

Preparation of Development Plan for Fourteen Upazilas, Pacakage-02

(Ishwarganj Upazila, Mymensingh; Shibpur and Raipura Upazila, Narsingdi)

Raipura Upazila, Narsingdi

1. General

This plan has been prepared as part of the requirement of Terms of Reference (TOR) under the project “Preparation of Development Plan for Fourteen Upazilas” funded by the Government of Bangladesh. The aim of preparing this plan is to identify the infrastructural facilities needed for overall socio-economic and physical development of the people as well as the society. The Development Plan contains a Five-tier Plan which mentioned below:

- Sub-Regional Plan
- Structure Plan
- Urban Area Plan
- Rural Area Plan
- Action Area Plan

2. Vision of the Plan Packages

The vision of the plan is the creation of an urban livable environment where the people, able and or disable, irrespective of age-sex and income, cast-creed and religion, can live and enjoy today within affordable means without sacrificing interests of tomorrow. However the overall vision of the Master Plan is to make the Upazila by revitalizing its growth and make it a poverty free, livable and economically vibrant Upazila.

It contains a comprehensive package of social, economic and physical policies which deals in principles only with all aspects of development (urban/rural) over a given period of time. The predominant policy areas

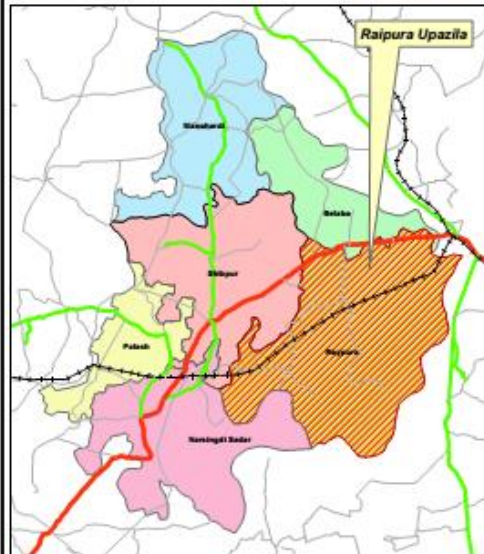
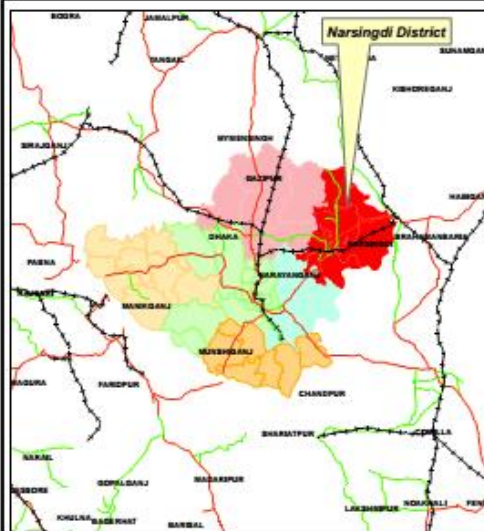
include employment, land, infrastructure housing, transport and social services. It explains the general principles to be followed in order to guide the “general content, form and locations of development and the methods by financial and implementation.” The vision, goals and objectives are to guide the development of the region under the plan over the next 20 years.

3. Objectives of the Plan Packages

To achieve the vision of developing Raipura Upazila as livable planned and sustainable Upazila, the following objectives are outlined:

- Making a balance between rural and urban areas;
- Formulating policies and strategies for guiding desired land use in this Upazila;
- Making and ensuring environmental/ecological balance;
- Identifying some bankable projects to generating employment and income;
- Strengthening management expertise.

LOCATION MAP OF RAIPURA UPAZILA



Legend

- Upazila Boundary
- Union Boundary
- Paurashava Boundary
- National Highway
- Regional Road, Upazila Road
- Feeder Road
- ++ Rail Line
- Narsingdi District
- Raipura Upazila
- Major Waterbody

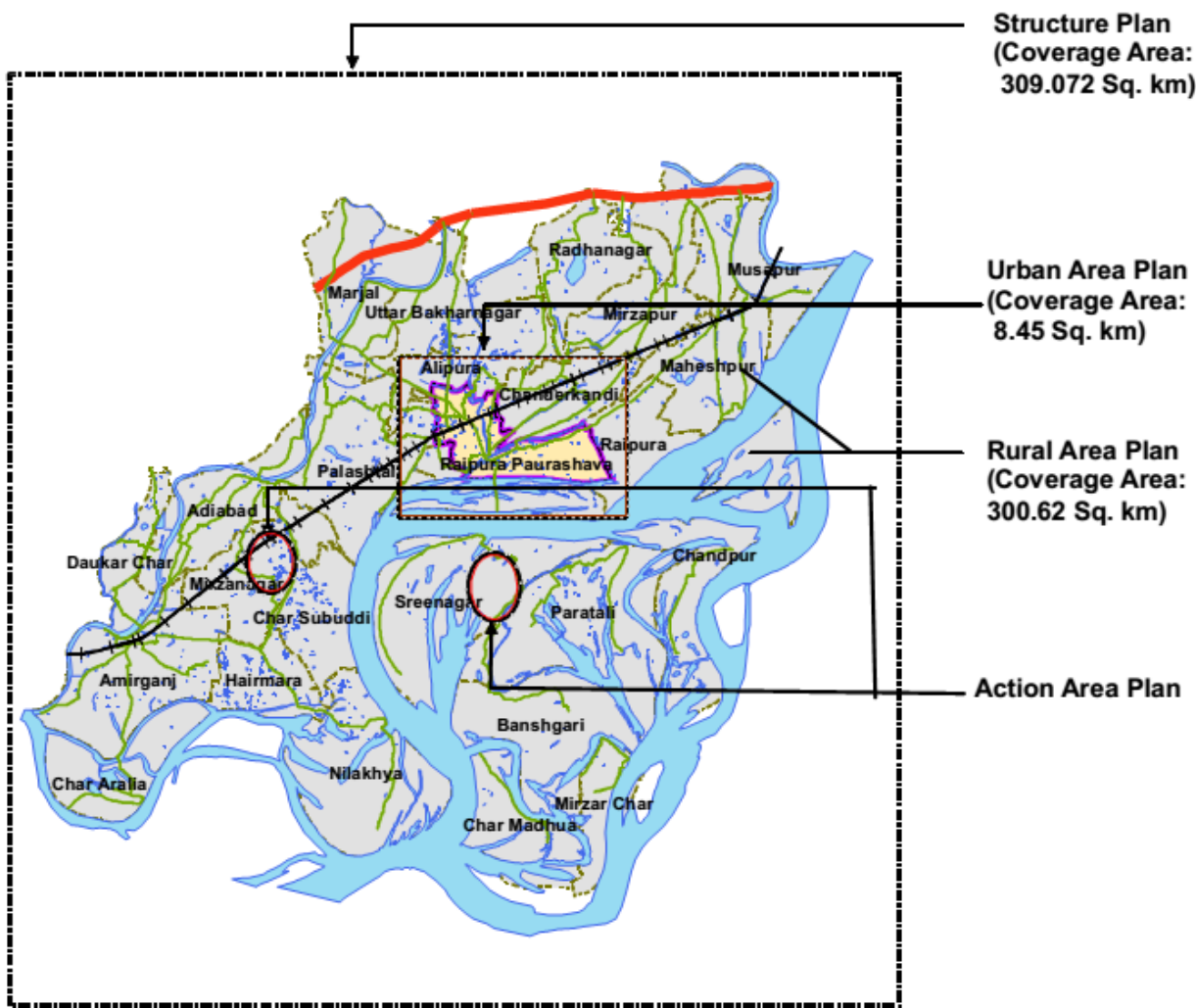
PREPARATION OF DEVELOPMENT PLAN FOR FOURTEEN UPAZILLA

Government of the People's Republic of Bangladesh
Ministry of Housing and Public Works

Urban Development Directorate (UDO) Preparation
of Development Plan for Fourteen Upazila's
Package No: 02

Joint Venture of
Sheltech Consultants Private Ltd.
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INTER RELATION BETWEEN DIFFERENT LEVEL OF PLAN OF RAIPURA UPAZILA



Legend

- Upazila Boundary
- Paurashava Boundary
- Union Boundary
- Rural Area
- Urban Area
- Waterbody
- National Highway
- Regional Road
- Upazila Road

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Sub-Regional Plan

Goals and Objectives of Sub-Regional Plan

To achieve the vision of developing Raipura Upazila as environmentally livable planned and sustainable Upazila, the following objectives are outlined:

- To prepare a Development Plan for Raipura Upazila for 20 years according to the guidelines form: national policies and plans and to Integrate different sectoral strategies at sub regional level;
- To formulate a conservation plan at sub regional level;
- To formulate development Plan; and
- To setup provision and plans for the growth of economy, employment, social, and environmental conditions.

Methods of Sub-Regional Plan

Shift-Share Analysis

As a regional planning tool shift share analysis explores the scenario of economic growth of a region which is generated by a national growth in that sector, supportive industry mix and comparative advantage of that particular region. The shift-share analysis divides the change in local industry employment into three components: National Growth Share, Industrial Mix/Proportionality Shift, and Local Share/ Regional Shift/Differential Shift.

Overall Analysis

The analysis has been carried out by comparing the percentage change values of the national share, proportionality shift,

differential shift and regional growth with respect to the total employment in the respective region considering employment data in the year 2003 and 2013. The percentage change instead of absolute values has been used to assess the actual magnitude of the change and to find out the actual progress of the regions.

In Raipura Upazila the national share and local share component has the major impact on total regional employment growth. Differential shift comprises a positive value which means some local factors employment growth has potentialities as the national growth. It has been also found that the Proportionality Shift Component has a negative impact on the employment growth.

Raipura Upazila has large number of employment manufacturing, wholesale and retail trade, education, financial and insurance activities. Besides this Constructions, Accommodation and food service, public administration and defense, and health and social have positive employment growth more than national growth of this sectors. The possible reason behind this may be the rapid urbanization and close proximity with Dhaka. All these sector has been promoting large employment for local advantages.

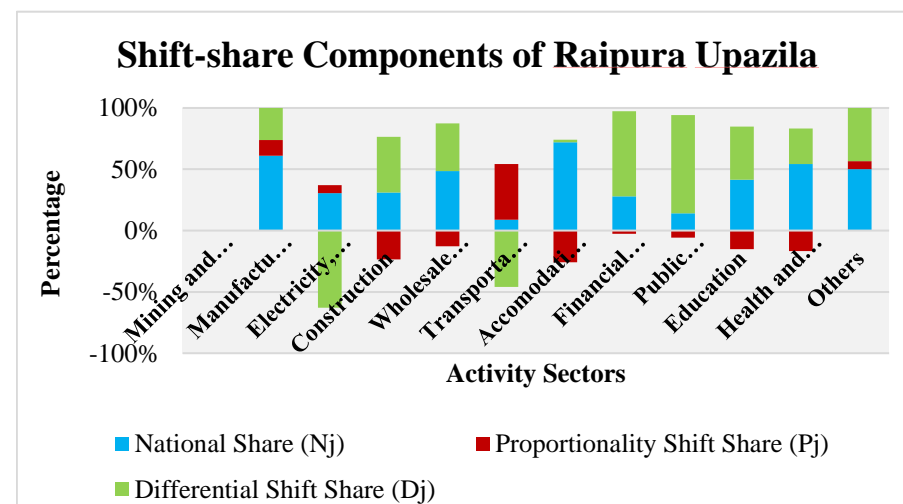


Fig: Shift-share components of different activity sectors.

Policies of Sub-Regional Plan

The national sub-regional plan will promote Raipura Upazila as a Satellite to Dhaka Megacity. As an agricultural and industrial hub, this Upazila can serve Dhaka by supporting agricultural product and as an industrial backward linkages. In terms of service provisions, the Upazila to be self-sufficient so that economic resources do not leave from the region to Dhaka. The following policies were put forward to achieve these goal:

Policy1: Promote the idea of transforming Raipura as a Satellite city

Policy2: Give Emphasize on Agricultural Production

Policy3: Give emphasize on expanding source of income (Agricultural land not enough to generate sufficient income)

Policy 4: Employment Generation through Development of Potential Sectors.

Policy 5: Identify zones prone to natural “extreme events” to prevent disaster.

Policy6: Increase Mobility within the Upazila through Develop Road Network

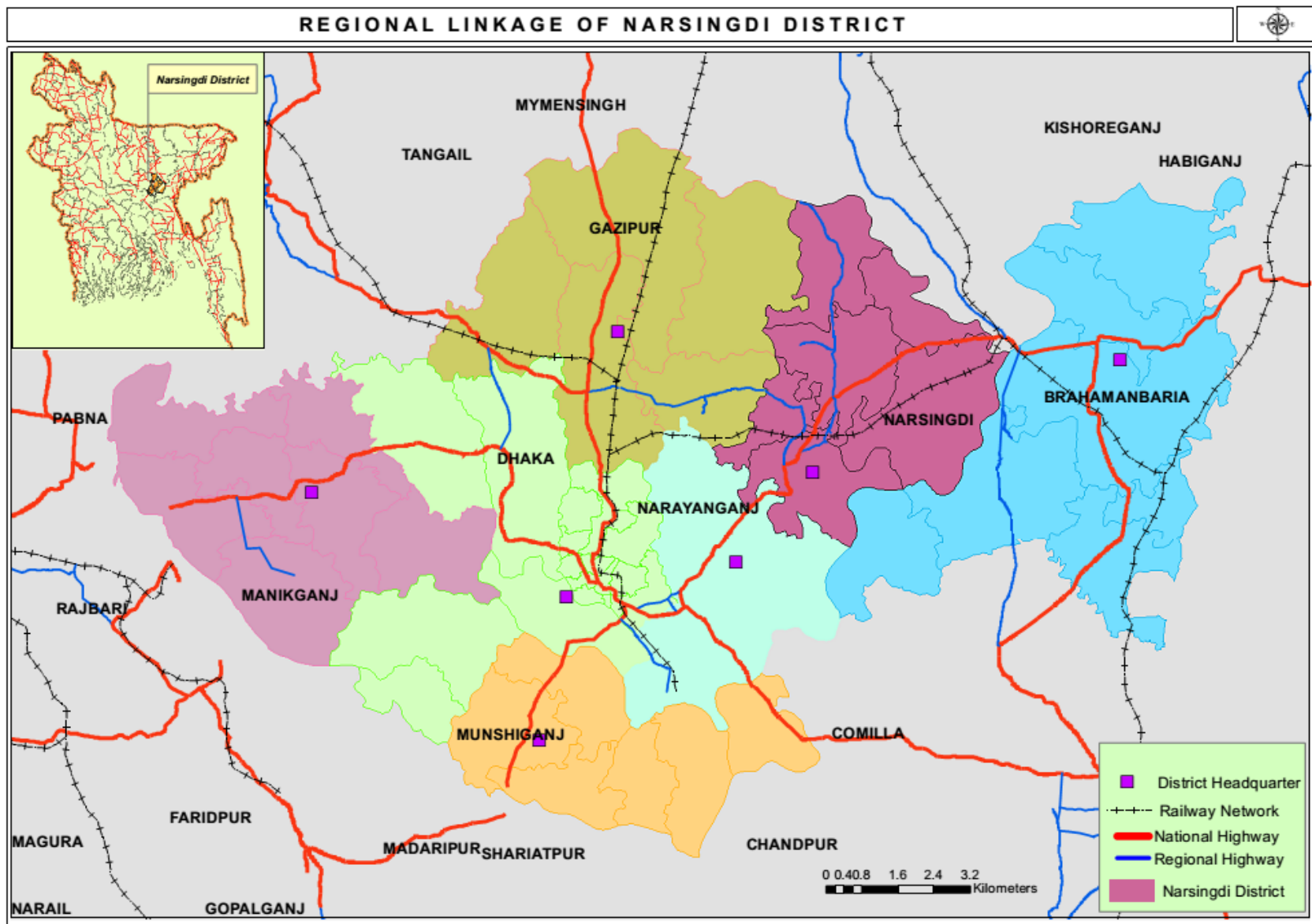
Policy7: Developing Growth Center Markets.

