heart of the town connecting Dhaka-Munshiganj-Khulna Highway. It is evident from the traffic volume survey that in all the directions there are mainly two peak hours, between 9 am to 10:30 am and again from 4:30 pm to 5:30 pm. During the first peak the commuters move to their work places during the early hours of the day, again the second peak occurs as the commuters start to return home after their work. The peak periods at different directions (from and to) are as follows:

14.1.1.3 Level of Service: Degree of Traffic Congestion and Delay

Speed is one of the most important characteristics of traffic and its measurement is a frequent necessity in traffic engineering studies. Speed is the rate of movement of traffic or of specified components of traffic and is expressed in metric units in kilometers per hour (K.P.H.).

Like any other Upazila towns, Dohar Pourashava is also dominated by non-motorized (Mostly Rickshaw) traffic (NMT). It is observed that, NMT imposed on the road nearly double than the Motorized transport by both volume and PCU. So, the speed and delay of the transport sector has been studied considering non-motorized Transport.

It is observed that, the running speed (average speed maintained by a vehicle over a given course while the vehicle is in motion) of peak period is almost 70% from that of off-peak period. The main cause for this low speed is the congestion in the Bazar intersection which is mainly for narrow road and improper design of cross section as well poor traffic management. The maximum and minimum speeds are 13.41 KPH and 8.02 KPH. It is significant to note the clause 'while the vehicle is in motion', because the running speed is obtained by dividing the length of the course by the time the vehicle is in motion, *i.e.* by the running time, which excludes that part of the journey time when the vehicle suffers delay.

The **delays** occurring due to stopping is conveniently recorded by separate stop-watch. Special watches which can accumulate the delay time as the observer operates buttons find convenient for this purpose. The delays have been measured at the intersection of Dohar Bazar more.

In addition to stopped delays, the delays in Dohar town is caused by the interaction of various factors such as congestion, inadequacy of carriageway widths, mixed traffic conditions,

parked vehicles and heavy pedestrian flow and such delays are called congestion delays or operational delays and are rather difficult to be measured precisely.

It is observed that, peak period takes on average 30% excess time than off-peak period in Dohar Pourashava due to the congestion, narrow road width and improper design of the intersection

14.1.1.4 Facilities for Pedestrians

Pedestrians are found to move in both directions, going in and out of the both sides of the roads. The town does not have any footpath for pedestrian movement. Pedestrian movements take place mostly on carriageway and right of way of the roads.

14.1.2 Analysis of Deficiencies

As in any other small town in Bangladesh, Dohar has also its own road and transportation deficiencies. These deficiencies have been identified from two different sources-first, by reconnaissance survey of the town, field observation and physical surveys, passenger and operator interviews and the second by means of household sample survey.

14.1.2.1 Roadway Capacity Deficiency

a. Narrow Road Width

Narrow width of roads and poor maintenance are two major road problems in the town. Most people complained about misery movement on roads during monsoon when unpaved roads get muddy. Narrow width of roads is likely to become a major problem of traffic movement when the town grows and density of population increases in future. Access roads have width varying from 8 ft. to 12 ft. This is alarming, as there will be increase in population leading to higher density. Narrow roads will cause traffic congestion on the street. It is very difficult and in most cases impossible to increase the road width in highly built up areas- especially at the crossing points of main bazaar area, as there will be high cost involvement and social-pressure on any attempt to demolition will be very high.

b. Tortuous Road and Missing Link

A major characteristic of spontaneously developed roads is that, they are tortuous in their shapes. This is because land owners allow roads to follow alignment along the edges of the tortuous plot boundaries. Another problem of community initiated roads is that they are not in a well Link Road network. Sometimes links to nearby roads are missing. This causes people travel comparatively longer distances to reach a nearby destination.

c. Traffic Conflict and Congestion

Traffic conflict is common and frequent in towns where there is admixture of transport vehicles-slow and fast-in the streets. Areas of conflict occur at point where there intensity of traffic movement is high. The consultant studied the traffic movement in all over the town and has identified four main points where the traffic conflict is the highest. These are zero point, Thana more, Bazar more, Cinema Hall more, Zia Shopping Complex more. At these points the slow moving vehicles, like, rickshaw and vans come in conflict with motor vehicles, creating traffic congestion. Besides, bus and tempos remain standing on these points for long time for boarding and descending of passengers. Upcoming other vehicles do not get

required road space to cross the standing vehicles smoothly. For this reason, a sudden but short time jam is occurred. As the number of slow moving vehicles is higher the conflict is usually frequent. The identified reasons for traffic conflict are,

- too large number of non-motorized traffic,
- disobedience of rules and regulations by operator,
- improper intersection design,
- on street parking of vehicles,
- vehicle operators waiting on the streets looking for passengers, and
- Absence of traffic signal, etc.

d. Operational Safety, Signal and other Deficiencies

Like any other Upazila town, Dohar Pourashava lacks traffic management system. There is no traffic management point and traffic island and no signal posts. There is hardly a traffic police at Chowrasta to maintain manual traffic system. No road divider is seen. So the traffic operation and road safety are yet to become important traffic issues.

14.2 Future Traffic Projections

14.2.1 Travel Demand Forecasting

Extrapolation of transportation demand necessitates accumulation of data on employment, vehicle ownership, trip distribution, etc. The available categories of data mentioned above have been collected through by Socio-economic Survey, yet these data sets are highly inadequate to forecast future travel demand.

Furthermore, the traffic survey conducted as per ToR prescription was intended give the overall picture of traffic movement pattern in the study. The collected data are not detailed enough to allow extrapolation of traffic data. So, it is not possible to develop any traffic model and to forecast future traffic demand.

However, the complexities of traffic in the study area are assumed to be insignificant. At this level of traffic current measures are sufficient to manage traffic. Detailed traffic study is recommended when the size of vehicle to a level which will be unmanageable.

14.3 Transportation Network

The physical feature survey has identified a number of problems constraining the development efficient transport network in the Pourashava. There are:

- Lack of a hierarchy of roads within the Pourashava with many of the roads unable to fulfill their intended functions adequately;
- Scarcity of reserves of land for future roads; and
- A tradition of encroachment in those areas where road reserves have been made.

To establish a rational hierarchy of roads in the Pourashava, it will be necessary to work out a comprehensive network based transportation plan and reserve necessary die future road development. In the Transportation Plan, north, south, east and west direction links with the Pourashava have to consider. To maintain an effective linkage, secondary and tertiary roads will have to be proposed.

14.4 Future Traffic Volume

The Pourashava has about 13.9 km of major roads, including Regional Highway and Zilla Road within the town owned and maintained by the Roads and Highways Department (RHD). Present population of the Pourashava is 71362 (2018) and after 10 years it will be 99924 (2028). It is expected that gradual increase in population will increase traffic volume. Currently, there is only a few car owners in the town. It is expected that there will be a small increase in the car ownership in next 10 years. But vehicle increase will be caused by increased movement of outside vehicles, most carrying goods. The present condition of roads is like to cause traffic congestion in future.

14.5 Transportation Development Plan

14.5.1 Standard Road Design

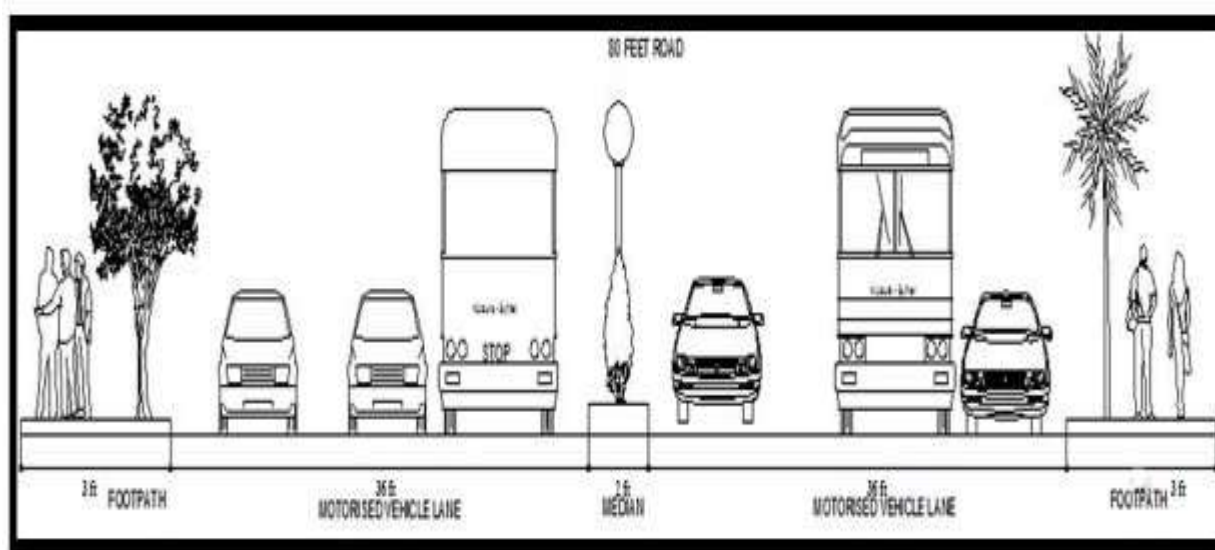
All urban roads should have flexible pavements. The road intersection should be designed to allow easy movement of vehicles. At bridge, the road design should provide for an adequate sight distance and a smooth riding.

14.5.1.1 Functions of Roads

Each category of road has its particular functions to perform. **Local Road** carries traffic from buildings to the **Secondary Road** and collector Road carry traffic to the **Primary Road** and vice versa. In reality, however, it is almost impossible to maintain this hierarchical use of Roads except in an entirely planned area. However, functions will not be dependent on the Road width, rather on the location of the Road, surrounding land use and the link it is providing or the volume of traffic it is carrying. Thus a 60 feet wide secondary road can become a major road due to its strategic location and the purpose it is serving.

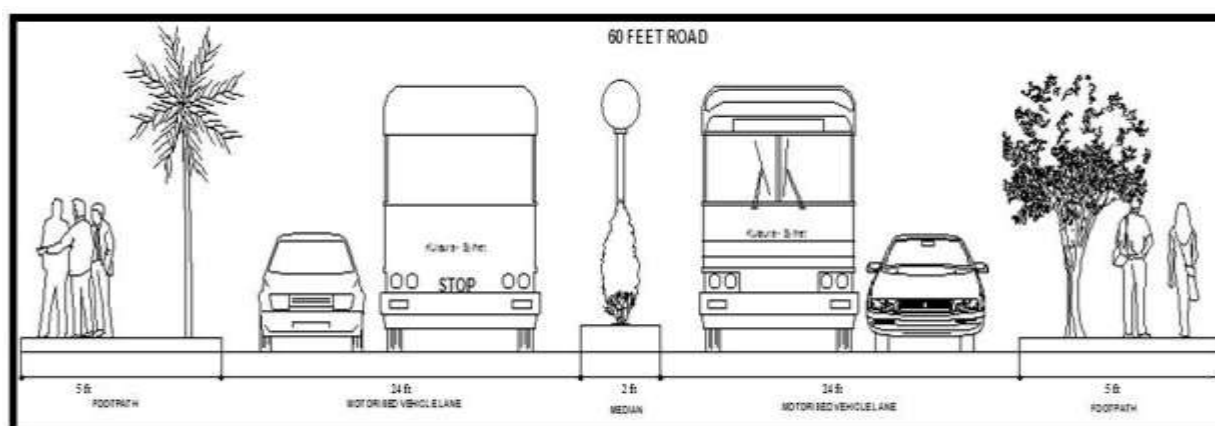
a. Primary Road

Figure 14.1: Proposed Primary Road with 80 ft RoW



b. Secondary Road

Figure 14.2: Secondary Road with 60 ft RoW



14.5.2 Plan for Road Network Development

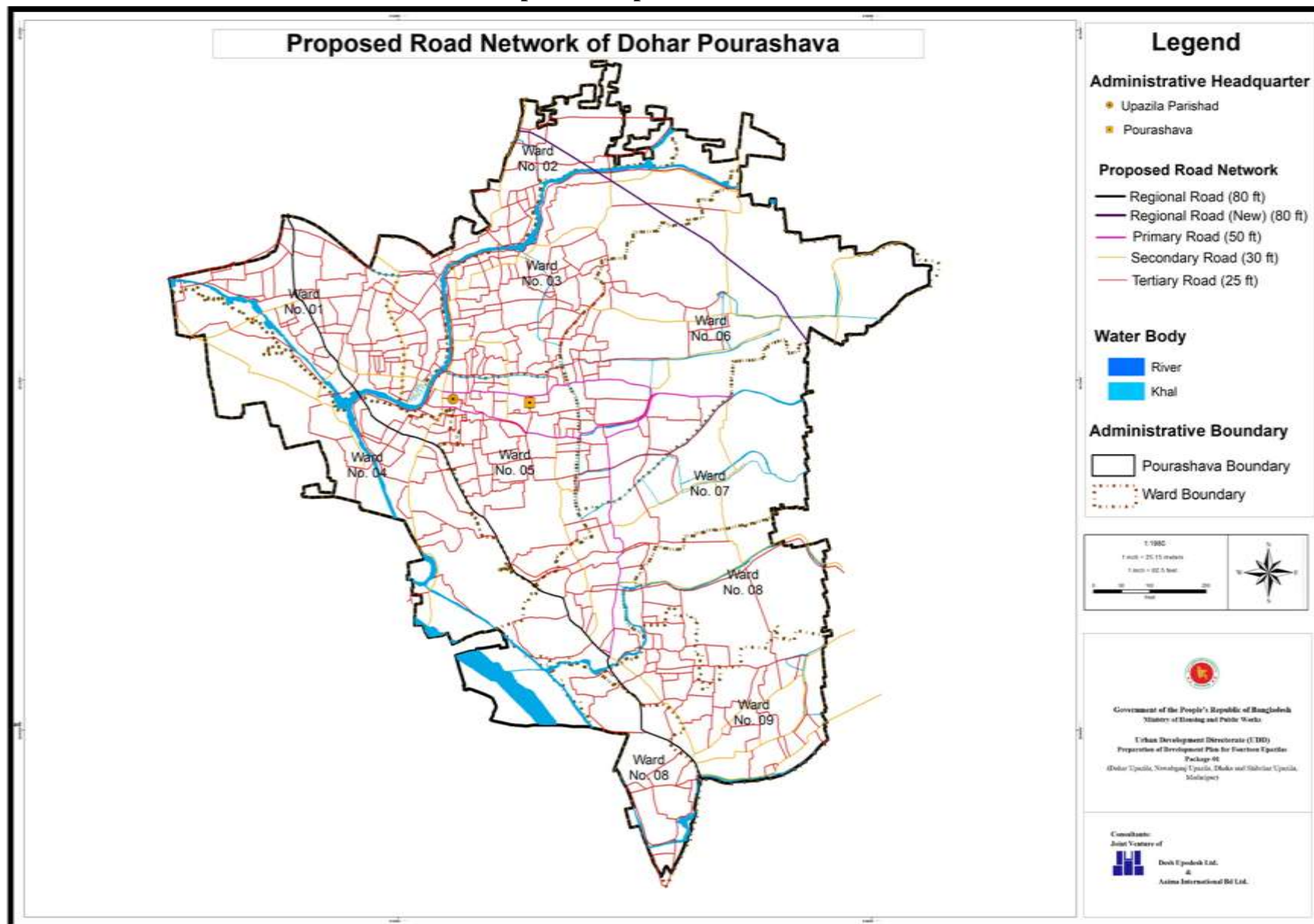
The most important prerequisite for holistic development in urban area is to create effective and workable connectivity. However, the most important current necessity is to ensure quality of the roads through improvement of pavements and paving the unpaved roads. A new 80 ft 6 Lane Regional Highway (Nawabganj-Dohar-Srinagar) will be constructed which connects with Zilla Road Z8204 linking Nawabganj with Dohar. Length of this road is 3.1 km. Existing ZKDH Road of Dohar pourashava will be widened to 80 ft and its length is 6.7 km. This will enable western region traffic to use Padma Bridge. Width of proposed primary, secondary and tertiary roads is 50, 30 and 25. (See **Table-14.2**)

Table-14.2: Summary of Proposed Road Development for Dohar Pourashava

Road Category	Proposed Width (ft)	Length (Km)
Regional Road (ZKDH)	80	6.7
Regional Road (New) (Nawabganj-Dohar-Srinagar)	80	3.1
Primary Road	50	7.8
Secondary Road	30	33.54
Tertiary Road	25	104.58

Source: Prepared by consultant team

Map-14.2: Proposed Road Network



Source: Prepared by consultant team

14.5.3 Plan for Transportation Facilities

Regarding transportation facilities, the needs are manifold, like, bus terminal, truck terminal, rickshaw stands, baby taxi/tempo stands and passenger shed.

14.5.3.1 Proposal for Transportation Facilities

The standards are meant for use by UTIDP, LGED and other planning and development agencies. The standards have been adopted by the consultants to draw up the transportation development plan.

a. Bus Terminal

The area of newly constructed bus terminal in Dohar Pourashava is .61 acres with a capacity of accommodating 50-60 buses at a time. The terminal is jointly managed by the local Bus owners' association and the Pourashava. The plan proposes another bus terminal outside anticipating future economic growth in the upazila.

b. Truck Terminal

As a small town, the economic activity is still very low in Dohar Pourashava. There are only a handful of small scale processing factories including a few saw mills and limited trading activities. Movement of trucks is extremely negligible here. One truck terminal has been proposed in Pourashava (Ward No. 04) alongside the industrial zone with an area of .43 acres of land. The plan proposes five additional truck terminals anticipating future economic growth in the upazila.

c. Auto-rickshaw/Easy Bike Stand

According to the Pourashava source, tempo stands also act as Auto-rickshaw stand in Dohar for keeping the vehicles. Rickshaws generally stand here and there of the Pourashava. The consultant does not feel additional stands and proposes to formally develop these existing tempo terminals.

d. Development of Facilities for Pedestrians, Bicycles and Rickshaws

Footpath

Footpath has been recommended for all the roads (above 20 ft) for safety and ease of pedestrian movement. Due to narrow right of way it is difficult to provide wider footpaths. Width of footpaths will vary between 1.5 m to 2.0 m depending on availability of right of way. For design of footpath, please see Figure- 18.1 and 18.2.

e. Bicycles and Rickshaws

Separate lane for NMT vehicles will be provided in Transport network development plan which will be used by bicycle and rickshaw. Figure 18.3 shows the provision of separate lane for NMT vehicles.

14.5.3.2 Other Transportation Facilities

a. Improvement Roadway Intersection

Due to the poor designing of road way intersection, traffic congestion and traffic conflict occur in the Pourashava. To avoid this, appropriate design will be provided for the major intersection within the Pourashava in the detailed area plan.

b. Parking Facilities

There is hardly any locally owned car in the town and it is unlikely that there will be a good number of private cars in the near future. Some off-street and on-street parking places have been conditionally permitted in few locations of the Pourashava area.

c. Managing Parking Demand

The following recommendations are made regarding future parking demand.

- 1) Non-restrictive parking shall be adopted in residential areas where the demand for parking is much less than the available of parking spaces.
- 2) Restrictive parking shall be adopted in areas where the demand exceeds the available parking spaces. These shall be enforced through pricing and regulatory mechanisms.
- 3) Two types of parking charges shall be levied at public parking places in the restrictive parking areas. Normal charges aimed to recover of operation and maintenance expenses, shall be levied in locations where the parking provision does not adversely affect the movement of traffic. Deterrent parking charges shall be more than the normal charges and shall be adopted in areas where parking demand is in excess of supply or in places where parking is observed to adversely affect the movement of traffic.
- 4) Regulations shall include parking restrictions to specific or all types of vehicles either by time of day or by duration or for specific purpose of travel or for vehicles carrying less than specified number of passengers per vehicle or by location.

14.5.3.3 Traffic Management

Traffic Management is to ensure maximum use of existing road space, through traffic operations enforcement, materials and equipment to achieve safe and efficient movement of people and goods. An example of the absence of good traffic management is the chaotic disorder that exists in many areas of the Pourashava today. A major source of traffic problem is poor traffic management.

In all the urban centers of Bangladesh traffic management is very poor. Particularly, adherence to traffic rule is highly slack that results most traffic problems. Indiscriminate parking ignoring the rules of directions, indiscriminate boarding and disembarking bus passengers, wrong side movement by non-motorized vehicles, fake driving license are all disobedience to traffic rules. Following measures are suggested to improve traffic management.

a. Signals and Road Marking

Road markings must be put on major roads and signals must be installed at intersections for good traffic management. Traffic police have to be posted at critical intersections.

b. Road Use Awareness Building

People must be made aware of road use including traffic rules. Drivers of all kinds of vehicles should imparted training on driving and road use. Publicity may be made for pedestrians on road use. Boys scouts and local NGOs can be engaged for this purpose.

c. Enforcement of Traffic Rules and Regulations

Traffic rules and regulations should be strictly enforced for all. Provision instant fine for violations may be introduced.

d. Traffic Law Enforcement

Traffic law enforcement is needed to encourage safer road use and orderly traffic flow. Enforcement of various regulations, such as speed limits, use of seat belts, wearing of motorcycle safety helmets etc. have led to reductions of associated deaths and injuries in many countries. Effective enforcement of traffic regulations require training of the traffic police force in many traffic related areas, including incident investigation, highway patrolling, motorcycle riding and car driving and management skills. Traffic rules and regulations should be strictly enforced for all. Provision of instant fine for violations may be introduced.

e. Driver Training and Testing

The behavior of drivers, particularly of commercial vehicles, is generally considered to be chaotic and does not reflect consideration for others. Commercial vehicles are involved in a majority of incidents. Effective driver training and testing is important for achieving a long-term reduction in the statistics. To ensure that road user behavior becomes safer, improvements in the training and testing of all drivers is required. A “motivational” training program for all drivers, organized with the involvement and support of the vehicle owners and professional associations is one example of the type of training that would be beneficial.

f. Education and Publicity

To develop safe road user behavior, children need to be taught skills (i.e. how to cross a street safely, how to use traffic signals properly, how to watch for and anticipate driver behavior, etc.) rather than focusing simply on rules, regulations and knowledge of traffic signs. To be effective, road safety education requires a clear structure within a recognized curriculum with a planned, sustained and coherent program of learning, based on sound educational principles. Children learn a lot from observation of others.

Road safety publicity for the general public is equally important. Road safety education is a long-term intervention, aimed at developing positive attitudes in children such that they become safer road users in the future. Publicity is an indispensable part of any nation’s road safety strategy. Boy’s scouts and local NGOs can be engaged for this purpose.

g. Vehicle Safety

Substandard, often overloaded, vehicles using roads that facilitate increasingly higher speeds, invariably will lead to increased incidents. Poor vehicle condition is widely accepted in Bangladesh to contribute to the number and severity of road collisions.

Despite inspection forms and manuals having been produced under a recent aid project, little priority has gone into their use. While inspection monitoring procedures are thorough, no use is made of the data nor concern shown over the unrealistically high pass rate. Vehicle inspection is treated perfunctorily and the minimal inspection procedures reflect this attitude. This sector has made little significant progress and is unlikely to do so without substantial support. Motivational training of the official's concerned and strict enforcement of inspection procedures is needed.

CHAPTER-15: DEVELOPMENT PLAN FOR URBAN SERVICES

15.0 Introduction

The current chapter is about urban basic services that form integral part of urban living. After giving brief about present condition, the report spells out the planning recommendations for improvement of the present services.

15.1 Urban Basic Services Development Plan

The current chapter deals with most basic urban services that include, drainage, water supply, electricity, basic education facilities, recreational open space, ward level service facilities. Pourashava map has been included in Annexure-III.

15.1.1 Drainage

Drainage is one of the most needs of any Pourashava and also a critical problem for most urban Centers of the country. In this section, after review of existing condition, the consultant reviews what proposals LGED Master Plan made and then, puts forward, its own development proposals.

15.1.1.1 Existing Drainage Network

The drainage system of Dohar Pourashava is mainly composed of open and closed drains. There is virtually no hierarchy in drainage network. Khals serve as outfall of the primary drains. The beel also serves as water reservoir wherefrom water flows into the river serving as outfall. There are numerous local drains connected to the primary drains. In the Pourashava, two major man-made drains have identified in different Wards having a total length of 4.2 km. All the drains are pucca with 0.23 meter average width. Uncovered drains are also found and they are in deplorable condition. The entire drainage system of the town is unplanned and not a comprehensive one. They lack proper linkage that causes drainage congestion at many places during monsoon. Drain is found in the Ward No. 2 and 5. No drain is found in the Ward No. 1, 3, 4, 6, 7, 8 and 9. To develop a network, all Wards have been considered and in some places emphasize has given providing on missing links rather than new (in case of natural canals).

It has 197.40 meters of open drains that includes khals as primary drain and 3970.59 meters of closed drain that are mostly man made.

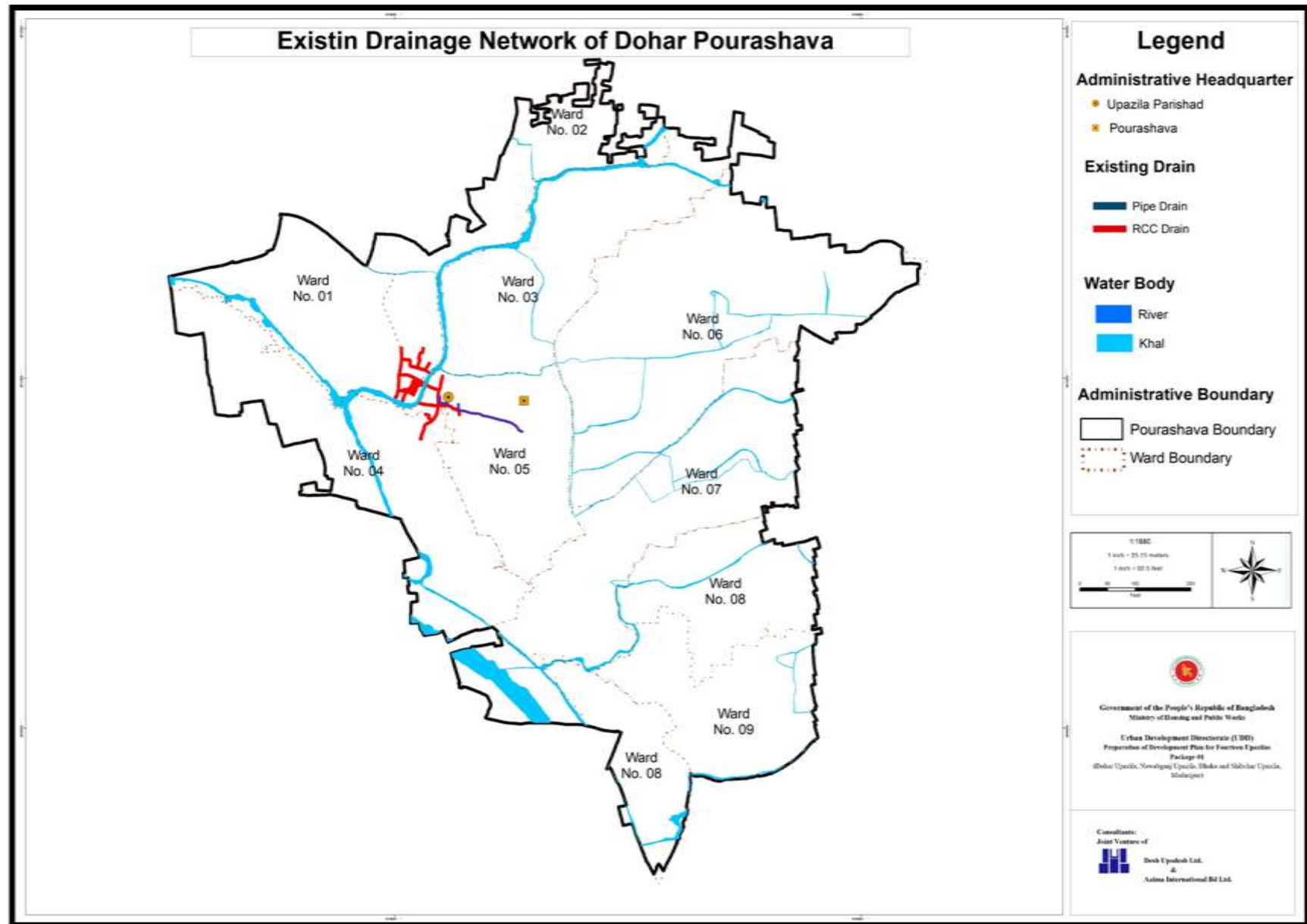
Table- 15.1: Existing Drainage Network

Drain type	Length(m)
Open	197.4
Closed	3970.59

Total	4167.99
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Source: Field Survey, 2016

Map-15.1: Existing Drainage Network of Dohar Pourashava



Source: Field Survey, 2016

Besides, there are 589 ponds, 3 dighies, 13 fish ghers. These water bodies serve as water reservoirs during monsoon.

15.1.1.2 Drainage Development

The entire drainage network is required to be developed with primary, secondary and tertiary drains to mitigate the water logging problem. There are linkages between natural and man-made drainage system. But how much effective and active the linkage is with the poorly maintained man-made drains is a question. Almost half of the depth of the man-made drain is filled with solid garbage; as a result, the channel is not properly functioning. The consultant considers the proposals set by LGED Master Plan as appropriate for making an effective drainage system for the Pourashava. Therefore, the consultant would like to retain the proposals of the LGED Master Plan.

15.1.1.3 Review of LGED Master Plan Proposal

The drainage proposals of the LGED Master Plan comprises, Primary canal/khal (new and improved), Secondary and tertiary canal / khal (new and improved), Storage ponds, Silt traps and River embankment. The plan proposed phase wise implementation of the drainage proposals.

Initially, the Pourashava is encouraged to implement the first phase of the drainage proposal.

Phase-1 (Storm water drainage) recommends improvements of local drains and the removal of obstacles from canals in drainage areas.

Phase-2 (Rain water and household drainage): Construction of surface drain linked with the residences, may be covered or uncovered; provide linkages with secondary and tertiary drains; out-fall of such drains may be nearby canals and low-lands; for discharging of rainwater from commercial areas, covered surface drain may be constructed and they will be linked with the secondary and tertiary canals.

Primary Drain: The plan proposed improvement of existing drainage network particularly in the central part of the town. It proposed for development of a drainage network within road reserves with necessary culverts.

15.1.1.4 Proposed Drainage Network

Development of new drains for the removal of existing drainage congestion and provisioning of effective drainage system has been proposed in the plan. Those are to become parts of total drainage system. In the Pourashava, existing length of the drain is 4.2 km. and more 43.07 km. drain is being added as a proposal.

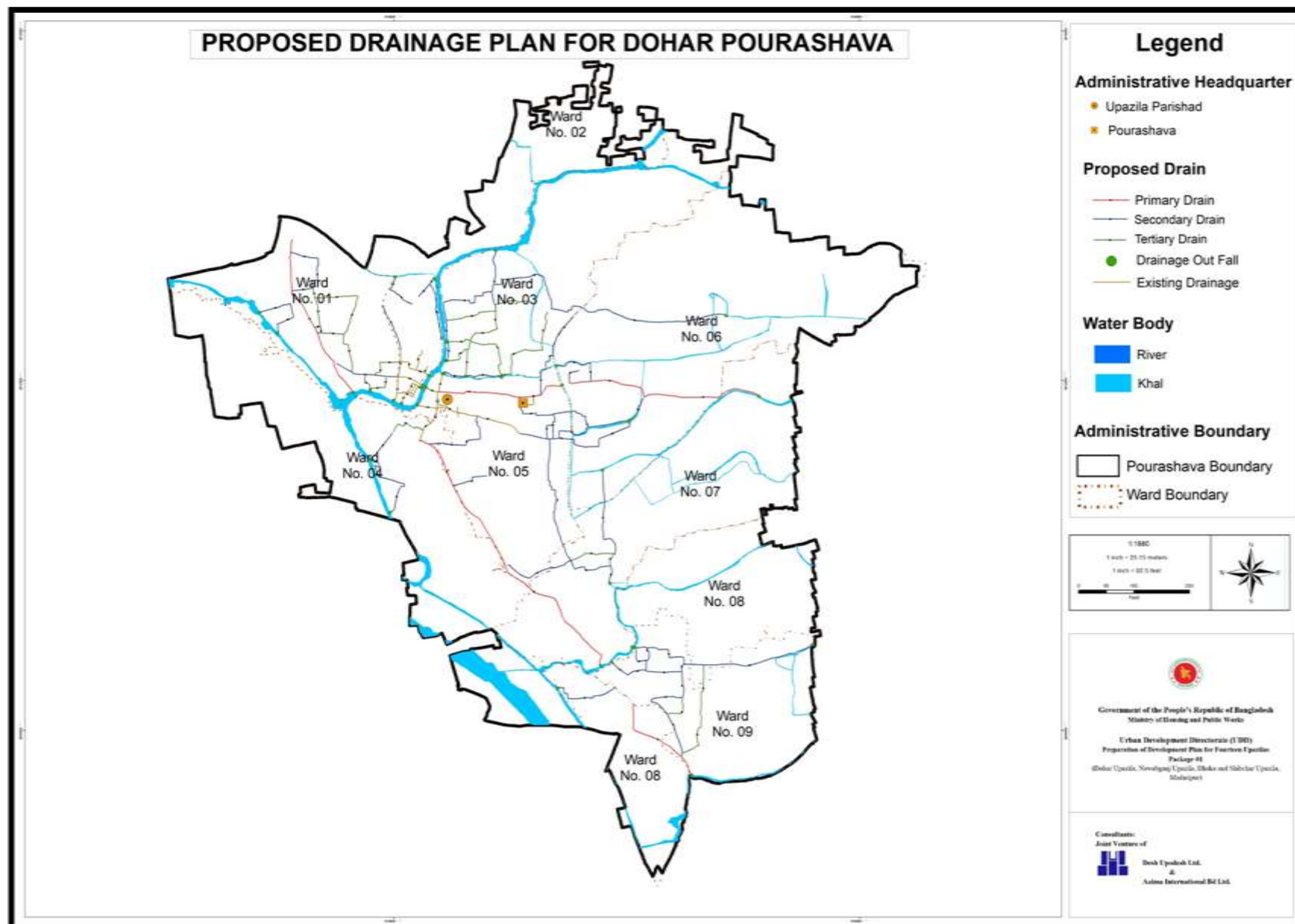
Table-15.2: List of Proposed New Drains

Drain Type	Width (m)	Length (Km)
Primary Drain	1.524	8.58
Secondary Drain	.762	25
Tertiary Drain	.457	9.49
Total Length		43.07

Source: Prepared by consultant team

Width of primary, secondary and tertiary drain has been proposed 1.524 m, .762 m and .457 m respectively in this master plan. Length of primary, secondary and tertiary drain has been proposed 8.58 km, 25 km and 9.49 km respectively. Except the core area, the Pourashava has wide scope for imposing new drainage system. Land slope, nearness of the natural drainage, sparse population density and soil condition are in favor of drainage construction. If a drainage network has to be installed, the drainage originating throughout the Pourashava would be carried by means of surface drains and culverts. These should be accommodated within road reserves.

Map-15.2: Proposed Drainage Plan for Dohar Pourashava



Source: Prepared by consultant team

15.1.2 Water Supply

15.1.2.1 Review of Existing Condition

Dohar Pourashava is not yet to have its own water supply system. People are dependent on hand tube well for drinking water. Many tubewells are contaminated with arsenic in Pourashava. Dohar Pourashava lacks financial resources to provide the basic urban services to its people.

15.1.2.2 Review of LGED Master Plan Proposal

LGED Master Plan (2015) made the following recommendations:

1. A water treatment plant on a large plot (on 1.90 acres of land) with good access, close to source of water. It should be located upstream of any polluting development.
2. Develop a desalination plant on a large plot close to the river, upstream from any polluting activities.
3. Construct water reservation tanks on medium size plot in key locations throughout the Pourashava, preferably in an elevated positioning.
4. Install pipes of various diameters to distribute water.

15.1.2.3 Development Proposal for Dohar Pourashava

Pourashava should go for ground water based piped water supply system to meet future water demand. Overhand tanks should be provided to store groundwater and pipes will be installed to distribute water. Three overhead tanks have been provided in water supply purpose. Capacity of water in each overhead tank will be 20000 liter.

Surface water treatment plant/Common Effluent Treatment Plant is necessary to treat the surface waste water. Four surface water treatment plants have been proposed in the industrial and economic zone area of Dohar Upazila.

Table-15.3: Proposed Overhead Tank

Type	Standard Area(acres)	Total Provided Area (acres)	Location
Proposed Overhead Tank	.10	.06	Dohar Pourashava (Ward No. 01)
	.10	.04	Dohar Pourashava (Ward No. 06)
	.10	.09	Dohar Pourashava (Ward No. 07)

Source: Prepared by consultant team

Table-15.4: Proposed Surface Water Treatment Plant

Type	Standard Area(acres)	Total Provided Area (acres)	Location
Proposed Surface Water Treatment Plant	2.5	2.42	Dohar Pourashava (Ward No. 04) (Alongside Industrial Zone)
	2.5	2.34	Muksupur Union (Alongside Industrial Zone)
	2.5	2.40	Narisha Union (Alongside Economic Zone)
	2.5	2.37	Muksupur Union (Alongside Industrial Zone)

Source: Prepared by consultant team

However, alternative water sources, like, surface water and harvesting of rain water may be also explored. But for the plan period, ground water will be sufficient to meet local demand. Pourashava may take initiative to prepare a programme for popularizing rain water harvesting among the Pourashava people. It is recommended to lay the pipes in phases.

15.1.3 Sanitation

15.1.3.1 Existing Condition

Household survey in Dohar Pourashava shows, a variety of sanitary system, like, water sealed sanitary latrine, pit latrine. Cent percent of the urban area respondents told in the sample survey said that they had their own toilets. According to 61.90% urban area respondents have got sanitary latrines.

15.1.3.2 Development Proposal

The consultant feels that it is not feasible to establish a network based sanitation system in this town, when in Dhaka city such system coverage is only 20% of the city. It is a highly expensive system and not economically feasible.

Instead, Pourashava should promote septic tank based on site sanitation system. It can introduce hygienic and productive management of human excreta. It should strictly control latrine connection to drains. A sludge management plan may be developed and household sludge carried to the plan by vacuum truck for transportation treatment of excreta and discharge into the nearby river. The sludge treatment plan has been placed in the south-eastern corner of Ward No. 4, beside the Joypara Khal. There is an existing road beside the site. It will enable bringing vacuum truck with excreta to the plan. The treated waste water

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(acres)	Standard
Sludge Treatment Plant	1	Dohar Pourashava (Ward No.04)	Nurpur	056	000	299,457	.96	1.5
Composting Station	1	Dohar Pourashava (Ward	Nurpur	056	000	282	.91	1

can be drained into the khal. A composting station has been provided in the north-east corner of the sludge treatment plant to compost the excreta.

Table-15.5: Proposed Location of Sludge Treatment Plant and Composting Station

		No.04)						
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Source: Prepared by consultant team

15.1.4 Solid Waste Management

15.1.4.1 Existing Condition

Solid waste is yet to emerge as a major problem in the town because of the low density of population. The households dispose their kitchen waste in nearby ditches or low lands. A major share of solid waste is generated by kitchen markets. These wastes find their destination in local khals. This is causing filling up of these khals reducing their capacity to discharge adequate water during rainy season. The Pourashava has no transfer stations.

Pourashava with its garbage vans collect the waste and dump in various places, mostly make sanitary land fill in low lying areas. It does not have any dumping site.

15.1.4.2 Solid Waste Management Proposal

Absence of solid waste dumping ground is a source of health hazard. The problem will accentuate over the time as population increases leading to greater amount of garbage. The current Urban Area Plan recommends adopting LGED Master Plan proposal as this has been recommended through consultation with the Pourashava authority. But the consultant suggests to acquire the land immediately as the land price will go upward as time passes. One solid waste disposal site has been proposed at Ward No. 06 to bury the waste. The consultant proposes two transfer stations at Ward No. 4 and Ward No.5. Garbage truck will be used to move the waste to the solid waste disposal site.

The consultant also suggests to go for 3R method to deal with garbage that reuse, recycle and reduce waste. Because dumping is not an ultimate solution to waste management.

Table-15.6: Solid Waste Management Proposal

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area (Acres)
Proposed Waste Transfer Station	2	Dohar Pourashava (Ward No.4)	Joypara	057	002	2299,2300,2314	.23	.30
		Dohar Pourashava (Ward No.5)	Joypara	057	002	1451,1523	.21	.30
Solid Waste Disposal	1	Dohar Pourashava	Isufpur	060	001	203,204,205,206,215,217,218,219-225,235-239	12.56	10

Site		(Ward No.6)						
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Source: Prepared by consultant team

15.1.5 Electricity

15.1.5.1 Existing Condition

Power supply is available in Dohar Pourasahava, but does not cover the entire area and the supply is irregular. Household survey shows, about 5% of the urban households are still deprived of power supply facility.

15.1.5.2 Development Proposal

Population projection shows, by the year 2023 population of the Pourashava will be 90,707. Considering each households (five members) and industrial area daily consumption as 1.5 KW, then the total requirement of electricity will stand at about 30 MW daily by the year 2023. This is, however, is a conservative estimate, as nowadays people use many more electrical gadgets. The recommendations are made for improvement of future energy supply situation:

1. Establishment of Sub-station for regular power.
2. Planned location of power line not disturbing the traffic movement, also following BC Rules.
3. Responsible agencies are, Power Development Board (PDB) and Rural Electrification Board (REB). PDB works for power production and distribution, while REB is responsible for distribution only. All the 9 wards of Dohar Pourashava is now under the Rural Electrification Programme.

The consultant proposes two sub-stations in Ward No. 4 and Ward No.7

Table-15.7: Proposed Location of Electric Sub-stations in Pourashava

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area (Acres)
Proposed Electric Sub-station	2	Dohar Pourashava (Ward No.4)	Lotakhola	043	002	464-467 570,571,579,581	.28	.3
		Dohar Pourashava (Ward No.7)	Ghata	061	002	2532-2534	.32	.3

Source: Prepared by consultant team

15.1.6 Educational Facilities

The main problem of educational facilities in urban area is to lack of facilities available in educational institutions which are not conducive to imparting proper education. Inadequate lab facilities for science education, poor logistics for education, poor maintenance of structures, are all problems with urban education facilities. Lack of financial ability makes it difficult over ameliorate all these problems.

The urban part of the upazila already has 12 primary schools, 7 high schools and 2 colleges. Estimates show that according to projected population (2038) the urban part of the upazila needs, in total, eight primary schools and one college. One vocational training center has been proposed at Ward No. 04 to flourish technical education in Dohar Upazila.

Table-15.8: Proposed Location of Primary Schools

Type	Total No. of Primary Schools	Standard Area (acres)	Total Provided Area (acres)	Location
Proposed Primary School	1	2	.73	Ward No. 01
	3	2	1.45	Ward No. 02
		2	1.29	
		2	1.37	
	1	2	1.22	Ward No. 03
	1	2	1.10	Ward No. 05
	1	2	1.66	Ward No. 08

Source: Prepared by consultant team

Table-15.9: Proposed Location of College and Vocational Training Center

Source: Prepared by consultant team

15.1.7 Ward Center

15.1.7.1 Existing Condition

Currently, there is no Ward Centre in the Pourashava. Ward Councilors don't have any office in their respective wards. Some have managed their own, while others sit in the Pourashava Office.

15.1.7.2 Development Proposal

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area(Acres)
Ward Centers	9	Ward No. 1	Lotakhola	043	001	705,709,710,711, 718,719	.39	.30

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area(Acres)
Proposed College	1	Dohar Pourashava (Ward No.8)	Sutarpara	063	001	99-100,112-115,132-146,161-165,389-398,403-404,413-418,435-436	10.67	10
Vocational Training Center	1	Dohar Pourashava (Ward No.4)	Joypara	057	002	2122,2123,2126, 2127,2128	4.92	5

Ward centers have been proposed in each ward of the Pourashava. Ward centers should be established in the core area of the ward. Standard area of ward center is .30 acre. This center will serve for Ward Counselor's Office.

Table-15.10: Proposed Location of Ward Centers

		Ward No. 2	Khalpar	058	002	1389, 139	.35	.30
		Ward No. 3	Joypara	057	001	590,593	.38	.30
		Ward No. 4	Joypara	057	002	2170,2171,2172	.35	.30
		Ward No. 5	Joypara	057	001	1459	.32	.30
		Ward No. 6	Isufpur	060	002	733,734,735,769	.36	.30
		Ward No. 7	Ghata	061	002	2583-2585,2610-2611	.37	.30
		Ward No. 8	Sutarpara	063	001	57-59	.42	.30
		Ward No. 9	Sutarpara	063	001	915-918	.33	.30

Source: Prepared by consultant team

15.1.8 Low Cost Housing

15.1.8.1 Existing Facility

Currently, the Pourashava does not have any **Low-Cost Housing** in the town.

15.1.8.2 Development Proposal

Low cost housing is proposed for those destitute mainly coming from rural areas. As industrial zone will be established, job opportunities will be created. So people will move to urban area for employment purpose. In **Low Cost Housing** families will be provided temporary shelter. This will be a temporary shelter arrangement. During their stay, they will be provided minimum education, skill development training and soft credit either by Government or NGOs. After they are self-reliant, they will leave the place for new arrivals. A family can stay there for maximum 5 years. Row houses will be developed with common kitchen and bathroom and small play area for children. There will be space for learning and training. Though one portion of it would have financial arrangements in such a way that some people could own it by regular installments. The low-cost housing site has been earmarked in Ward No.6 of Dohar Pourashava on an area of 70.11 acres.

Table-15.11: Proposed Location of Low Cost Housing

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area (Acres)
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Low Cost Housing	1	Dohar Pourashava (Ward No.6)	Ghata	061	001	17-21,26-49,299,300,301,302,309,310,311,312,313,314,315,316,320-372,379,401-416,431-447,461-470	70.11	70
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Source: Prepared by consultant team

15.1.9 Housing Estate

15.1.9.1 Existing Facility

Currently, the Pourashava does not have any **Housing Estate** in the town.

15.1.9.2 Development Proposal

As population will be increased to next 10 to 20 years, a certified housing estate is needed for raising population. This residential zone has been proposed for higher and middle income people of Dohar upazila. Housing Estate will be built by a single contractor with only a few styles of house or building design. A small commercial center will be set up in housing estate. Families will be provided both permanent and temporary shelter. During their stay, people will be provided minimum education, skill development training and soft credit either by Government or NGOs. One portion of it would have financial arrangements in such a way that some people could own it by regular installments. The housing estate has been earmarked in Ward No.5, 6 and 7 of Dohar Pourashava on an area of 146.33 acres.

Table-15.12: Proposed Location of Housing Estate

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area (Acres)
Housing Estate	1	Dohar Pourashava (Ward No.5,6 and 7)	Joypara	057	002	900-1279,2540-2563,2651-2698,2700,2707,2708,2721-2820,3335-3405	146.33	150

Source: Prepared by consultant team

15.1.10 Neighborhood Parks

Neighbourhood parks are necessary for community to create a space for physical activities, clean air, reduction of heat island and other recreational activities. Two neighbourhood parks have been provided in the urban area of Dohar upazila.

Table-15.13: Proposed Neighborhood Parks

Source: Prepared by consultant team

15.1.11 Playfield

There is no play field for public use in Dohar Upazila. Most fields are attached to education facilities for their own use. So five certified play fields have been proposed in the urban area

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed Park	2	Dohar Pourashava (Ward No.1)	Lotakhola	043	001	1246-1253,1263,1264,1312-1348	10.59	10
		Dohar Pourashava (Ward No.9)	Sutarpara	063	001	295,299,300-303,332-355	6.87	10

of Dohar upazila.

Table-15.14: Proposed Play Field

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed Play Field	5	Dohar Pourashava (Ward No.9)	Madhur Char	068	001	347-352,367,453	2.2	3
		Dohar Pourashava (Ward No.8)	Sutarpara	063	001	281-292	3.6	3
		Dohar Pourashava (Ward No.3)	Joypara	057	001	970	1.80	3
		Dohar Pourashava (Ward No.2)	Joypara	057	001	165,166,184	1.47	3
		Dohar Pourashava	Lotakhola	043	001	96-100,104,1357	1.66	3 ¹⁸¹

		va (Ward No.4)						
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Source: Prepared by consultant team

15.1.12 Hospital with ICU and CCU Facilities

Health is also a major issue in Dohar Pourashava as expressed by the PRA participants. In urban area of Dohar Upazila, there are 3 hospitals and 4 clinics and family health care center. Government health care facility in urban area is Upazila Health Complex, Number of beds is very low in this hospital.. But some of the services, however, gradually, became non-operative because of staffing problems and a lack of support services. So, a 200 bed hospital with ICU and CCU facilities is needed to serve the local people of Dohar upazila.

Table-15.15: Proposed Hospital with ICU and CCU Facilities

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area (Acres)
Hospital with ICU and CCU facility	1	Dohar Pourashava (Ward No.2)	Joypara	057	001	1-29,40,56-59,68-92	19.34	20

Source: Prepared by consultant team

15.1.13 Other Proposals

Amusement park, popularly known as Shishu Park, is widely popular everywhere in Bangladesh for recreation. A 20.29 acre amusement park has been proposed in ward no.9 beside the eastern bank of the khal. The lake side environment will be an attractive place for such facility. People will be able to enjoy nature and the recreation facility together.

Amphitheatre is a widely popular open stage performance place. It has a stage and upward stairs that are used for sitting. It can be used for holding play, and various other shows and performances. One amphitheatre has been placed in the eastern bank of the lake/khal in ward no. 9, in the amusement park.

A **central mosque** is a necessity for a town. It allows big congregations. A **central mosque** in an area of 0.39 acres has been proposed in ward no. 4. The facility has been named as **Islamic Foundation Central Mosque Complex**.

Food godown is proposed to create food reserve and use them during disaster and food price hike. It helps keeping the food price at a reasonable level. It also benefits the farmers by providing fair price during a low market price, which serves as incentive to grow more. The proposed .68-acre **food godown** has been placed in the north-western part of Ward No.4

alongside the ZKDH road. The location will enable easy transportation of food grain. One **cold storage** has been provided in ward no. 04 with an area of .53 acres for keeping the food fresh.

Consultant proposes two **public toilets** for citizens and visitors. One in north-western periphery of ward no.5, another in the north-eastern part of Ward alongside Thanar More bus stoppage. Each can be developed on approximately .05 acre land.

A **youth center** or youth center, often called youth club, is a place where young people can meet and participate in a variety of activities, for example table football, association football, cricket, basketball, table tennis, video games, and religious activities. Youth Clubs or Centres vary in their activities across the globe, and have diverse histories based on shifting cultural, political and social contexts and relative levels of state funding or voluntary action. Moreover, it would also work as cultural center along with a center for arranging different professional courses. It has been proposed in ward no. 01 with an area of .19 acres.

A **slaughter house** is essential for hygienic production and supply of meat. Considering, health of the town dwellers, the consultant proposes one slaughter house ward no. 7, alongside Dohar Bazar. The area allotted in 0.27 acre.

ICT park which is also known as hi-tech park is dedicated to establish, manage and operate technology business parks throughout Dohar upazila. There is ICT park in Dohar upazila. So one ICT park has been proposed in ward no. 4 and 5 with an area of 2.32 acres.

There is no **Shilpokola academy** in Dohar upazila. It has been proposed to perform cultural activities. It will be located in ward no. 4 with an area of .48 acres.

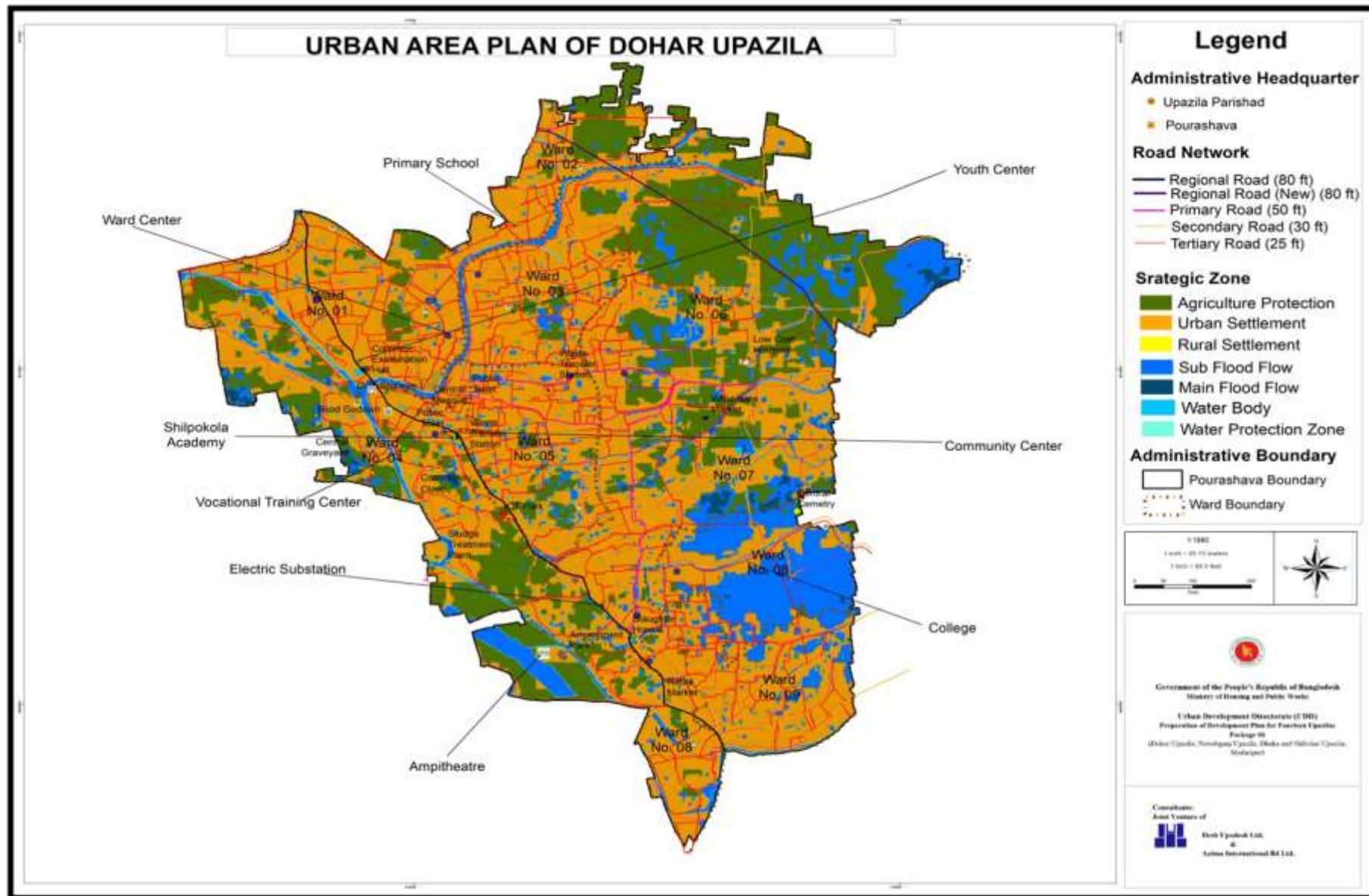
Table-15.16: Other Proposed Features for Dohar Pourashava

Proposal	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Standard Area (acres)	Proposed Area (acres)

Amusement Park	Dohar Pourashava(Ward No.09)	Kazir Char	062	000	225-229,230-242,365,366,367,372-377,414,481,417,420,421,422,423,430,431	20	20.29
Amphitheatre	Dohar Pourashava(Ward No.09)	Kazir Char	062	000	225-228	.90	.50
ICT Park	Dohar Pourashava(Ward No.4,5)	Batia	055	000	329,330,2584,2585,2586,2587	2.5	2.32
Common Examination Hall	Dohar Pourashava(Ward No.01)	Lotakhola	043	002	2584,2585	0.3	.38
Central Mosque	Dohar Pourashava(Ward No.4)	Joypara	057	002	2187,2195,2196,2197	0.5	.39
C old Storage	Dohar Pourashava(Ward No.4)	Lotakhola	043	002	2799,2802	0.5	.53
Food Godown	Dohar Pourashava(Ward No.4)	Lotakhola	043	002	2830,2831,2835	0.5	.68
Public Toilet	Dohar Pourashava(Ward No.5)	Joypara	057	002	3012	.05	.05
Shilpokola Academy	Dohar Pourashava (Ward No.4)	Joypara	057	002	2289	0.5	.48
Slaughter House	Dohar Pourashava(Ward No.7)	Ghata	061	002	2531,2580	0.3	.27
Youth Center	Dohar Pourashava (Ward No.1)	Lotakhola	043	002	2583,2589,2590	.20	.19

Source: Prepared by consultant team

Map-15.3: Urban Area Plan



Source: Prepared by consultant team

CHAPTER-16: URBAN LAND USE ZONING

16.0 Introduction

This chapter of the Dohar planning report deals with future land use zoning of the town and development control to be operated based on the zoning plan.

16.1 Land Use Zoning

In land use zoning, the entire area of a town is divided into suitable land use zones to create congenial environment for living and working and thereby enhance land use functions and add value to it. In Bangladesh such land use zoning is incorporated as a part of the urban master plan / land use plan/urban area plan. Another important use of land use plan is in development control process. Before submitting building plans for approval an applicant must secure land use permit from the Pourashava that his intended building would be allowed in that particular site. For a land use permit, an applicant's prospective use of structure must be compatible with the approved land use zone of the site. Land use zoning determines activities that can or cannot function on a land parcel. Land use zoning is a part of master plan and a legal instrument to control activities and density on land and their consequent negative impacts.

16.2 Purpose of Land Use Zoning Plan

Without planned development, land use in any urban center remains disorganized and haphazard that leads to incompatible developments leading to unhealthy urban environment degrading quality of life. The purpose of land use zoning plan is to organize land uses to create a congenial urban living and working environment where land uses are arranged in a systematic manner with purpose. Appropriate land use zoning enables creation of livable environment that ultimately increases the value of land. Land use zoning plan is used for offering building construction permission under Bangladesh Building Construction Act 1952. The act makes it mandatory to allow building permission in any piece of land which is compatible to master plan land use zoning.

16.3 Current Land Use Pattern in Dohar Pourashava

The land use pattern of Dohar Pourashava has developed in a haphazard manner very similar to other small urban Centers of the country. A few small Centers have developed around central activities and market Centers.

Table-16.1: Existing Land Use Pattern in Dohar Pourashava

Sl. No.	Land use Category	Existing Land use Area	
		Area (acre)	%
1.	Residential Zone	1832.07	35.29
2.	Agricultural Zone	2027.08	39.05
3.	Commercial	98.22	1.90
4.	Recreational	0.39	0.007
5.	Community Facilities	0.4	0.008
6.	Education	22.58	0.43
7.	Government Services	4.1	0.08
8.	Health Facilities	3.17	0.06
9.	Mixed Use	45.4	0.8
10.	Open Space	53.38	1.02
11.	Religious	9.9	0.2
12.	Transportation	137.87	2.90
13.	Water body	387.93	7.41
14.	Vegetation	568	10.84
	Total	5189.42	100

Source: Field Survey, 2016

Residential part and administrative parts are clearly distinguishable. Except bazars, ribbon commercial development is observed along main roads.

The existing land use of the Pourashava has been grouped into 14 categories (**Table-16.1**). It is evident from the table that residential land use that includes all types of dwelling houses, dominate the built up part of the Pourashava, while nearly half of the total Pourashava land has been found still under agriculture. shows the existing land use pattern of Dohar Pourashava. The land use of the project area has been analyzed ward wise as well as for the entire project area. Within the built up part of the town, residential land use features, that include all types of dwelling houses, dominate the total planning area. In respect of overall existing land use, the highest land use goes to agriculture (39.05%). The second major land use is residential use, that occupies about 35.29% (1832.07 acres) of the Pourashava area. Besides, there is about 10.84% vegetation, 7.41% water body and about 2.90% circulation network.

16.4 Land Use Suggested by Dohar Pourashava LGED Master Plan (2011-31)

The UTIDP project of LGED, prepared Pourashava Master Plan (2011-2031) that divided the future pourashava land uses into 17 land use zones. These are:

Table-16.2: Land Use Pattern

Land Use	Percentage
1.Agriculture Zone	30.04%
2.Circulation Network	9.00%
3.Commercial Zone	.94%
4.Community Facilities	.59%
5.Education and Research Zone	3.22%
6.Government Services	0.56%
7.Health Services	.50%
8.Industrial Zone	4.86%
9.Mixed use Zone	5.01%
10.Open Space	3.67%
11.Recreational Facility	.09%
12.Urban Residential Zone	31.50%
13.Rural Settlement	2.36%
14.Transportation Facility	0.25%
15.Urban Deferred	1.55%
16.Utility Services	.16%
17.Water body	5.70%

Source: LGED,, 2015

The highest land goes to the agriculture (30.04%), next urban residential zone with 31.50%, circulation 9.00% and water body 5.70%.

16.5 LGED Master Plan Prescribed Land Use Zoning Review

1. It is a too long list of land uses proposed that would create problem in according land use permit to developers.
2. Mixed Use Zone should be more specific, such as, what categories of business and industry it allows, if not type of business and industry should be specified.
3. Proposing agricultural zone within a Pourashava is illogical. When the Pourashava has been declared as an urban area, there is not supposed to have any permanent restriction on use of any land within the Pourashava for non-agricultural use.
4. Urban deferred is an important land use as it hold back unused land for future use. This area has not been defined in the zoning. In fact all agricultural land should have been designated and urban deferred.

16.6 Review of Higher Level Plan

Dohar Upazila Structure Plan under the current plan package is the higher level plan for the current Urban Area Plan. Structure Plan sets forth some policy guidelines about future land use, to be followed by the lower level plans. Following are the relevant policy issues about future land use of the upazila.

These are:

Policy Land Use-1: CREATE BROAD LAND USE ZONING TO IMPOSE CONTROL ON HAPAHZARD DEVELOPMENT

This policy calls for creating broad land use zoning to protect valuable farm land and organized development to ensure livable environment. This has to be done through enacting regulations on building permission in rural areas and by amending Bangladesh Building Construction Act 1952 incorporating necessary regulations for building permission in rural areas.

Policy Land Use-2: PREPARE MORE DETAILED LANDUSE ZONING FOR POURASHAVA AREAS.

As land use development is more intensive in Pourashava areas, so, Structure Plan recommends for more detailed zoning for urban part of the upazila. It asks to apply Pourashava land use zoning for controlling building permission.

Structure Plan also asks to maintain maximum possible flexibility in the land use to enable development where pressure high for development permission is high in Pourashava area.

16.7 Land Use Zoning of Dohar Pourashava

16.7.1 Policy Considerations for Organized Land Use Development

The LGED Master Plan (2011-2031) recommended 17 categories of land use zones for the Pourashava. But the consultant of the present project feels that the zoning category should be as much as possible short. In Korea the urban development authorities use only four zones. Zoning has its implications in according development permission apart from environmental sanctity. Longer the list will be, greater will be the hassle for development permission seekers. Therefore, more attention should be paid on how make the permission process easy and smooth without ignoring the importance of environmental sanctity.

The LGED Master Plan (2011-2031) proposed 17 categories of zones which is not only too long a list but also some zones are redundant in nature. Their proposed zones, like, government zone, health zone, circulation zone are redundant zones. Government usually makes its own choice of land for administrative establishment purposes. The same is true for other public sector facilities, like, health, education. Because the land suggested for such facilities and shown in the plan may not be available or may not be accessible for any reason. In appropriate fixation of land uses creates more problem for the private sector developers. Restriction on development for an incompatible land use forbids a developer from investment

in facilities which is not only an economic loss, but it also deprives people from services of such facilities.

The consultant, therefore, is of the opinion that the coverage of mixed use zone should be widened where everything should be allowed except any activity that creates many kinds of pollution harmful for living being. This can resolve the problem of too many land use zones.

16.7.2 Land Use Zone Classification for Dohar Pourashava

The consultant proposes the following 16 category of land use zone classification under the current Urban Area Plan. Most areas will be shown as residential and mixed use areas to maintain flexibility in building permission.

- 1) Residential Zone
- 2) Administrative Zone
- 3) Commercial Zone
- 4) Mixed Use Zone
- 5) Educational and Research Zone
- 6) Health Facilities
- 7) Religious Facilities
- 8) Manufacturing and Processing Zone
- 9) Agricultural Zone
- 10) Open Space
- 11) Recreational Zone
- 12) Community Facilities
- 13) Utility Facilities
- 14) Water body
- 15) Circulation Network
- 16) Water Body Protection Zone

16.7.3 Land Requirement Determination

Without any planning the land use of any Pourashava develops in a spontaneous manner mostly guided by development needs, street pattern and influenced by surrounding land uses. Dohar Pourashava is dominated by agricultural land use, which is the usual case in Bangladesh for Upazila level towns. The main reason is that the Pourashava boundary is fixed without any systematic study and determination of future land requirement. Growth of population is the natural trend and at the same time, expansion of non-agricultural use on agriculture land is also a natural tendency of the town.

The future land use zoning of the Pourashava has been done based on the land requirement estimation. For residential land use, projected population and households have been taken as the basis, while for business and industrial land requirement current area of land has been taken into consideration. Other land uses are planning standard based and existing land in use. (See **Table-11.5**). In **Table-16.3** future land use zoning of Dohar Pourashava has been shown. The highest land goes to the residential zone (40.73%), next agriculture with 25.38%,

circulation 6.35% and water body 7.45%. 29.66(.57%) acres area has been provided as industrial zone. Percentage of commercial and mixed use zone is 2.61% and 11.12%.

Table-16.3: Proposed Land Use of Dohar Pourashava

Strategic Zoning	Area(Acres)	Percentage
1. Agriculture Zone	1317.66	25.38
2. Administrative Zone	8.86	.17
3. Residential Zone	2119.06	40.73
4. Commercial Zone	139.36	2.61
5. Mixed Use Zone	577.36	11.12
6. Health Services	22.39	.43
7. Education and Research	40.36	.78
8. Religious Area	22.69	.44
9. Manufacturing and Processing Zone	29.66	.57
10. Recreational Facilities	60.13	1.16
11. Community Facilities	3.12	.06
12. Utility Facilities	1.13	.02
13. Open Space	81.09	1.56
14. Transportation	329.89	6.35
15. Water Body Protection Zone	60.79	1.17
16. Water Body	387.93	7.45
Total	5189.42	100.00

Source: Prepared by consultant team

See **Annexure-VIII** for detail land scheduling of Urban Area Plan of Dohar Upazila.

16.7.4 Future Urban Area Calculation

At first, population of Dohar Pourashava in 2011 and 2033 has been calculated. Total No. of Population in 2011 was 71,862. This population will be increased to 1,09,353 in 2033. Pourashava household in 2011 and 2033 has been calculated by dividing population of Pourashava with the household number (5). Total no. of Pourashava household in 2011 was 14272. This will be increased to 21871 in 2033. Total surplus household is 7598 (21871-14272). Then total existing residential building footprint area and no. of residential structures

in Pourashava has been calculated. Total existing residential building footprint area is 84,54,810 sqft and total no. of residential structures is 17,115. Average existing residential structure area in Pourashava has been calculated through dividing total existing residential building footprint area with no. of residential structures and it is 494 sqft. As average existing residential structure area is covered 60% of its plot area. So plot area has been calculated by dividing average existing residential structure area with 60% (Mean Residential Structure/60%). Plot area is 823 sqft. After that net building footprint has been calculated through following formula,

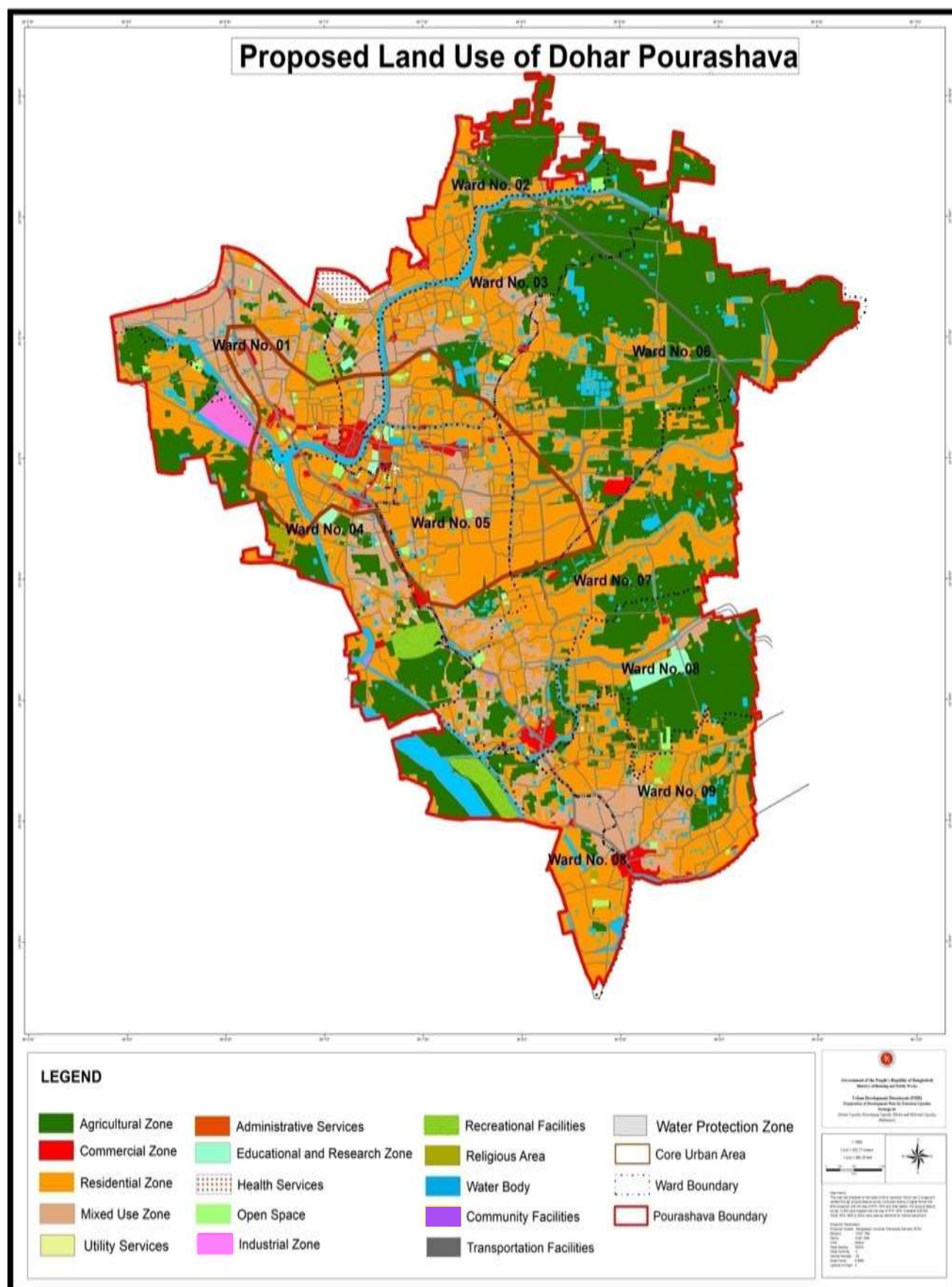
$$\text{Net Building Footprint Area in acre} = (\text{Plot Area} \times \text{Surplus Household}) / 43560$$

Net building footprint area in Dohar Pourashava is 143.5 acres. After multiplying net building footprint area with 2, gross residential area (Net building footprint x 2) has been calculated. Total gross residential area in Dohar Pourashava is 287 acres. Additional 287 acres' area is needed for housing purpose. About 37,991 people have been allocated in this additional housing area.