Policy 8: Identify, promote and protect historical and culturally sensitive places as tourism side.

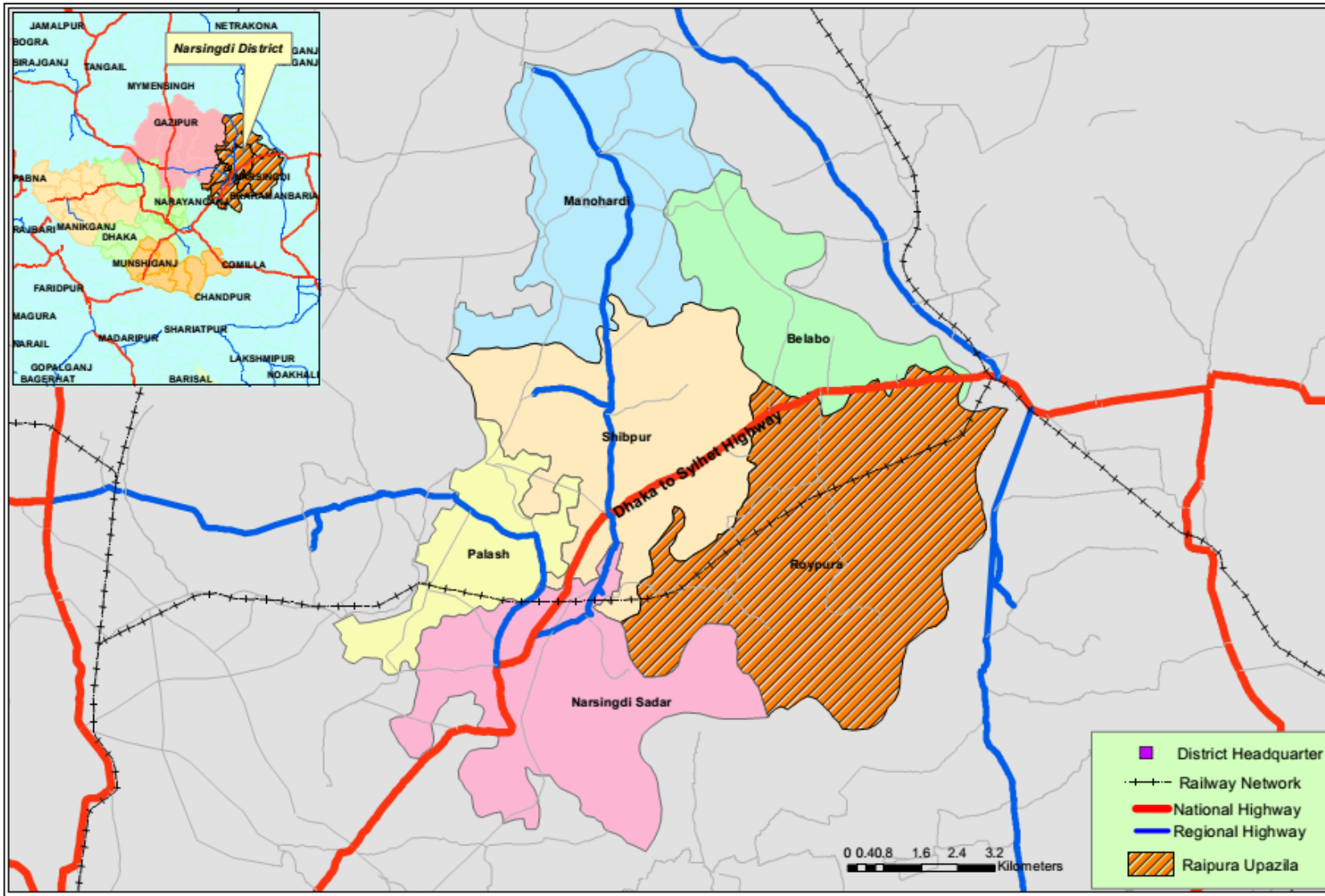
Policy 9: Develop human resource training under Ministry of Youth Development in collaboration with child and Women Affairs Ministry.

Policy10: Developed basic utility service facilities within all over the Upazila.

Policy 11: Strengthening and expansion of existing major institutions and educational facilities and educational facilities.



REGIONAL LINKAGE OF RAIPURA UPAZILA



STRUCTURE PLAN

Objectives of Structure Plan

The Structure Plan has the following objectives. These are:

- Identifying the main development issues, major opportunities and constraints in the Upazila;
- Identifying the possible growth and physical expansion of the areas as foreseen considering economic base and growth trend;
- Identifying the required and suitable land for future physical expansion and development;
- Identifying the sector wise strategies for pursuing the future development control in a desirable direction;
- To establish inter-sectoral goals, policies and general proposals for urban spatial development;
- Identifying the development options to offer maximum benefit to the people;
- To provide framework for the next hierarchy of plans, in this case of Development Plan and Action Area Plan.

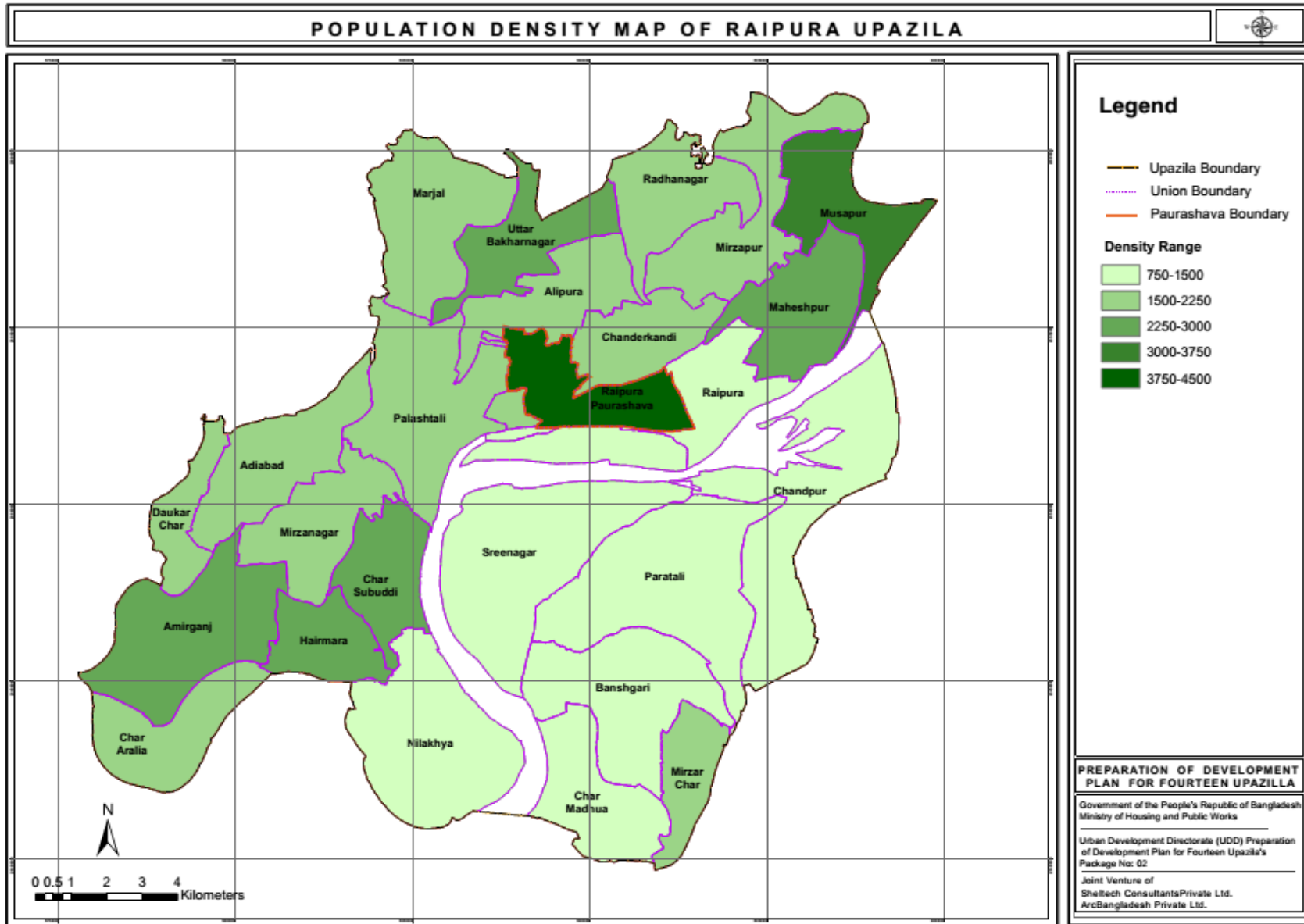
Description of the Project Area

The upazila occupies an area of 312.76 sq. km (BBS 2011). It is located between 23°52' and 24°04' north latitudes and between 90°44' and 90°59' east longitudes. The upazila is bounded on the north by Belabo Upazilas on the east by Nabinagar and Brahmanbaria on the south by Narsingdi sadar Upazila, Nabinagar and Bancharampur Upazilas and on the west by Shibpur and Narsingdi sadar Upazila. Raipura distance from Dhaka-79 km and from Narsingdi district - 22 Km. The upazila consists of 1 paurashava , 9 wards , 24 unions and 239 villages.

Table: Name and Area of Structure Plan.

Union	Area (as per GIS database)		Population	Density of Population/sq.km
	Acre	Sq.km		
Adiabab	2737.35	11.08	20359	1837.79
Alipura	2210.97	8.95	16734	1870.35
Amirganj	3921.21	15.87	38603	2432.60
Banshgari	3687.57	14.92	17205	1152.92
Chanderkandi	2160.29	8.74	15556	1779.46
Char Aralia	2199.45	8.90	14045	1577.91
Char Subuddi	1922.36	7.78	21438	2755.53
Daukar Char	1191.25	4.82	10555	2189.38
Hairmara	1573.77	6.37	15805	2481.55
Maheshpur	2628.79	10.64	26217	2464.47

Union	Area (as per GIS database)		Population	Density of Population/sq.km
	Acre			
Marjal	3221.85	13.04	23905	1833.49
Mirzanagar	2398.04	9.71	21658	2231.63
Mirzapur	3216.64	13.02	24306	1867.25
Mirzar Char	1348.22	5.46	8840	1620.23
Musapur	2351.46	9.52	29121	3060.21
Nilakhya	4269.45	17.28	23976	1387.66
Palashtali	3886.41	15.73	32315	2054.62
Paratali	5090.44	20.60	27704	1344.85
Radhanagar	2417.21	9.78	17230	1761.40
Raipura	1904.90	7.71	11424	1481.90
Sreenagar	6229.98	25.21	27503	1090.87
Uttar Bakharnagar	2114.08	8.56	22283	2604.68
Chandpur	4903.59	19.84	24201	1219.56
Raipura Paurashava	2090.06	8.46	34904	4126.74
Char Madhua	2357.86	9.54	9909	1038.46
Total	72033.17	291.51	535796	49265.00