Ward wise existing residential land use has been calculated. Area of residential land use is higher at ward no. 01, 02, 03, 04, 05, 08 and 09. As population density will increase at ward no. 01, 02, 03, 04, 05, 08 and 09 after 20 years, future urban growth will take place at these wards. Average density of population will be 21 persons per acre in Pourashava area. Three types of urban area such as core, potential and fringe urban area have been demarcated. Core urban area has been demarcated based on administrative structure, economic function (growth center) and population density of Pourashava area. In core urban area, administrative and economic function will be held as well as population density will be higher. Residential, commercial, institutional, mixed and other facilities will be increased in core urban areas. Core urban area is contained with an area of 875.53 acres. Potential and fringe urban area are contained with an area of 1802 acres and 2511.47 acres.

(See **Map-16.1**)

Map-16.1: Proposed Land Use of Dohar Pourashava



CHAPTER-17: DEVELOPMENT CONTROL

17.1 Development Control of Dohar Pourashava

Development control is an essential part of urban planning. Development control refers control of building construction. For development control certain rules have to be followed for approval of designs of various categories of structures, establishments and land uses. Building Construction Rules 1991, prepared under EBBC Act 1952 serves as the basis for development control. The first condition for building plan approval is to secure land use permit according to approved zoning plan followed by approval of the design of proposed building/structure.

The table below shows the land use zone wise permitted and not permitted uses in each land use zone.

17.1.1 Development Permission under Land Use Zones

Table-17.1: Development Permission under Land Use Zones

Land Use	Permitted Use	Not Permitted Use	Remark
1. Urban Residential Zone	1. All kinds of residential structures. 2. Retail shops, education and health facilities in limited scale and utility services.	1. No establishment that creates harmful pollution for living being.	-
2. Commercial Zone	1. All categories of commercial structure and processing units. 2. Utility services.	1. No establishment that creates harmful pollution for living being. 2. No residential.	-
3. Mixed Use Zone	1. All developments including utility services	1. No establishment that creates harmful pollution for any living being.	-
4. Manufacturing and Processing Zone	1. Industry/manufacturing of all kinds. 2. Limited supporting retail commercial. 3. Utility services.	-	-
5. Agriculture Zone	1. Crop production, horticulture, fish culture, animal husbandry and related.	1. No new non-farm construction.	1. Rural Homestead will remain.
6. Open Space	1. Open space recreation.	1. No construction.	

7. Water body Zone	1. All rivers, khals, beels as shown in the CS mouza maps. 2. Ponds beyond 0.50 acre.	1. No construction within the boundary. 2. No filling.	1. Preservation very strictly, if needed with lining and embankment. 2. Wherever necessary develop road along the boundary to prevent encroachment.
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Source: Prepared by consultant team

a. Urban Residential Land use

Urban Residential Zones are intended primarily for housing development but may also include a range of other uses particularly those that have the potential to foster the development of new residential communities such as schools, small shops, doctor's chambers, open space like playing fields and so on. Limited Commercial facilities within this zone shall be planned and developed as an integral retail or business unit which, comply with the planned mixed-use concept of the Urban Area Plan.

Purpose

The prime objective of this zone is to provide the space for living as well as to meet the daily needs of the residents. The main purposes of this zone are:

- To provide for residential development, associated services and to protect and improve residential amenity.
- To improve the quality of existing residential areas and strengthen the provision of local community services and amenity.
- To control unscheduled development on individual lots or tracts, promote economical and efficient land use.
- To provide for a variety of housing types and densities to meet current and future resident's needs.
- To provide an appropriate mix of house sizes, types and tenures in order to meet household needs; to promote balanced communities; and to promote higher densities in the development center to facilitate day and evening activity and ensure a 'living' center.

The urban areas that are already densely and haphazardly built are termed here as Spontaneous Residential Zone. These zones primarily support living with some civic facilities. The main purpose of this land use zone is to provide enough space for residence. There will have some supporting uses, too, for the residents.

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only

Table-17.2: Land Use Permitted for urban residential zone

Permitted	
<ul style="list-style-type: none"> • Assisted Living or Elderly Home • Confectionery Shop • Barber Shop • Child Day care \ Preschool • Cleaning \ Laundry Shop • Cyber Café • Drug Store or Pharmacy • General Store • Grocery Store • High School • Mosque, Place Of Worship • Newspaper Stand • Nursery School • Eidgah • Pipelines and Utility Lines 	<ul style="list-style-type: none"> • Playing Field • Primary School • Public Transport Facility • Shoe Repair or Shoeshine Shop (Small) • CBO Office • Children's Park (Must Have Parking) • ATM Booth • Community Center • Doctor \ Dentist Chamber • Fast Food Establishment \ Food Kiosk • Fitness Centre • Retail Shops \ Facilities

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.3: Land Use Conditionally Permitted for urban residential zone

Conditional	
<ul style="list-style-type: none"> • Book or Stationery Store or Newsstand • Automobile Driving Academy • Graveyard \ Cemetery • Coffee Shop \ Tea Stall • Bus Passenger Shelter • Crematorium • Emergency Shelter • Furniture & Variety Stores • Garages 	<ul style="list-style-type: none"> • Fire Brigade Station • Police Station • Slaughter House • Market (Bazar) • Parking Lot • Row House • Sports and Recreation Club • Electrical Sub Station

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

b. Commercial Zone

Commercial areas generally contain one or more of a wide variety of uses that includes business uses, offices, hotel, public houses, and limited forms of retailing. Uses that are particularly appropriate to these areas include wholesale, business service uses, the sale of motor vehicles and limited forms of retailing that involve the sale of bulky goods unsuitable to be carried away by pedestrians. This would allow uses that are compatible with, or reinforce, the commercial function of the area as a whole. Commercial Zone is intended to provide all the facilities & services with the commercial landuse that are designed for basically trade and business.

The Commercial Business Zone is intended to provide areas for logistical and retail warehousing activities, including storage, distribution and packaging, of goods and products as well as activities which require a large site and space. Limited suitable light industrial uses may be appropriate in these areas as well as Local Service Employment.

Purpose

- The intent of this zone is to provide commercial nodes in convenient and strategic locations of the area to meet community needs and to encourage clustering commercial development as opposed to strip commercial development and commercial sprawl.
- The main objective for designating this zone is to promote trade and commerce compactly associated with all other facilities.

Land use Permitted

Commercial office zone is mainly intended for supporting the official works. There are several functions that are permitted in this zone.

Table-17.4: Land Use Permitted for commercial zone

Permitted	
<ul style="list-style-type: none"> • Agri-Business • Agricultural Sales and Services • Automobile Sales • Confectionery Shop • Bakery or Confectionery Retail • Bank & Financial Institution • Barber Shop • Bicycle Shop • Computer Sales & Services • Drug Store or Pharmacy • Electrical and Electronic Equipment and Instruments Sales • Fast Food Establishment \ Food Kiosk • Grocery Store • General Store 	<ul style="list-style-type: none"> • Market (Bazar) • Photocopying and Duplicating Services • Photofinishing Laboratory & Studio • Preserved Fruits and Vegetables Facility \ Cold Storage • Public Transport Facility • Restaurant • Retail Shops \ Facilities • Satellite Dish Antenna • Slaughter House • Taxi Stand • Telephone Exchanges • Utility Lines • ATM Booth • Water Pump \ Reservoir • Agro-Based Industry (Rice Mill, Saw

• Inter-City Bus Terminal	Mill, Cold Storage)
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Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.5: Land Use Conditionally Permitted for commercial zone

Conditional	
<ul style="list-style-type: none"> • Bicycle Assembly, Parts and Accessories • Coffee Shop \ Tea Stall • Craft Workshop • Agricultural Chemicals, Pesticides or Fertilizers Shop • Garages • Police Box \ Barrack 	<ul style="list-style-type: none"> • Professional Office • Retail Shops Ancillary To Studio \ Workshop • Fire \ Rescue Station • Motor Vehicle Fuelling Station \ Gas Station • Poultry

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

c. General Industrial Zone (Manufacturing and Processing)

Promoting the development of industrial areas as the primary locations for uses including manufacturing, repairs, warehousing, distribution, open-storage, waste materials treatment and recovery, and transport operating Centers, industrial zone has been demarked. The development of inappropriate mixes of uses, such as office based industry and retailing will not normally be encouraged here.

Purpose

The intent of this zone is to accommodate certain industrial uses which, based on their operational characteristics, is incompatible with residential, social, medical, and commercial environs. As a result, the establishment of such zones shall be restricted to areas geographically buffered from such environs, and the operations of such uses monitored by performance standards to ensure environmental compatibility.

- The purpose and intent of industrial zone is to provide areas in appropriate locations where various light and heavy industrial operations can be conducted without creating hazards to surrounding land uses. Industrial zones are cohesive, planned tracts, with all elements sharing the same or compatible architectural and landscaping themes within a parcel.

- Areas intended to accommodate a variety of industrial establishments which: 1) employ high environmental quality standards; 2) may function as an integral part of an overall development area; and, 3) have minimal impacts on adjacent uses.

General Industrial Zone is that zone where industries permitted from Department of Environment (DOE) especially green industries, orange A , modified list of orange B and from Urban Area Plan the light industries and general industries have permitted here with some new types of industries. Here the industries will not be noxious and heavy. The purpose and intent of industrial zone is to provide areas in appropriate locations where various light and heavy industrial operations can be conducted without creating hazards to surrounding land uses.

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only

Table-17.6: Land Use Permitted for General Industrial Zone

Permitted	
<ul style="list-style-type: none"> • Confectionery Shop • Bank & Financial Institution • Bicycle Assembly, Parts and Accessories • Blacksmith • Bus Passenger Shelter • Police Box \ Barrack • Fire \ Rescue Station • Grocery Store • Meat and Poultry (Packing & Processing) • Mosque, Place Of Worship 	<ul style="list-style-type: none"> • Newspaper Stand • Photocopying and Duplicating Services • Public Transport Facility • Restaurant • Retail Shops \ Facilities • Satellite Dish Antenna • Television, Radio or Electronics Repair (No Outside Storage) • Utility Lines • ATM Booth • Water Pump \ Reservoir

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.7: Land Use Conditionally Permitted for General Industrial Zone

Conditional	
<ul style="list-style-type: none"> • Cyber Café • Daycare Center (Commercial or Nonprofit) • Electrical and Electronic Equipment 	<ul style="list-style-type: none"> • Garages • Overhead Water Storage Tanks • Outdoor Fruit and Vegetable Markets • Parking Lot

and Instruments Sales • Fast Food Establishment \ Food Kiosk	
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Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

d. Mixed Use Zone

Mixed-use development shall mean a development consisting of one or more lots developed as a cohesive project and designed with a blend of various compatible uses such as commercial, residential and industrial. These land use areas will contain residential and limited commercial activities only such as small retail, general store, food kiosk etc.

Purpose

Industrial uses within the Mixed Use zone should be restricted to those uses that have a minimal amenity impact on adjoining uses and surrounding residential use. The main purposes of this type of land use classification are:

- To provide for a mixed use development centre in conjunction with the development plan for the overall development, and to provide for high-density residential development, and to identify, reinforce, strengthen and promote urban design concepts and linkages with the existing town centre activity areas so that the pressure on vacant land are minimized.
- The aim is to develop a zone scale retail development in a mixed use centre by densification of appropriate commercial and residential developments ensuring a mix of commercial, recreational, community, educational, civic, cultural, leisure, residential uses, urban streets and urban open spaces, while delivering a quality urban environment which will enhance the quality of life of resident, visitor and workers alike.

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table-17.8: Land Use Permitted for Mixed Use Zone

Permitted	
<ul style="list-style-type: none"> • Agricultural Sales and Services • Appliance Store • Confectionery Shop • Barber Shop • Bicycle Shop 	<ul style="list-style-type: none"> • Child Daycare \ Preschool • Cleaning \ Laundry Shop • Community Centre • Cyber Café • Fast Food Establishment \ Food

<ul style="list-style-type: none"> • Blacksmith • Bus Passenger Shelter Primary School • Public Transport Facility • Satellite Dish Antenna • Slaughter House • Utility Lines • Children's Park • ATM Booth • Rickshaw \ Auto Rickshaw Stand 	<ul style="list-style-type: none"> • Kiosk • Grocery Store • General Store • Hospital • Mosque, Place Of Worship • Nursery School • Newspaper Stand • Photocopying and Duplicating Services • Office
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Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.9: Land Use Conditionally Permitted for Mixed Use Zone

Conditional	
<ul style="list-style-type: none"> • Agricultural Chemicals, Pesticides or Fertilizers Shop • Graveyard \ Cemetery • Coffee Shop \ Tea Stall • Computer Sales & Services • Craft Workshop • Crematorium • Department Stores, Furniture & Variety Stores • Drug Store or Pharmacy • Fitness Centre • Garages 	<ul style="list-style-type: none"> • Commercial Office • Government Office • Market (Bazar) • Health Office, Dental Laboratory, Clinic or Lab • Poultry • Restaurant • Retail Shops \ Facilities • Telephone Exchanges

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

e. Administrative Zone

Administrative zone will provide some space for agglomeration of administrative structures to make a convenient communication among them. Here all of the important government or non-government structures will be placed.

Purpose

The main purpose of this zone is to agglomerate the administrative structures within a certain boundary for convenience of people

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table-17.10: Land Use Permitted for Administrative Zone

Permitted	
<ul style="list-style-type: none"> • Confectionery Shop • Bus Passenger Shelter • Civic Administration • Cultural Exhibits and Libraries • Cyber Café • Emergency Shelter • General Store • Project Office • Grocery Store • Government Office 	<ul style="list-style-type: none"> • Professional Office • Public Transport Facility • Satellite Dish Antenna • Training Centre • Utility Lines • ATM Booth

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.11: Land Use Conditionally Permitted for Administrative Zone

Conditional	
<ul style="list-style-type: none"> • Book or Stationery Store or Newsstand • Coffee Shop \ Tea Stall • Courier Service • Day care Center (Commercial or Non profit) • Doctor \ Dentist Chamber • Fast Food Establishment \ Food Kiosk 	<ul style="list-style-type: none"> • Bank & Financial Institution • Police Box \ Barrack • Fire \ Rescue Station • Mosque, Place Of Worship • Parking Lot

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

f. Agricultural Zone

Agricultural Zone is the zone of ‘food production’ where agricultural production will be encouraged predominantly. Here any type of agricultural activity such as crop production; aquaculture etc. will be predominant and will be permitted to ensure food security. The Agricultural zone is intended to prevent scattered indiscriminate urban development and to preserve the agricultural nature within areas which are predominantly vacant and which presently show significant potential for development; thus are subject to preservation.

Purpose

- To protect agricultural land from development that would restrict its use, and to provide for the development of existing established uses. To prevent the development of premature urban growth on un-serviced or unsuitable agricultural land.
- These zones intended to maintain agricultural use of those areas best suited to farming activity, and, recognizing that prime farm land is a non-renewable resource, to protect and preserve such land for agricultural usage. The intent is to provide for an environment of predominantly agricultural activity, wherein residential development is clearly an accessory and ancillary use to a farming operation

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table-17.12: Land Use Permitted for Agricultural Zone

Permitted	
<ul style="list-style-type: none"> • Food Grain Cultivation • Vegetable Cultivation • Cash Crop Cultivation • Horticulture • Dairy Farming 	<ul style="list-style-type: none"> • Deep Tube Well • Animal Shelter • Tree Plantation (Except Narcotic Plant) • Aquaculture • Utility Lines

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.13: Land Use Conditionally Permitted for Agricultural Zone

Conditional	
<ul style="list-style-type: none"> • Graveyard \ Cemetery • Crematorium • Fish Hatchery 	<ul style="list-style-type: none"> • Garden Center or Retail Nursery • Poultry

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

g. Flood Flow Zone

The area over which the flow of floodwater during monsoon passes through is termed here as flood flow zone.

Purpose

The intent of the Flood Flow Zone is to protect human life and health, minimize property damage, encourage appropriate construction practices, and minimize public and private losses due to overflow of water.

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table-17.14: Land Use Permitted for Flood Flow Zone

Permitted	
<ul style="list-style-type: none"> • Plantation • Utility Lines 	<ul style="list-style-type: none"> • Playing Field • Utility Lines

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.15: Land Use Conditionally Permitted for Flood Flow Zone

Conditional	
<ul style="list-style-type: none"> • Outdoor Recreation Facilities • Outdoor Sports and Recreation 	<ul style="list-style-type: none"> • Poultry • Outdoor Recreation, Commercial

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

h. Open Space

The primary uses in these areas include playgrounds, parks, and other areas for outdoor activities, sports centers, sports pitches, outdoor recreation and landscaped areas. High standards of accessibility are essential in this zone. Accessibility standard is related to the use of that particular open space. For example, local amenity areas and playgrounds may require emphasis on access for pedestrians and cyclists.

Purpose

Providing for the active and passive recreational needs of the City and the protection of its bountiful natural resources as well as to protect the natural and aesthetic qualities of the area for the general welfare of the community. The purpose of this zone is:

- To provide for, protect and improve the provision, attractiveness, accessibility and amenity value of public open space and amenity areas.
- To provide for, protect and improve the provision, attractiveness and accessibility of public open space intended for use of recreational or amenity purposes.
- To preserve and provide for open space and recreational amenities

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table-17.16: Land Use Permitted for Open Space

Permitted	
<ul style="list-style-type: none"> • Botanical Garden • Bus Passenger Shelter • Plantation • Open Theatre • Landscape and Horticultural Services 	<ul style="list-style-type: none"> • Park and Recreation Facilities • Playing Field • Utility Lines • Urban-Nature Reserve

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.17: Land Use Conditionally Permitted for Open Space

Conditional	
<ul style="list-style-type: none"> • Fitness Centre • Flowers, Nursery Stock and Florist Supplies • Outdoor Sports and Recreation 	<ul style="list-style-type: none"> • Park Maintenance Facility • Sports and Recreation Club

Source: Prepared by consultant team

Restricted Uses

All uses except permitted and conditionally permitted uses.

i. Water Retention Area

Retaining water is the main purpose of this type of Land use.

Land use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table-17.18: Land Use Permitted for Water Retention Area

Permitted	
<ul style="list-style-type: none"> • Aquatic Recreation Facility • Fishing 	<ul style="list-style-type: none"> • Utility Lines • Water Parks

Source: Prepared by consultant team

Land use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table-17.19: Land Use Conditionally Permitted for Water Retention Area

Conditional	
• Plantation	• Boating Facility

Source: Prepared by consultant team

17.2 Execution of Land Use Plan

Effective implementation of a land use plan is a very important part of the planning process. The process of implementation needs to be carried out with care and efficiency in order to produce best outcomes.

Implementation of the Land Use Plan depends on successful pursuit of the policies. These policies represent a significant challenge faced with the responsibility of planning and managing the development of the Pourashava area. However, at present Pourashava is the authority is responsible for planning and managing physical development activities. Pourashava manages planning and development control based on Local Government (Pourashava) Ordinance, 2009 and EBBC Act 1952.

Prior to introduction of the measures to implement the land use plan, following legislative measures are recommended.

1. Impose control on all types of building construction in the Pourashava. Allow building permission according to the setback rules prescribed in the Building Construction (Amendment) Rules, 1996 (Notification No. S. R. O. No. 112-L/96). Any permission for building construction, front road width shall not be less than 20 ft.
2. To control the air, water, noise and soil pollution apply Conservation of Environment and Pollution Control Act, 1995 (Act No. I of 1995). In the Pourashava, there is no authority for enforcing the provisions prescribed in the said Act. The pollution related with the implementation of land use component may be controlled with the above Act.
3. Haphazard development of commercial activities is the general scenario of the Pourashava. It is necessary to impose control on commercial activities provisioned in the Shops and Establishments Act, 1965 (Act No. VII of 1965).
4. In case of man-made canal, regulations prescribed in the Canal and Drainage Act, 1873 (Act No. VIII of 1873) is the best weapon to retain them. For the linking of canal with other canals and rivers considering drainage facilities the Act may be enforced.
5. The Pourashava will have to exercise strictly Playfield, Open space, Garden and Natural Tank in Urban Areas Preservation Act, 2000 (Act No. XXXVI of 2000) to some specially important areas like, riverfront and water bodies, drainage channels, low land below certain level, designated open space, etc. Development restrictions are needed around security and key point installations. The provision of restriction will strengthen the power of the plan to safeguard its development proposals and land use provisions.

PART-E: RURAL AREA DEVELOPMENT PLAN

CHAPTER-18: OBJECTIVES, PROBLEMS AND CRITICAL ISSUES

18.0 Introduction

This chapter describes objectives of the rural area plan, identifies the problems of the infrastructure and agricultural sector in rural areas of the upazila. In the infrastructure sector three major issues have been dealt with. These are, transport, education and health. Agriculture sector talks about natural disasters that destroy crops and other impediments obstructing growth of agriculture in the upazila.

18.1 Rural Area Development Plan Objectives

The purpose of Dohar Upazila Rural Area Development Plan is to streamline development of rural areas with respect to its physical entity as well as livelihood of the people. Following are the specific objectives of the rural area development plan:

- a. To provide basic infrastructure to the rural people.
- b. To create land use zoning to control spatial development.
- c. To protect farm land for food security and livelihood of the rural people.
- d. To promote agricultural development to meet future demand for cereal, fish and livestock.
- e. To promote development of rural infrastructure and services for social and economic uplift of the rural area.

18.2 Identification of Problems and Critical Issues

The critical issues of rural-agriculture of the Dohar Upazila have been identified through PRA, direct field investigation and data collected from secondary sources.

18.2.1 Infrastructure and Services Problem

PRA revealed the desires of the rural people wherefrom the consultant identified three most important issues that need to be addressed on priority basis. These are, improvement of transport and communication, promotion of health facilities and promotion of education.

18.2.2 Road Infrastructure

It is ascertained from the field survey that in the entire upazila 22.48% road is still kacha and 24.15 % semi-pucca. About 53.47% roads have been found paved in the entire upazila.

Table-18.1: Condition of Roads

Road Type	Total Upazila (km)	%	Rural Area (km)	%
Kacha	101.4	22.48	73.77	24.09
Semi-pucca	241.98	53.47	160.11	52.28
Pucca	109.13	24.15	72.34	23.63
Total:	452.51	100.00	306.21	100

Source: Field Survey, 2016

Poor road condition has been highlighted as the most important handicap to local development. It is ascertained from the field survey that in the entire upazila 66.37. Poor road condition has been highlighted as the most important handicap to local development. The people want see these important issue resolved on priority basis. Because poor road condition is disrupting only everyday movement but also transportation of agro-products depriving them from just price of their harvest.

18.2.3 Education

Average literacy of the upazila in 2001 was 57.5%, while literacy rate fell to 49.3% in 2011. The rural area of upazila has 26 primary schools with 24 governments. There are also 7 kindergartens /nursery schools, 18 high schools and 4 colleges. The upazila has 32 madrasas from which 15 dakhil madrassa, 12 alim madrassa and 5 kamil madrassas.

18.2.4 Health Facilities

Dohar Upazila has one health complex with 50 beds and 5 union health and family welfare Centers, 4 community clinics and 5 family planning Centers. Local people are not satisfied with the health services provided by the health facilities. There is acute shortage of medical staff, medicine and other medical equipment in all these facilities. As a result people have to take services from the private clinics that are often too expensive and unaffordable by the poor. People do not receive enough health services from public health facilities.

18.2.5 Agricultural Problem

18.2.5.1 Problems of Crop Agriculture

Despite having favorable agro-climatic condition crop agriculture of the upazila is confronting a number of natural and manmade challenges. These are,

- low level of soil fertility,
- lack of capital for investment in farming,
- lack of farmers' access to technologies,
- farm labor crisis, and finally,
- lack of incentives due to improper marketing system.

Total annual cereal food requirement of the upazila is about 64000 metric tons and annual production of cereals is 51000 metric tons. The upazila is in deficit condition with respect of

food production due to above reasons.

18.2.5.2 River Bank Erosion

Riverbank bank erosion is a major problem of land degradation of the upazila farm land, particularly in the north-western part. This is a common geomorphologic process played by the river Padma in the region. Erosion depends on type of flow, channel geometry, topography, vegetation and its variation with time and space. River bed depth gradually decreases due to accumulation of eroded materials from the upstream accelerate flood and river bank erosion. Bank erosion and channel shifting of the untrained rivers are big problems to the local socio-economy and environment. It has a widespread effect on human settlement and agricultural land and the overall livelihood condition of the rural people. Riverbank erosion has displacement and socio economic impact. When floods hit or the embankment erodes, people on the river side lose everything, from livelihood to shelter. PRAs conducted and informal and formal discussions with local people and representatives of service providing agencies revealed that the unions situated partly or entirely on the bank of the mighty river Padma are prone to river bank erosion. Every year hundreds of families' loss their valuable household assets, lands and livelihood due to bank erosion, result in migration to other places or to urban areas for new livelihood.

18.2.5.3 Monsoon Flood

Annual inundation during monsoon is common in the floodplains like, Dohar. Occasionally, it becomes highly devastating in the area destroying the standing crops. Due to siltation, the drainage capacity of the rivers and canals is reduced and the narrow outlet created by siltation prolong the duration of inundation. Devastating floods occur in 2/3 years' interval. Prolonged flooding has negative impacts on crop, livestock and fisheries.

18.2.5.4 Water Logging

Water logging is one of the problems of Dohar Upazila. Main cause of water logging is the siltation in the natural waterways. Low lands are usually being flooded in the early monsoon. Due to inadequate drainage system, and or silted up of drainage channels or illegal encroaching by the influential persons for their interest, water cannot move out. As a result, the low laying areas of the upazila remain inundated for three to four months in the monsoon season. Other causes of water logging are human interventions like, construction of embankments, construction of many unplanned housing and village road networks. Moreover, the problems become acute when people have a common tendency to encroach and/or blocking the waterways for making houses, shops or fish culture etc. Localized drainage congestions are reported throughout the upazila but the level and duration of drainage condition depends upon various factors. Water logging usually remain confined to medium low land to low land areas. In addition to the damage of agricultural crops, drainage congestions affect transportation system. Additionally, it affects surface water quality, causing spread of water borne diseases and other health hazards. Water logging is a acute problem of Dohar Pourashava.

There is water logging, both, in urban and rural areas. The problem is more severe in urban areas. From the survey, it was assessed that, most respondents from urban and rural areas

complained of water logging in their respective areas. As a matter of reasons behind water logging, they mentioned absence of drainage facility, heavy rain, flood water and low land as the reasons for that.

18.2.5.5 Brick Fields in Agriculture Land

Brickfields are known to be a leading cause of land degradation. Rapid urbanization has raised the demand for brick and people are setting up brickfields in medium high agricultural lands near the roads. These are fertile lands capable of growing 2-3 crops in a year. Operation of brickfields in the agricultural land is carried out through collecting soil from a depth of about 1- 2 meter from agricultural land. In this way brickfields in Dohar is degrading top soil and polluting environment. Emission of huge quantity of toxic elements from brick kilns is causing serious health hazards. The brick kilns emit toxic fumes containing suspended matters rich in carbon particles and high concentration of carbon monoxides and oxides of sulphur that are harmful to eye, lungs and throat. It also stunt the mental and physical growth of children. A significant amount of wood of this upazila is used for burning bricks every year, causing deforestation. Brick burning not only alters the physic-chemical properties and habitats of the nearby soils but also contribute to the pollution of environments and ecosystems. The topsoil nutrient elements and soil biota are destroyed through brick burning. Brick burning also increases the concentrations of greenhouse gases in the atmosphere. Evolved heat damages the forest and vegetation surrounding the brickfields and ultimately degrades the natural ecosystem. Smoke, dust and heat generated from the brickfields operation are the major issues of environmental hazards. Smoke and dust pollute the air of the surrounding areas that affect human settlements, educational institutions, office, market places, etc.

18.2.5.6 Expansion of Settlement, Infrastructure and Industries

Majority of the agricultural land in Dohar Upazila is medium high and medium land those are suitable for double or triple crops. But due to increased population, these fertile lands adjacent to roads are being converted into settlement areas, industries, hat-bazar, road etc. These unplanned developments of roads and infrastructures are gradually being developed everywhere within the upazila. The people are neither aware of planned township nor they care the future consequences of land loss for food security of the next generation. These sort of human interventions are aggravating water logging situation. Rapid and unplanned expansion of housing has been considered as one of the great challenges for sustainable agricultural production including the homestead forest. So, increased demands of housing and settlement, infrastructure, industries etc. are reducing the area of agriculture land. It threatens the ecological balance and leads to environmental degradation.

18.2.5.7 Inadequate Infrastructure and Services

Rural areas of the upazila lack adequate road network and quality roads. This not only mobility of the people in general, but also seriously affects marketing of agricultural products grown by the farmers. Poor condition of roads often raises the cost of transport and reduces profit margin of the growers. Rural part of the upazila is also devoid of sufficient power

supply, a very important service in modern life. Lack of power is a cause of impediment to education, business and other economic activities. Rural areas also deprived adequate medical facilities and properly located education facilities.

18.2.5.8 Improper Agricultural Practices

Majority of the people of Dohar are engaged in farming and earn food and income from agriculture and natural resources. But to grow more crops from less areas farmers are practicing high yielding technologies in inappropriate way. Many traditional crop varieties are either disappeared or in the verge of extinction. In addition, the practice of mono cropping has caused serious deterioration of soil characteristics and a decline in soil fertility as well as productivity. There are also competing demands on land for nonagricultural uses.

18.2.5.9 Improper Use of Fertilizer and Agrochemicals

Although fertilizer is one of the most important agricultural inputs to increase crop production, the soil health has deteriorated in recent years due mainly to imbalanced use of fertilizers. In our condition, urea is used in disproportionate dosages, while the other fertilizers like TSP & MoP are used in much lower dosages than the requirement. This imbalanced use of chemical fertilizers is mostly due to a lack of appropriate knowledge of the farmers for cultivation of different crops, non-availability of site-specific soil fertility information and high prices. Sometimes, unavailability of required fertilizers during peak demand periods and their defective distribution system impeded the use of fertilizers in required quantity.

As proper pest management is a contributing factor for increasing production, the availability and proper use of agro-chemicals are also important area of consideration. Pesticides of all types are available but there is a marked lack of quality control. Consequently, excessive and haphazard use highly poisonous pesticides deteriorating quality of food crops as well as the environment. Farmers are using chemical fertilizers and poisonous chemicals for pest control. In most cases farmers do not follow recommended doses. Indiscriminate use of chemical pesticides and excessive use of chemical fertilizers increase water pollution cause declining the aquatic bio-diversity.

18.2.5.10 Supply of Poor Quality Seeds

The availability of quality seed is far from satisfactory level. It is estimated that only 5% of the seeds used in the region are of good quality. People involved in agricultural business agree that the seed issue is also to a larger extent a question of quality. Stagnation or decline in the yields have been partly attributed to the fact that farmers use too much retained seeds from earlier harvests rather than renewing the seed and also that many modern varieties are losing their vigor. From the farmers' point of view there is no efficient seed control and certification machinery in force. Seed situation is another serious constraint on raising yields.

18.2.5.11 Degradation of Wetland Ecosystems

Wetlands are among the productive and economically valuable ecosystems. Wetlands prevent flooding by holding water mass like a sponge. It holds water during monsoon and releases in

drought. Both natural factors and manmade unplanned interventions are mainly responsible for the degradation of terrestrial and aquatic ecosystems. Due to tremendous pressure of population with limited economic resources, the ecosystems have gone under modification and alteration by human activities at various levels. The major elements of destruction are siltation, building infrastructure with inadequate drainage facilities, destruction of forest, wetland filling, improper fishing practices, water hyacinth, drying up of wetlands etc. In addition, people are converting low lying areas of the upazila for multipurpose commercial use, filling up fertile lands to build housing and similar other activities. This illegal practice is degrading the nature of wetland ecosystems.

18.2.5.12 Siltation of Riverbed

Siltation of the inland khal bed is a common problem in Dohar Upazila. Over a few decades, significant changes in physical features and ecology have taken place due to siltation of riverbeds. This has a negative impact on the resource base and livelihoods of wetland resource dependent people. Unplanned construction of communication structure like roads, culverts, embankments, flood regulators, etc. have caused barrier to natural water flow of the rivers and canals creating water logging in the beels and floodplains and enhances silt deposition. As soon as the beels are silted up, the conjunctions of the rivers/canals mouth are also raised rapidly resulting the destruction of the connectivity between rivers/canals and beels. This is how the water is logged at various locations. Thus, the water areas have been reduced and affected the aquatic fauna and flora especially the fisheries resources. As a result, migratory routes of the fish and other aquatic animals have been seriously disrupted causing loss of aquatic habitats and its resources. Beds of the Padma River and canals have been silted up that reduced water carrying capacity of rivers. So, the excessive load of sediment deposited in the khals and river tributaries causes flooding during monsoon and deposits sediments in adjacent low lying areas including agricultural land, lower depressions and wetlands of the upazila. During prolonged flooding of 1988, 1998, 2002 and 2004, there were huge depositions of sediment on agricultural land that damaged the crops and lost fertility of the soil. Almost all unions of Dohar Upazila were affected by different degrees of siltation. The trend of reduction of the beels/water bodies was found to be similar at different places with negligible exceptions.

18.2.5.13 Catching of Brood Stocks and Juveniles of Hilsa

The Jatka is the juvenile form of Hilsa fish. The biology and ecology of the Jatka are distinct from the adult Hilsa. Conservation of Jatka is important as juvenile species should not be fished before they reach maturity. Removing the fish before breeding age prevents reproduction processes, and therefore reduce continued growth of the Hilsa species. Economically, Jatka are smaller, therefore, has considerably less market value too. It migrates into the Padma River and its tributaries from the Bay of Bengal for breeding and nursing. Man-made influences, river siltation, closure of migratory routes, over-fishing, uses of damaging fishing gears, pollution, hydrological and climatic changes are responsible for the decline of Hilsa fish. Hilsa have significant ecological, economic and cultural importance, and are currently the focus of conservation efforts to preserve the sustainability of the

fisheries.

18.2.5.14 Loss of Biodiversity

Dohar upazila has been rich in biodiversity. But due to both natural and manmade factors like siltation of water channels, abuse of wetlands and disruption of aquatic network by constructing unplanned roads, embankments, expansion of housing and blocking of water channels, etc. the abundance and diversity of extremely valuable open water fisheries resources of this region are in declining trend. On the other hand, polluting the open water by runoff coming from over doses of fertilizers and pesticides/insecticides in the agricultural land etc. greatly influence the degradation of the aquatic environment and its resources. Indiscriminate using of destructive fishing gears like set bag net and current net, wetlands declined due to irrigation, destructive gears, industrial effluents, increased population, unplanned interventions for spawning & nursing and vice versa. Almost all the unions and the Dohar municipality is more or less affected by bio-diversity loss phenomena.

18.2.5.15 Technical and Management Problems of Livestock

Livestock and poultry sub-sector is constrained by a number of factors. Substandard feeding and improper management practices negatively affecting the productivity of the sub-sector. The agriculture of the upazila suffers from some technical and management problems as follows. Most small farmers lack financial resources to establish dairy, poultry units. Absence livestock production-related extension service (e.g., upazila-level livestock service is limited to mostly clinical veterinary services, and a limited breeding service is available). Unavailability of high growth rate and high meat yielding beef cattle/ doe for fattening. Farmers are mostly unaware of semi-intensive system of goat production. Poultry farmers lack technically skilled manpower, shortage of quality chicks/ breeding materials,

18.2.5.16 Inadequate Coverage of Animal Health Service

The ratio of veterinary surgeons to farm animal and poultry is as low as 1/100,000 for livestock and 1/2,000,000 for poultry. The problem is again aggravated with poor transport network leaving 80 percent of the farmers outside of veterinary service. Only about 15-20 percent of farm animals are occasionally vaccinated. Private sector investment in the animal health sector remains low and is unlikely to expand in the future, unless provided adequate policy support and extension service. While the quality and quantity of vaccine, medicine and veterinary service delivered by the DLS are inadequate, the private sector is not coming up. There is no independent authority to check the quality of domestically produced or imported vaccine, medicine, feed and other inputs and there are no provisions for control of movement and quarantine during disease outbreak or epidemics.

18.2.5.17 Scarcity of Feeds and Fodder

Acute shortage of feeds and fodder is one of the single most important obstacles to livestock development in growth, reproduction and reduced productivity. Most of the dairy, poultry and fish farmers are facing the problem Bangladesh. Feed resources for livestock are primarily derived from crop residues and by-products such as straw, grass and tree leaves.

Supplementary and concentrate feed are provided rarely and inadequately. This has resulted in stunted and adulterated and inferior quality of commercial feeds and feed ingredients. Feed labeling and control is inadequate. Most feed millers do not disclose the necessary information on the packaging with regards to feed composition, ingredients, date of manufacturing, date of expiry, storage guidelines, energy levels, and protein and vitamin contents. Further, poor packaging causes quicker spoilage and deteriorating quality and threatening livestock, fish and human health. High price of feeds and fodder are also a problem for the smallholder livestock and fish farmers.

18.2.5.18 Marketing of Agro-commodities

Lack of organized market for selling farm produce is a problem for the upazila. The salient features of agricultural product markets of the region are poor infrastructure, with lack of cool chains, inadequate transports, storage and processing facilities, poor local roads and communication system, unfair practices of middlemen, etc. The farmers of char lands are suffering with inadequate transport and with small number of petty traders (farias). The marginal and small farmers are often facing problem of marketing their products and are not getting fair price due to existence of trade syndicates

18.2.5.19 Supply Chain Management of Fisheries

Although aquaculture production has experienced remarkable growth recently, a business-friendly supply chain still lagging behind. Due to long and complex marketing system, producers are not getting proper price for their farm products, where consumers are paying more. As fish and fish products are most perishable goods, but there is a dearth of physical facilities and infrastructure necessary for postharvest management of fish and fish products in the upazila.

18.3 Rural-Agriculture Related Problems as Found from PRA

There was extensive interaction with union level public representatives and general people who expressed their perception on the problems of rural areas. Following are the extracts of problems related to rural-agriculture of the upazila.

Two major problems highlighted by the PRA participants are **River Bank Erosion and Water logging**. PRA results revealed that Dohar upazila is badly affected by river bank erosion. Every year hundreds of rural families those who are living by the river bank and are comparatively poor loss their household belongings with lands and after losing everything they migrate to other places or in urban areas to live on seasonal labor or depends on begging for their survival.

Chronic water logging emerged as a major problem for crop production in the unions situated on the bank of the river Padma and Arial khan. Participants in the PRA opined that water logging problem arises mainly because most of the canals, drainage channels and low lying areas have either been silted up or been illegally occupied by influential people for serving personal interests. The problem of water logging is more acute in monsoon when water accumulated due to heavy rains and cannot recede quickly because of obstructions in the water channels.

CHAPTER-19: RURAL AREA DEVELOPMENT PLAN RECOMMENDATIONS AND PROPOSED LAND USE

19.0 Introduction

Chapter 19 of the development plan is about policy recommendations. It begins with the approach to preparation of Rural Area Plan and rural area critical issues. This determines the development priority and next states the policy recommendations and strategic actions.

19.1 Approaches to Preparation of the Rural Area

Plan Rural Area Plan is meant for guiding the spatial and infrastructure development including agriculture of the rural part of the Dohar Upazila (except Pourashava area). The rural area plan is prepared in conformity with the policy proposals made in the Structure Plan. It is similar to the conventional master plan prepared for urban Centers of the country. The plan makes a three way approach to planning, providing required basic infrastructure and amenities in rural areas, suggesting land use, primarily to protect agricultural land and finally recommendations to increase farm production. Union wise proposals have been included. (See **Annexure-II**).

19.2 Rural Area Critical Issues

Following are the summary of critical issues of rural part of Dohar Upazila. The problems and critical issues have been identifies primarily through the findings of PRA and expert analysis.

1. Problem Poor transport and communication.
2. Problem of education facilities.
3. Inadequate health facilities.
4. Encroachment and loss of farm land by non-farm use (about 1% land annually).
5. Devouring of farm land and homestead areas by river erosion.
6. Impediment to irrigation caused by water logging due to filling khals due to mainly sedimentation.
7. Low production due to lack of modernization of agricultural technology.
8. Low intensity of cropping due to lack of irrigation Facility.
9. Unorganized agro product market (too many middlemen) leading to low profitability of growers.

19.3 Rural Area Development Proposals

19.3.1 Improvement of Road

It is reported that only 52.28% of the rural area road network is paved. Unpaved roads are impediments to movement of goods and passengers. It also makes carrying goods costly. This is a major reason why farmers fail to get fair price for their products.

It is recommended to pave all rural roads. Since it would be an uphill task for any government, initially, the consultant suggests, paving the roads from villages leading to Union Centre and Hats and Bazars where the farmers market their products. This should be

done on priority basis. This would enable easy marketing of farm products to have fair price for farmers avoiding middlemen. Movement of people would be easier and increasing interaction among the people would foster cultural and economic progress in rural areas. All village roads have been increased to 25 feet.

19.3.2 Facilitation of Education

There are two main problems with education in rural areas, first, quality of education is not upto mark; second, facilities available in educational institutions are not conducive to imparting proper education.

There inadequate lab facilities for science education, poor logistics for education, poor maintenance of structures, are all problems with rural education facilities. Lack of financial ability makes it difficult over ameliorate all these problems.

The rural part of the upazila already has 26 primary schools, 18 high schools and 4 colleges. Estimates show that according to projected population (2038) the rural part of the upazila needs, in total, 74 primary schools, 18 high schools and 12 colleges. So, 48 primary schools and 8 colleges will be required in the rural part of the upazila.

Table- 19.1: Existing Educational Facilities in rural area of Dohar Upazila

Union	Kindergarten	Primary School	High School	College	Madrasha
Bilashpur		2	1		5
Kushumhati	2	4	3		3
Mahmudpur		2			3
Muksudpur	2	6	6	2	8
Narisha	1	3	4	2	7
Nayabari		3	1		2
Roypara	4	2	1		4
Sutarpara	1	4	2		6
Total	10	26	18	4	38

Source: Field Survey 2016

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed College	8	Roypara Union	Bara Ekrashi	037	002	2074,2085-2088	2.60	10

Table-19.2: Proposed College

		Sutarpara Union	Sutarpara	063	002	2658,2669,2670-2671,2712-2717,3207-3212	10.03	10
		Narisha Union	Shimulia	075	003	2142-2145,2154-2159	3.77	10
		Bilashpur Union	Radhanagar	054	001	29,48-52	2.63	10
		Kushumhati union	Silakota	015	001	775-777,780-794	3.78	10
			Deobhog	013	000	105-114	4.99	10
			Silakota	015	001	927-934		
		Mahmudpur Union	Raghurampur	028	002	778-786,881-886,965-973	4.40	10

Source: Prepared by consultant team

Table- 19.3: Proposed Primary School

Type	No. of primary schools	Total Provided Area (acre)	Location
Proposed Primary School	7	8.32	Roypara Union
	4	5.88	Kushumhati Union
	2	2.35	Nayabari Union
	4	3.62	Mahmudpur Union
	2	2.46	Bilashpur Union
	12	14	Narisha Union
	5	6.81	Muksudpur Union
	1	1	Sutarpara Union

Source: Prepared by consultant team

The consultant also makes the following recommendations to improve education system in rural areas:

1. Make people aware about education and collect more community contribution for improvement of facilities.

2. Incorporate more private schools under MPO.
3. Government should allocate more fund for improvement of school facilities and logistics.
4. Arrange proper training for improving quality of teachers.
5. Employ qualified teachers with higher salary.

19.3.3 Improvement of Health Facilities

Health is also a major issue in Dohar as expressed by the PRA participants. Government health care facilities in rural areas consisted of Upazila Health Complex, Union Health and Family Welfare Centers, and Rural Dispensaries. This system started in 1980s and still going on. There is bed only in Upazila Health Centre that was 28 during starting years and now upgraded to 50. It also has a home service unit staffed with field workers. A union-level health and family welfare center provided the first contact between the people and the health care system and was the nucleus of primary health care delivery. But some of the services, however, gradually, became non-operative because of staffing problems and a lack of support services. In rural area of Dohar Upazila, there are 4 hospitals and 10 clinics and family health care center.

The consultant recommends reorganizing the rural healthcare system in rural areas with more vigour having adequate staff and medical equipment and facilities. Government can also raise the medical fees considering increase in income of the people. This will allow cutting a little bit of public expenditure on health. To strengthen rural health care it is urgently necessary to equip community clinic. Eight community clinics have been proposed in rural area.

Table-19.4: Existing Health Facilities in Dohar Upazila

Union	Hospital	Clinic
Bilashpur		1
Kushumahti		1
Mahmudpur		1
Muksupur	1	3
Narisha	2	2
Nayabari		1
Roypara	1	1
Jantrail		1
Total	4	10

Source: Field Survey 2017

Table- 19.5: Proposed Health Facilities

Source: Prepared by consultant team

19.3.4 Enactment of Law for Prevention of Non-Farm Development on Farm Land

With the increase in rural population, conversion of farm land into non-farm use is increasing at an alarming rate. It is reported that about 1% farm land is being converted to non-farm use annually. This is a threat to future food safety of the country.

The consultant suggests to enact a law for strict prohibition of development of any non-farm use structure in farm land and measures of punitive against defaulters. This would be enforced by the upazila administration strictly. The Union Parishad will monitor cases of such violations and take punitive action against defaulters.

There should be an Upazila Land Use Zoning Plan that will delineate agricultural and other lands in the upazila except urban area (Pourashava). Building structures will be developed in zones that are meant for development of particular building uses.

19.3.5 Erection of Strong Embankment to Prevent River Erosion

Padma river erosion is a menace for Dohar Upazila. Unions along the Padma river are subject to regular river erosion that destroys huge landed property including farm land, homestead

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed Community Clinic	8	Nayabari Union	Dakshin Bahra	006	000	1178,1179,1190,1236	.61	.50
		Kushumhati Union	Kartikpur	018	000	747-753	.55	.50
		Mahmudpur	Raghu rampur	028	001	82-83	.44	.50
		Bilashpur	Debi Nagar	052	000	39-43	.54	.50
		Roypara	Roypara	040	000	607-614	.52	.50
		Sutarpura	Sutarpura	063	002	3371-3374	.48	.50
		Muksudpur	Muksudpur	080	002	2242,2246-2248	.60	.50
		Narishata	Satbhita	073	001	223-225,230	.61	.50

and other structures and infrastructure.

To get rid of this destruction strong embankment is needed along the river bank. This would also serve as road. This is needed to save huge land and property of the people living on the

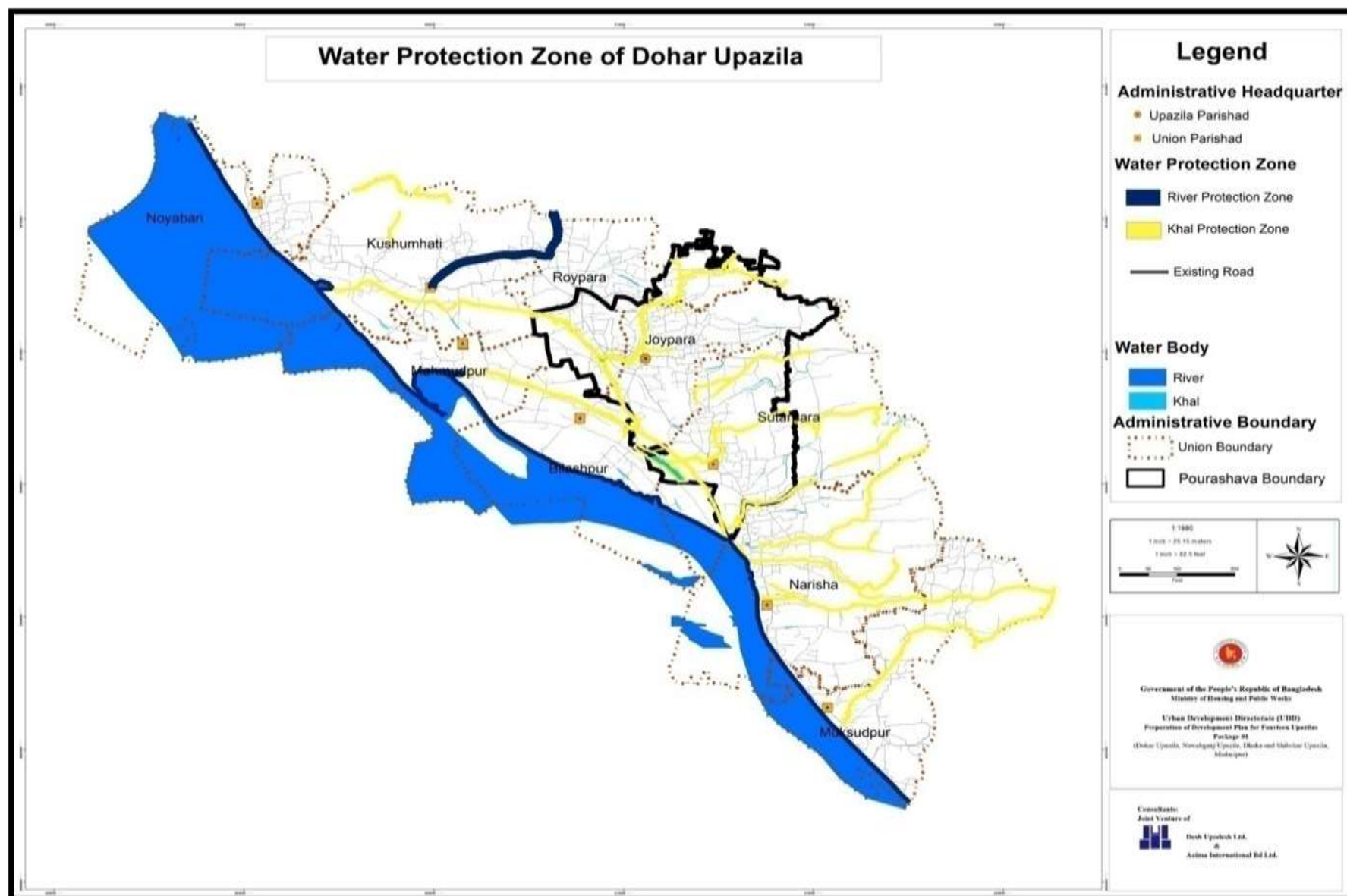
river bank. Strong embankment, 30 feet road and beautification with tree plantation will be provided in 50m buffer area. 14 ft road and beautification with tree plantation will be provided in 6m buffer area.

Table-19.6: Water Protection Zone

Protection Zone	Buffer	Area (acres)
River Protection Zone (Strong Embankment)	50 m buffer from river edge	425.37
Khal Protection Zone	6 m buffer from khal edge	168.21

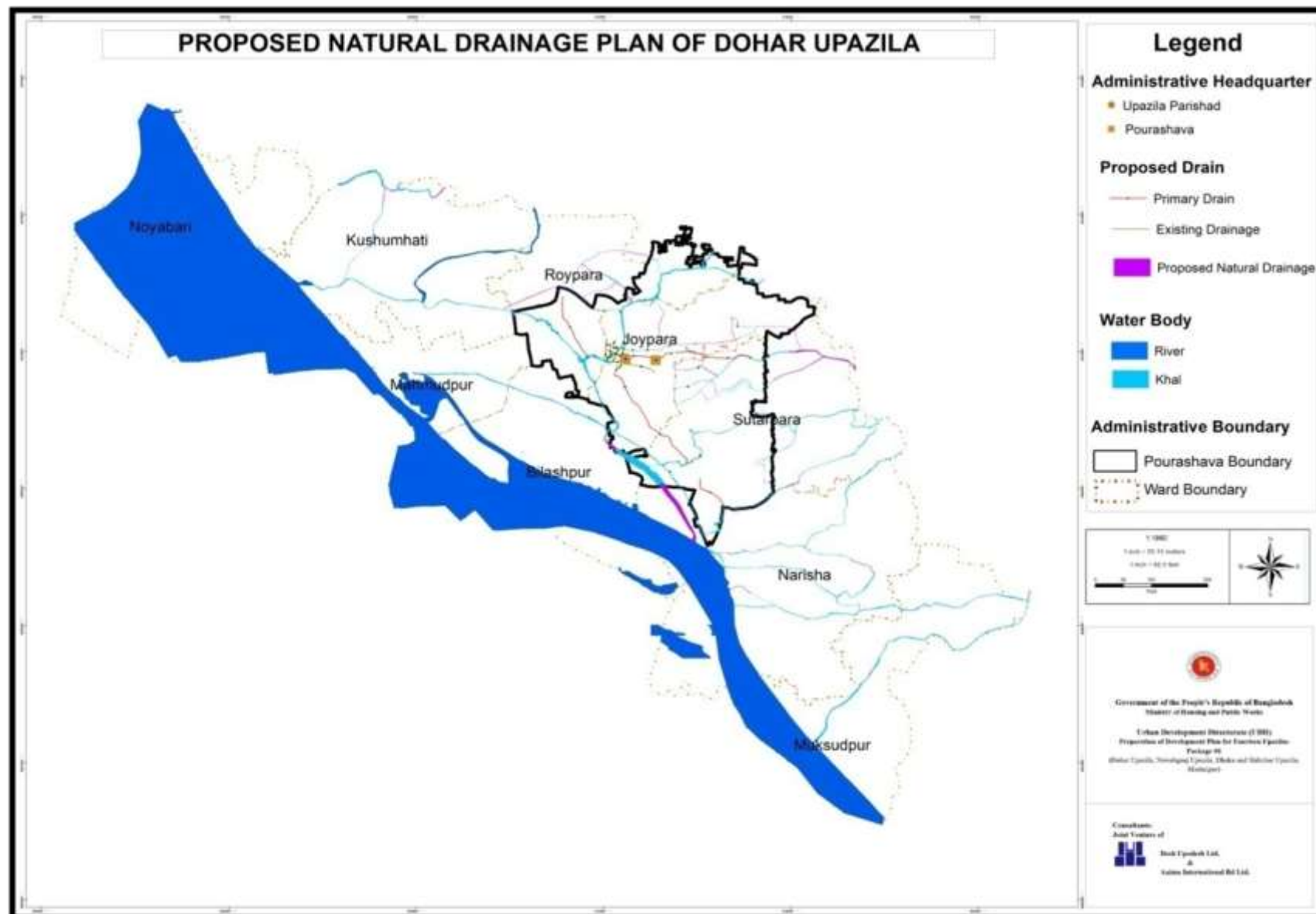
Source: Prepared by consultant team

Map-19.1: Water Protection Zone of Dohar Upazila



Source: Prepared by consultant team

Map-19.2: Proposed Natural Drainage Plan of Dohar Upazila



Source: Prepared by consultant team

19.3.6 Excavation and Maintenance of Khals for Drainage, Flood Protection and Water logging

A major reason for water logging in rural areas is sedimentation of khals that link catchment areas with the river. This often causes water logging in low lying areas. At many places links of khals and beels have been lost as the beds of link khals have been raised by sedimentation. As a result farmers cannot cultivate those lands and suffer financial losses. This problem has been reported by participants in PRA sessions. It is suggested to open up these filled up khals by excavation. Khal links should be excavated and links reestablished. Government should necessary fund for this purpose. The work can also be done under food for work programme.

Flow direction and catchment data of existing natural drainage which are derived from hydrology has been used to excavate new khal for drainage, flood protection and water logging. (See **Map-19.2**)

19.3.7 Recommendations for Agricultural Development

Agriculture in the upazila needs a paradigm shift from low value traditional farming to large-scale commercial farming of high value agro-commodities with facilities for value addition. For the above purpose the following steps are urgently needed:

19.3.7.1 Crop Agriculture

Development of crop agriculture needs to adopt the following measures:

- i) Demarcating preserving suitable agricultural land, and prohibiting encroachment of arable land;
- ii) Establishing agricultural zones for precision agriculture;
- iii) Protecting arable land from erosion through embankment;
- iv) Improving drainage system in the upazila to save crops and increase dry land crop cultivation in the winter season;
- v) Organizing farmers into groups and their capacity enhancement through providing training on modern technologies, facilitating access to credit and market.

a. Modernization of Farm Technology for Higher Agricultural Production

Farming technology has been much change in last few decades, which causes agricultural production to grow very slowly. To cope with increasing demand for food, farm technology need to be modernized. The consultant suggests to modernize farm technology through adoption of improved seed-irrigation-fertilizer technology. This needs continuous training on modern technology. The farmers have to be provided with soft credit to buy modern farm equipment, fertilizer and improved seeds.

Like other areas of the country mechanized cultivation is gaining momentum in Dohar upazila. The main thrust of mechanization is to reduce dependence on human labour and draft / animal power to till soil and plant, intercultural operation, and harvest crops. It contributes to timely cultivation and thus increased cropping intensity, reduced yield losses and wastage. Use of machines also cuts down the cost of threshing. Government mechanization program and subsidy in fuel and electricity can yielding positive results in raising crop production.

b. Promotion of Irrigation

Cropping intensity is the number of times crop is planted per year in a given agricultural area. It is the ratio of effective crop area harvested to the physical area. The ratio of cropland to total agricultural land, or the ratio of gross cropped area to net cropped area, is used as a tool for measuring agricultural or cropping intensity. The level of cropping intensity is determined by several factors. The most important factor is the availability of water from nature (rainfall) and or man-made resources (irrigation). Also land and soil characteristics determine the suitability of crop cultivation. Crop characteristics and its requirement for growth also important for cropping intensity. Crop intensity index assesses farmers actual land use in area and time relationship for each crop or group of crops compared to the total available land area and time.

Land in Dohar is good for farming, where three crops a year can be cultivated. But the most important impediment is to provide irrigation during dry season. Crops are mostly rain fed as they are cultivated during monsoon. Ample rain water feeds the paddy for their growth. But during dry season, when there is no rain crops cannot be grown due to lack of water. Despite availability of surface as well as ground water farmers cannot irrigate their lands for want of money. Irrigating land during the dry season is expensive. Most marginal farmers cannot afford irrigation; as a result land remains idle for one season. The present intensity of cropping in Dohar is 162. It can be easily raised to 200 by providing irrigation facilities.

To make irrigation affordable, farmers can organize cooperatives among themselves. They share purchase and use of irrigation pumps. Government can arrange soft credit for farmers to enable purchase of pumps. In this manner more lands in the upazila can be brought under farming raising the intensity of cropping.

c. Agricultural Marketing

In Dohar upazila there are 24 established markets where agro-commodities are traded. Major growth centers of Dohar Upazila are Kartukpur Bazar, Meghula Bazar, Pashchim Char Bazar,

Lotakhola Bazar and Bangla bazar. Two wholesale markets have been proposed in Muksudpur and Nayabari Union.

Marketing process improvement needs following measures:

- i) Improving rural road communication and landing stages at river bank for loading and unloading of commodities transported through water ways;
- ii) Improvising existing rural markets with necessary facilities for cleaning, grading and packaging agro-commodities.
- iii) Ensuring farmers access to the local and urban markets;
- iv) Constructing necessary infrastructure for temporary storing of perishable agro-commodities
- v) Arranging refrigerated vans for transporting agro-commodities to the urban area on PPP.

Table-19.7: Proposed Location of Wholesale Market in Rural area

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area(Acres)
Wholesale Market	2	Muksudpur Union	Muksudpur	080	002	429-431,2007-2010,2013-2017,3545	5.82	5
			Satbhita	073	002	3019-3028		
		Nayabari Union	Dakshin Bahra	006	000	1617,1618,1621-1627,1641-1644,1657,1658,1666,1667,1672	4.23	5

Source: Prepared by consultant team

d. Organize Farmers' Cooperative to Ensure Better Marketing and Fair Price for Farm Products

Agricultural outputs markets in the upazila can be classified as primary market, secondary market and terminal markets. Usually, large number of intermediaries operates in the agricultural markets. The primary markets are small local markets. These type of markets operate, usually, twice a week. Petty traders, known as Faria, operate in these markets. They purchase directly from the farmers and assemble the produce and perform some important marketing functions like, sorting, grading, packaging and transportation. They sell outputs to the Beparis or whole sellers in the same markets or in the secondary markets at the upazila level. The secondary markets are situated in the upazila level; size of these markets is much bigger than the local markets. Also number of sellers and buyers are large. Usually large number of Farias and Beparis operate in these markets and daily volume of output traded is also high. The Farias assemble outputs from surrounding villages in secondary markets. Secondary markets are well communicated with district markets and terminal markets at Dhaka. But the problem of marketing of agro-products by farmers is that they have to face a number of middlemen in marketing their products. Each of these middle men takes his share of profit for his service. This reduces the profit margin of farmers. If the number of middlemen can be reduced then only a better price of products can be ensured for producers. To attain this objective one way is to set up marketing cooperative by producers. They can carry and market their own products in the wholesale market. They need to be organized themselves in cooperative, purchase their own transport, sort and grade their products and carry them to the wholesale market. This process will be able to eliminate at least one middleman from the marketing process and will ensure better price for their products. So rural sales and service centers are needed to ensure better marketing and fair price for farm products. Five rural sales and service centers will be provided for this purpose.

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Rural Sales and Service Center	5	Narisha Union	Shimulia	075	003	1451-1455	.95	1
		Sutarpara Union	Sutarpara	063	002	2636,2637,2664,3214,3215	1.02	1
		Bilashpur Union	Alamkhar Char	047	000	119-120	.77	1
		Mahmudpur Union	Raghurampur	028	002	761-766	.83	1
		Kushumhati Union	Char Kusal	032	001	569,593-595	.72	1

Table-19.8: Proposed Rural Sales and Service Center

Source: Prepared by consultant team

19.3.7.2 Fisheries

For development of fisheries, the consultant recommends the following measures:

- i) Demarcating and preserving existing water bodies, excavating and re-excavating water bodies and arranging community fisheries;
- iii) Establishing union based demonstration farms in both public and private sectors to

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area(Acres)
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support fisheries in the upazila;

- iv) Organizing fishers into groups for their capacity building.

Table-19.9: Proposed Fisheries and Fish Processing Center

1								
Fisheries and fish processing center	1	Narisha Union	Shimulia	075	001	75-105	10.38	10

Source: Prepared by consultant team

19.3.7.3 Livestock

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Botanical Garden	1	Sutarpara Union	Sutarpara	063	003	5699-5702	51.69	50
			Damua	064	000	5-227		

For development of livestock sector, the consultant recommends the following measures:

- i) Demarcating and preserving potential areas for cattle, goat/sheep and poultry/duck farming;
- ii) Increasing productivity of existing and future sources through capacity enhancement of DLS and supplying necessary inputs and capital for the farmers.

19.4 Proposals for Community Facilities

19.4.1 Botanical Garden

Botanic gardens have collectively accumulated centuries of resources and expertise that now means they play a key role in plant conservation. One botanical garden has been provided for biodiversity and plant conservation. It is located in Sutarpara union and area is 51.69 acres.

Table- 19.10: Proposed Location of Botanical Garden

Source: Prepared by consultant team

19.4.2 Parks

Neighbourhood parks are necessary for community to create a space for physical activities, clean air, reduction of heat island and other recreational activities. Eight neighbourhood parks have been provided in the rural area of Dohar upazila.

Table-19.11: Proposed Location of Neighborhood Parks

Source: Prepared by consultant team

19.4.3 Playfield

There is no play field for public use in Dohar Upazila. Most fields are attached to education facilities for their own use. So sixteen certified play fields have been proposed in the rural area of Dohar upazila.

Table- 19.12: Proposed Location of Play Field

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed Play Field	16	Nayabari Union	Haturpara	003	000	65-70	4.2	3
			Pankunda	004	000	906-920		
			Dakshin Bahra	006	000	372-376,384-385,611-620,628-631	4.5	3
		Kushumhati Union	Deobhog	013	000	93-102	1.78	3
			Silako	015	001	1014-	2.65	3
Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area (Acres)	Standard Area (Acres)
Proposed Neighborhood Parks	8	Nayabari Union	Dohar	005	000	205-207,213-215, 217-219,221-223,225-227,229,231-248, 296, 299,300-308	10.67	10
			Raghu rampur	028	001	211-215,216-220, 29,231-248, 296, 299,300-308	2.95	3
			Silako	015	001	305,306,307,308	10.82	10
			Chhot	045	000	2-5,13,14,56,142	2	3
			Harichandi	042	000	467-473	7.05	10
			Dohar	052	000	174,177,178,181,1	9.63	10
			Harichandi	042	000	389,392,394, 82,283,288,326-329,		
			Roypara	040	000	217-234,267-272, 36-37,44-55,64	9.06	10
			Sutarna	063	000	350,351,352,3948-3992,4005	10.02	10
			Muksu	080	001	2948,3090,3106, 3207,3228,3230-3235,3539,3556,3	8.15	10
			Narisha	075	002	1020,1021,1054,1055,1060-1063	8.22	10
						557		

		Sutarpara Union	Sutarp ara	063	002	3824,3837-3841,4186-4188,4233-4235,4253,4254,4260-4262,4268	3.67	3
		Muksudpur Union	Muksu dpur	080	002	2256-2263,2305-2308,2312-2318	3.22	3
			Madh urkhol a	079	000	658-661	2.32	3
		Narisha Union	Shimu lia	075	004	3297,3258-3260,3489,3491	3.34	3
			Satbhi ta	073	001	1055-1058, 1073-1076,1083-1087,1166	3.17	3

Source: Prepared by consultant team

19.4.4 Community Center

Community centers are provided for arranging public functions such as marriages where people gather to do group activities. Community centers have been provided in each union of Dohar upazila.

Strategic Proposal	No	Locat ion	Mouza Name	Mouz a No	Shee t No	Plot No.	Proposed Area(Acre s)	Standar d Area (Acres)
Proposed Commun ity Center	8	Nayab ari Union	Dakshi n Bahra	006	000	973-976,981	.54	.50
		Kushu mhati Union	Purulia	014	000	357-359,399	.42	.50
		Mahm udpur	Raghur ampur	028	001	770-773,1145	.55	.50
		Bilash pur	Majhir Char	051	000	35,39,40,41	.40	.50
		Roypar a	Roypar a	040	000	607-614	.52	.50
		Sutarp ara	Kazir Char	062	000	71-73,84	.55	.50
		Muks udpur	Muksu dpur	080	002	2885-2888	.45	.50
		Naris ha	Shimul ia	075	003	1418-1421	.49	.50

Table- 19.13: Proposed Location of Community Centers

Source: Prepared by consultant team

19.4.5 Waste Transfer Station

Eight waste transfer stations have been proposed in the rural area of Dohar upazila. The location has been chosen in such a way that, it locates far from the residential household, but having good road connectivity and core area from where waste can be easily collected.

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed Waste Transfer	8	Nayabari Union	Pankunda	004	000	986,1025	.26	.30

Table- 19.14: Proposed Location of Waste Transfer Stations

Stations		Kushu mhati Union	Kartikpu r	018	000	275,276,281	.23	.30	
		Mahmu dpur	Harichan di	042	000	187-190	.22	.30	
		Bilashp	Radhana	054	001	126-127	.20	.30	
Strategic Proposal	N o	Location	ga	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area(Acres)
		Roypara	Bara Ekrashi	037	001		579,592	.24	.30
		Sutarpara	Sutarpara	063	002		3453,3550,3551,3552	.24	.30
		Muksudpur	Muksudpur	080	002		2857-2859	.15	.30
		Narisha	Narisha	072	000		226-231	.22	.30

Source: Prepared by consultant team

19.4.6 Electric Substation

Industrial Development and Economic Zone Development with other development proposals cannot run without proper electricity distribution network. Thus, electric substation has been proposed in each union.

Table- 19.15: Proposed Location of Electric Substations

Proposed Electric Substation	8	Nayabari Union	Daksh in Bahra	006	000	913,916,917	.26	.3
		Sutarpara Union	Dakhs in Bahra	063	002	3452,3453,3454	.31	.3
		Bilashpur Union	Purba char	053	000	19,21	.30	.3
		Mahmudpur Union	Harich andi	042	000	2,3,35	.31	.3
		Narisha Union	Shimulia	075	003	1700-1704	.32	.3
		Muksudpur	Kharia	081	000	521-523	.27	.3
		Roypara Union	Bara Ekrahi	037	002	1624-1626	.25	.3
		Kushumhati union	Char Baita	020	000	116,148	.26	.3

Source: Prepared by consultant team

19.5 Some Major infrastructure Development Proposals

Despite development proposals described in the preceding sections, consultant makes description of some major development proposals in the following sections of the chapter.