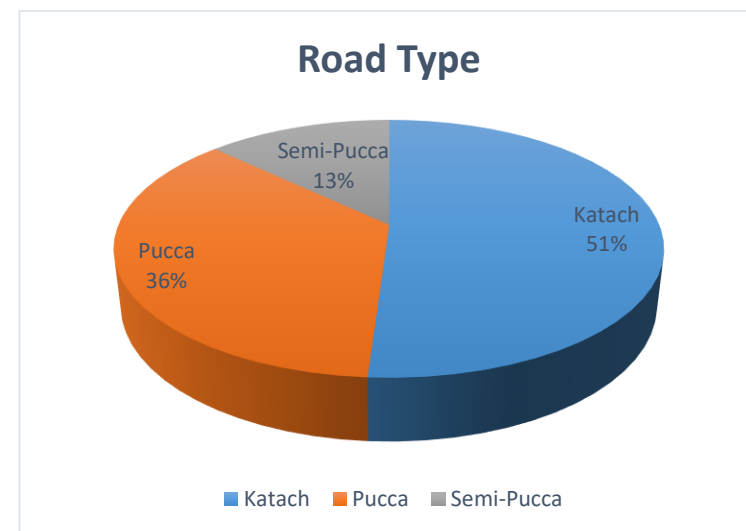
STRUCTURE TYPE

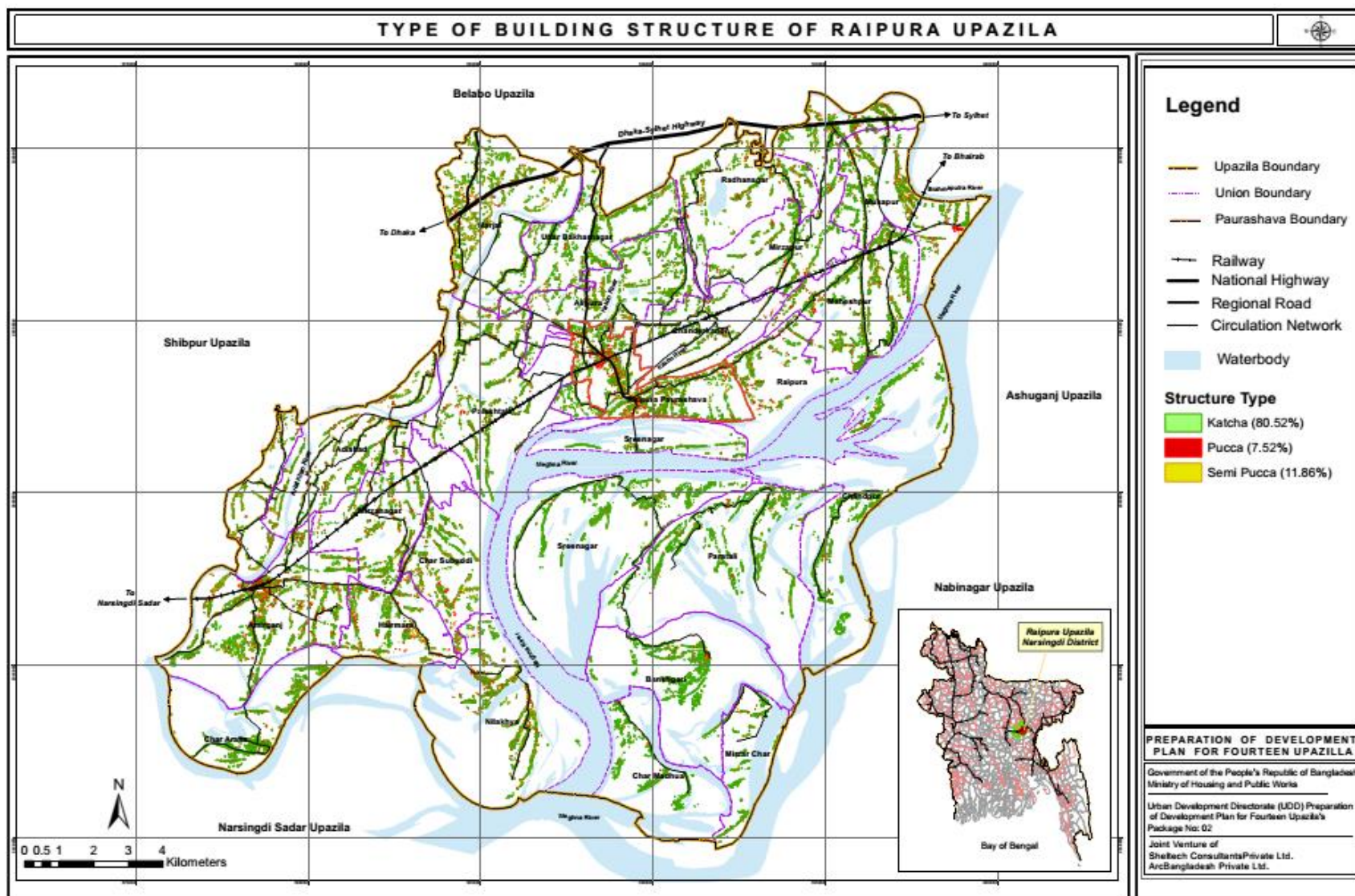
Physical feature survey depict that there are in total 86272 structures in Raipura Upazila (6874 in Paurashava and 90107 in Rural). From the survey, it is also revealed that majority of the structures in the Upazila are katcha. In the Raipura Upazila area, out of total structures, 80.38 percent are katcha, 11.90 percent are semi-pucca, and only 7.6 percent are pucca structures. About 0.11 percent structures are under construction.

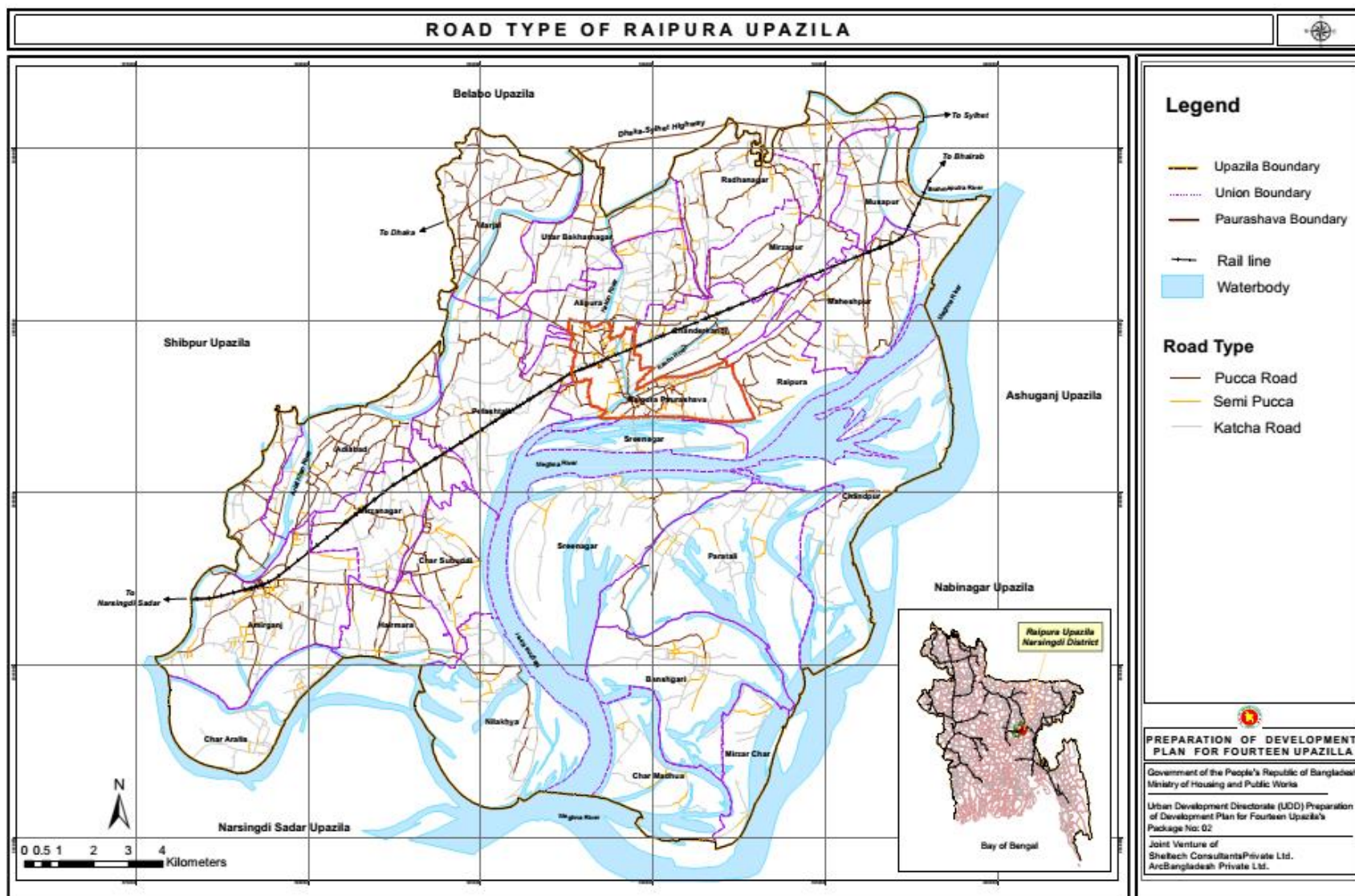
Table: Structure Type of Paurashava and Rural Unions.

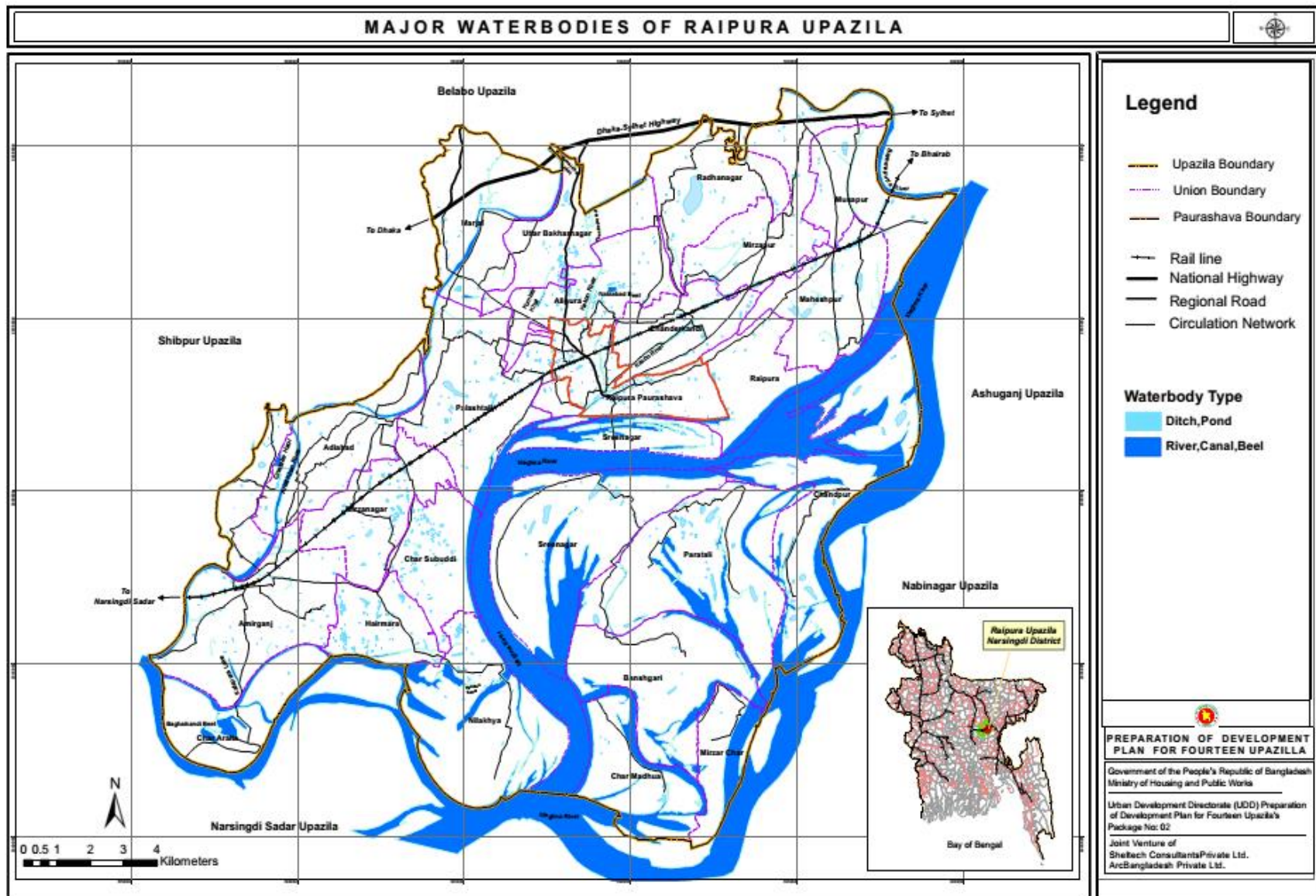
Structure Type	Paurashava		Rural Unions		Grand Total	
	No.	%	No.	%	No.	%
Pucca	817	11.89	6545	7.27	7362	7.6
Semi-pucca	1141	16.60	10406	11.55	11547	11.90
Katcha	4914	71.49	73047	81.07	77961	80.38
Under Construction	2	0.03	109	0.12	111	.11
Total	6874	100	90107	100	96981	100

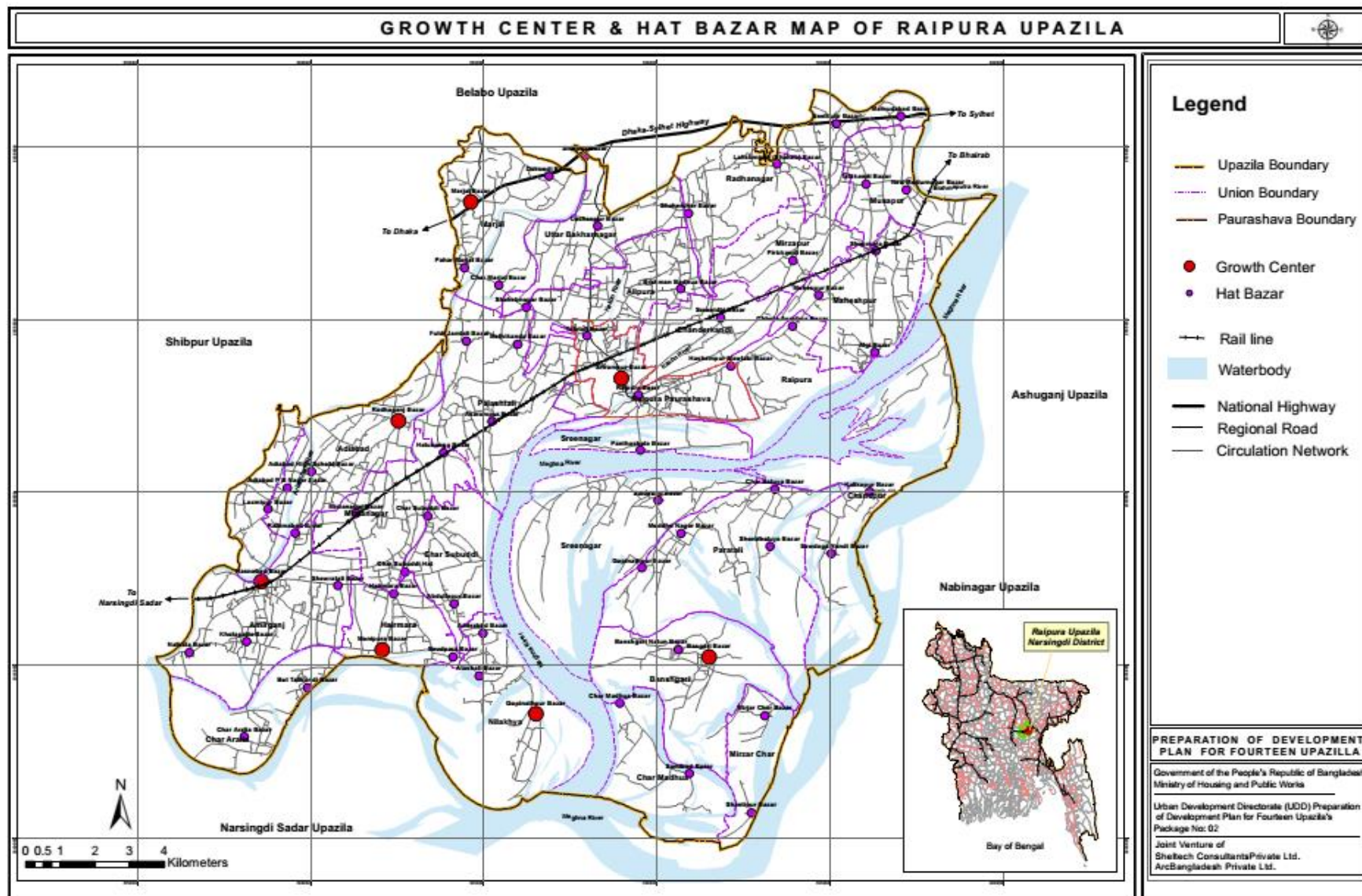
Source: Physical Feature Survey, 2016.