19.5.1 Road Infrastructure Development

The most important prerequisite for holistic development in rural area is to create effective and workable connectivity. However, the most important current necessity is to ensure quality of the roads through improvement of pavements and paving the unpaved roads. All village roads have been increased to 25 feet. A new 80 ft 6 Lane Regional Highway (Nawabganj-Dohar-Srinagar) will be constructed which connects with Zilla Road Z8204 linking Nawabganj with Dohar and existing ZKDH Road will be widened to 80 ft. This will enable western region traffic to use Padma Bridge. Zilla Road Z8207 will be widened to 60 ft

(4 lanes) which connects Dohar with Keraniganj via Nawabganj to improve connectivity with Dhaka. Another Zilla Road Z8004 will be widened 50 ft (4 lanes) which creates a short cut to six lane expressway from Dohar-Nawabganj.

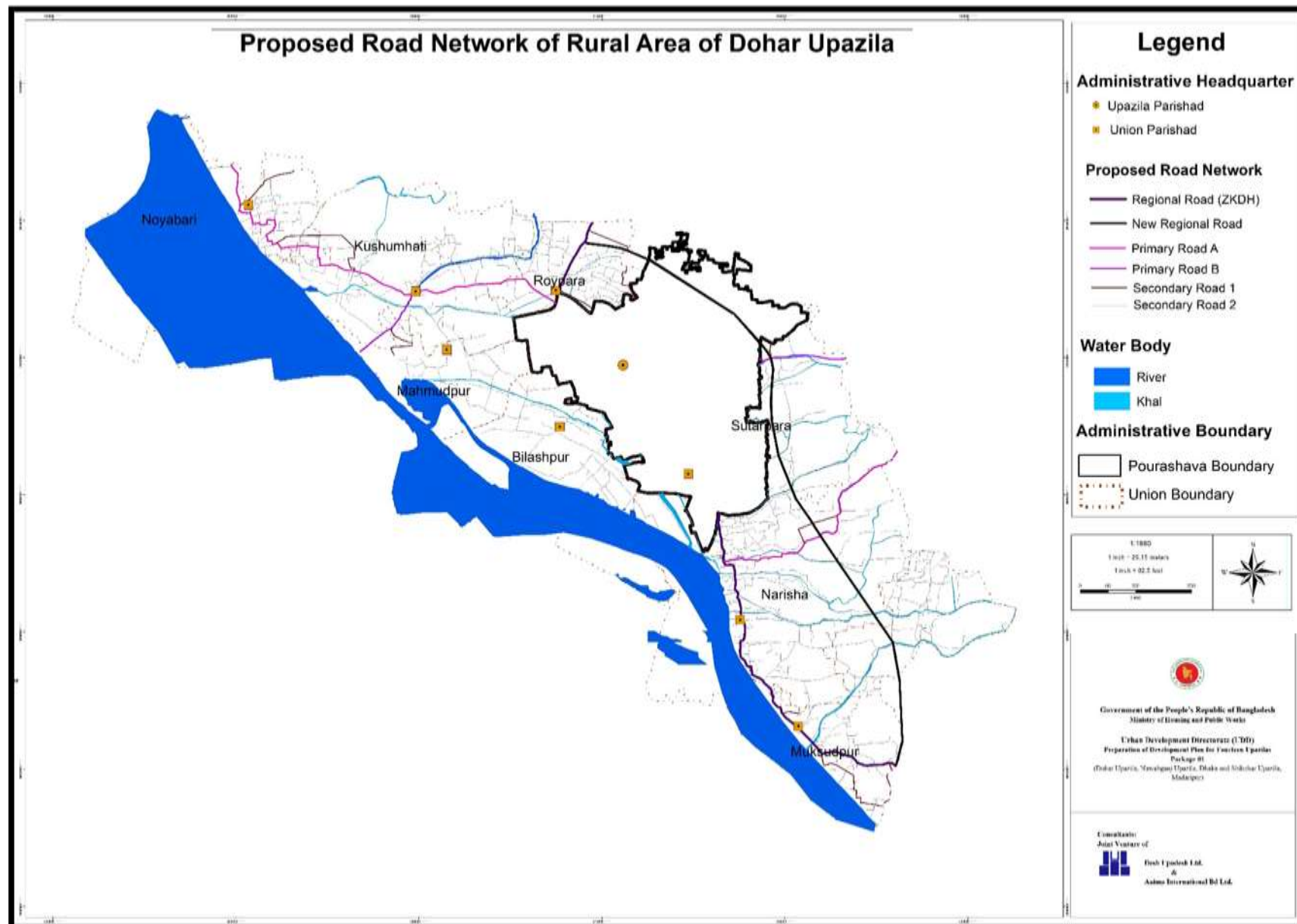
19.5.2 Plan for Transportation Facilities

In the field of transportation facilities, the consultant has proposed such facilities as, bus terminal s and truck terminals and passenger shed for local bus users.

19.5.3 Proposal for Transportation Facilities

Following are the suggested planning standards for transport facilities plan. The standards are meant for use by UTIDP, LGED and other planning and development agencies. The standards have been adopted by the consultants to draw up the transportation development plan.

Map-19.3: Proposed Road Network of Rural Area of Dohar Upazila



Source: Prepared by consultant team

19.5.4 Terminal Facilities

19.5.4.1 Bus Terminal

In Dohar upazila, three bus terminals are located at Moinot Ghat, Barrah bazar and Fultola. The terminal is jointly managed by the local Bus owners' association. Two bus terminals have been proposed as population will increase after 20 years.

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area (Acres)
Proposed Bus Terminals	2	Narisha Union	Meghula	074	000	95,96,98,49 6,502	.86	1
		Roypara Union	Charrup	041	000	163-166,170	.61	1

Table-19.16: Location of Proposed Bus Terminals

Source: Prepared by consultant team

19.5.4.2 Truck Terminal

As a small town, the economic activity is very low in Dohar upazila. There are only a handful of small scale processing factories including a few saw mills and limited trading activities. Movement of trucks is extremely negligible here. As industrial and economic development happens, truck terminals will be must. Six truck terminals have been proposed in the Upazila

Strategic Proposal	No	Location	Mouza Name	Mouza No	Sheet No	Plot No.	Proposed Area(Acres)	Standard Area(Acres)
Proposed Truck Terminals	6	Dohar Pourashava (Ward No.4)	Lotakhola	043	002	2331,2334,2335,2907	.43	.50
		Muksudpur Union	Muksudpur	080	001	464-467	.53	.50
			Kharia	081	000	570,571,579,581	.39	.50
		Kushumhati Union	Kushumhati	019	000	596,654,655,	.52	.50
		Nayabari Union	Dakhshin Bahra	006	000	1721-1725	.53	.50

Table-19.17: Location of Proposed Truck Terminals*Source: Prepared by consultant team*

		Roypara Union	Bara Ekrashi	037	002	1706,1709,1710,1712,1713,1714	.46	.50
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19.6 Proposal of Rural Land Use

Eighteen categories of land use have been proposed in rural area. The future land use zoning of the rural area has been done based on the land requirement estimation. For residential land use, projected population has been taken as the basis, while for business and industrial land requirement current area of land has been taken into consideration. Other land uses are planning standard based and existing land in use. (See **Table 11.4 and 11.5**). In **Table-19.18** future land use zoning of rural area has been shown. The highest land goes to the agriculture (34.02%), next water body with 29.66%, residential 20.84%, transportation 2.45% and mixed use 2.06%. 128.08 acre (.48%) area has been provided as industrial zone and 239.14 acre (.91%) area has been provided as economic zone. Percentage of health services and educational institution is .03% and .35%.

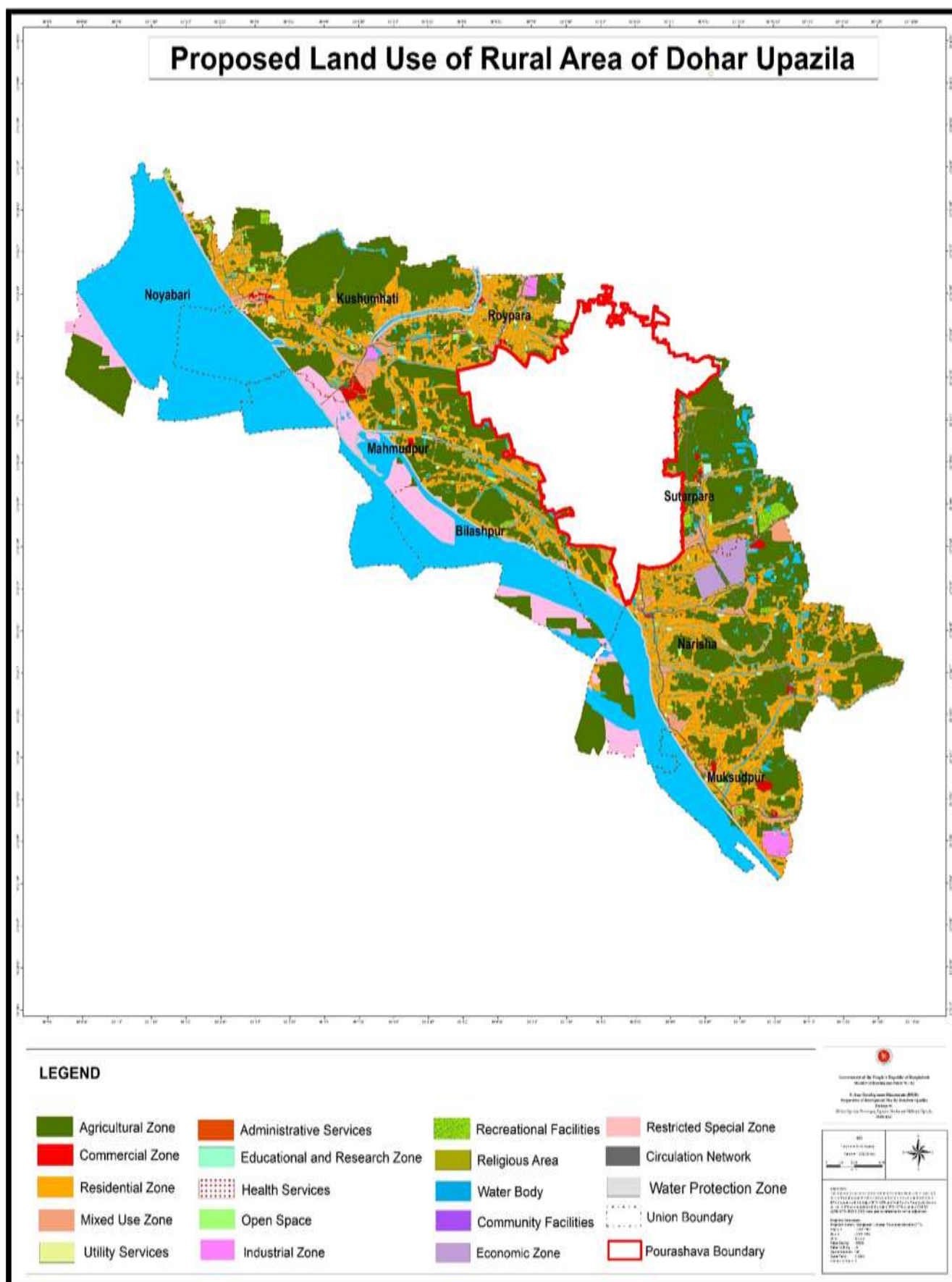
Table-19.18: Proposed Land Use of Rural Area

Strategic Zoning	Area(Acres)	Percentage
1.Agriculture Zone	9017.47	34.02
2.Administrative Zone	4.54	.02
3.Residential Zone	5522.45	20.84
4.Commercial Zone	147.92	.55
5.Mixed Use Zone	466.67	2.06
6.Economic Zone	239.14	.91
7.Health Services	9.18	.03
8.Education and Research	91.68	.35

9.Religious Area	185.77	.70
10.Manufacturing and Processing Zone	128.08	.48
11.Recreational Facilities	142.71	.54
12.Community Facilities	4.37	.06
13.Utility Facilities	1.94	.007
14.Open Space	164.50	.62
15.Transportation	649.29	2.45
16.Restricted Special Zone	1269.13	4.78
17.Water Body Protection Zone	512.11	1.93
18.Water Body	7864.03	29.66
Total	26500.98	100.00

Source: Prepared by consultant team

Map-19.4: Proposed Land Use of Rural Area



Source: Prepared by consultant team

PART-F: ACTION AREA PLAN

CHAPTER-20: ACTION AREA PLAN

20.0 Introduction

This chapter of the Upazila Development Plan is concerned with preparation of Action Area Plan. The main aim of the action area plan is to make a priority list of the development project implementable within first five year of the plan period. In means that there will be three more action area plans during 20 years of the planning period. The action area is primarily based on the wish list of the people obtained during PRA.

20.1 Conceptualization of Action Area Plan

Action area plan terminology is differently used by different organizations. But the common thing is that it is prepared for local areas under the framework of a higher level plan. There are two different versions of action area plan. The first version was used by LGED during Pourashava planning under UTIDP Project. In this version action area plan was formulated interpreting the Pourashava plan at ward level with more detailing of development proposals. However, the ToR of the current project calls for to select and detail out the priority projects for implementation during the first five years of the structure plan. In this sense its typology is absolutely different from what the other agencies (like LGED) are prepared in the name of 'action area plan'.

However, under UGIIP-3 LGED also changed its concept in the line of the current project. Action area plan is not a conventional type of plan supported by maps and detailed reports. It comprises a list of selected priority projects, estimation of costs of the projects including design wherever necessary.

20.2 Area Coverage of Action Area Plan

The project selection under action area plan will cover the entire upazila including pourashava and union parishad areas.

20.3 Considerations for Project Selection

For project selection the following documents and events have been taken into consideration:

- **Structure Plan** strategies and policy proposals will be reviewed and first five year structure plan priorities will be given importance.
- **Urban Area Plan** development proposals will be reviewed for priority project selection for urban area.
- **Rural Area Plan** will be taken into account for selection of priority projects for rural areas.
- **Stakeholder consultation** (PRA) will be carried out to identify local level problems and grievances that would serve as a basis for formulation of development projects.
- **Analysis of available resources** will be carried out to identify ability of the local government and stakeholders for execution of projects.

After formulation of projects they have been evaluated to see their feasibility of execution in respect of available resources, priority local need, and technology.

20.4 Revisiting Union Level Wish List

During public consultations done under PRA, the participant identified their wishes to be executed in three phases -short term, midterm and long term periods. Analysis of Union level PRA shows improvement of transport and communication as the top most priority in the short term. Improved Sanitation has been presented as the 2nd most priority wish of the PRA participants in the short term. Supply of Safe drinking water comes as the 3rd top priority in this arsenic prone upazila that demands immediate measure. Prevention of river erosion has been marked as the 4th priority wish of the participants.

So, we get the following three major development as wish list:

1. Improvement of Transport and Communication
2. Improved Sanitation
3. Supply of Safe Drinking Water
3. Prevention of River Erosion

20.5 Pourashava Level Wish List

In the same way as union level development priorities, the PRA participants at Pourashava ward level determined their priority development needs. In Pourashava level development priorities, Safe water supply was common in short term and midterm phases, so **transport and communication facilities** has been taken as the top most priority development need at urban level. **Improved Drainage System** and **Supply of Safe Drinking Water** are the second and third priority development needs as found by the consultant in urban area based on analysis of PRA sessions.

So, the major common wish list identified by the participants of the Pourashava is,

- Improved transport and communication
- Improvement of Drainage System
- Supply of safe drinking water.

Almost all structure plan policies have been formulated in the light of the people's desires expressed in PRAs at union and Pourashava level.

20.6 Determination of Priority Development Needs for the Upazila

Based on consultant's value judgment from among the above four priority development needs of unions and the Pourashava, the three priority development areas determined for the entire upazila are as follows:

1. Improvement of Transport and Communication.
2. Improved Sanitation.
3. Supply of Safe Drinking Water.
4. Prevention of River Erosion.
5. Improvement of Drainage System.

20.7 Phasing of Project Implementation

The total upazila master plan is divided primarily into five components with an additional component of Action Area Plan, which is virtually not a physical development plan. All the plan components have a duration of 20 years (2013 to 2033) except Urban Area Plan. Urban Area Plan has a duration of 10 years. Urban Areas are considered more dynamic and hence go under rapid changes, therefore, any long term plan will not be able to address the changes taking place in urban areas. This is the reason why urban area plans are usually made for a short period of time.

Keeping in view the duration of the plan, the implementation of the development projects under the plans have been grouped into four phases, each phase comprising five years.

The four phases are as follows:

Phase 1: 2013-2018

Phase 2: 2018-2023

Phase 3: 2023-2028

Phase 4: 2028-2033

20.7.1 Phasing and Cost Estimation of Projects

The consultant has worked out a list of projects to be executed on Phase 1 and Phase 2. **Table-20.1** below gives the list of ten projects to be implemented. The list covers all the five plan components. The list includes the issues that have been listed as the priority needs by the local people as revealed by the PRAs conducted in local people.

Estimation shows, the total cost of the ten projects would be Tk.49 crore and 40 lakh. This is only a preliminary estimation of the projects. Before submitting the projects for approval by the LGRD Ministry, more elaborate and detailed estimation will have to be made.

Table -20.1: List of Priority Development Schemes and Phasing of Project

Sl. No.	Sector	Sub-sector	Project Description			
			Sl No	Description	Project Location	Preliminary Cost Estimation
1.	Transport	Road Improvement	1.	Widening and Development of Proposed Pourashava road	Whole Dohar Pourashava	Tk.14,63,00,000 (146.3 Km road) @Tk,10 lakh/km
		New 80ft. Road Development	2.	Construction of 14.28 km bypass road from Roypara to Srinagar	Roypara to Srinagar	Tk.17,85,00,000 (New 14.28 Km) @ 1.25 crore/km
2..	Services	Natural Drainage	3.	Excavation of Khal	Dohar Pourashava (Ward	Tk.2,25,00,000 (4.5 km) @Tk,50 lakh/km

					No. 01, 03 and 06)	
		Water Supply	4.	Installation of overhead tanks (capacity 20000 liter) and 20 km pipe line.	Dohar Pourashava	Tk.4500000+ Tk. 4000000= Tk.8500000 (One Overhead tank cost 15,00,000 and 1 km pipe line cost 2,00,000
		Waste Management	5.	Development of solid waste disposal site.	Dohar Pourashava (Ward No. 06)	Tk.40,00,000
		Open Space and Recreation	6.	Development of two neighborhood parks	Dohar Pourashava (Ward No. 01 and 09)	Tk.25,00,000x2= Tk.50,00,000
			7.	Construction of Amusement Park	Dohar Pourashava (Ward No. 04)	Tk 2,00,00,000
		Sanitation	8.	Construction of Two Public toilets	Dohar Pourashava (Ward No. 05)	Tk.24,00,000 @Tk,12 lakh each
3.	Infrastru cture	Embankment	9.	Construction of continental embankment alongside Padma river	Alongside Padma river edge of Nayabari, Mahmudpur, Bilashpur, Narisha and Muksudpur union	Tk. 9,48,00,000 (15.8 Km) @Tk, 60,00,000/km
		Sludge Management Plan	10.	One sludge management plant for Pourashava	Dohar Pourashava (Ward No. 04)	Tk. 1,20,00,000
Total						Tk. 49,40,00,000

Source: Estimated by consultant team

20.7.2 Financing Project Implementation

Funding of the above projects would be a challenge for the Pourashava. It will not be possible for the pourashava to get fund from a single source. Therefore, it will have to explore more than one source. The revenue earning of the Pourashava is extremely and cannot offer any extra fund for undertaking any of the above projects. Therefore, pourashava will have to seek either government grants or donor funds including ADB and World Bank lending that, usually, is processed through the government.

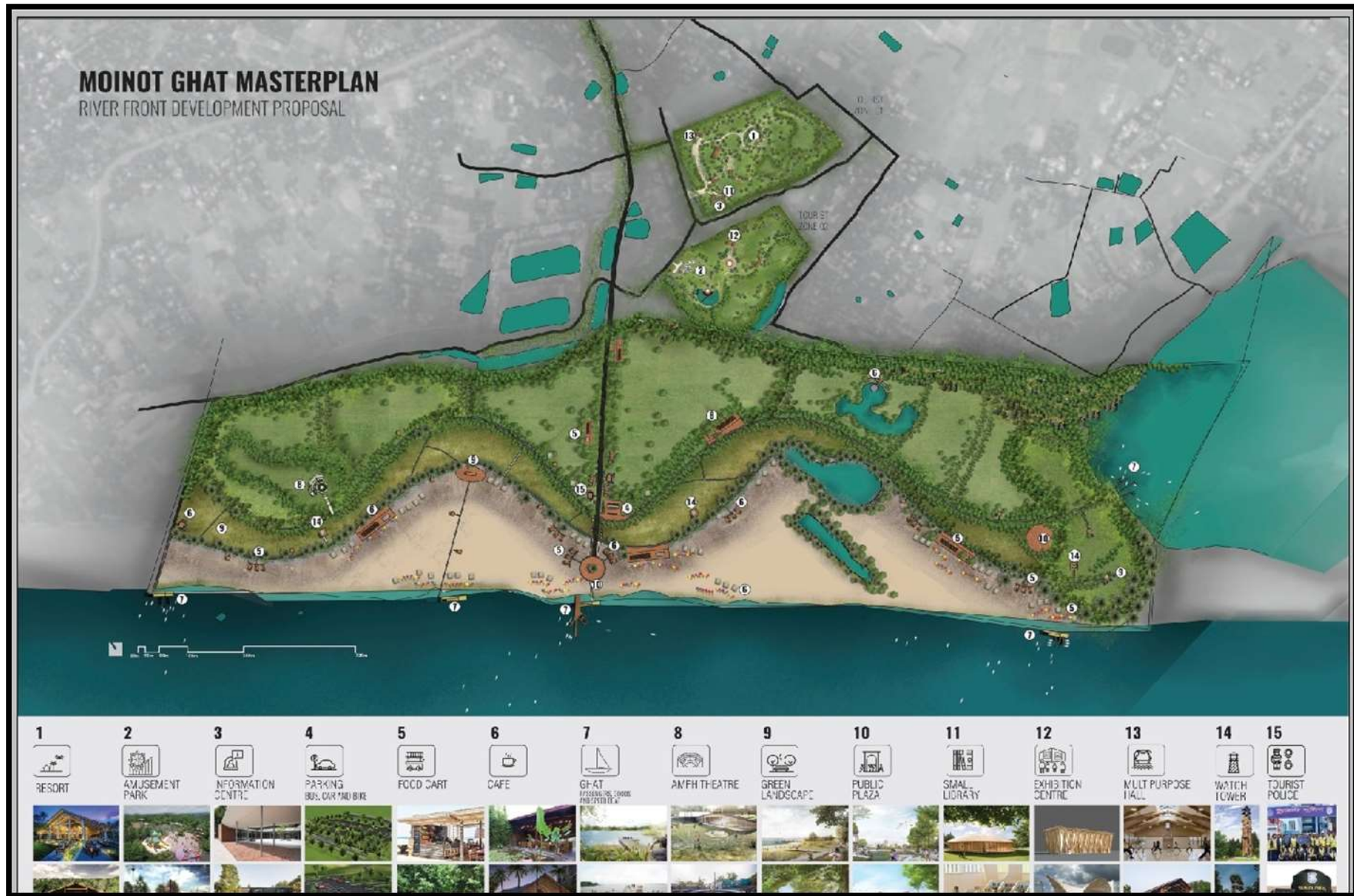
20.8 Design and Estimation of Three Priority Project

In this section three preliminary designs of the listed projects have been provided. Pourashava and upazila parishad authority may make any changes in the designs or chose a new design for implementation. These are only model designs.

20.8.1 Tourism Zone Development

A tourism zone has been proposed in Mahmudpur union alongside eco-critical zone of Moinot Ghat. Area of this tourism zone is 35.25 acres and eco-critical zone is 260 acres. Both tourism zone and eco-critical zone has been designed. Facilities like resort, amusement park, information center, parking space, food cart, café, green landscape, public plaza, exhibition center, multipurpose hall, watch tower etc. has been provided for tourists who come to visit Moinot Ghat. 30 feet road has been provided in the tourist zone which will be linked main road with char area.

Map-20.1: Tourist site Development Plan of Moinot Ghat



Map-20.2: Resort Design



Map-20.3: Amusement Park



Map-20.4: Beach Site Design

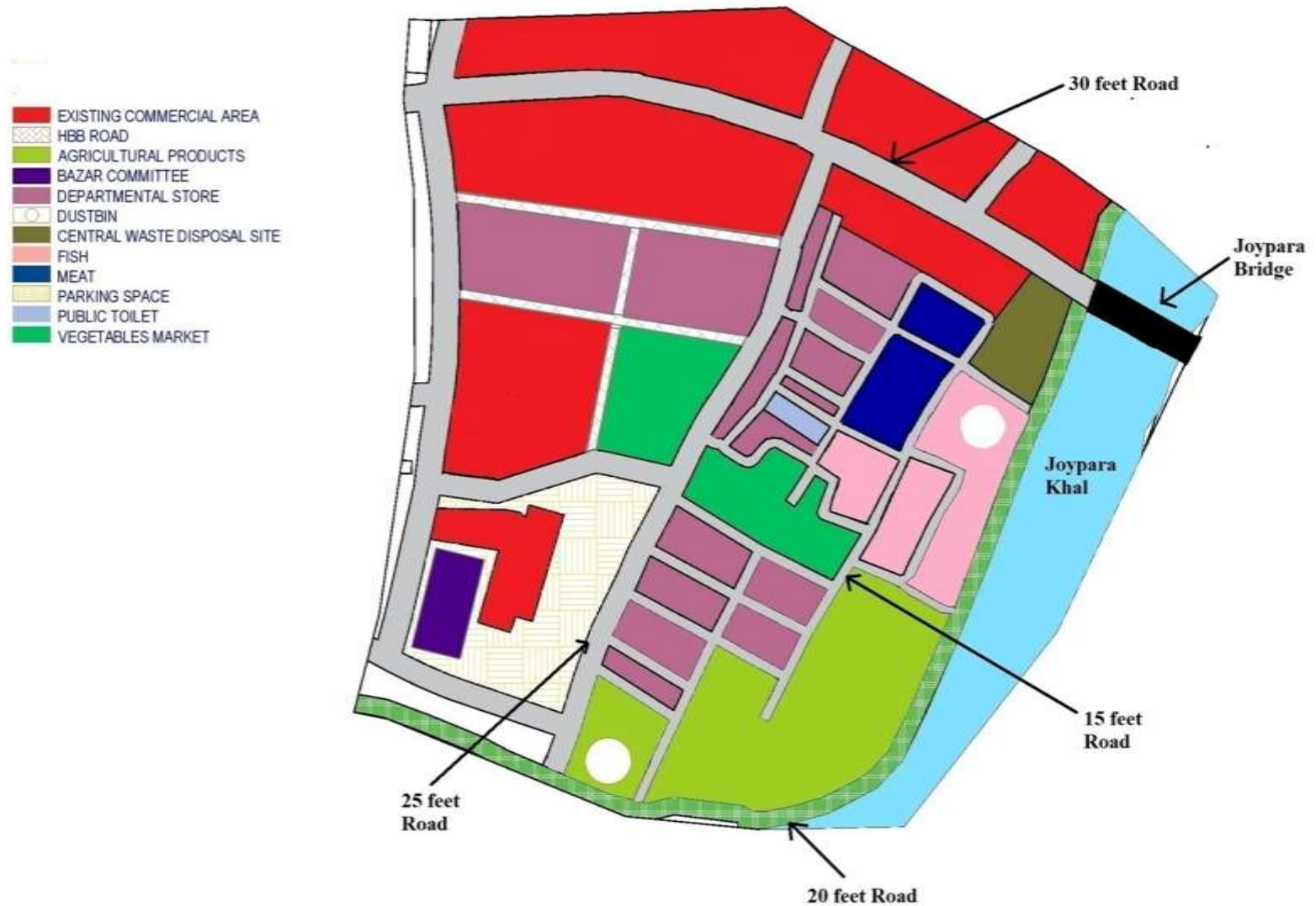


20.8.2 Proposed Plan of Joypara Bazar

In bazar area, agricultural products will be sold at south-east corner beside Joyapara khal. Various departmental stores have been placed where food, electronics, stationary shops, cosmetics, baby products, paint, hardware, toys, house ware etc. will be sold. Fish bazar has been placed at the eastern corner of the bazar area beside Joypara khal. Meat shops have been located beside fish bazar. Two vegetable markets have been provided beside departmental stores and fish bazar. Bazar committee center has been located at south west corner where members of bazar committee will gather and take their vital decisions of bazar. Parking space has been allocated in front of the bazar committee center. Dustbins have been provided at the corner of fish and agri-bazar. Wastes will be disposed at the central waste disposal site beside the main road to pick the waste easily through truck.

Map-20.5: Joypara Bazar Design

Proposed Plan of Joypara Bazar



20.8.3 Continental Embankment

Geo web embankment has been proposed which works as Retaining Wall, Green Walls, Steepened Slopes, Dams, Sound Barriers, Embankment, Flood Defence Bunds, Gravity Walls, Slope Protection etc. Cost of the project has been estimated in the **Table-20.1**



Picture-20.1: Foreshore



Picture-20.2: Geo Web Embankment

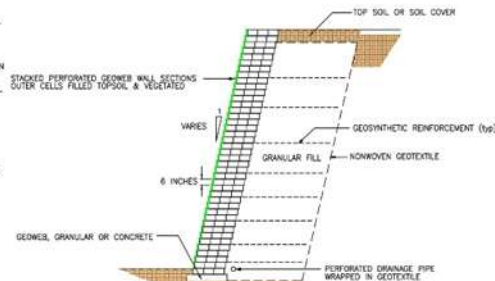
Map-20.6: Embankment Section

NOTES:

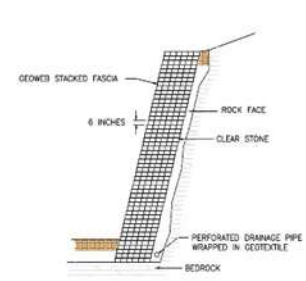
1. EXCAVATE AND SHAPE FOUNDATION SOILS TO THE GRADES, ELEVATIONS AND DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS.
2. VERIFY THAT THE FOUNDATION SOILS SUPPORT THE DESIGN STRENGTH REQUIREMENTS. IF UNACCEPTABLE SOILS ARE ENCOUNTERED, THEY SHALL BE REMOVED AND REPLACED WITH ENGINEERED FILL AS DESIGNED BY THE PROJECT ENGINEER.
3. PLACE SPECIFIED GRANULAR BASE/ELEVATION PAD MATERIALS TO THE TOP OF THE GEOWEB SECTIONS. THE CONSTRUCTION DRAWINGS AND NOTES SHALL PROVIDE THE SPECIFIED GRADES, ELEVATIONS AND DIMENSIONS. A MINIMUM 150 mm (6 IN) OF GRANULAR FILL SHALL BE PLACED OVER THE TOP OF THE GEOWEB SECTIONS. THE GRANULAR FILL SHALL BE PLACED IN A MINIMUM 150 mm (6 IN) OF GRANULAR FILL SHALL BE PLACED OVER THE TOP OF THE GEOWEB SECTIONS. THE GRANULAR FILL SHALL BE PLACED IN A MINIMUM 150 mm (6 IN) OF GRANULAR FILL SHALL BE PLACED OVER THE TOP OF THE GEOWEB SECTIONS.
4. OVERLAP GEOWEB SECTIONS WITH THE SPECIFIED GRANULAR INFILL MATERIAL. THE MAXIMUM GAP BETWEEN SECTIONS SHALL NOT EXCEED 10 mm (3/8 IN). THE MAXIMUM GAP BETWEEN SECTIONS SHALL NOT EXCEED 10 mm (3/8 IN). THE MAXIMUM GAP BETWEEN SECTIONS SHALL NOT EXCEED 10 mm (3/8 IN).
5. INSTALL REINFORCED GEOWEB WITH THE SPECIFIED GRANULAR INFILL MATERIAL. THE MAXIMUM GAP BETWEEN SECTIONS SHALL NOT EXCEED 10 mm (3/8 IN). THE MAXIMUM GAP BETWEEN SECTIONS SHALL NOT EXCEED 10 mm (3/8 IN). THE MAXIMUM GAP BETWEEN SECTIONS SHALL NOT EXCEED 10 mm (3/8 IN).
6. WHERE SPECIFIED, PLACE GEOTEXTILE OVER THE BASE AND EXTEND UP THE FEET OF THE EXCAVATION AND RUN INTO POSITION. ALLOW 100 mm (4 IN) OVERLAP AT ADJOINING SECTIONS OF GEOTEXTILE. WHERE GEOTEXTILE DRAINAGE MATERIALS ARE SPECIFIED, ENSURE THAT EACH STRIP IS CONTINUOUS AND FULLY ENCAPSULATED WITH GEOTEXTILE TO AN UNDESIGNED OUTLET.
7. EXCAVATE GEOWEB SECTIONS DIMENSIONS ACCORDING TO THE CONSTRUCTION DRAWINGS AND POSITION LONG STRUCTURE. EXCAVATE GEOWEB SECTIONS DIMENSIONS ACCORDING TO THE CONSTRUCTION DRAWINGS AND POSITION LONG STRUCTURE. EXCAVATE GEOWEB SECTIONS DIMENSIONS ACCORDING TO THE CONSTRUCTION DRAWINGS AND POSITION LONG STRUCTURE.
8. PLACE SPECIFIED INFILL MATERIAL TO APPROXIMATELY 50 mm (2 IN) ABOVE THE TOP WALL CORNER. THE INFILL MATERIAL SHALL BE PLACED IN A MINIMUM 150 mm (6 IN) OF GRANULAR FILL SHALL BE PLACED OVER THE TOP OF THE GEOWEB SECTIONS.
9. PLACE SUBSEQUENT LAYERS WITH THE SPECIFIED SET BACK AND ADJOINING GEOWEB SECTIONS TO AVOID OVERHANGING OF UPPER SECTIONS OVER LOWER SECTIONS.
10. WHERE DIFFERENT WALL MATERIALS ARE SPECIFIED FOR THE OUTER CELLS (E.G. TOPSOIL/VEGETATED), THE FOLLOWING PROCEDURES MAY BE USED:
 - A) COVER OUTER CELLS WITH REMOVABLE BOARD WALLS FILLING BACK CELLS WITH SPECIFIED INFILL IN OUTER CELLS BEFORE REMOVING TO THE NEXT LAYER.
 - B) LEAVE OUTER CELLS OPEN BUT USE EXTRA CARE TO FILL BACK CELLS AND AVOID EXCESSIVE SPILLAGE INTO OUTER CELLS. WHERE THE SPECIFIED OUTER CELL INFILL AND GEOTEXTILE WILL TOLERATE SOME SPILLAGE OF GRANULAR INFILL INTO THE OUTER CELLS IS ACCEPTABLE.