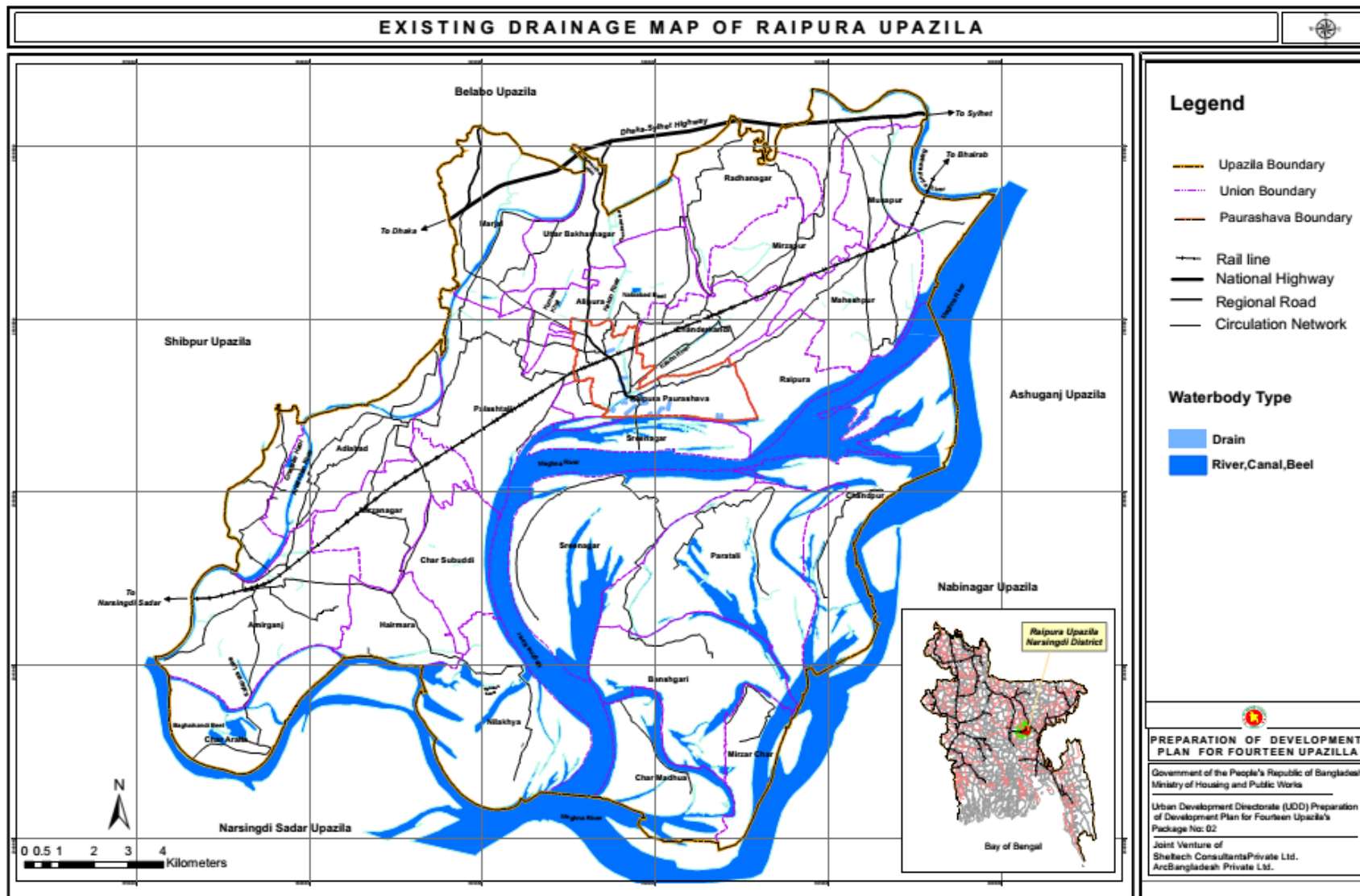


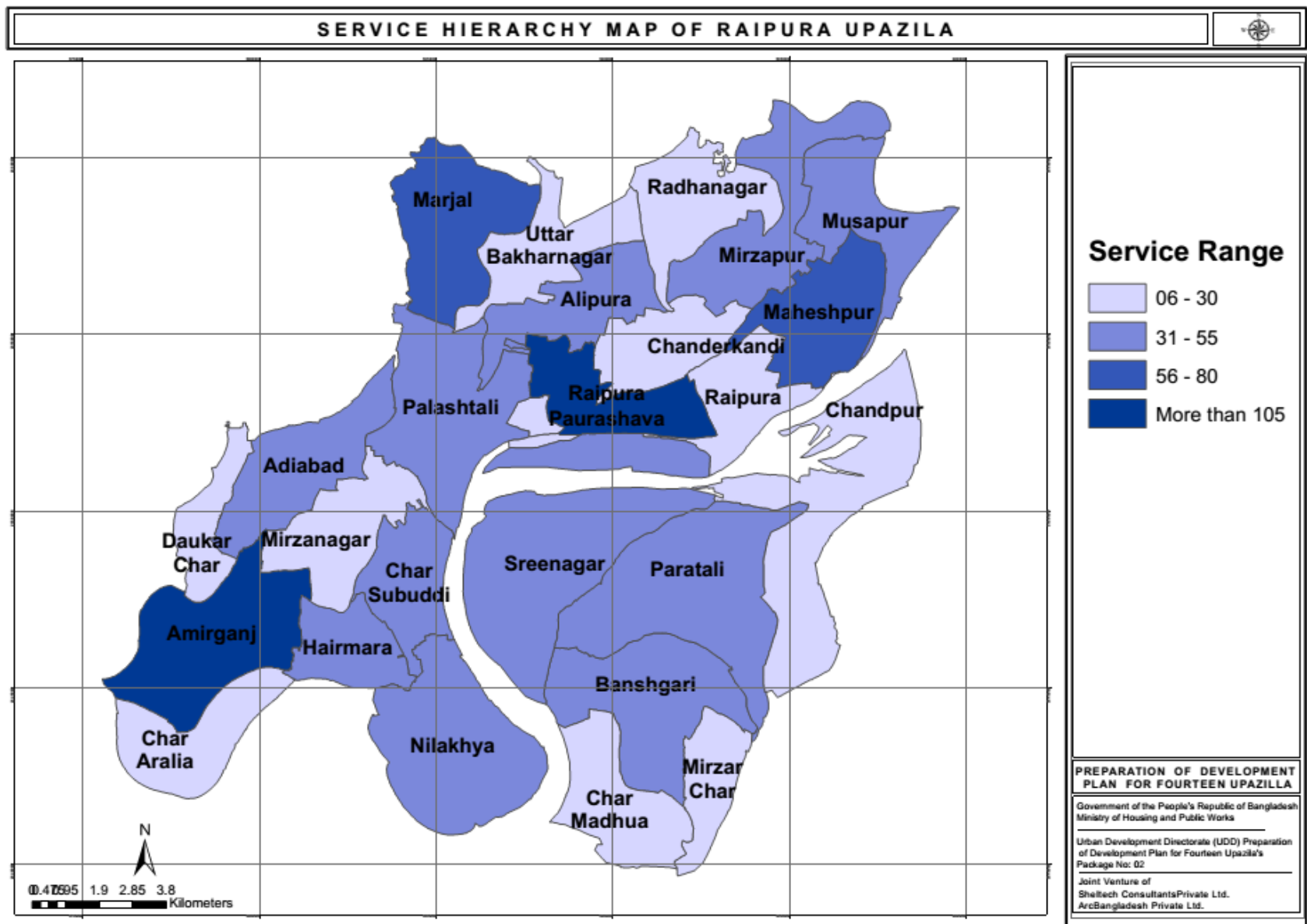


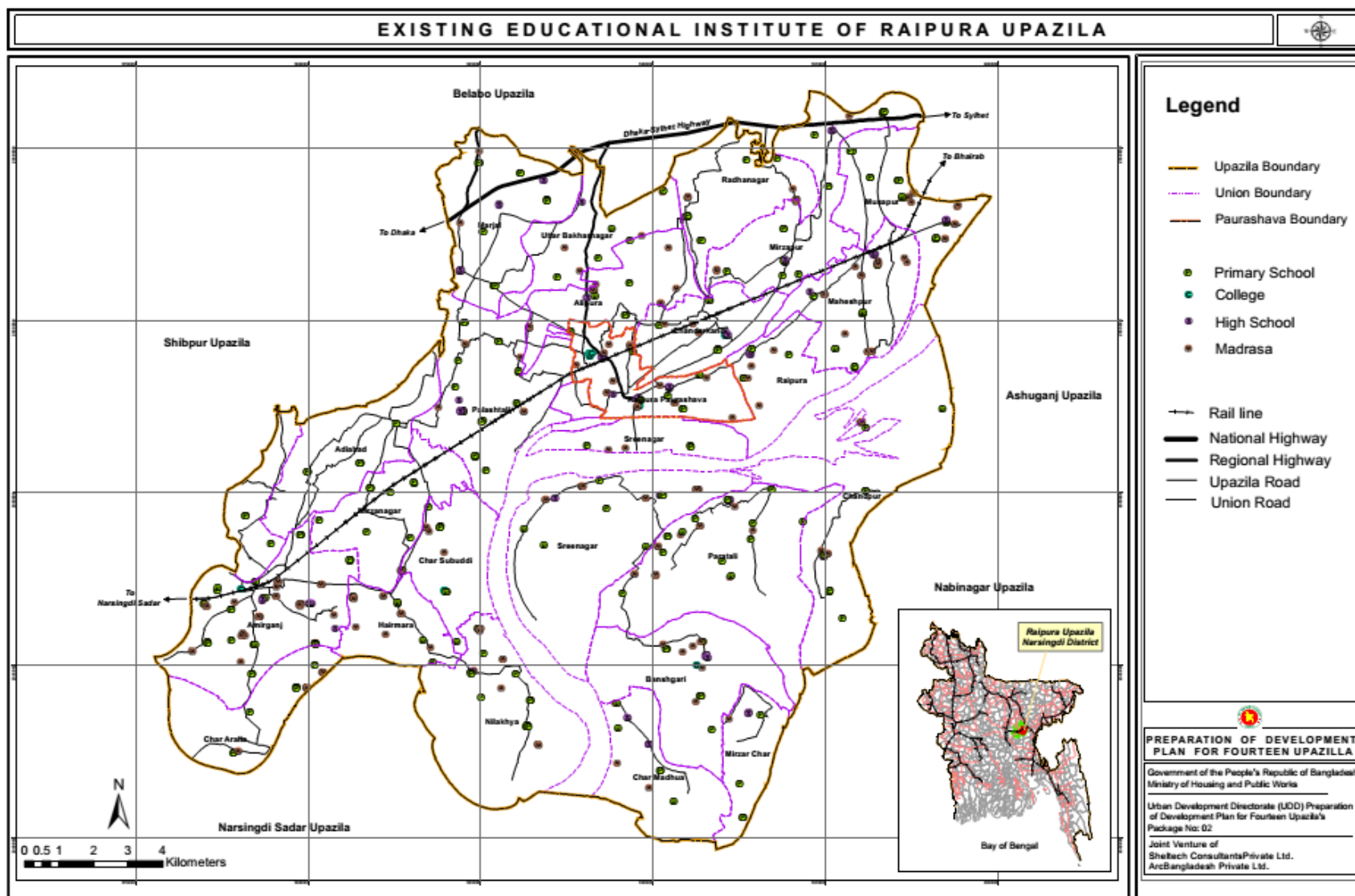












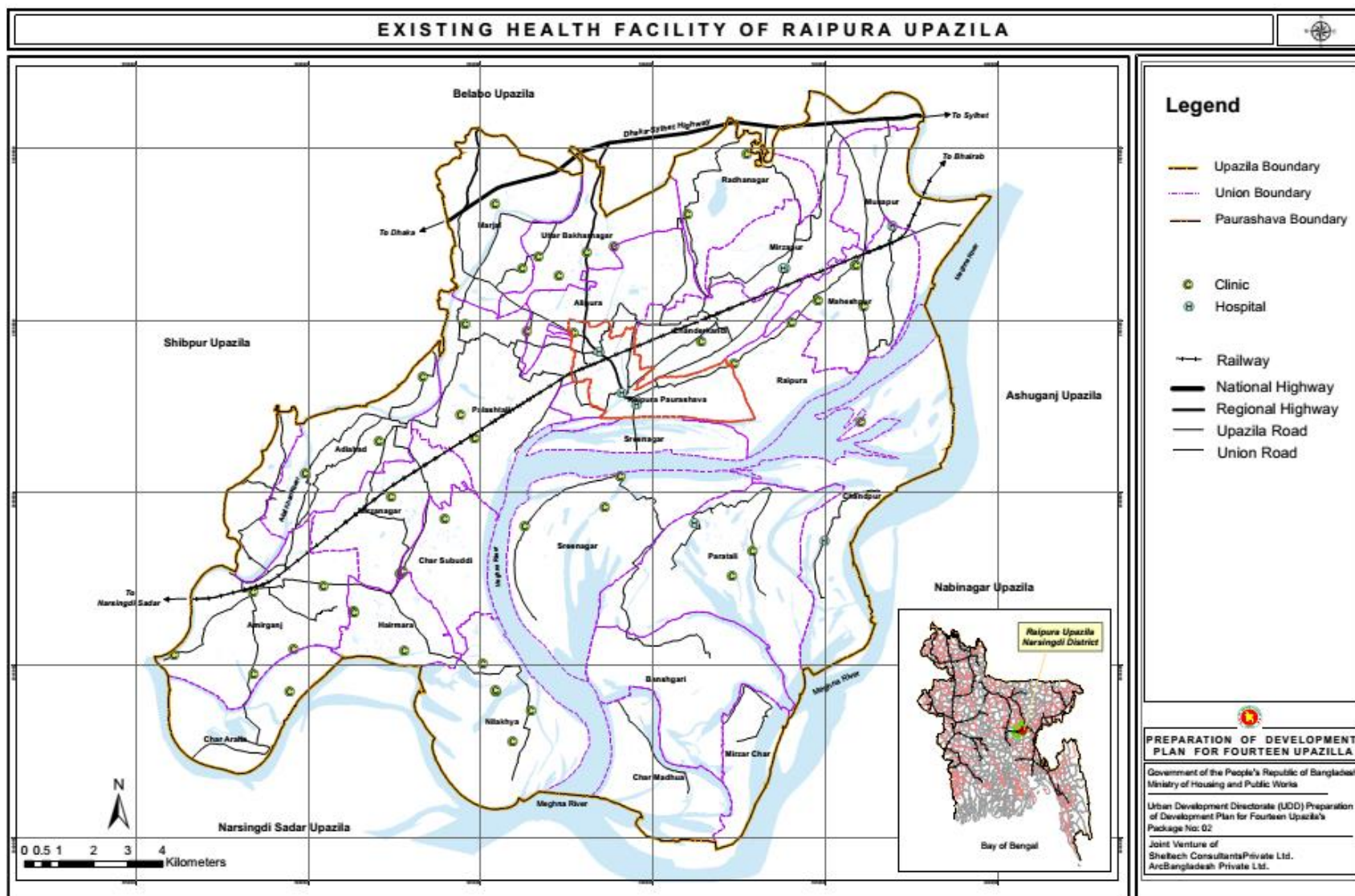


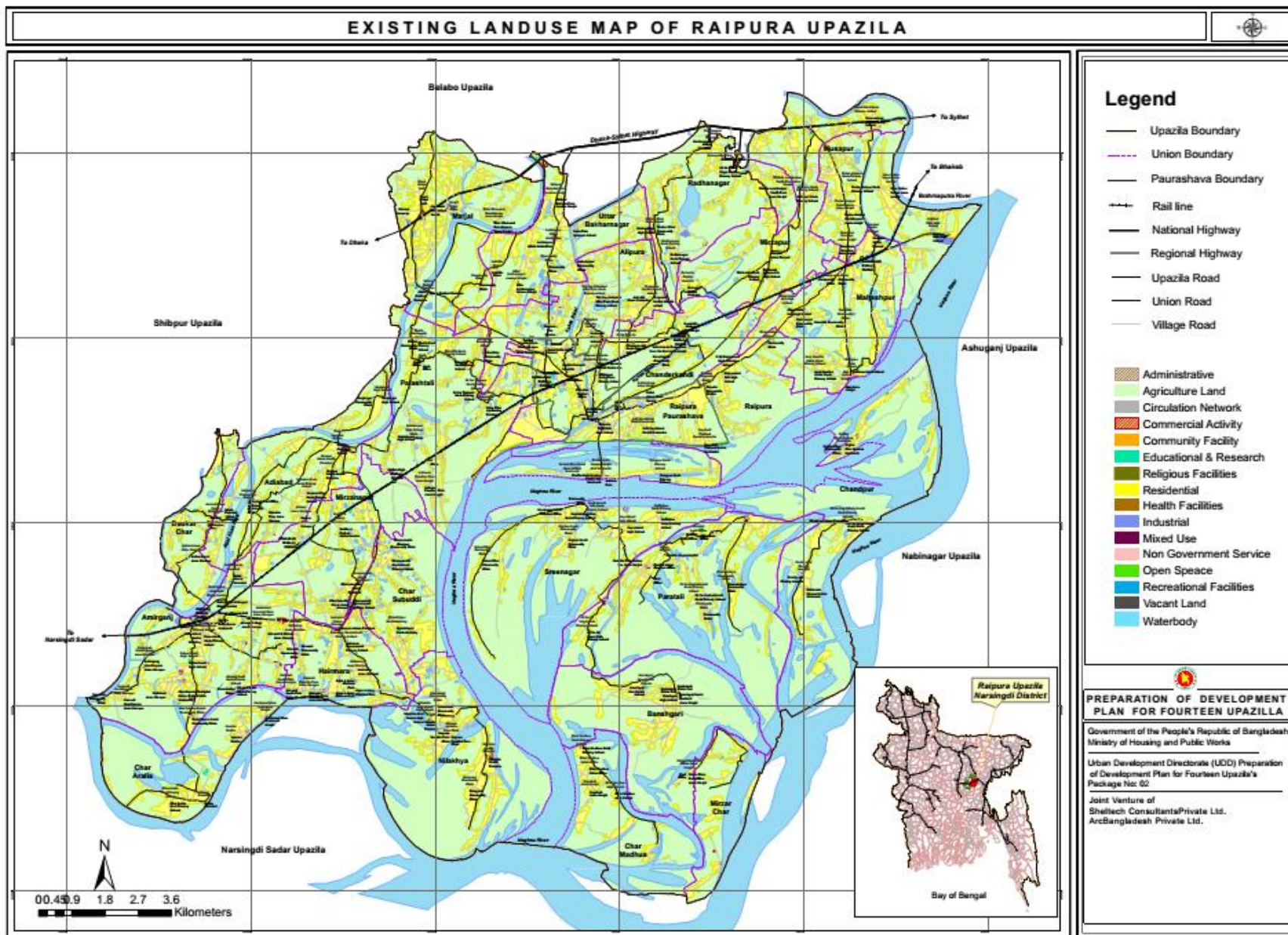
Table: Major Landuse of Raipura Upazila.

Landuse	Area (Acre)															
	Adiabab		Alipura		Amirganj		Banshgari		Chanderkandi		Chandpur		Char Aralia		Char Madhua	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
Government Services	0.94	0.03	0.59	0.03	1.15	0.03	0.97	0.03	0.56	0.03	0.08	0	0.24	0.01	0.42	0.02
Agricultural Area	1752.27	64.01	1369.80	61.96	2594.66	66.17	2618.48	71.01	1466.76	67.86	2817.95	57	1411.67	64.18	1343.48	56.98
Circulation Network	32.89	1.20	29.40	1.33	45.98	1.17	14.32	0.39	13.10	0.61	11.53	0	11.32	0.51	7.00	0.30
Commercial Activities	1.00	0.04	6.17	0.28	56.57	1.44	7.51	0.20	3.28	0.15	5.49	0	6.26	0.28	3.25	0.14
Community Facilities	0.31	0.01	-	0.00	1.60	0.04	-	0.00	-	0.00	0.17	0	-	0.00	-	0.00
Educational & Research	10.62	0.39	2.60	0.12	25.51	0.65	6.96	0.19	4.49	0.21	5.26	0	7.51	0.34	1.61	0.07
Health Facilities	0.65	0.02	0.35	0.02	1.72	0.04	-	0.00	0.22	0.01	0.24	0	0.30	0.01	-	0.00
Industrial Activities	0.26	0.01	2.52	0.11	14.19	0.36	-	0.00	-	0.00	-	0	-	0.00	-	0.00
Mixed Use	16.51	0.60	0.57	0.03	15.68	0.40	-	0.00	-	0.00	-	0	0.11	0.00	0.74	0.03
Non-Government Service		0.00	-	0.00	-	0.00	-	0.00	-	0.00	0.15	0	-	0.00	0.07	0.00
Open Space		0.00	3.82	0.17	-	0.00	-	0.00	-	0.00	-	0	-	0.00	-	0.00
Recreational Facility		0.00		0.00	0.22	0.01	-	0.00	-	0.00	-	0	-	0.00	-	0.00
Religious	4.51	0.16	2.89	0.13	8.21	0.21	2.04	0.06	3.54	0.16	3.04	0	3.03	0.14	0.86	0.04
Residential Area	709.75	25.93	705.05	31.89	965.69	24.63	448.88	12.17	595.75	27.56	457.59	9	370.85	16.86	246.65	10.46
Waterbody	207.46	7.58	87.01	3.94	163.56	4.17	588.41	15.96	73.62	3.41	1609.00	33	388.18	17.65	753.80	31.97
Vacant Land	-	0.00	-	0.00		0.00	-	0.00	-	0.00	-	0	-	0.00		0.00
Miscellaneous	0.13	0.00	0.16	0.01		0.00	-	0.00	-	0.00	0.63	0	-	0.00	--	0.00
Transportation & Communication	-	0.00	-	0.00	26.48	0.68	-	0.00	-	0.00	-	0	-	0.00	-	0.00
Total	2737.29	100.00	2210.93	100.00	3921.21	100.00	3687.57	100.00	2161.32	100.00	4911.12	100	2199.46	100.00	2357.86	100.00

Land use	Area (Acre)															
	Char Subuddi		Daukar Char		Hairmara		Maheshpur		Marjal		Mirzanagar		Mirzapur		Mirzar Char	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
Government Services	0.21	0.01	0.16	0.01	0.03	0.00			3.36	0.10	0.16	0.01	0.48	0.01		0.00
Agricultural Area	1197.86	62.31	786.71	66.04	945.92	60.11	1636.16	62.24	2058.91	63.91	1869.70	77.97	2220.16	69.01	706.92	52.43
Circulation Network	15.41	0.80	11.07	0.93	17.52	1.11	28.32	1.08	40.43	1.26	28.37	1.18	42.38	1.32	4.80	0.36
Commercial Activities	8.82	0.46	0.35	0.03	13.10	0.83	8.46	0.32	20.41	0.63	1.37	0.06	4.50	0.14	2.43	0.18
Community Facilities	0.09	0.00	-	0.00		0.00	0.04	0.00	0.59	0.02	-	0.00	-	0.00	-	0.00
Educational & Research	6.88	0.36	2.18	0.18	5.87	0.37	9.39	0.36	5.54	0.17	3.93	0.16	9.97	0.31	1.16	0.09
Health Facilities	0.32	0.02	-	0.00	0.72	0.05	0.62	0.02	0.39	0.01	-	0.00	0.95	0.03		0.00
Industrial Activities	0.06	0.00	-	0.00	0.29	0.02	-	0.00	7.06	0.22	-	0.00	0.10	0.00	-	0.00
Mixed Use	8.50	0.44	3.22	0.27	2.68	0.17	5.66	0.22	0.62	0.02	2.45	0.10	17.67	0.55	-	0.00
Non-Government Service	0.02	0.00	-	0.00	0.11	0.01	-	0.00	0.43	0.01	-	0.00	3.99	0.12	-	0.00
Open Space	-	0.00	-	0.00		0.00	-	0.00		0.00	-	0.00		0.00	-	0.00
Recreational Facility	-	0.00	-	0.00	0.21	0.01	-	0.00	1.60	0.05	-	0.00		0.00	-	0.00
Religious	5.30	0.28	1.92	0.16	5.42	0.34	3.31	0.13	5.69	0.18	3.54	0.15	4.44	0.14	0.59	0.04
Residential Area	497.56	25.88	255.27	21.43	499.05	31.71	836.68	31.83	881.76	27.37	447.68	18.67	780.31	24.25	222.68	16.52
Waterbody	181.35	9.43	130.18	10.93	82.85	5.26	100.16	3.81	191.34	5.94	40.67	1.70	131.86	4.10	409.65	30.38
Vacant Land	-	0.00		0.00	-	0.00		0.00		0.00	-	0.00	-	0.00	-	0.00
Miscellaneous	-	0.00	0.15	0.01	-	0.00	-	0.00	3.33	0.10	0.04	0.00	-	0.00	-	0.00
Transportation & Communication	-	0.00	-	0.00	-	0.00	-	0.00		0.00	-	0.00	0.38	0.01	-	0.00
Total	1922.38	100.00	1191.21	100.00	1573.78	100.00	2628.79	100.00	3221.46	100.00	2397.93	100.00	3217.18	100.00	1348.22	100.00

Land Use	Area (Acre)																	
	Musapur		Nilakhya		Palashtali		Paratali		Radhanagar		Raipura		Raipura Paurashava		Sreenagar		Uttar Bakharnagar	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
Government Services	0.20	0.01	0.04	0.00	0.57	0.01	0.82	0.02	0.56	0.02		0.00	5.73	0.27	0.45	0.01		0.00
Agricultural Area	1544.11	65.67	2811.20	65.84	2685.63	69.04	3469.16	68.15	1772.80	73.34	1258.08	66.05	773.71	37.02	3736.58	59.98	1260.43	59.62
Circulation Network	23.47	1.00	15.89	0.37	42.90	1.10	20.40	0.40	25.34	1.05	9.16	0.48	31.24	1.49	25.40	0.41	27.07	1.28
Commercial Activities	1.71	0.07	16.27	0.38	6.69	0.17	13.74	0.27	8.09	0.33	5.14	0.27	16.98	0.81	8.55	0.14	16.85	0.80
Community Facilities	0.09	0.00	0.10	0.00	0.72	0.02	-	0.00	0.74	0.03	0.87	0.05	-	0.00	-	0.00		0.00
Educational & Research	5.93	0.25	9.14	0.21	4.68	0.12	5.11	0.10	4.34	0.18	2.28	0.12	13.92	0.67	8.60	0.14	4.22	0.20
Health Facilities		0.00	0.90	0.02	0.23	0.01	0.60	0.01	0.67	0.03	0.28	0.01	0.14	0.01	0.48	0.01	0.66	0.03
Industrial Activities	23.56	1.00	0.05	0.00	0.50	0.01	-	0.00	7.05	0.29	-	0.00	0.09	0.00	1.07	0.02	0.10	0.00
Mixed Use	5.71	0.24	7.86	0.18	0.07	0.00	0.10	0.00	0.10	0.00	-	0.00	10.83	0.52		0.00	0.91	0.04
Non-Government Service	-	0.00	0.13	0.00	0.11	0.00	-	0.00	-	0.00	-	0.00	0.08	0.00	0.29	0.00	-	0.00
Open Space	-	0.00	-	0.00	20.83	0.54	-	0.00	-	0.00	-	0.00	32.95	1.58		0.00	-	0.00
Recreational Facility	-	0.00	-	0.00		0.00	-	0.00	-	0.00	0.78	0.04		0.00	0.11	0.00	-	0.00
Religious	4.79	0.20	3.23	0.08	4.08	0.10	3.47	0.07	3.65	0.15	3.01	0.16	1.82	0.09	7.80	0.13	3.15	0.15
Residential Area	606.05	25.77	695.78	16.30	870.44	22.38	651.89	12.81	471.68	19.51	288.51	15.15	1078.17	51.58	778.98	12.50	716.00	33.87