REINFORCED WALL SYSTEMS

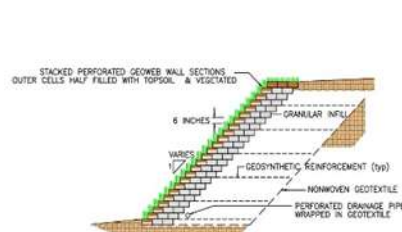
1. INSTALL GEOSYNTHETIC REINFORCEMENT BETWEEN GEOWEB SECTIONS AT THE SPECIFIED ELEVATIONS. PLACE THE TACKLING TISSUE OF THE GEOSYNTHETIC AT THE FRONT FACE OF THE GEOWEB SECTION TO BE PLACED AND EXTEND THE GEOSYNTHETIC TISSUE OVER THE CONSTRUCTED BACKFILL. ENSURE THAT THE GEOSYNTHETIC REINFORCEMENT IS TACKLED WITH THE HIGH STRENGTH DIRECTION PERPENDICULAR TO THE WALL FACE.
2. PLACE AND FILL THE SET BACK GEOWEB SECTION ON TOP OF THE GEOWEB SECTION.
3. MANUALLY TENSION THE GEOSYNTHETIC AND HOLD TANT (TEMPORARY STAKES OR OTHER METHOD) DURING PLACEMENT OF THE SPECIFIED BACKFILL.
4. PLACE BACKFILL MATERIAL WITHIN REINFORCED SOIL ZONE IN 250 mm (10 IN) LIFT AND COMPACT TO A MINIMUM 95% OF SPEC. DENSITY. ENSURE THAT THE GEOSYNTHETIC REINFORCEMENT REMAINS AT THE TOP AND IS NOT DISPLACED WHILE PLACING THE BACKFILL MATERIAL. THIS IS BEST ACCOMPLISHED BY PLACING THE BACKFILL AT THE BACK OF THE GEOWEB SECTIONS AND SPREADING TOWARD THE BACK OF THE REINFORCED SOIL ZONE. SHAVE AND COMPACT THE BACKFILL OVER WITH THE TOP OF THE GEOWEB SECTIONS PRIOR TO PLACING THE NEXT LAYER.
5. PLACE AND COMPACT RETAINED SOILS (FILL SITUATIONS) BEHIND THE REINFORCED SOIL ZONE IN 250 mm (10 IN) LIFT AND COMPACT TO A MINIMUM 95% OF SPEC.



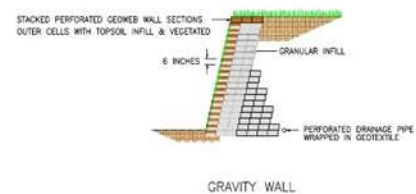
REINFORCED GEOWEB® RETAINING WALL



ROCK FACE PROTECTION - STACKED GEOWEB® FASCIA



REINFORCED SLOPE - STACKED GEOWEB® FASCIA



GRAVITY WALL

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PART-G: IMPLEMENTATION MECHANISM
CHAPTER-21: IMPLEMENTATION MECHANISM

21.0 Introduction

Translating any development plan into reality is the most challenging part of the total planning process. It requires special attention and skill, apart from adequate budgetary allocations. The issues concerned with implementation are supposed to be addressed in conformity with the basic structure and philosophy of the development plan. The extent and complexity of issues will differ from each other and need individual attention, at the same time; they need legal, financial, managerial support. They also need beneficiary participation to create a sense of belongingness of the project. Attention is also needed about good governance to make implementation process smooth and successful. The current chapter deals with

21.1 Custodian of the Upazila Development Plan

Custodian of Upazila Development plan will be Upazila Parishad and Union Parishad. But the responsibility of urban area will be vested with the Pourashava. Urban Development Directorate will be responsible to provide all technical support to revise and reformulate the development plans. So for the time being, Upazila Parishad, Union Parishad and Pourashava will oversee all the plan components-Sub-region Plan, Upazila Structure Plan, Rural Area Plan, Urban Area Plan and the Action Area Plan. All necessary technical support will be provided by the Urban Development Directorate.

21.2 Review, Amendment and Updating of the Development Plan

The Upazila Development Plan has five components-Sub-region Plan, Upazila Structure Plan, Rural Area Plan, Urban Area Plan and Action Area Plan. All the plans will have to be updated or reformulated every 5 and 10 years. Durations of Sub-region Plan, Upazila Structure Plan and Rural Area 20 years. It means all these three plans will have to be revised and updated every 5 year. Urban Area Plan will also have updated and revised after five year. But it will have to reformulate after expiry of its duration in the 10th year. Action Area Plan will have to be revised and updated twice, 1st after five years and 2nd after 10 years.

21.3 Implementation of the Development Plan

The principal caretakers of Development Plan are the authorities of Upazila Parishad, Union Parishad and Pourashava. One should notice that phasing of Development Plan into consecutive five years would be difficult to start with, but with the passage of time, the workability will be easier.

The philosophy of the development plan has to be understood and the integrated at different stages. It will be necessary to monitor the work and review on time so as to take up action to ensure implementation.

People should be made aware of their roles in the development process. The items in the priority list should get preference for implementation. In case of any change in priorities, reasons thereof should be recorded and made public.

To ensure accountability, main features of any project should be placed on bill board so that public can follow the progress and put their suggestion if any.

21.4 Development Coordination

The entire package of Development Plan is composed of five components. Apart from three local governments, there are many public sector agencies in the upazila responsible for executing their part of the development proposals. Every public sector agency carries out development under its own modus operandi. They hardly maintain any contact with other parallel agency regarding their development activities. It would be the responsibility of the authorities of Upazila Parishad, Union Parishad and Pourashava to monitor and coordinate activities of other agencies about execution of development plan proposals. Upazila Parishad, Union Parishad and Pourashava will remind other agencies about the plan proposals.

21.5 Partnership Development with Other Agencies

Upazila Parishad, Union Parishad and Pourashava are the custodian and the lead agency for implementing development plan proposals. It must be responsible to implement the plans with assistance and partnership with other public sector development agencies.

21.6 Resource Mobilization

21.6.1 Options to Resource Mobilization

Resource mobilization for development is the most challenging tasks for any local government. To avoid complexities of revenue earning, the urban local governments prefer to rely on government grants for financing development projects. It is not deniable that execution of development projects under the current Plan will call for huge government financing which is highly competitive, but the authority of Upazila Parishad, Union Parishad and Pourashava must also try to create its own resources base to provide adequate fund for implementing projects. The situation calls for increasing revenue sources. The following options are put forward for increasing resource mobilization.

Option 1: Improve present revenue management system.

Option 3: Apply legal measures against revenue defaulters.

Option 4: Apply PPP techniques to release pressure on government funding.

Option 6: Undertake more projects on housing and commercial development.

21.6.2 Raise Tax Collection

Tax, particularly, holding tax is the principal source of income of the Pourashava. For raising tax collection, efficiency of the collecting department will have to be enhanced. Training of the collecting staff and monitoring of collection has to be paid more attention. Greater effort should be made by Pourashava to bring the public in confidence. Pourashava has legal bindings for tax/revenue collection for resource mobilization. As per rule, Pourashava should regularly make assessment of the taxable properties. This will increase the tax base and the revenue on regular basis. Sometimes assessed tax is very low or the assessed taxes are reduced for political reasons. This hampers adequate revenue earning. Tax rate is fixed with

the approval of the government. Local government may recommend the desired level of tax rate and assess the tax accordingly to increase its tax revenue.

21.6.3 Government Grant

It is almost impossible to carry on implementation of the Upazila development plan without Government grant. It might require political lobbying to secure fund for development.

21.6.4 Betterment Levy on Properties

Local governments on many developed/developing countries practice use betterment levy for raising their revenue. Betterment levy may be charged on property's enhanced value due to any development by the public sector (may be Pourashava) agency. Pourashava may charge a part of the enhanced value caused by any development (like, road) done by it.

21.7 Governance Improvement for Plan Implementation

21.7.1 Capacity Building of Dohar Upazila Parishad, Union Parishad and Pourashava

Creation of good governance environment is essential for having positive results in plan implementation. The current governance situation, in no way, conducive to proper implementation of the development project not only from capacity of the upazila and pourashava administration, but also from the point of view of enforcement of legal measures. Following are the recommendations about improvement of governance at Upazila and Pourashava level.

a. Manpower Capacity Building

To create an efficient and people oriented administration and serve the people to their satisfaction, Upazila Parishad, Union Parishad and Pourashava need to increase its manpower capacity. Manpower capacity building is essential to sustain not only for development plan implementation, but also to make overall management more efficient and people oriented. All existing vacant posts in upazila and pourashava administration should be filled up.

It is evident that most local government bodies are short of manpower especially technical professionals.

Some are lagging behind employing approved manpower, others simply don't have adequate approved manpower. Upazila Parishad, Union Parishad and Pourashava should employ more manpower to offer proper services to the people. It is urgently needed that Upazila Parishad creates post of planners to handle the task of development and construction control.

b. Development of Automated Management Information System

The Pourashava should build a computer based automated information management system (MIS) to keep data base on problems and issues and track development projects. Without MIS, it would be very difficult to implement Development Plan and control planning, development, review, implementation and control development.

21.8 People's Participation

All developments are meant for the people. Increased participation of the people in planning and development will increase their sense of belongings and commitment to development. Besides, this will also increase accountability of the public representatives and the bureaucrats about project implementation.

21.9 Legal Measure

Legal instrument for development planning are provided in Local Government (Pourashava) Act 2009 and other state acts, rules and regulation, directions and notes. These legal powers should be applied effectively whenever and wherever necessary.

To establish rule of law, local governments should be more rigid about applying legal measures for violations. Punitive measures against tax defaulters, violators of building construction rules, and encroachers and gabbers of state water body should be severely dealt with by law.

21.10 Development Control in the Upazila

With the current Upazila Development Plan, an extra responsibility will be imposed on the Upazila Parishad. According to Land Use Zoning Plan, Upazila Parishad will have to accord permission for development. This is necessary to stop development on agricultural land. However, this will be carried out by the Upazila Parishad including urban area. After Pourashava is set up, the responsibility of the urban area will be vested with Pourashava. To enable Upazila Parishad to undertake this responsibility two important measures are necessary,

- first, the existing Bangladesh Building Construction Act 1952 will have to be amended to empower Upazila Parishad to control development;
- second, Upazila Parishad will have to rearrange its institutional set up and create a planning department to handle development control and carry out the development coordination tasks. It will have to employ planner and other support staff.

Upazila Parishad will also assist Union Parishads in the matters of development control and development coordination.

21.11: Implementation Modalities

If there is any land use required on any plot for Government/Non-Government/Private Intervention/Project/Land acquisition for General welfare that is not in consistent to the proposed land use or it's permitted, conditionally permitted, restricted or special use stated in the gazette plan, it must be approved by the Ministry of Housing and Public Works through review committee. Ministry of Housing and Public Works will provide administrative orders regarding the specific land use change and it will be included during review of the plan on specific interval as stated in the plan. The formation of review committee and its terms of reference (TOR) are given as follows:

Review Committee formation-

Sl No.	Person	Position
1	Secretary, Ministry of Housing and Public Works	Chairperson
2	Director, Urban Development Directorate (UDD)	Member
3	Joint Chief/Deputy Chief, Planning Cell, Ministry of Housing and Public Works	Member-Secretary
4	Upazila Nirbahi Officer of Concerned Upazila/Mayor of Concerned Paurashava	Member
5	Project Director, 14 upazila Project, UDD	Member
6	Upazila Engineer of Concerned Upazila/Assistant Engineer of Concerned Paurashava	Member
7	Concerned Project Manager, 14 upazila Project, UDD	Member

Terms of Reference of Review committee:

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.

CONCLUSION

The development of Urban & 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 Dohar 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 Dohar. 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. Dohar 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, Detailed Land schedule of Proposed Land use as mentioned in Structure Plan, Urban Area Plan & Proposed Road Network Plan can be found in Land Schedule book.

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Annexure-I

Execution of Relevant Laws in the Plan

National Plan, Law and their Provision	Where and How the Issues have been Addressed
1. The 7th Five Year Plan strategies:	
Strategy-2: Strategy for Development of SME in Bangladesh	<p>Chapter-9, Section-7.9.3 Economy: a. General Economy Policy; Policy RU/ECON-2: PROMOTE RURAL ECONOMY BY PROVIDING EASY CREDIT FOR DEVELOPMENT OF SME SECTOR” calls for boosting rural economy by providing easy credit to potential SME sector investors.</p>
Strategy-3: Strategy for Education and Training	<p>Chapter-9, Section-9.10.1 Education Policy-EDU/1: MAKE SUFFICIENT GOVERNMENT BUDGET ALLOCATION FOR ALL KINDS OF EDUCATION FACILITIES</p> <p>Policy-EDU/2: LAY GREATER EMPHASIS TO IMPROVE QUALITY OF EDUCATION.</p> <p>Policy-EDU/3 :MAKE BALANCED DISTRIBUTION OF EDUCATION FACILITIES BASED ON POPULATION CONCENTRATION</p> <p>Structure Plan recommended 8 new Union level colleges.</p>
Strategy-14: Strategy for Food Security and Nutrition	<p>Chapter-14: 14.3 Rural Area Development Policy Proposals</p> <p>Policy RU/3-: Modernization of Farm Technology. Policy RU/4-: Organize Farmers’ Cooperative to Ensure Better Marketing and Fair Price for Farm Products. Policy RU/5-: Strict Enforcement of Upazila Land Use Plan to Protect Agricultural Land Policy RU/8-: Promotion of Irrigation Facility to Increase Cropping Intensity.</p>

<p>2. Poverty Reduction Strategy Paper (PRSP)</p> <p>The medium term strategic agenda for Bangladesh to attain the goal of accelerated poverty reduction targeted to improve many of the development indicators. The upazila Development Plan addressed the following issues:</p> <ul style="list-style-type: none"> • Employment • Quality Education (particularly in primary, secondary and vocational levels with strong emphasis on girls' education) • Maternal Health • Sanitation and Safe Water 	<ol style="list-style-type: none"> 1. The infrastructure development recommended in Regional Plan, Structure Plan, Rural Area Plan and the Urban Area Plan and easy credit on SME sector investment will help promote local economy leading to creation of more non-farm employment. 2. Modernization of agriculture and facilitation of irrigation will increase intensity of cropping and help create more farm employment. 3. Structure Plan recommended policies for development of education infrastructure and improvement of quality of education and Structure Plan and Urban Area Plan recommended 8 colleges will promote education. 4. Proposed Economic Zone and industrial area are likely to create new non-farm employment. 5. Hospital to be developed with ICU and CCU facilities and a Trauma Centre. 6. The plan recommended making more use of rain water and harvesting rain water to meet future water demand.
<p>3. Millennium Development Goals and Bangladesh</p> <p>The Millennium Development Goals(MDGs) determined eight international development goals out of which the Upazila Development Plan addressed the following goals:</p> <ol style="list-style-type: none"> 9. To eradicate extreme poverty and hunger 10. To achieve universal primary education 11. To improve maternal health 	<ol style="list-style-type: none"> 1. The infrastructure development recommended in Regional Plan, Structure Plan, Rural Area Plan and the Urban Area Plan and easy credit on SME sector investment will help promote local economy leading to creation of more non-farm employment. 2. Modernization of agriculture and facilitation of irrigation will increase intensity of cropping and help create more farm employment. 3. Structure Plan recommended policies for development of education infrastructure and improvement of quality of education and Structure Plan and Urban Area Plan recommended 8 colleges will promote education. 4. Proposed Economic Zone and industrial area are likely to create new non-farm employment. 5. Hospital to be developed with ICU and CCU facilities and a Trauma Centre. 6. The plan recommended making more use of rain water and harvesting rain water to meet future water demand.
<p>4. Urban and Regional Planning Act 2014 (Draft)</p> <p>b. Urban Development Directorate shall serve as the formulator of urban and regional plans of the country and shall serve as the coordinator of the same.</p>	<p>The current Upazila Development Plan has been prepared as a part of the initiative of the proposed Urban and Regional Planning Act 2014(Draft).</p>

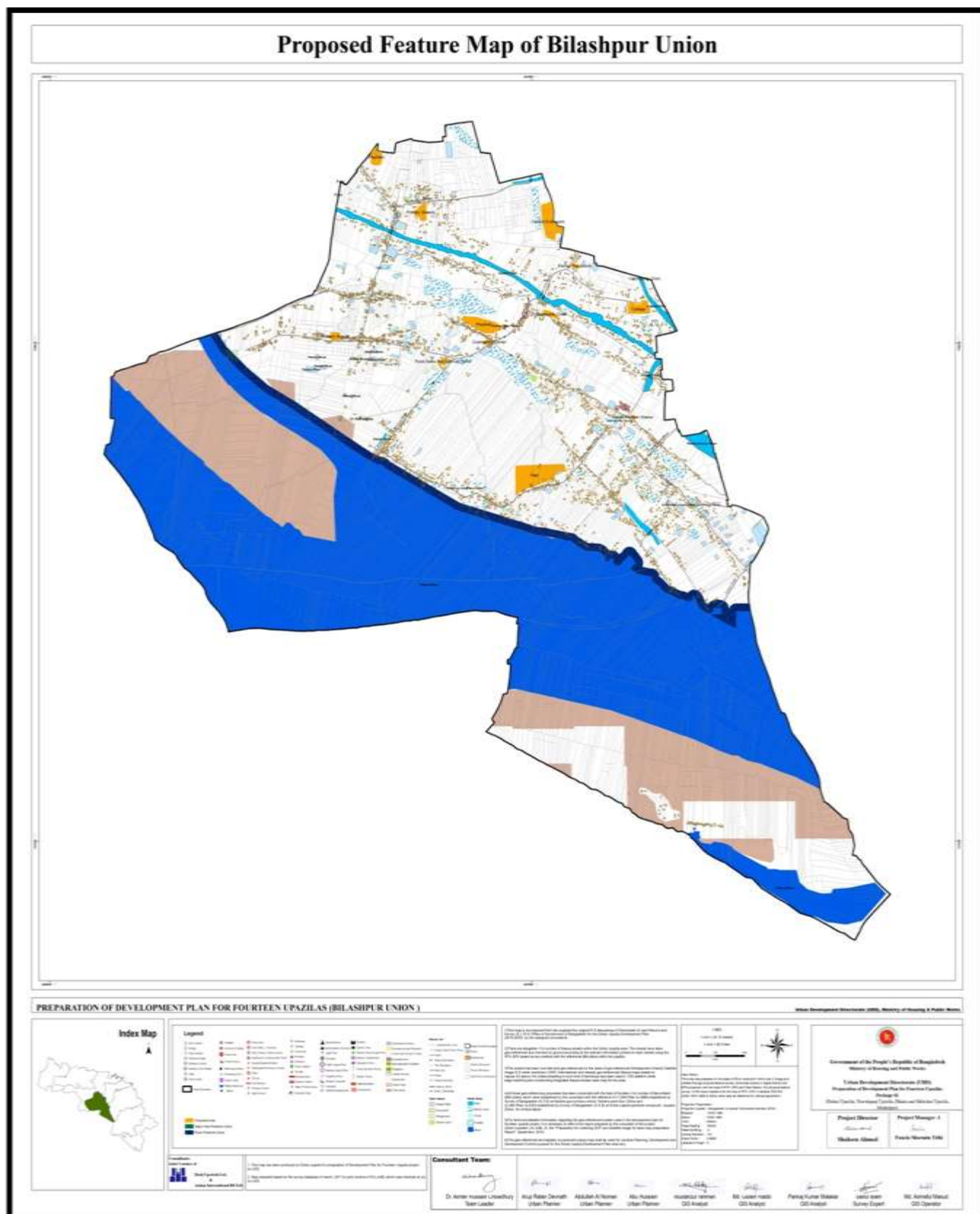
5. National Plan for Disaster Management 2010-2015	<p>The plan articulates the long-term strategic focus of disaster management in Bangladesh addressing the key issues of risk reduction, capacity building, information management, climate change adaptation, livelihood security, issues of gender and the socially disadvantaged, etc.</p>
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<p>6. National Urban Sector Policy, 2011 (Draft)</p> <p>The Policy recommends number policies for balanced and planned urbanisation to make them liveable. The following policies of the have been addressed by the Upazila Development.</p> <p>Policies were drawn up on such issues as,</p> <ul style="list-style-type: none"> - Local Economic development. - Urban Land Management. - Urban Housing. - Infrastructure and Services. - Urban Transportation. - Health and Education. - Recreation, Playground, Park, Open Space and Graveyards 	<ol style="list-style-type: none"> 1. The plan suggested in the Structure Plan policies for easy credit for development of SME sector in order to create employment. 2. The plan created industrial zone and Economic Zone for industrialization. 3. The plan recommended measures for agricultural development in its Rural Area Plan. 4. The Development Plan created land use zoning plan in the Urban Area Plan for better land management. 5. The plan earmarked land for urban use for the projected population of the upazila and urban area. 6. It recommended widening and new roads, waste management measures, water supply and human waste treatment facilities in the Structure Plan and in the Urban Area Plan. 7. The plan recommended recreation facilities, stadium, play field and park in the Structure Plan and Urban Area Plan.
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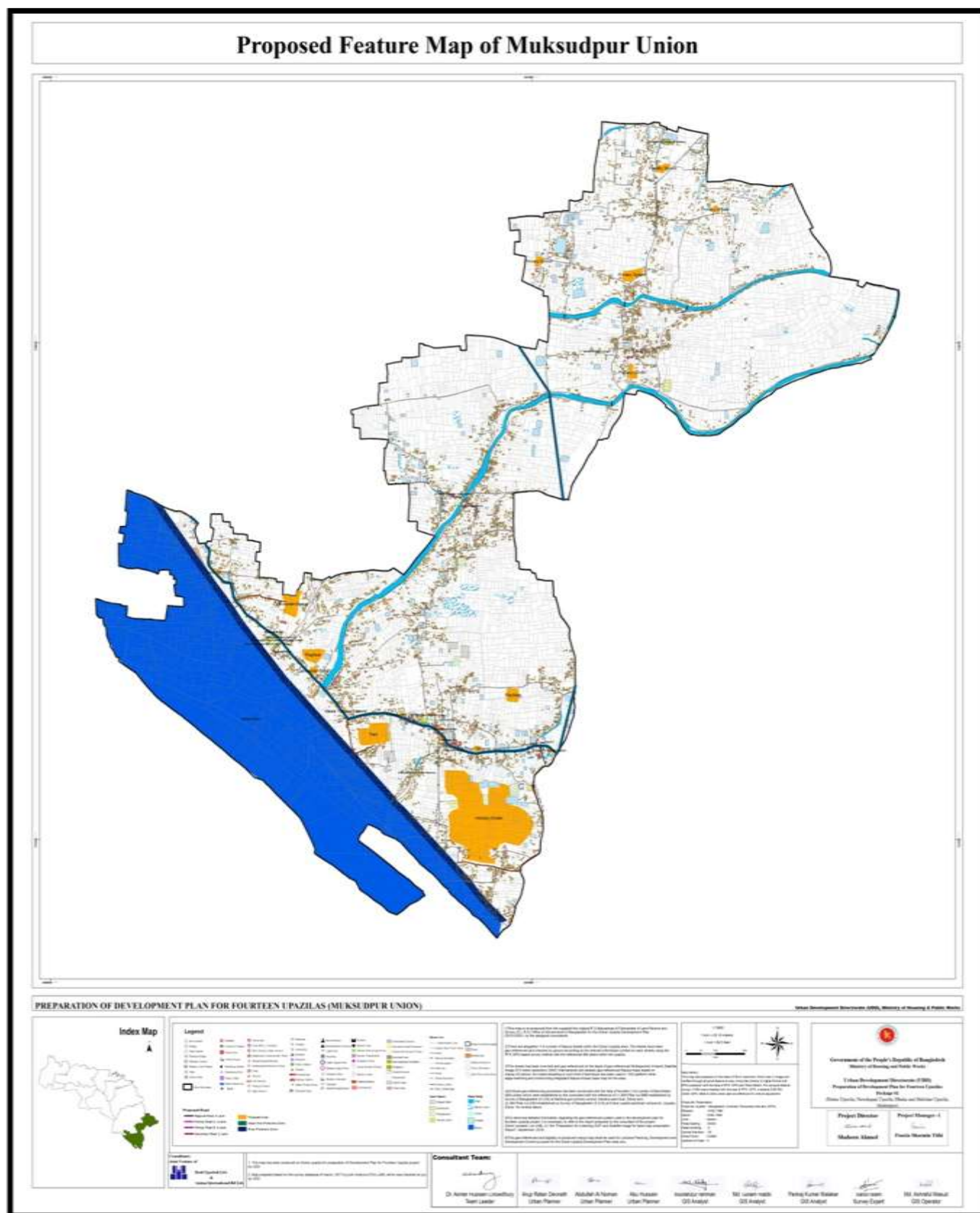
<p>7.National Biodiversity Strategy and Action Plan for BGD, 2004</p> <p>The following major objectives of the NBSAP have been addressed :</p> <ul style="list-style-type: none"> • conserve, and restore the biodiversity of the country for wellbeing of the present and future generations; • ensure that long-term food, water, health and nutritional securities of the people are met through conservation of biological diversity; 	<ol style="list-style-type: none"> 1. In Structure Plan and Urban Area Plan it is recommended to preserve all major water bodies and environmentally sensitive areas. 2. There is Structure Plan policy to retain all agricultural land against non-urban invasion for the purpose of national food security. 3. The development plan recommends setting up hospital and trauma centre to offer better health services to the people. 4. To meet future water demand it has been suggested to use surface water and harvest rain water.
<p>8. SME Policy 2005</p>	<ol style="list-style-type: none"> 1. Structure Plan policy recommends to boost local economy by providing SME credit to local investors on easy terms.
<p>9. Bangladesh Climate Change Strategy and Action Plan, 2009</p>	<p>In Section 9.8 Climate Change, Environment and Disaster of the Structure Plan, the plan recommends the following policies,</p> <p>Policy-CLIMATE/1: TAKE NECESSARY MEASURES TO EDUCATE PEOPLE ABOUT THE DANGERS OF CLIMATE CHANGE IN ALL SPHERES OF LIFE</p> <p>Policy- CLIMATE/2: ADOPT CLIMATE CHANGE RESILIENT PRODUCTION TECHNOLOGY IN AGRICULTURE INCLUDING SEED</p> <p>Policy CLIMATE/-3: DEVELOP CLIMATE CHANGE RESILIENT INFRASTRUCTURE INCLUDING ROAD AND HYDROLOGIC STRUCTURE TO PRO-ACTIVE ACTIONS AND CREATE CLIMATE CHANGE RESILIENCE MITIGATE THE NEGATIVE IMPACTS OF CLIMATE CHANGE.</p>
<p>10.Bangladesh Water Act, 2013</p>	<p>The Development Plan recommends the following measures in its Structure Plan, Rural Area Plan and Urban Area plan sections:</p> <ol style="list-style-type: none"> 1. Conservation of all major khals, beels and protect rivers from encroachment and filling. 2. Reactivate the khals and rivers that are filled up by excavation. 3. Link the missing links of the khals. 4. Preserve major water bodies in urban area. 5. To reduce pressure on ground water using surface water and rainwater as the alternative sources of water supply.