Waterbody	135.82	5.78	708.85	16.60	242.41	6.23	924.23	18.16	121.94	5.04	336.62	17.67	108.40	5.19	1661.66	26.67	84.74	4.01
Vacant Land	-	0.00	-	0.00		0.00	-	0.00		0.00	-	0.00		0.00	-	0.00		0.00
Miscellaneous	-	0.00	-	0.00	1.37	0.04	0.96	0.02		0.00		0.00	3.20	0.15		0.00		0.00
Transportation & Communicatio n		0.00	-	0.00	8.92	0.23	-	0.00	0.37	0.02	-	0.00	12.86	0.62	-	0.00		0.00
Total	2351.46	100.00	4269.45	100.00	3890.15	100.00	5090.46	100.00	2417.32	100.00	1904.73	100.00	2090.13	100.00	6229.98	100.00	2114.12	100.00



VULNERABILITY RISK ASSESSMENT

Risk Assessment survey was done for find out building condition of Raipura Upazila. 8 types data like overhanging, soft story, pounding, set back, short column, mobile tower, tilting and ground set has been identified to assess risk of the existing structure.

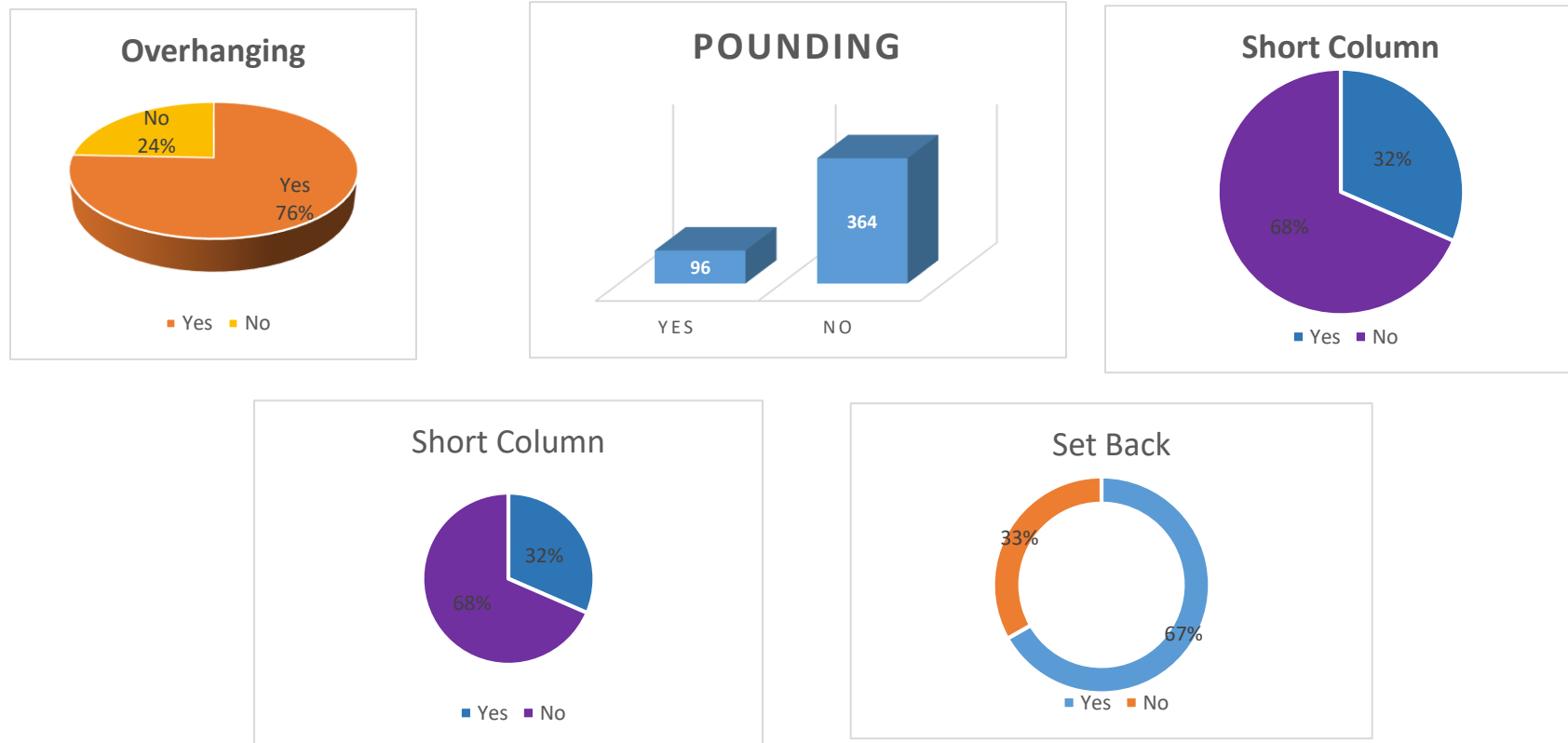


Figure: (a) Overhanging, (b) Short Column, (c) Soft Story, (d) Pounding, (e) Set Back.

Source: Risk Assessment Survey, 2017.

AGRICULTURAL LAND AREA COVERAGE

The land of Raipura Upazila is dominant in agriculture and also intensively used for poultry, fish culture, settlements with homestead forest and other infrastructural activities. Raipura Upazila gets high potentials for its land and agricultural production. The general overview depicts that Puarashava covers less land area for agriculture on an average and Daukar char union covers the highest land area in an

CROPPING INTENSITY

Different cropping pattern are practiced in Raipura Upazila. The present Union wise (24 Unions) and Municipality (1) cropping intensity is shown in Figure-5. The average cropping intensity under Raipur Upazila is 189% which is higher than cropping intensity of 10 Unions and Municipality and also less than 14 Unions (Fig.5).

The highest cropping intensities were achieved in Daukarchar(236%), Mirzanagar(232%) and Radhanagar Union(226%) and lowest cropping intensity under Chandpur Union(132%).The average cropping intensity under Raipura Upazila is 189% which is less than Narsingdi district (207%) and national average cropping intensity (190%) (Krishi Diary 2016).).

CROPPING PATTERN

Percentage of single, double, triple and multiple cropped area used in Shibpur Upazila is shown in Fig 2. The highest percentage is double cropped area (65%) followed by triple cropped area (21%), single cropped area (14%) and no multiple cropped area under Raipura Upazila.

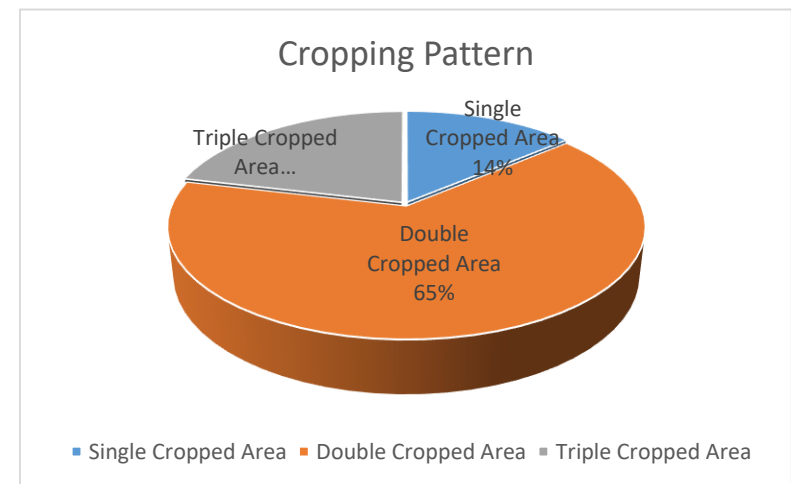
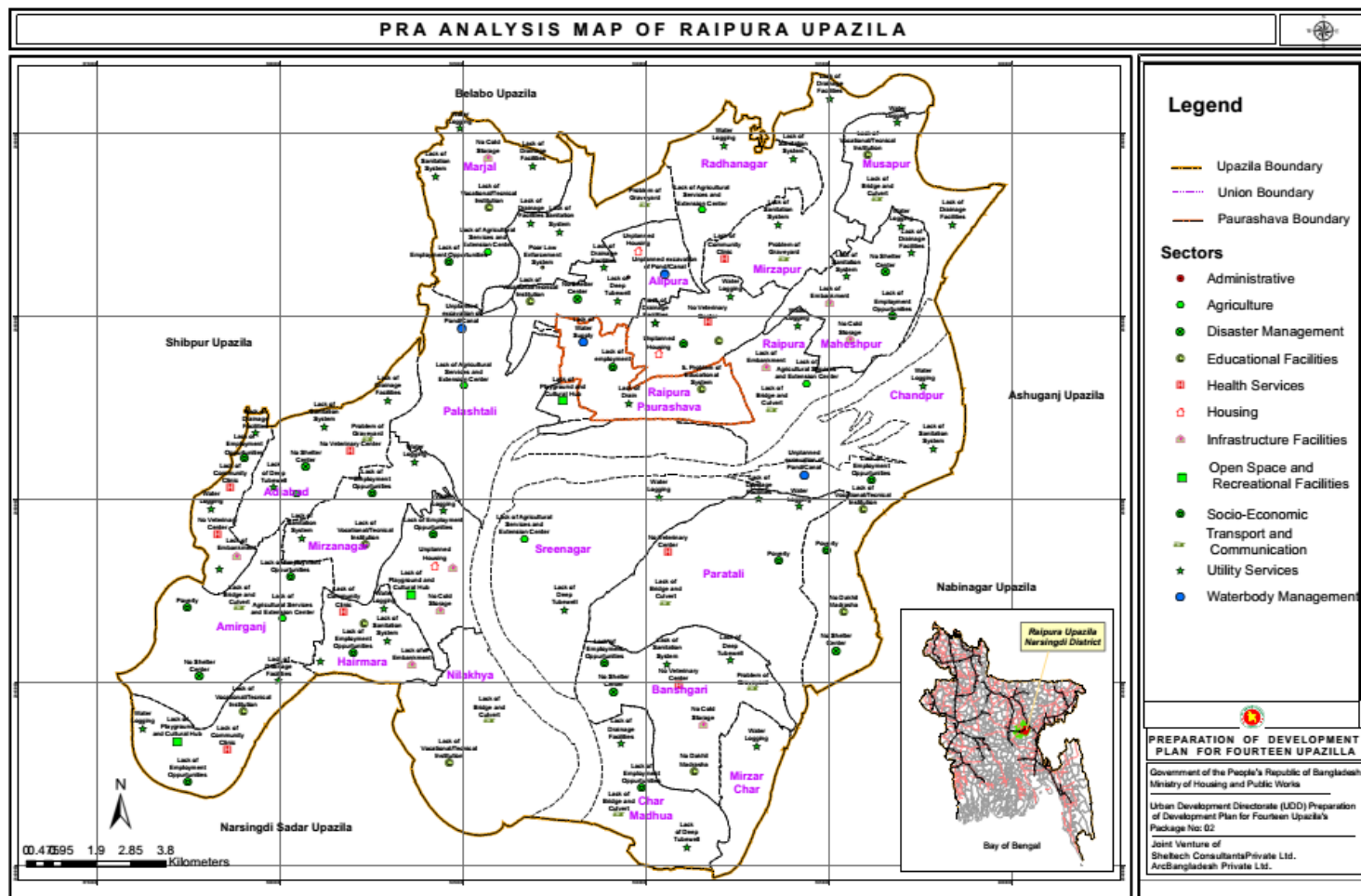


Figure: Cropping Pattern.
Source: Land use Survey, 2016.



PARTICIPATORY RURAL APPRAISAL

Participatory Rural Appraisal (PRA) is considered one of the popular and effective procedure to incorporate the knowledge and opinions of people in the planning and management of development projects and programs. In recent years there has been rapid expansion of new participatory reflection and action methods (PRA) and related approaches in the context of development and research.



Geology & Hydrology

Engineering Geological Map

For conducting of Geotechnical and Geophysical Test 8 locations have been selected across the whole Raipura Upazilla. About three types of boreholes has been dug deep in those locations. Map shows the location of the boreholes according with their typology and depth.

Based on the test on those location 3 types of geology found in Raipura. Most of the area in Raipura upazilla consist of alluvial silt. Geology typology has been delineated in the following map.

Soil Type

Based on the average shear wave velocity the soil type has been divided into 6 class with different characteristics. Among them about 3 types of soil such that D4, D6 and E has been found in Raipura. Maximum land is Soft/ Medium dense soil.

Soil Type	Area	Percentage
D4 - Medium Stiff / Medium Dense Soil	11922.83	23.148425
D5 - Soft / Loose to Medium Stiff / Medium dense Soil	29281.99	56.851574
E - Very Soft to Soft / Very Loose to Loose Soil	10301.21	20
Total	51506.03	100

Earthquake Intensity Map

Based on the earthquake intensity there are two types of soil i.e; Type VIII and Type IX. One for severe shaking and another for violent shaking. The whole area of Raipura comprises of severe shaking type soil. For this type of soil the PGA (Pick Ground Acceleration) value lies between 0.34 to 0.65.

Earthquake Intensity			
Earthquake Intensity	Shaking	Area	Percentage
VII	Severe	48386.32	93.9430285
VII to IX	Severe to Violent	3119.705	6.05697151
Total		51506.03	100

Foundation Type Map

The following map shows the recommended foundation type for structure in the Raipura upazilla. It has been shown that earthquake intensity for whole Raipura are same. Besides these surface geologies are also shown in this map. Deep foundation is recommended for southern part of the Raipura area and shallow to deep foundation for the eastern area of the upazilla.

Shallow to Deep Foundation are those with depth less than 5 meter and deep are considered those with depth greater than 5 meter. Area for the deep foundation and shallow to deep foundation are shown in the table below:

Foundation Depth(m)	Area	Percentage
2-5	4494.229	8.72563718
5.1-10	3861.022	7.49625187
10.1-15	14718.21	28.5757121
15.1-20	21065.73	40.8995502
20.1-32.6	7366.829	14.3028486
Total	51506.03	100

Foundation Layer Recommendation Map

Based on the earthquake intensity and soil type depth for the foundation of the structure has been delineated in the following map. Most of the foundation are recommended to be deeper than 20 meter. The least deep point is calculated to be within the range 2.0 – 5.0 meter.

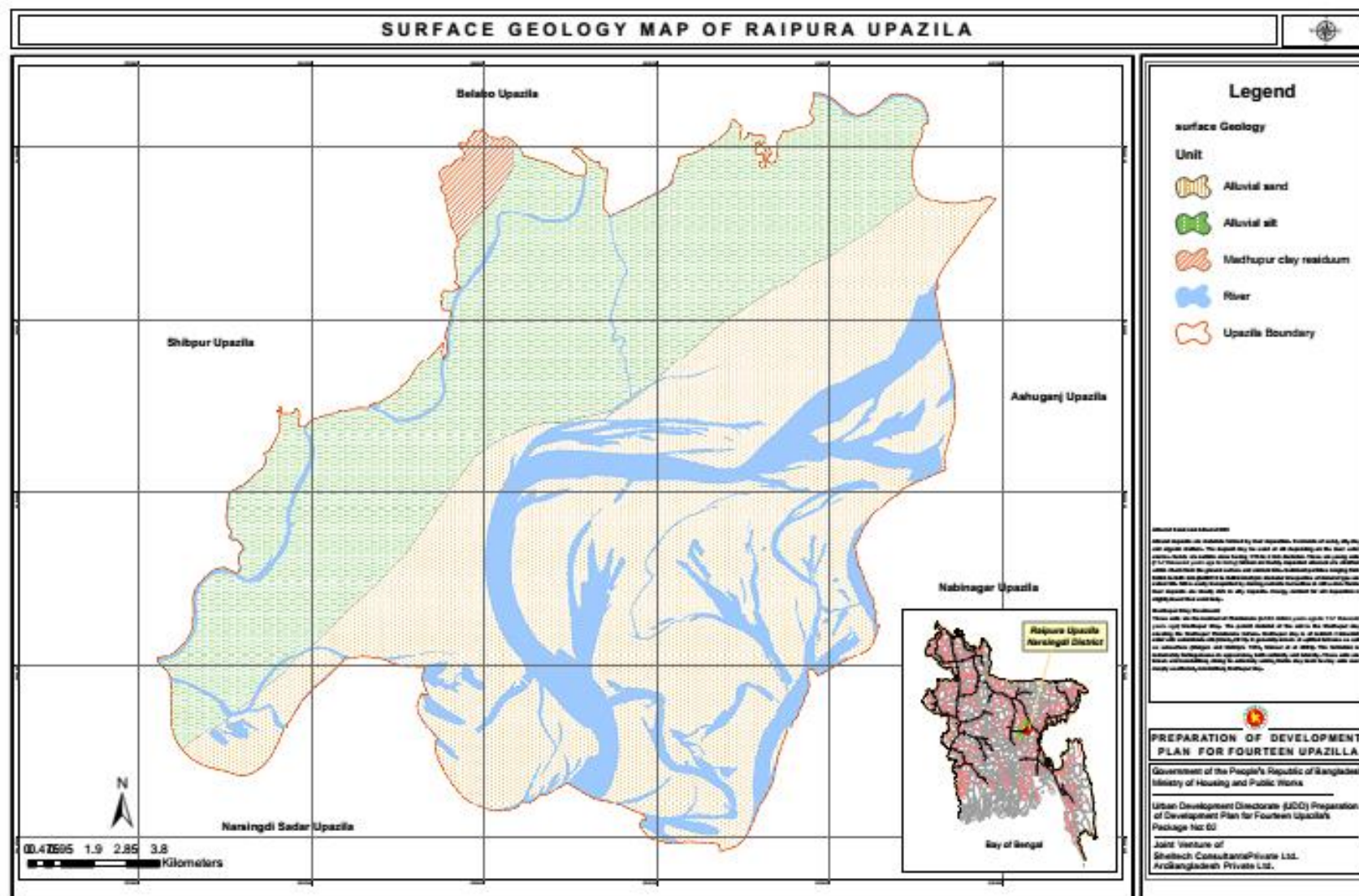
Eearthquake_Sensitivity Map

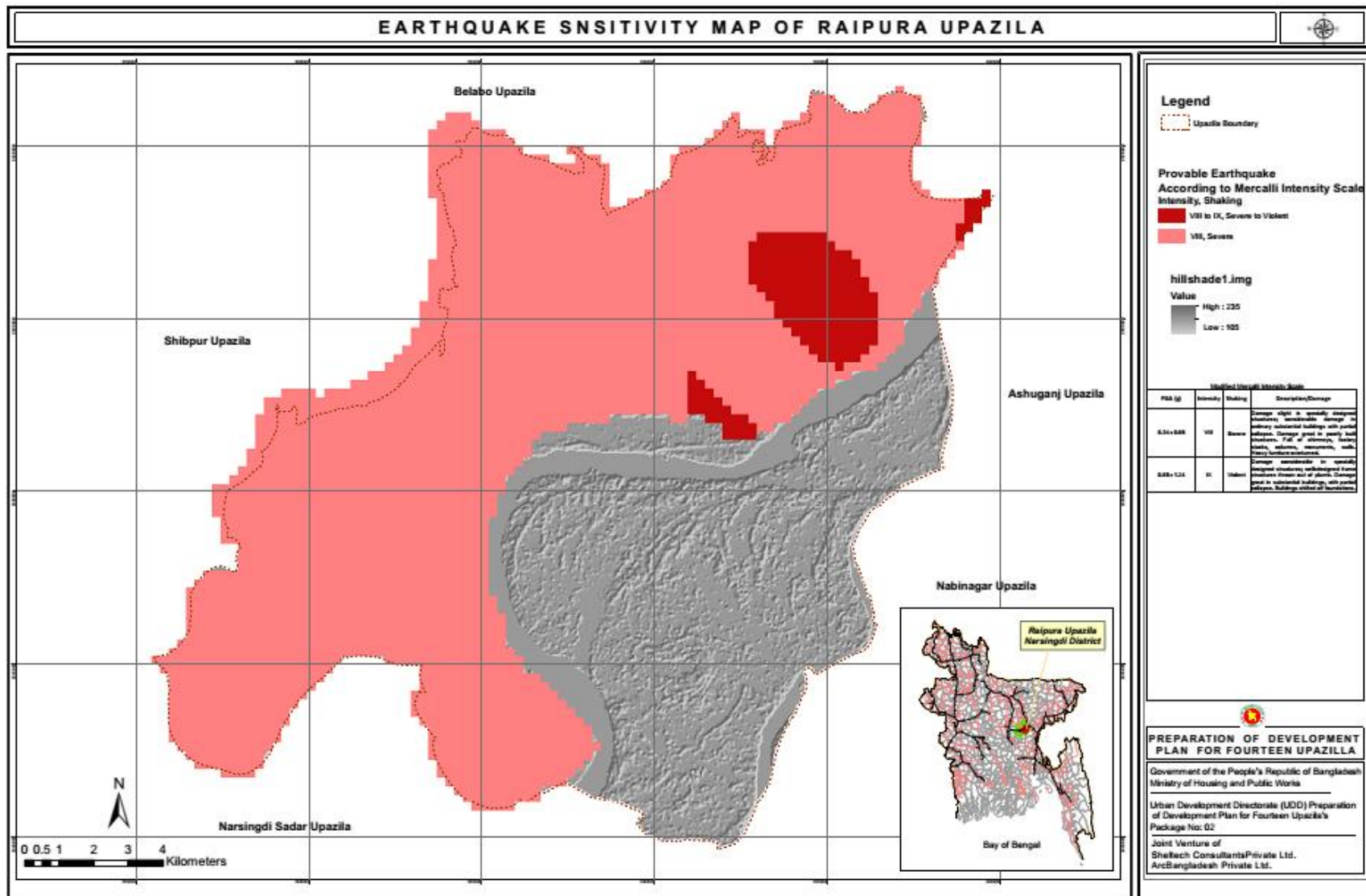
Most of the area of Raipura are sensitive in the 2nd degree in case of earthquake sensitivity. This situation has been illustrated in the following map.

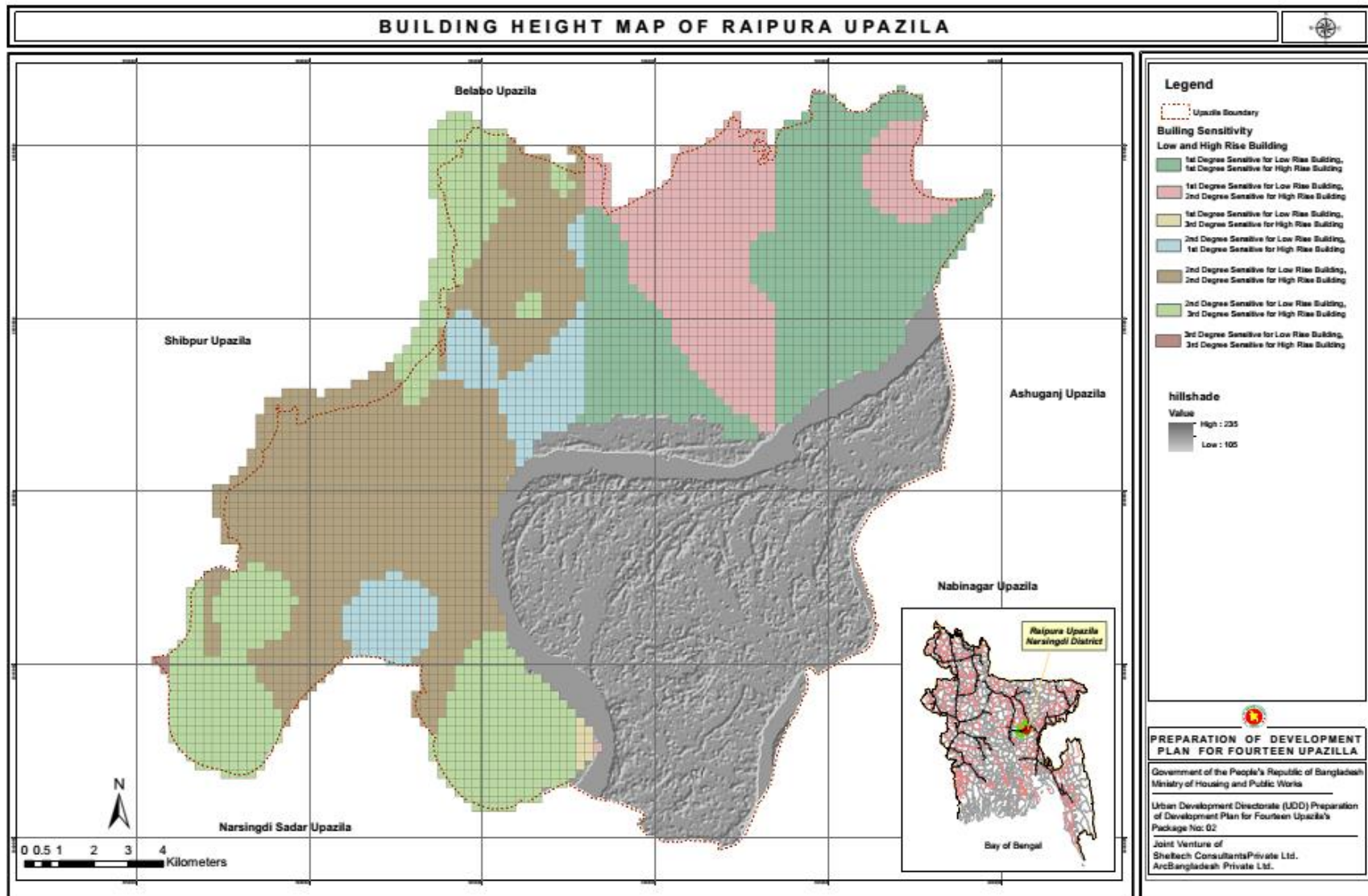
Earthquake Sensitivity	Area	Percentage
1st Degree Sensitive	12880.37	25.01
2nd Degree Sensitive	23799.34	46.21
3rd Degree Sensitive	14826.32	28.79
Total	51506.03	100