Map-4: Proposed Feature Map of Bilashpur Union

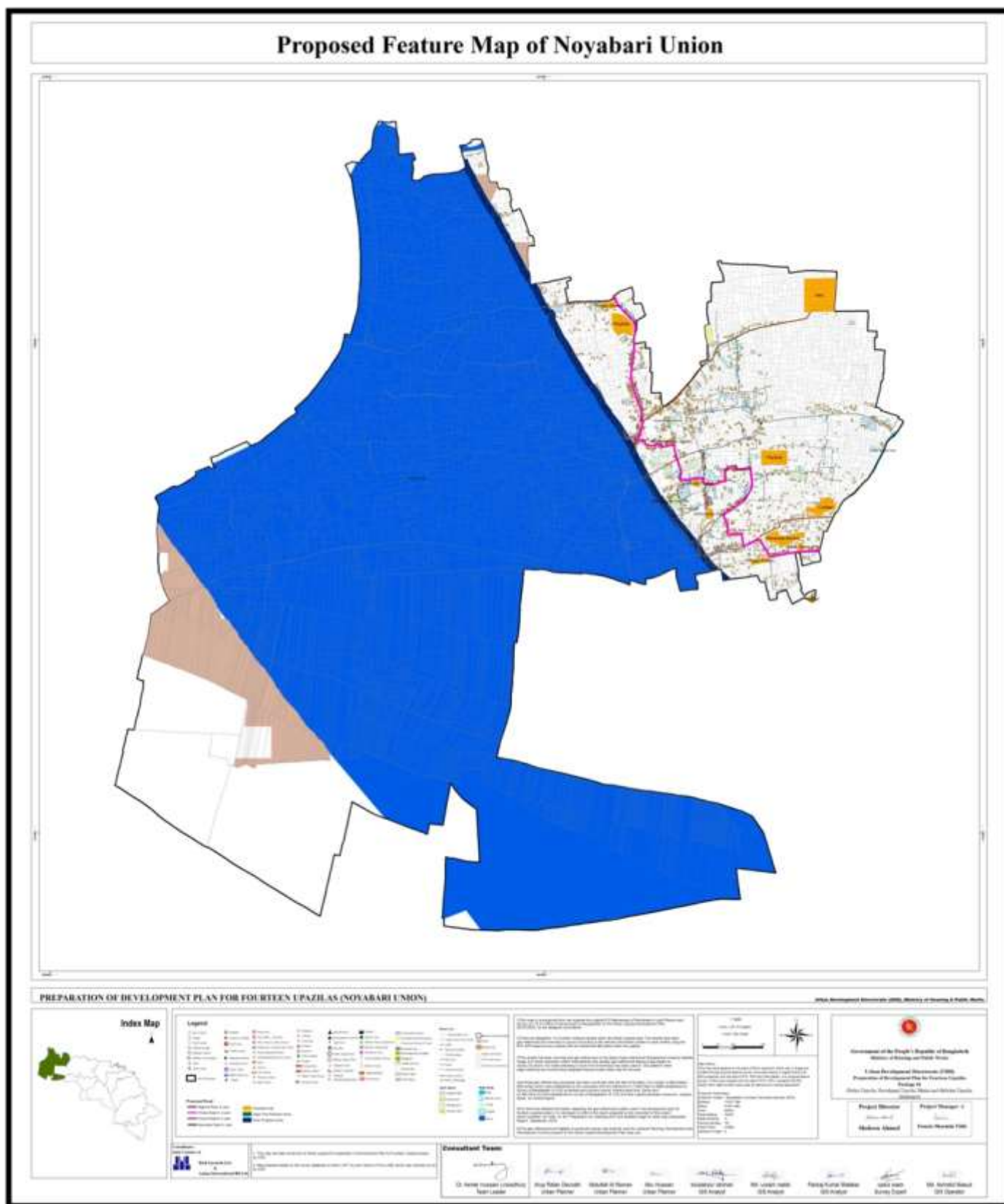


Source: Prepared by consultant team

Map-7: Proposed Feature Map of Muksudpur Union



Map-8: Proposed Feature Map of Noyabari Union

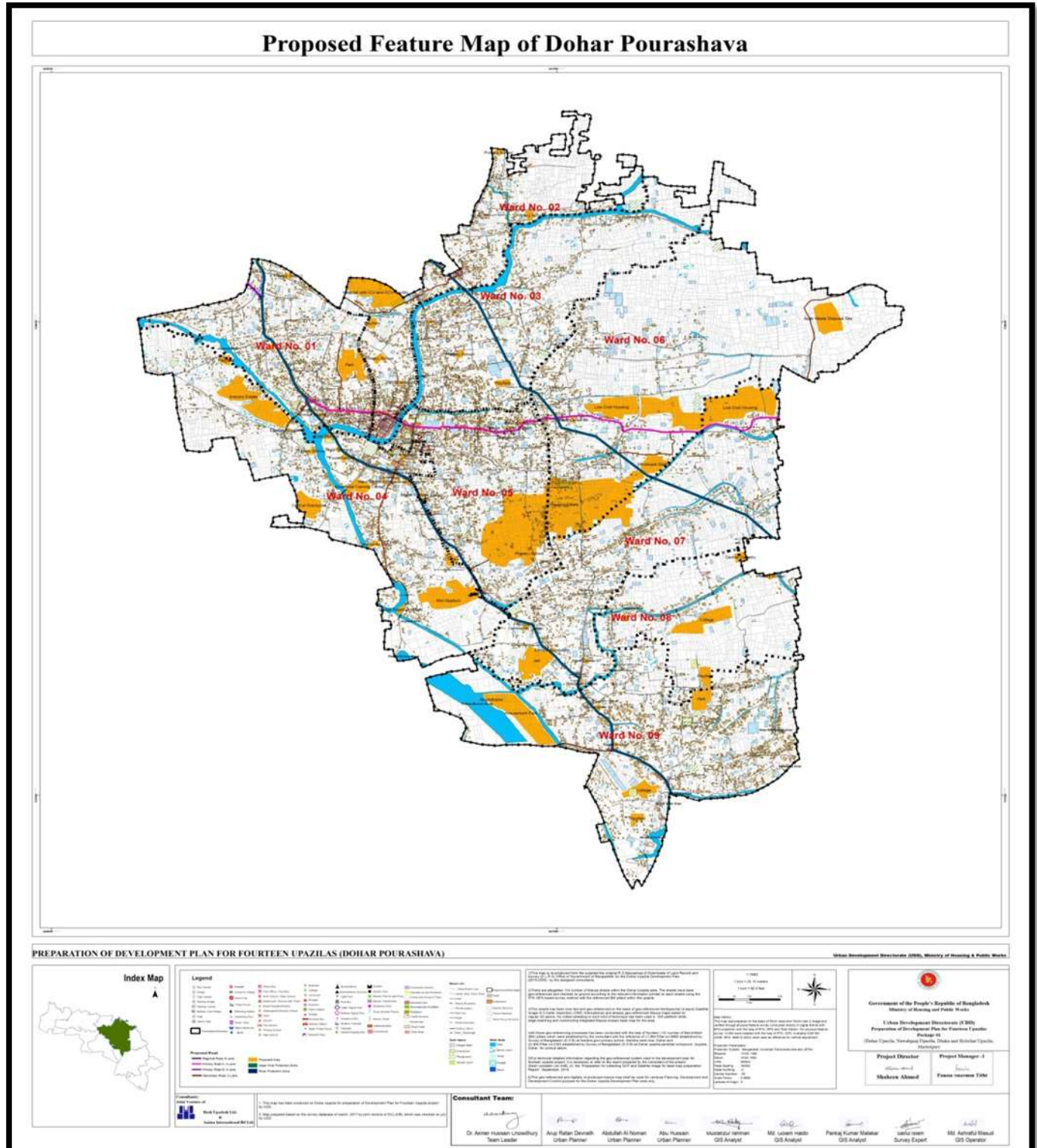


Source: Prepared by consultant team

Annexure-III

Proposed Pourashava Map

Map-1: Proposed Feature Map of Dohar Pourashava



Source: Prepared by consultant team

Annexure IV

Public Hearing Comments

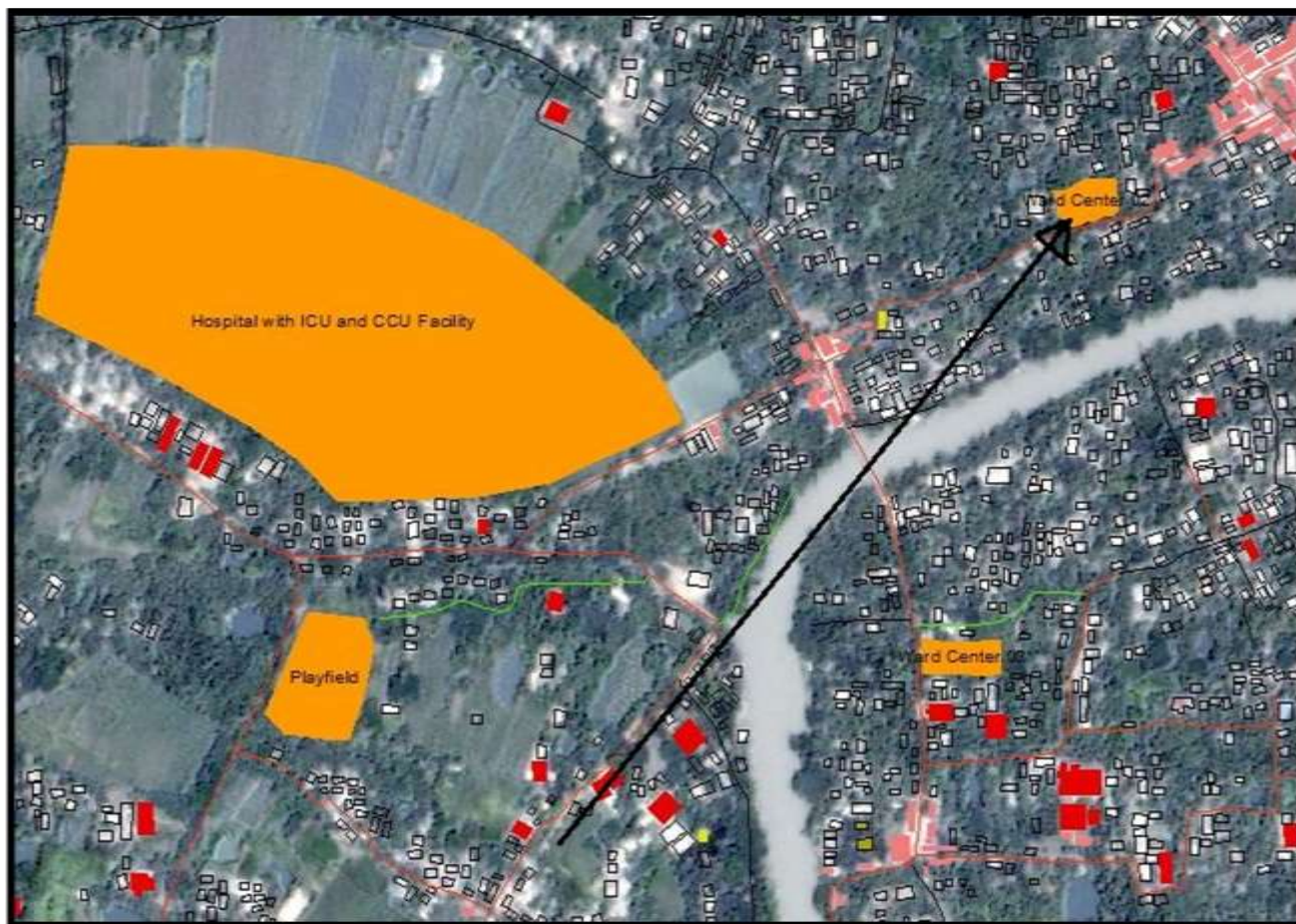
Spatial	Administrative	Management Issue	Others
Badly Need a 20 feet road in 4 no ward(Jamila Khatun, Councilor of Ward no. 04, Dohar Pourashava)	Changing the location of Ward Center of 02 no. ward. (Md. Almas Uddin, Councilor of Ward no. 02, Dohar Pourashava) (See Annexure V, Picture-1)	Drainage facilities and strict management need be incorporated in the master plan more broadly. (Md. Almas Uddin, Councilor of Ward no. 02, Dohar Pourashava)	There is a suggestion in proposed master plan to improve the beautification beside Khal in 3 no ward . We are against this suggestion. we think if the existing condition is replaced with artificial beautification the homestead will be vanished soon.(Khaleda Akter, 3 no ward councilor)
The projects and facilities provided for the ward no -1, in Dohar pourashava, is very much appropriate for the future development of Dohar pourashava. The people of pourashava will be statisfied if all the mentioned project will be implemented soon (Bodrul Isam, 1 no ward councilor) (See Annexure V, Picture-4)		If there is any work related with drainage management, my suggestion is the pourashava authority must be engaged the ward councilor from individual ward.	Need a specific master plan to control the haphazard growth and ensure planned growth in near future. (Rokibul Hasan Rokib,

		(Khaleda Akter, Councilor of Ward no. 03, Dohar Pourashava)	Councilor of Ward no. 02, Dohar Pourashava)
Road need to increase in ward no 3 up to 20 feet.(Khaleda Akter, Councilor of Ward no. 03, Dohar Pourashava)			
One school and college will be badly needed in ward number 8. (Rokibul Hasan Rokib, Councilor of Ward no. 02, Dohar Pourashava) (See Annexure V, Picture-5)			
30 feet road is needed in ward no. 6 (Md. Hamid Ali , Councilor of Ward no. 06, Dohar Pourashava)			
Changing the location of play field at ward no. 03(Khaleda Akter, Councilor of Ward no. 03, Dohar Pourashava) (See Annexure V, Picture-3)			
Drainage facilities need to be improved in full Dohar Pourashava. especially in ward no 3(Khaleda Akter, Councilor of Ward no. 03, Dohar Pourashava) (See Annexure V, Picture-2)			
Need Tourist Zone in Mahmudpur and Kushumhati Union (UP chairman of Mahmudpur and Kushumhati Union)			
Widening of main Road(UP chairman of Narisha, Bilashpur, Sutarpara, Mahmudpur, Kushumhati and Noyabari Union)			

Annexure V

Related Pictures of Public Hearing Comments

Picture-1: Changing Location of Ward Center

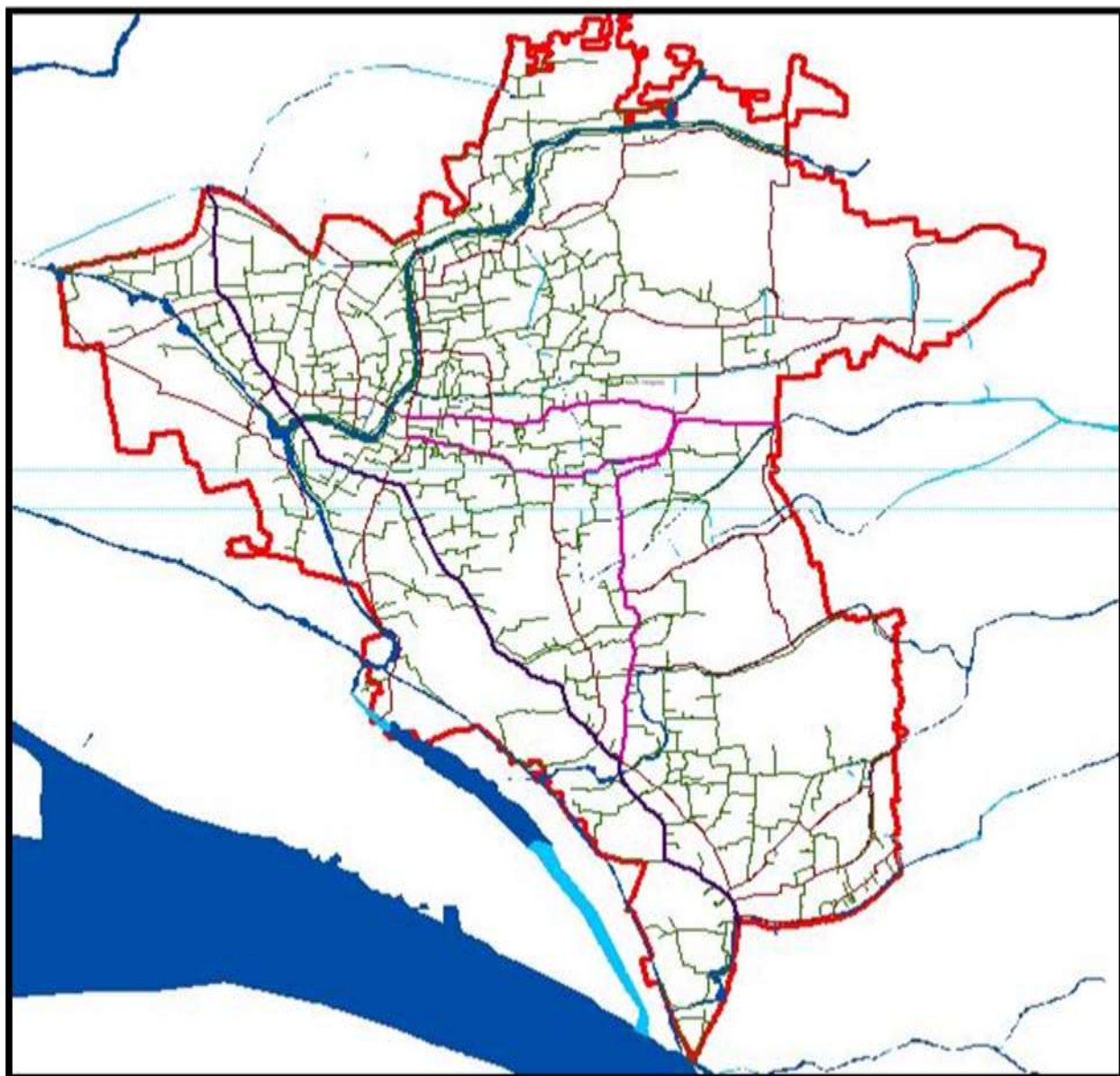


Picture-2: Drainage Facilities in Ward No. 3



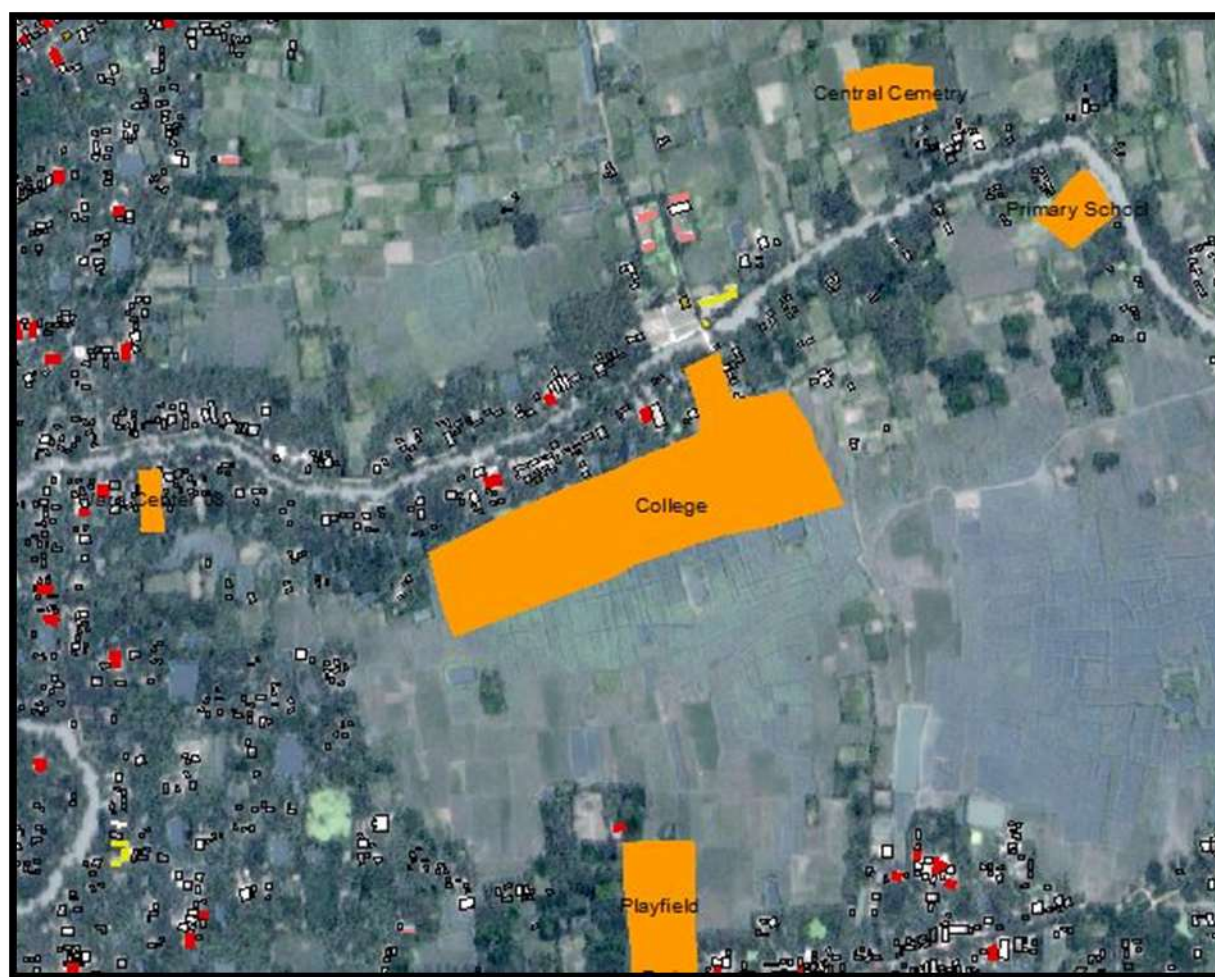
Picture-3: Changing the Location of Play Field at Ward No. 03





Picture-4: Incorporation of Road Proposal Data of Dohar Pourashava

Picture-5: Provision of School and College in Ward No. 8



Annexure VI

OUT OF 17 SDG GOALS 9 ARE ACHIEVEABLE BY UPAZILA DEVELOPMENT PLANS OF DOHAR	
Goal 1: No Poverty "End poverty in all its forms everywhere."	<ol style="list-style-type: none"> 1. Proposed industrial estate will promote new non-farm employment through industrial development. 2. Agricultural development proposals will help grow more output to reduce poverty by creating more employment. 3. Infrastructure development will promote private investment on business and industry and employment to reduce poverty.
Goal 2: Zero Hunger Food security and improved nutrition and promote sustainable agriculture".	<ol style="list-style-type: none"> 1. Upazila Land Use Plan will protect farm land and help food security. 2. Agricultural development measures will increase food production.
Goal 3: Good Health and Well-Being for people "Ensure healthy lives and promote well-being for all at all ages."	<ol style="list-style-type: none"> 1. Proposed community clinics will increase rural health services. 2. Proposed 200 bed hospital with CCU and ICU facilities will greatly increase health service for the upazila people.(See Annexure VII,Picture-1,Table-1)
Goal 4: Quality Education "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."	<ol style="list-style-type: none"> 3. Proposal for 56 primary schools (48 rural and 8 in Pourashava) and nine colleges will promote education.. (See Annexure VII,Picture-2,Table-2) 1. Proposal for training of teachers will help quality education. 4. Affordable technical and vocational training for employment.(See Annexure VII,Picture-3,Table-3)

Attainment of SDG Goals for Dohar Upazila Development Plan

<p>Goal 6: Clean Water and Sanitation</p> <p>"Ensure availability and sustainable management of water and sanitation for all."</p>	<ol style="list-style-type: none"> 1. The plans proposed for rain water harvesting and use of surface water after proper treatment. 2. Suggestion for healthy latrine.
<p>Goal 8: Decent Work and Economic Growth</p> <p>"Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all."</p>	<ol style="list-style-type: none"> 1. Agricultural development proposals will boost production and employment in agriculture sector. 2. Economic zone and industrial estate proposed in the plans will help set up many industries with more non-farm jobs. (See Annexure VII,Picture-4,Table-4) 3. All these will promote economic growth.
<p>Goal 9: Industry, Innovation and Infrastructure</p> <p>"Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation".</p>	<ol style="list-style-type: none"> 1. To face climate change impacts it is proposed to build concrete roads. 2. Total 48 km narrow roads have been have been proposed to be widened. 3. Proposed industrial estate in the plans will help set up many industries with more non-farm jobs. (See Annexure VII,Picture-4,Table-4) 4. Development of ICT Park (2.50 acres) will help to create more jobs for skilled professionals. (See Annexure VII,Picture-5,Table-5)

Details of Achieving Targets of Goal 11: SUSTAINABLE CITIES AND COMMUNITIES "Make cities and human settlements inclusive, safe, resilient and sustainable."	
Target-1: ENSURE ACCESS FOR ALL TO SAFE AND AFFORDABLE HOUSING AND BASIC SERVICES	<ol style="list-style-type: none"> 1. Provision for LOW COST affordable housing in Pourashava on 70 acres for low income people. (See Annexure VII,Picture-6,Table-6) 2. Provision for housing estate in Pourashava on 150 acres. (See Annexure VII, Picture-7,Table-7) 3. Three public toilets, each on 0.30 acre. 4. Sludge treatment plant 1.00 acre. (See Annexure VII,Picture-8,Table-8) 5. Length drainage network::Primary-8.58km,Secondary -25km and Tertiary-9.49km (See Annexure VII,Picture-9,Table-9)
Target-2: PROVIDE ACCESS TO SAFE, AFFORDABLE, ACCESSIBLE AND SUSTAINABLE TRANSPORT SYSTEM FOR ALL.	<ol style="list-style-type: none"> 1. Two Bus Terminals-Narisha, Roypara-1,5 acres. 2. Truck Terminal No.6 , total area- 3.58 acres 3. Regional Road widening-16.28 km, 4. New Regional Road 15.18 Km(80 ft wide) 5. Primary Road-A- widening 22 km 6. Primary Road-B- widening 8.06 km 7. Secondary Road widening-8.12 km <p>(See Annexure VII,Picture-10,Table-10)</p>

Target-3: ENHANCE INCLUSIVE AND SUSTAINABLE URBANISATION AND HUMAN SETTLEMENT PLANNING AND MANAGEMENT	1. Upazila and Pourashava level planning will help develop sustainable urbanization and ensure planned urban development.
Target-4: STRENGTHENING EFFORTS TO NATURAL AND CULTURAL HERITAGE.	<p>1. Amphitheatre- 0.50 acre. (See Annexure VII,Picture-11,Table-11)</p> <p>2. Proposal to develop Shilpakala Academy – 0.50 acre</p> <p>3. Proposal to develop Central Mosque-0.50 acre</p> <p>4. Suggestion to conserve local heritages.</p> <p>5. Proposal to protect Moinot Ghat. (See Annexure VII,Picture-12)</p>
Target-5: SIGNIFICANTLY REDUCE WATER RELATED DISASTERS.	<p>1. Suggestion to preserve water body and canals to ensure storm water retention and proper drainage system and prevent flooding.</p> <p>2. Proposal to build strong embankment along the Padma.</p> <p>3. Plan for developing hierarchical drainage system. (See Annexure VII, Picture-13)</p>

<p>Target-6: REDUCE THE ADVERSE ENVIRONMENTAL IMPACTS OF CITIES AND PAY SPECIAL ATTENTION TO AIR QUALITY AND OTHER WASTE.</p>	<ol style="list-style-type: none"> 1. Proposal to develop healthy waste management system based on 3R. 2. Develop one dumping site and ten waste transfer station for waste disposal. 3. Introduction of door to door waste collection system. (See Annexure VII,Picture-14,Table-14)
<p>Target-7: PROVIDE UNIVERSAL ACCESS TO SAFE, ACCESSIBLE AND GREEN AND PUBLIC SPACE.</p>	<ol style="list-style-type: none"> 1. Amusement Park- 20.00 acres. (See Annexure VII,Picture-15,Table-15) 2. Neighborhood Parks. (See Annexure VII,Table-16)
<p>Target-8: SUPPORT POSITIVE ECONOMIC, SOCIAL AND ENVIRONMENTAL LINKS BETWEEN URBAN, PERI-URBAN AND RURAL AREAS STRENGTHENING NATIONAL AND REGIONAL DEVELOPMENT PLANNING</p>	<ol style="list-style-type: none"> 1. Improved road network will help promote interaction with Dhaka city and further social and economic progress of the upazila. 2. Transport system development based on Upazila and Pourashava level planning will help create link between urban, peri-urban areas and rural areas. 3. UDD initiative to prepare National and Regional level planning will strengthen national planning system.

<p>Target-9: ADOPTING DISASTER MANAGEMENT PLAN AND CLIMATE CHANGE POLICIES</p>	<p>1. Suggestion for climate change resilient infrastructure development- concrete road instead of bituminous road.</p> <p>2. Preservation and maintenance of large water body and natural khal to hold more water during heavy rains to avoid flash flood. (See Annexure VII, Picture-17,Table-17)</p>
<p>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</p>	<p>1. Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services. (See Annexure VII,Picture-17,Table-17)</p>

Annexure VII

Related Pictures and Tables of Attainment of SDG Goals or Dohar Upazila Development Plan

Picture-1: Location of Hospital with ICU and CCU Facility

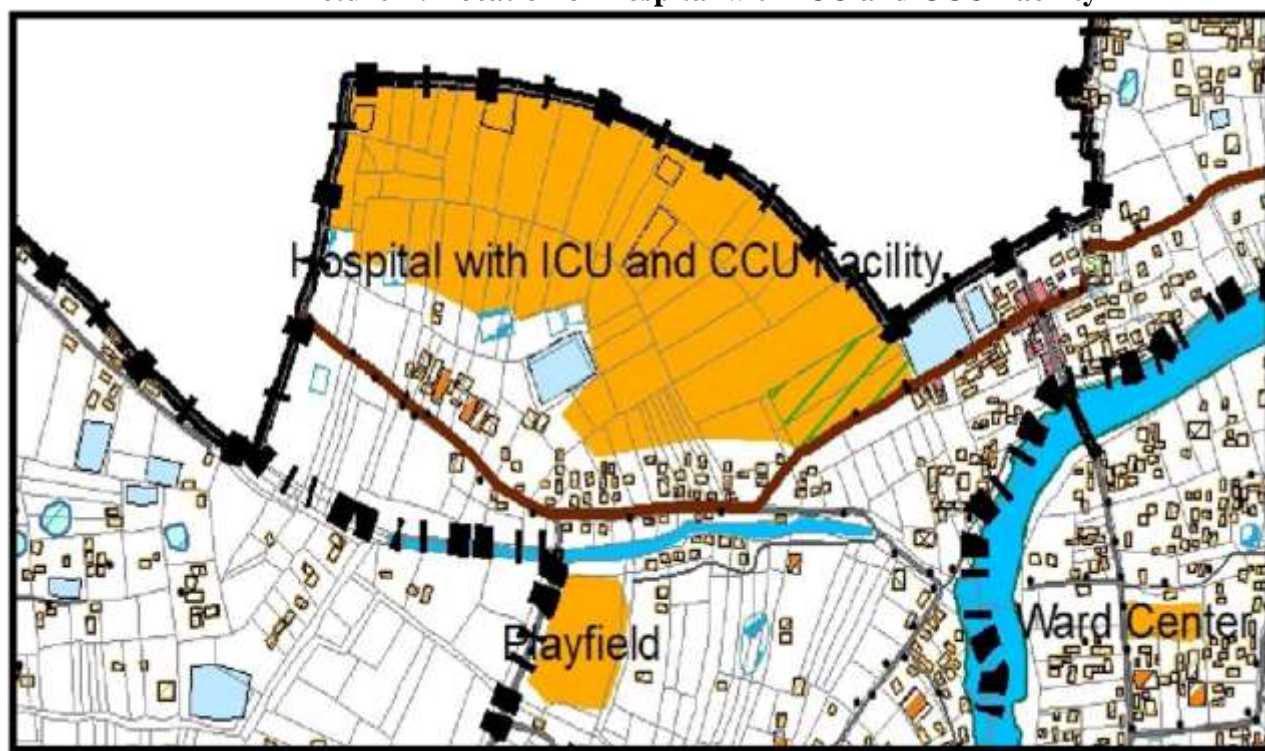


Table-1: Location of Hospital with ICU and CCU Facility

Proposal	Location	Area (acre)
Hospital with ICU and CCU Facility	Dohar Pourashava (Ward No. 02)	20

Picture-2: Proposed Educational Facilities

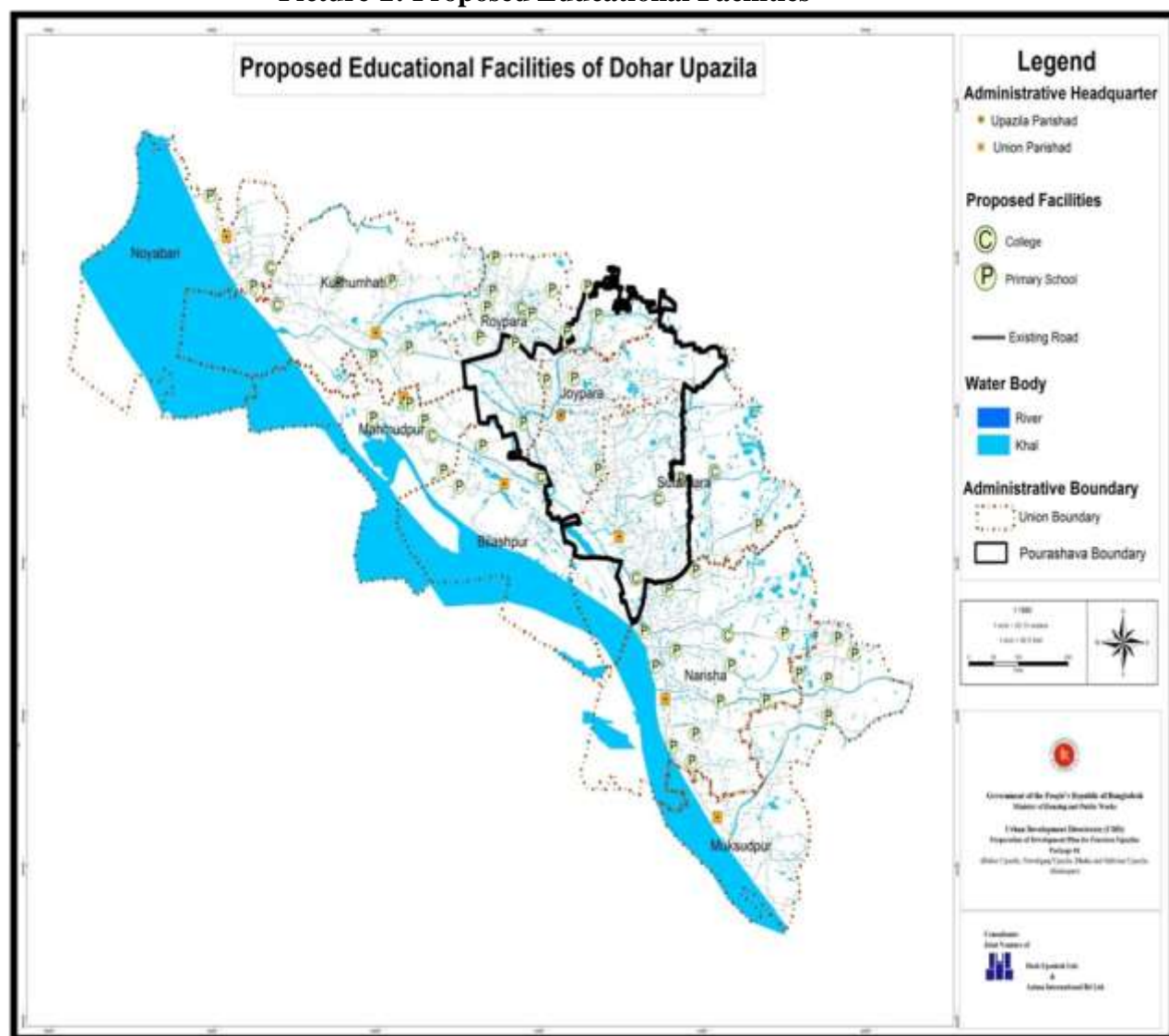


Table-2: Proposed Educational Facilities

Educational Facilities	Existing No.	Proposed No.
Primary School	38	56
High School	25	None
College	6	9
Madrassa	45	None

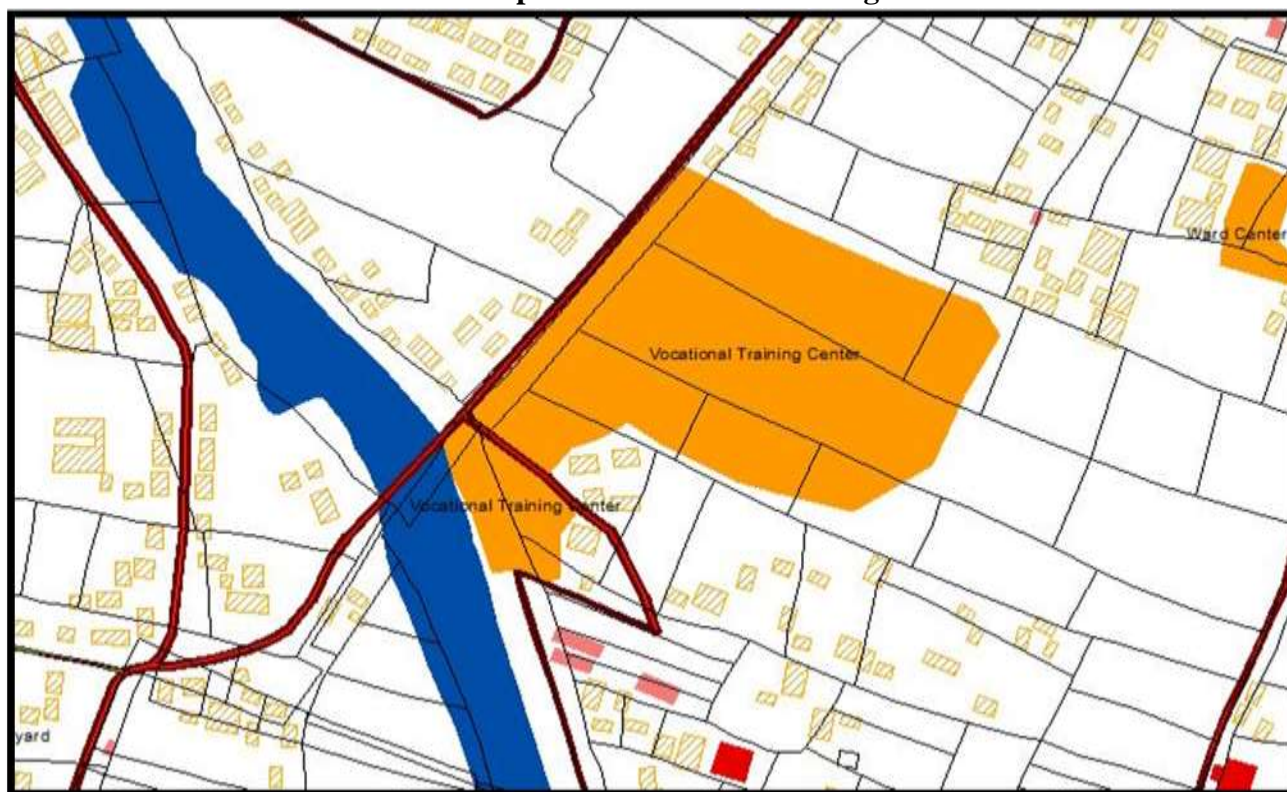
Picture-3: Proposed Vocational Training Center

Table-3: Proposed Vocational Training Center

Proposal	Location	Area (acre)
Vocational Training	Dohar Pourashava (Ward No. 04)	4

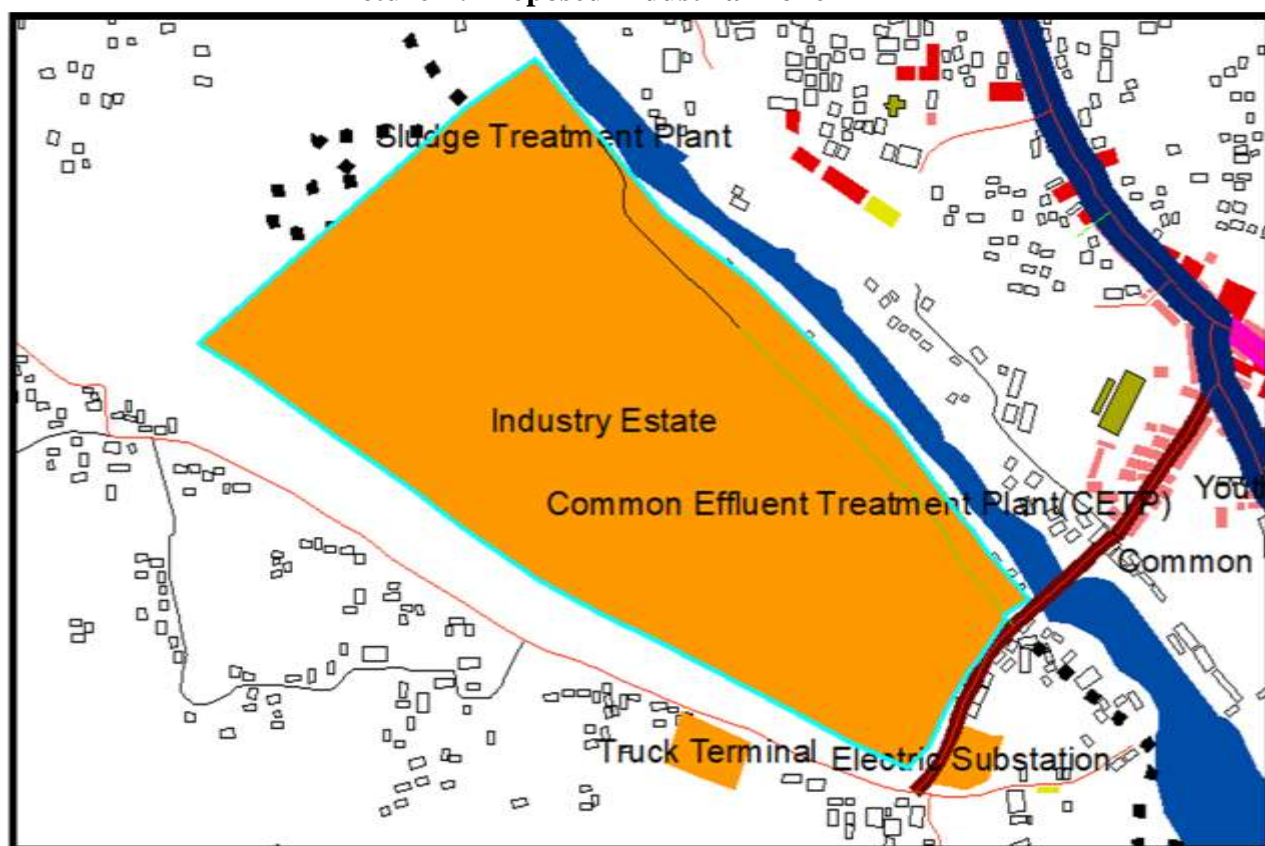
Picture-4: Proposed Industrial Zone

Table-4: Proposed Industrial Zone

Proposal	Location	Area (acre)
Industrial Zone	Dohar Pourashava (Ward No. 4), Roypara, Kushumhati and Muksudpur Union	150

Picture-5: Proposed ICT Park

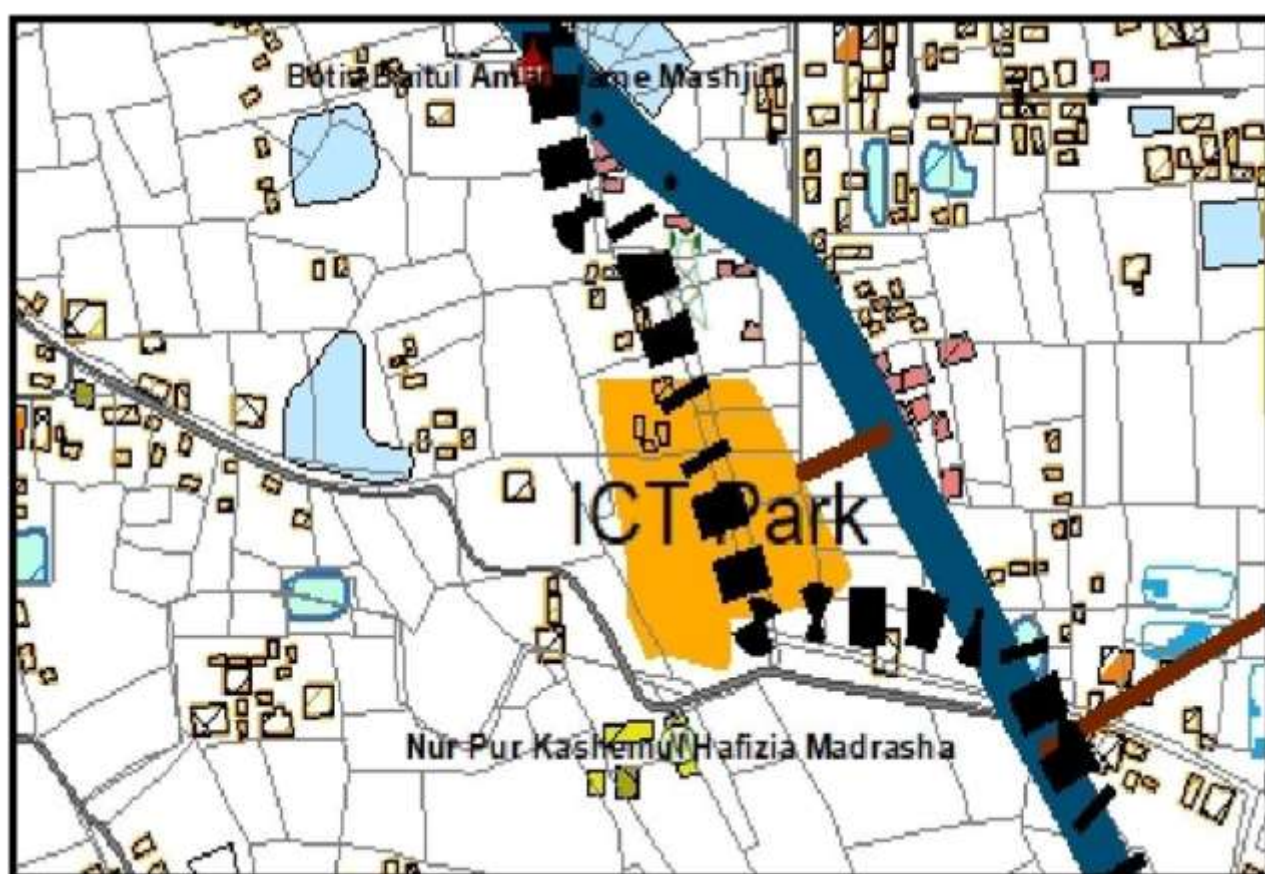
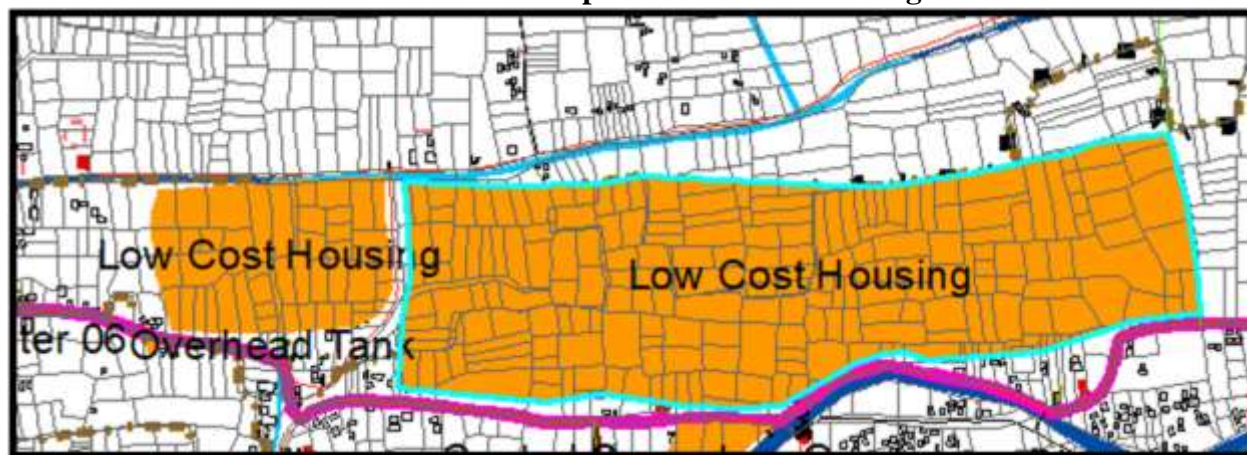


Table-5: Proposed ICT Park

Proposal	Location	Area (acre)
ICT Park	Dohar Pourashava (Ward No. 4 and 5)	2.5

Picture-6: Proposed Low Cost Housing**Table-6: Proposed Low Cost Housing**

Proposal	Location	Area (acre)

Low Cost Housing	Dohar Pourashava (Ward No. 06)	70
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Picture-7: Proposed Housing Estate

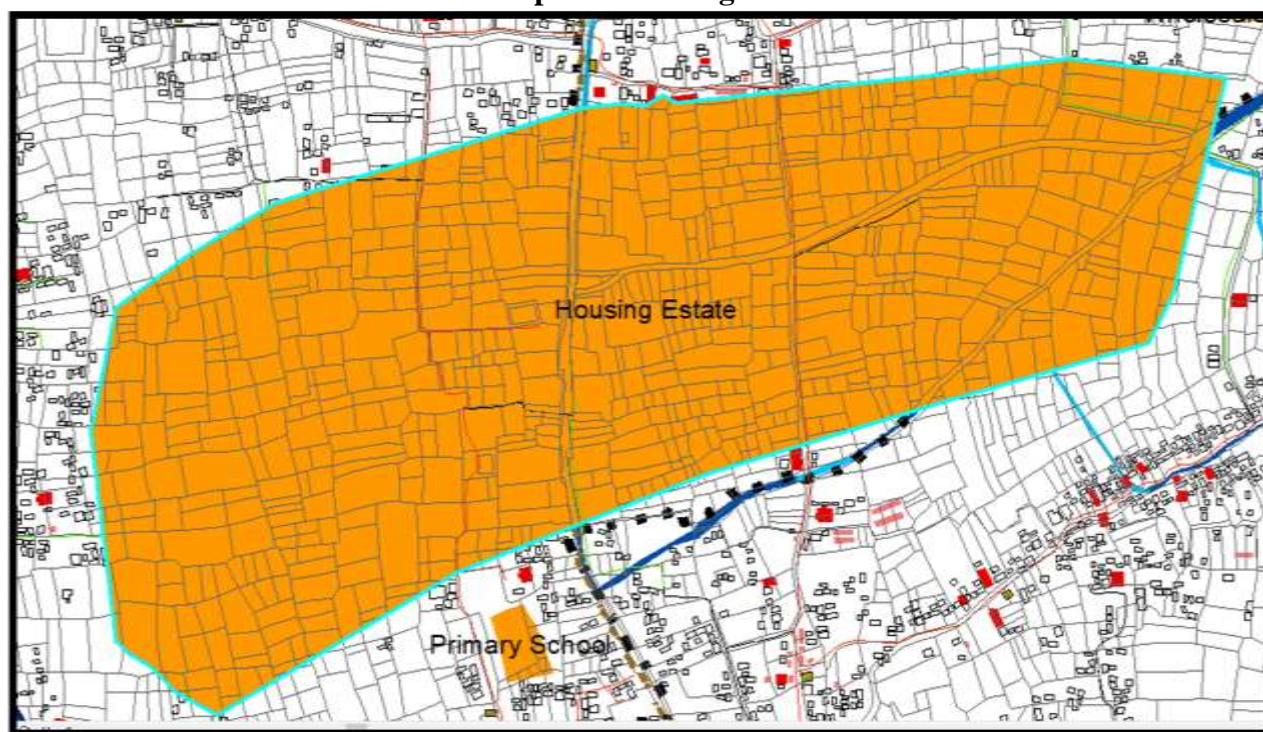


Table-7: Proposed Housing Estate

Proposal	Location	Area (acre)
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Housing Estate	Dohar Pourashava (Ward No. 05, 06, 07)	150
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Picture-8: Proposed Sludge Treatment Plant

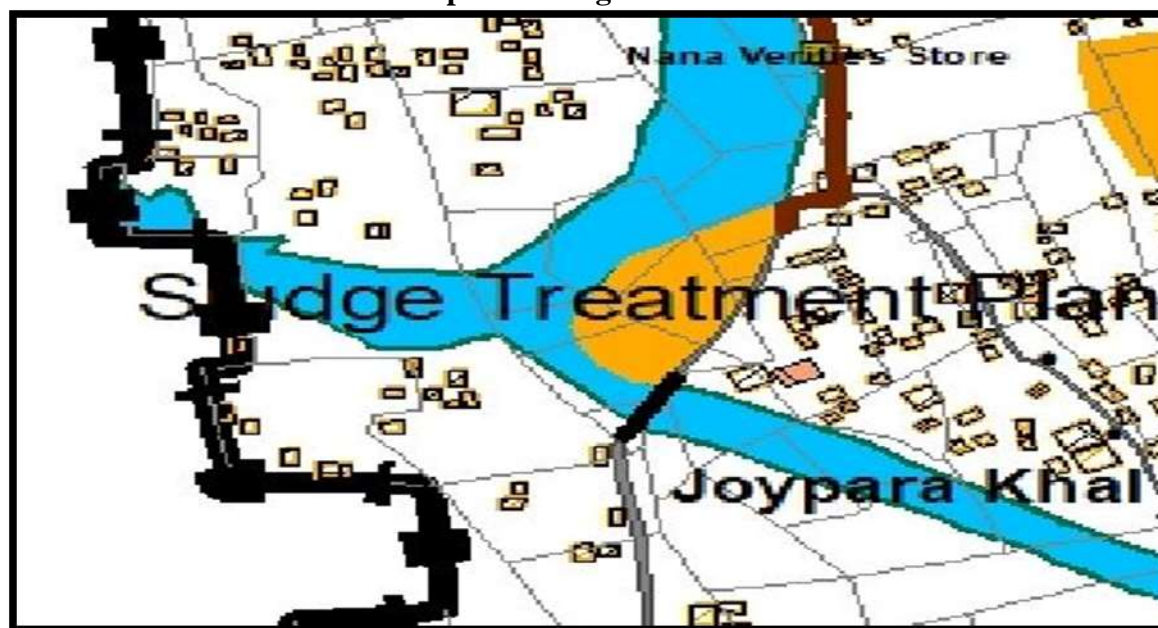


Table-8: Proposed Sludge Treatment Plant

Proposal	Location	Area (acre)
Sludge Treatment Plant	Dohar Pourashava (Ward No. 04)	1

Picture-9: Proposed Drainage Network

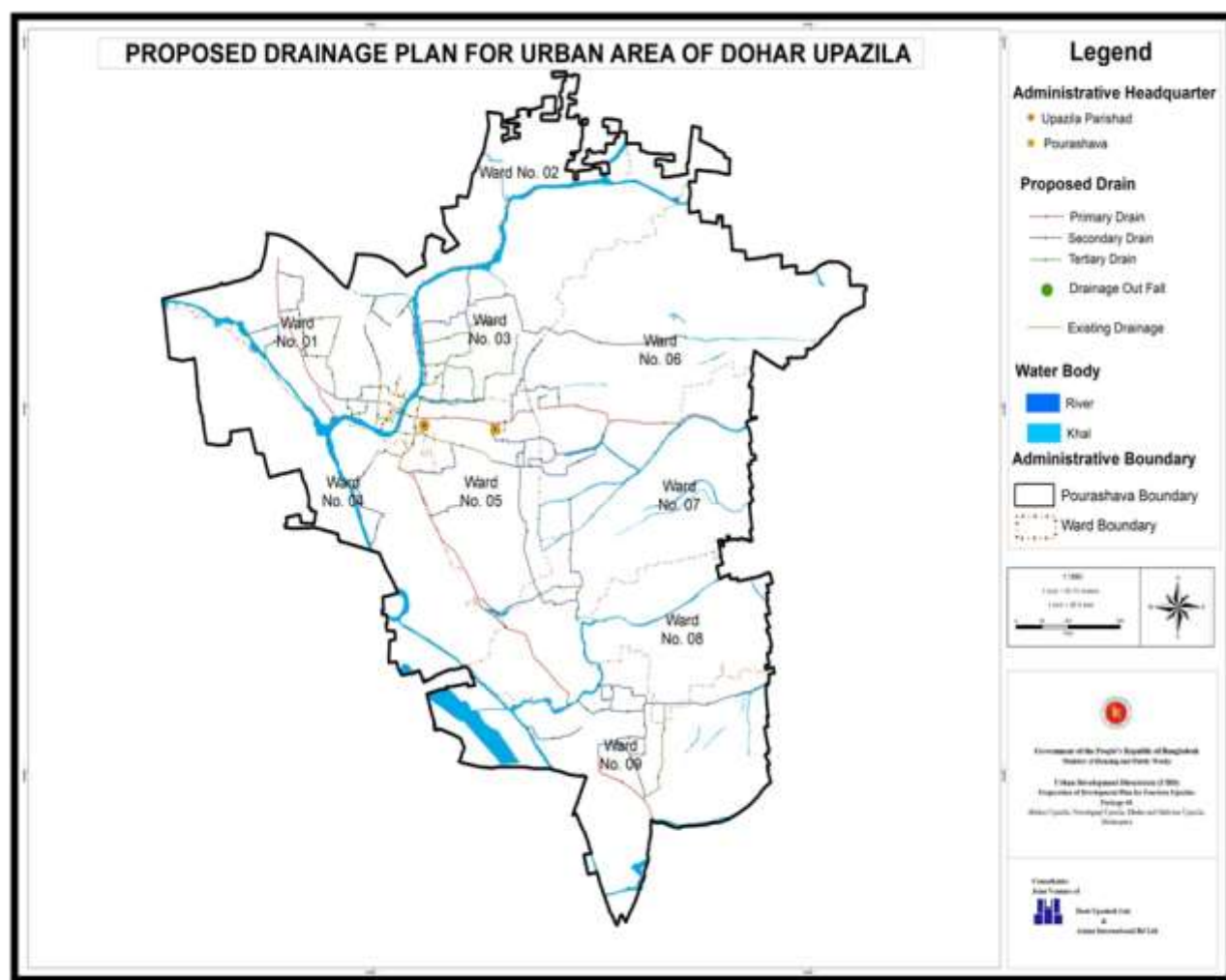
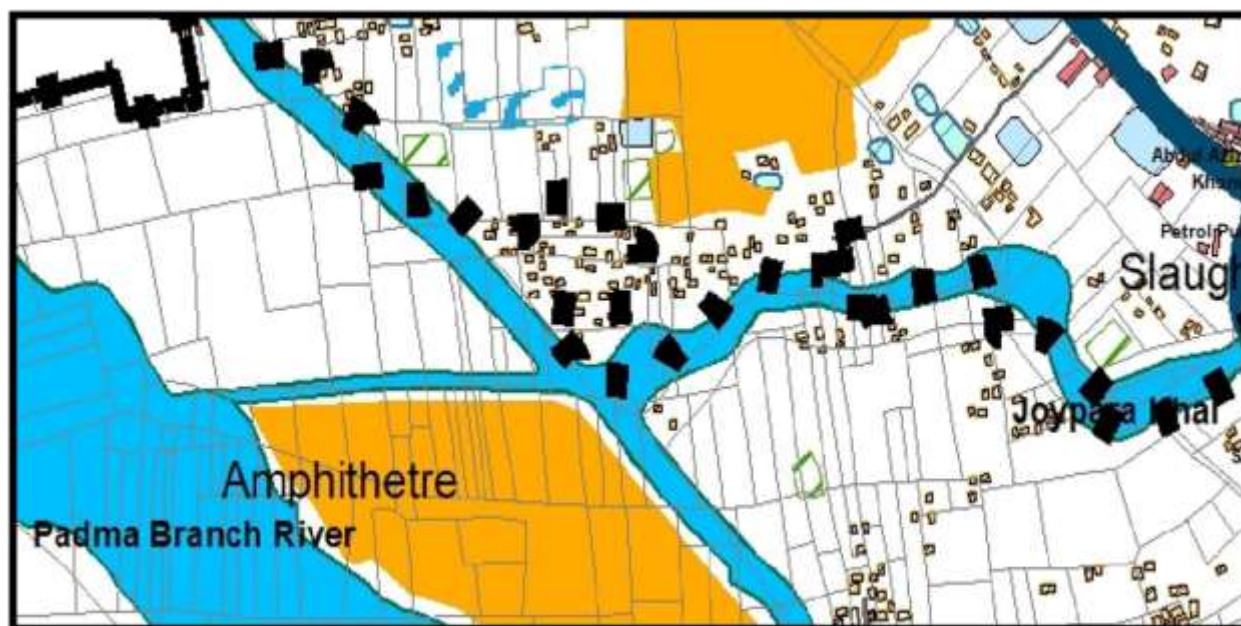


Table-9: Proposed Drainage Network

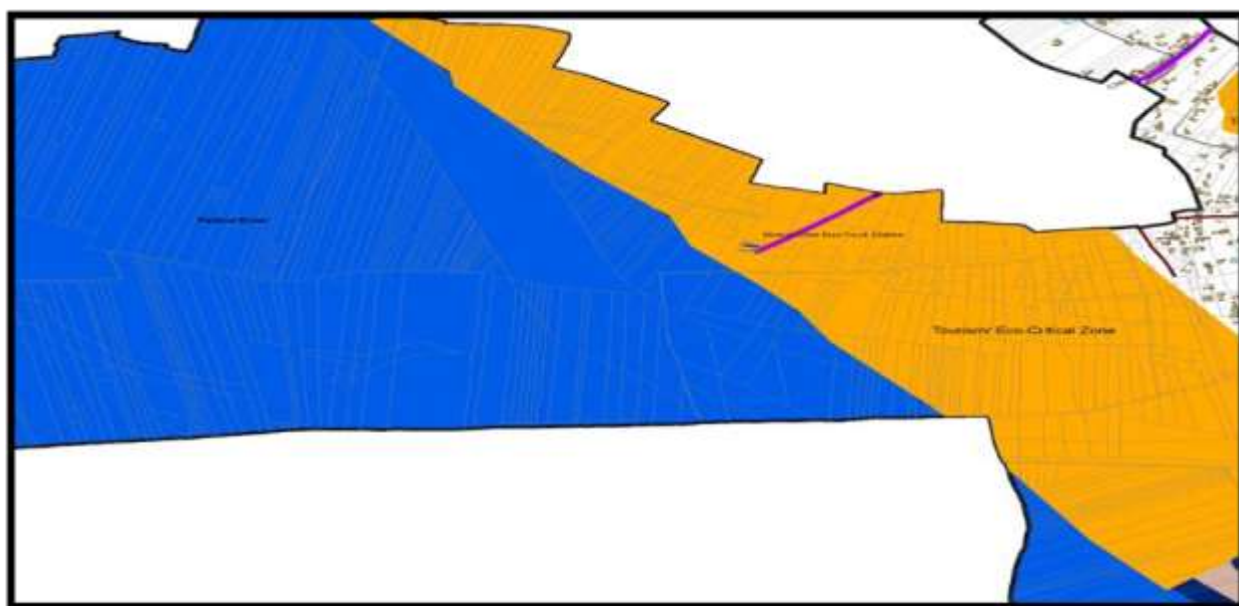
Drain Type	Width (m)	Length (Km)
Primary Drain	1.524	8.58
Secondary Drain	.762	25
Tertiary Drain	.457	9.49

Secondary Road	12	30	8.12
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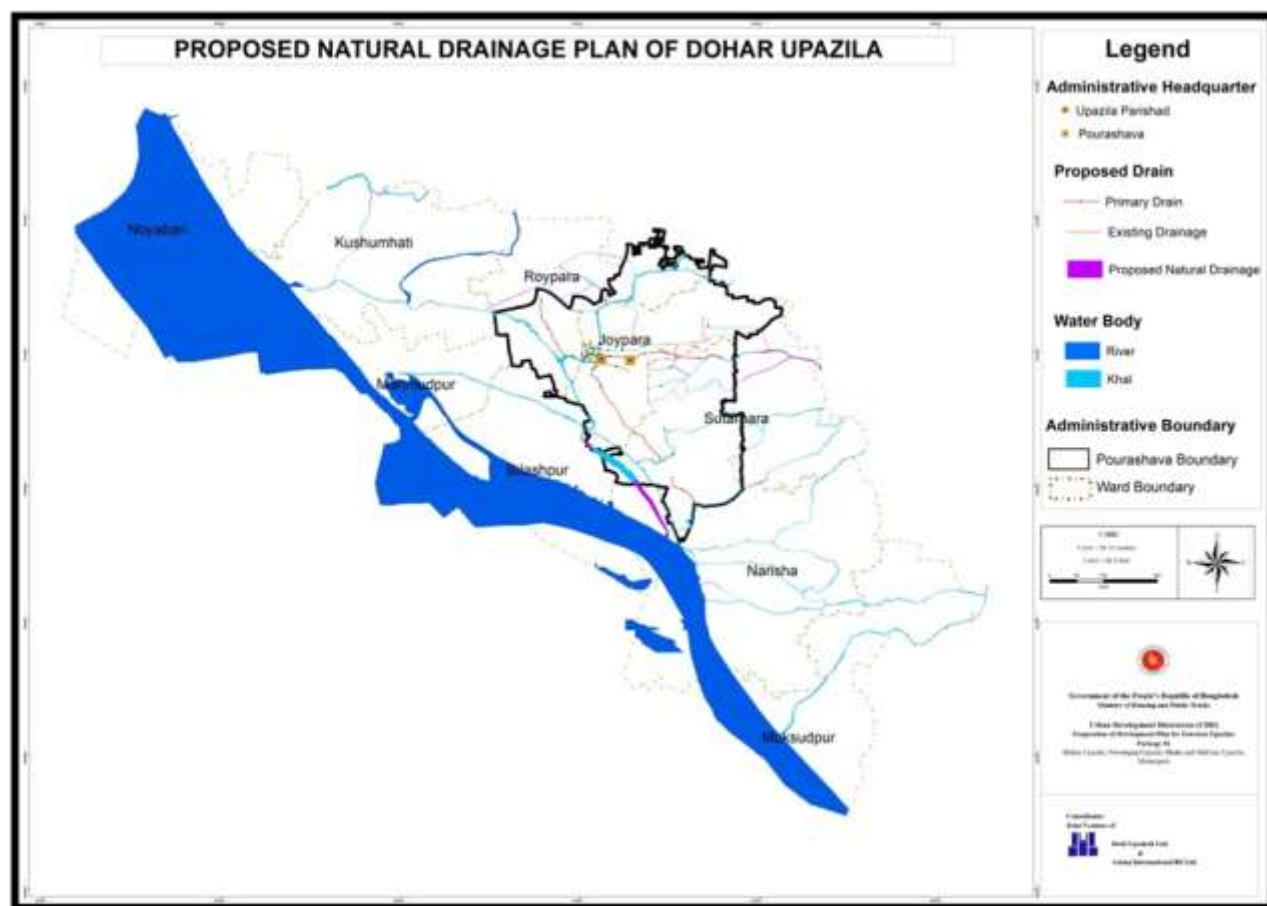
Picture-11: Proposed Amphitheatre**Table-11: Proposed Amphitheatre**

Proposal	Location	Area (acre)
Amphitheatre	Dohar Pourashava (Ward No. 09)	.50

Picture-12: 0.5 Km Protection Zone from Padma River Edge



Picture-13: Proposed Natural Drainage Plan



Picture-14: Proposed Solid Waste Disposal Site

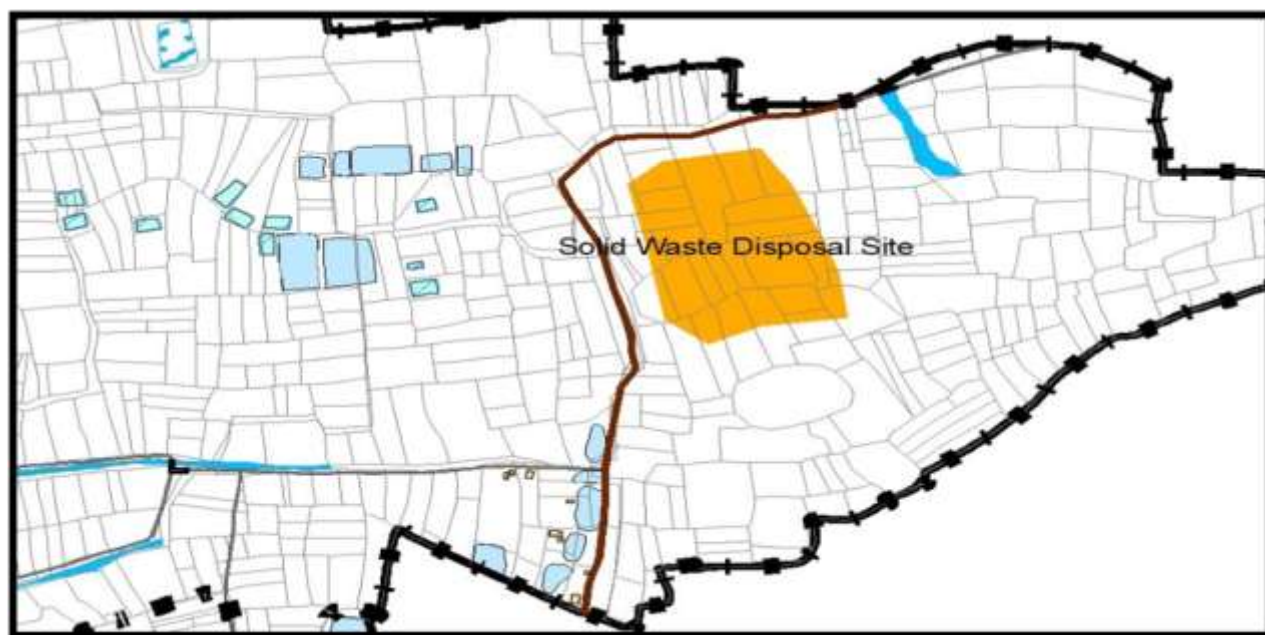


Table-14: Proposed Solid Waste Disposal Site

Proposal	Location	Area (acre)
Solid Waste Disposal Site	Dohar Pourashava (Ward No. 06)	10

Picture-15: Proposed Amusement Park

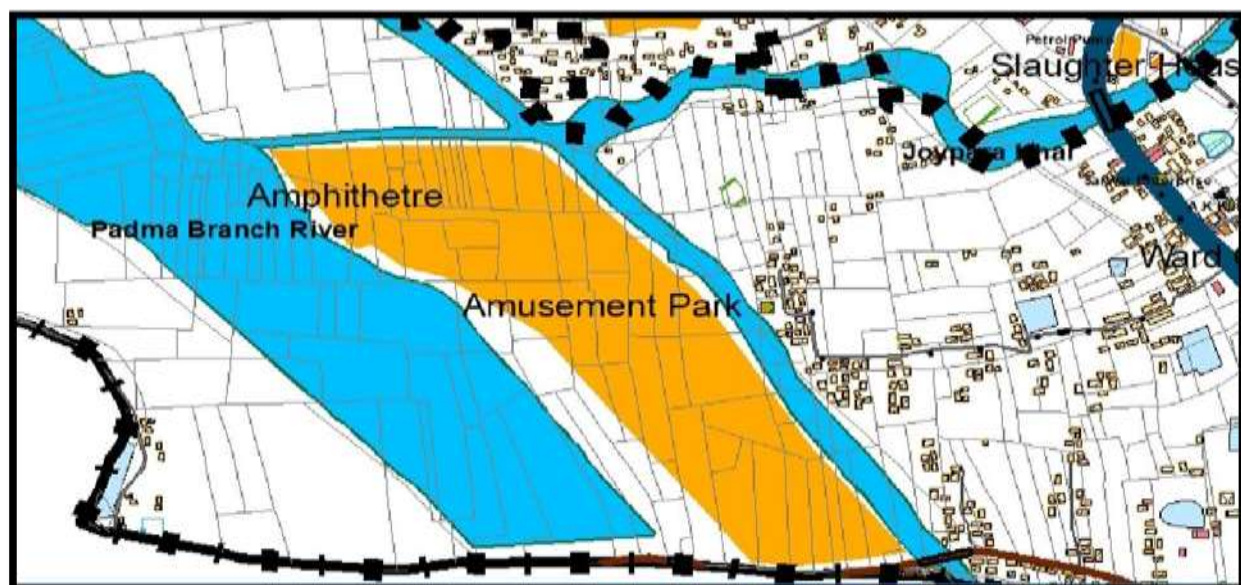


Table-15: Proposed Amusement Park

Proposal	Location	Area (acre)
Amusement Park	Dohar Pourashava (Ward No. 09)	20

Table-16: Proposed Neighborhood Parks

Type	Location
Proposed Neighborhood Park	Dohar Pourashava (Ward No.1, Ward No. 9)
	Roypara Union
	Kushumhati Union
	Noyabari Union
	Mahmudpur Union
	Bilashpur Union
	Narisha Union
	Muksudpur Union
	Sutarpara Union

Picture-17: Water Protection Zone

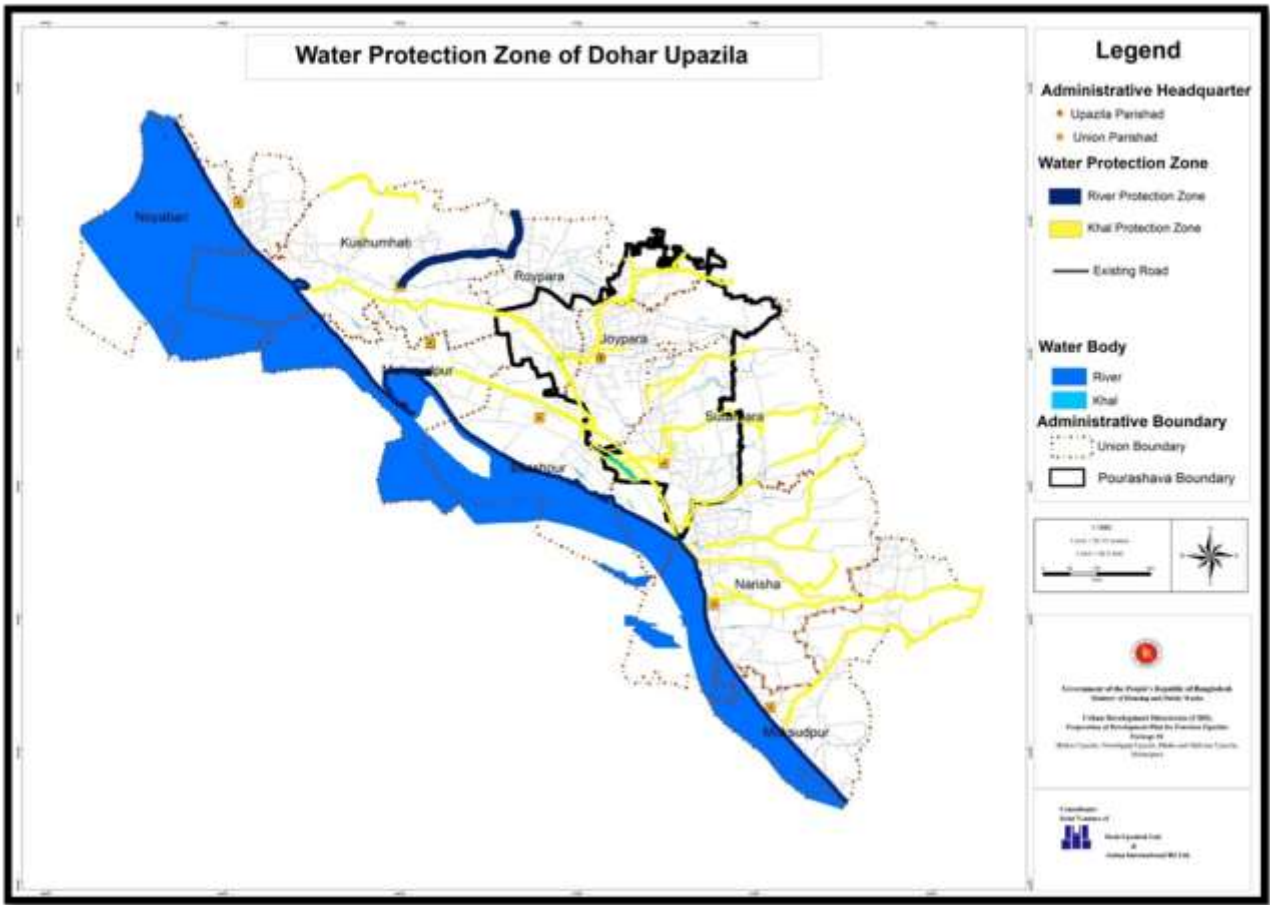


Table-17: Water Protection Zone

Protection Zone	Buffer	Area (acre)
River Protection Zone	50 m buffer from river edge	425.37
Khal Protection Zone	6 m buffer from khal edge	168.21

Annexure VIII

Mouza Schedule of Dohar