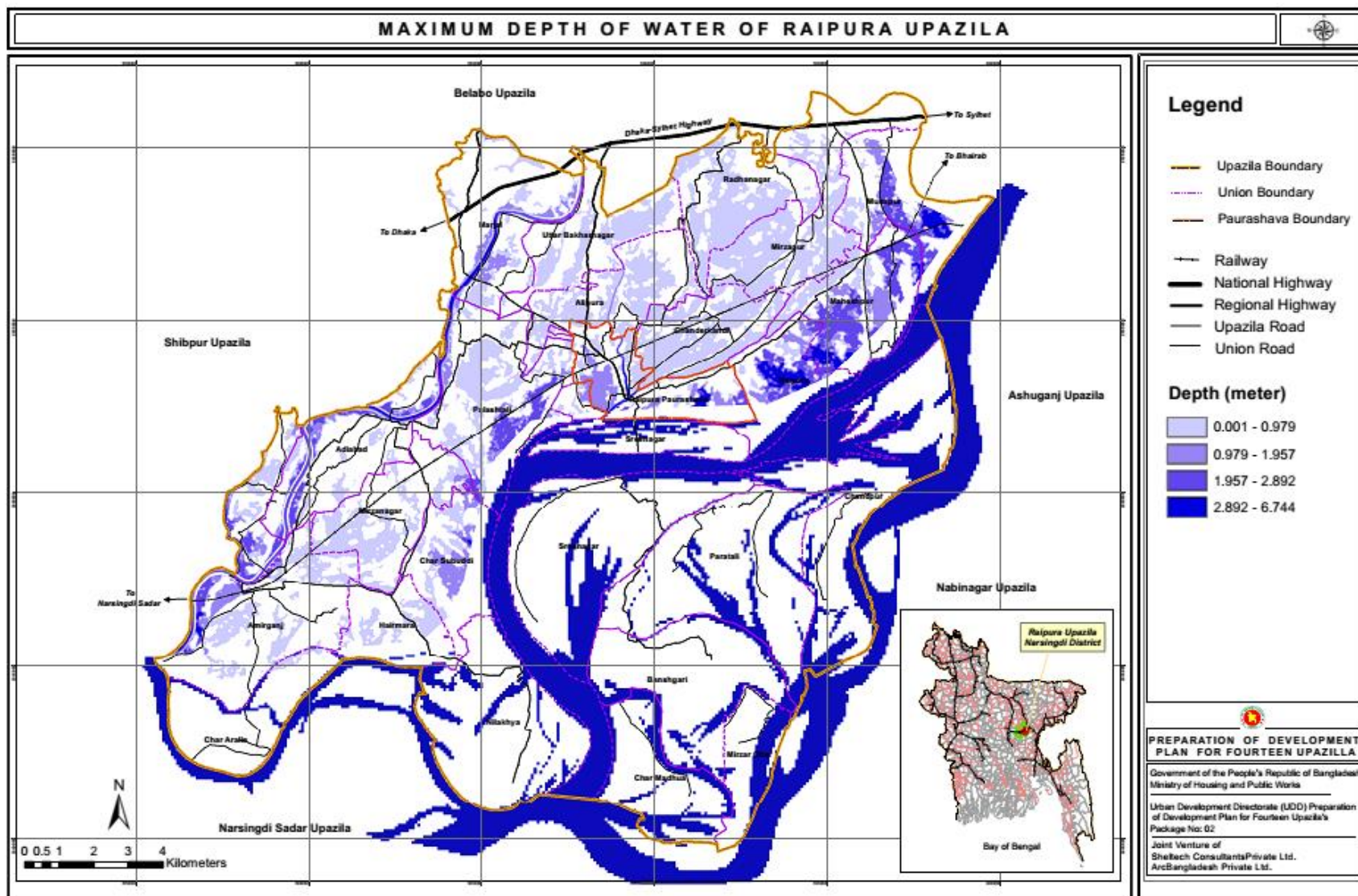
Building Height Recommendations

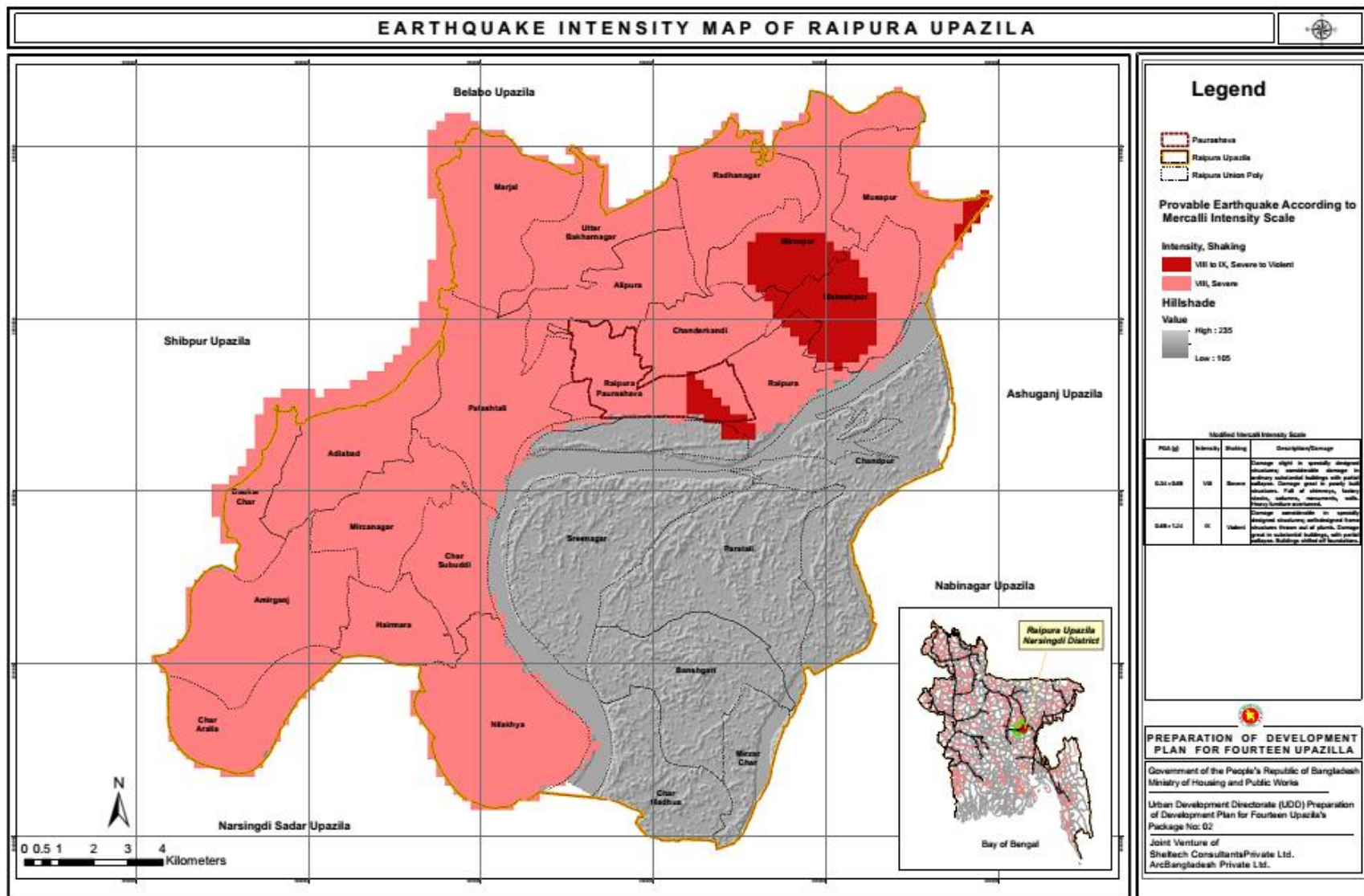
In this Geological analysis surface type, soil type, earthquake intensity and sensitivity has been analysed. With these analysis a map has been produced showing the recommended building height in upazilla area. Height of the recommended building are shown in the map below:

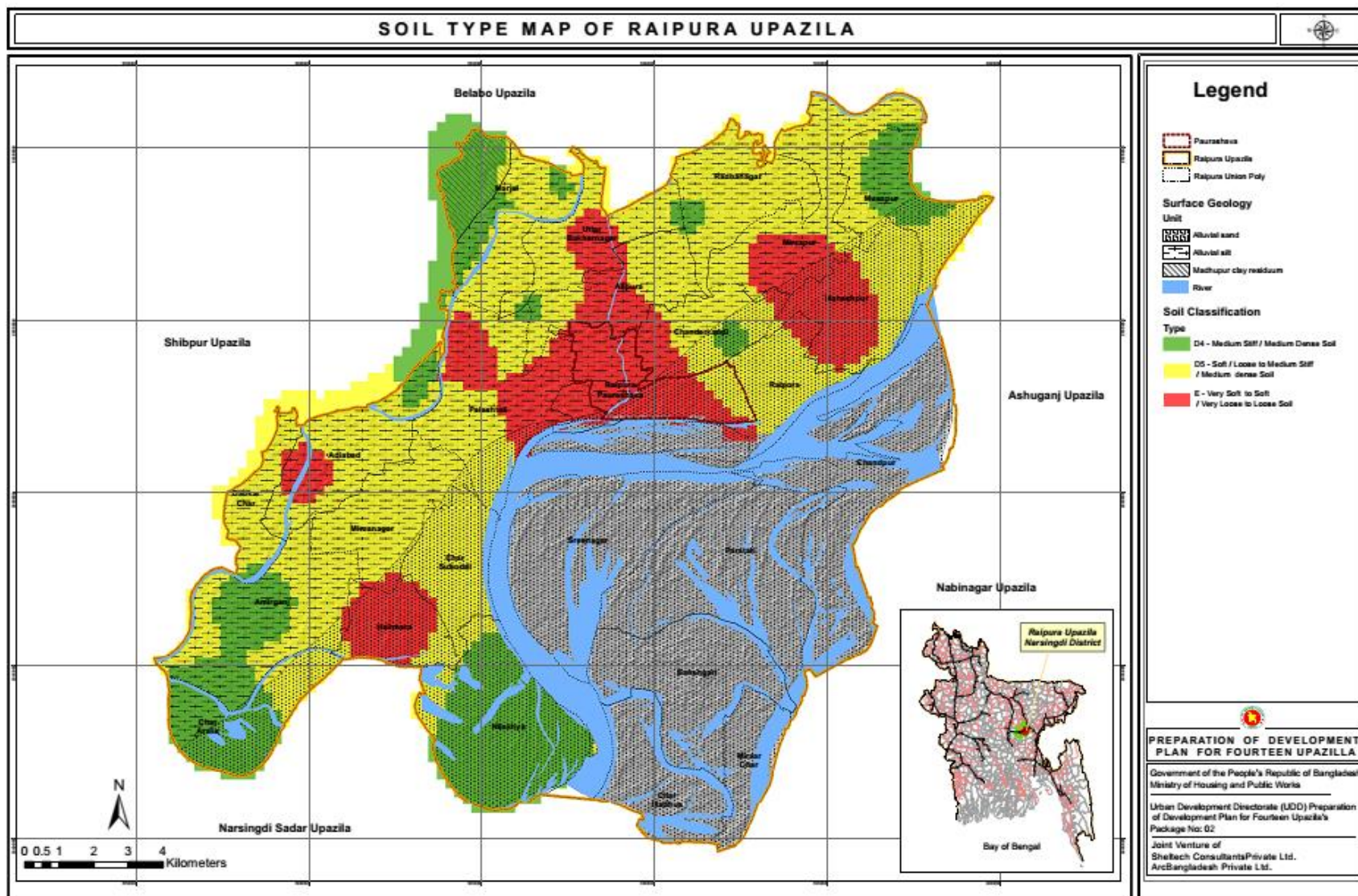












Suitability

For the plan preparation of Raipura Upazila suitability analysis is an essential step. Through this analysis suitable area for agriculture, urban and infrastructure development will be identified.

Agricultural suitability

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

Hydrological suitability

To identify the best suitable area for agriculture an analysis has been done. It is derived from the data of water depth and DEM.

Human Settlement Suitability

To identify the best suitable area for human settlement an analysis has been done. It is derived from the data of water depth, slope and cropping intensity. The main reason of this analysis is to identify the most suitable agricultural land for conservation.

Urban Suitability

For the identification of the urban suitable area some criteria have been fixed such as DEM, Geological suitability and major road. In which areas these four criteria have met the consideration those areas are the urban suitable areas.

Geological Suitability

In order to identify the area for zoning an analysis has been carried out. For this analysis the criteria are shear wave, PGA and foundation layer. From this analysis most and least suitable areas for infrastructure has been identified which will help for further development.

Factors behind Hydrological Suitability Calculation

Depth of water = Depth of water positively influenced the agriculture suitability.

Here, depth 0 – 0.3m = F_0 = Permitted for agriculture and other uses

depth 0.3 – 0.9 m = F_1 = double/triple crop land and permitted only for Agriculture.

depth 0.9 – 1.8 m = F_2 = Single crop land and permitted only for Agriculture.

DEM = DEM Inversely influenced the Hydrological suitability from maximum to minimum value.

Factors behind Agriculture Suitability Calculation

Cropping Intensity = Cropping intensity positively influenced the Agriculture suitability from single crop land to multiple crop land.

Depth of water = Depth of water positively influenced the agriculture suitability.

Here, depth 0 – 0.3m = F_0 = double/triple crop land

Depth 0.3 – 0.9 m = F_1 = double/triple crop land

Depth 0.9 – 1.8 m = F_2 = Single crop land

Factors behind Infrastructure Suitability Calculation

Foundation Depth = Foundation Depth Inversely influenced the infrastructure suitability from minimum to maximum.

PGA Value = PGA Value Inversely influenced the infrastructure suitability from minimum to maximum.

Earthquake Intensity = Earthquake intensity inversely influenced the infrastructure suitability from minimum to maximum.

Where, 1⁰ Sensitive means high risk zone

2⁰ Sensitive means Moderate risk zone

3⁰ Sensitive means Low risk zone

Factors behind Human Settlement Suitability Calculation:

DEM = positively influenced the Human Settlement Suitability from minimum to maximum Value.

Population density = positively influenced the Human Settlement Suitability from minimum to maximum Range.

Settlement Area = positively influenced the Human Settlement Suitability in a range of 1 to 5 in respect of land use type.

Proximity to road = Proximity to Road influenced the human settlement suitability according to road type. (Katcha = 1; Semi pucca= 2; Pucca =3)

Infrastructure Suitability = Infrastructure Suitability positively influenced Human Settlement Suitability from “poor” to “very good”.

Factors behind Urban Area Suitability Calculation

DEM = positively influenced the Human Settlement Suitability from minimum to maximum Value.

Settlement Area = positively influenced the Human Settlement Suitability in a range of 1 to 5 in respect of land use type.

Proximity to road = Proximity to Road influenced the human settlement suitability according to road type. (Katcha = 1; Semi pucca= 2; Pucca =3)

Infrastructure Suitability = Infrastructure Suitability positively influenced Human Settlement Suitability from “poor” to “very good”.

LAND SUITABILITY FOR AGRICULTURE IN RAIPURA UPAZILA



Legend

Agriculture Suitability

- Less Suitable for Agriculture
- Suitable for Agriculture
- Most Suitable for Agriculture

- Upazila Boundary
- Paurashava Boundary
- Union Boundary
- Rail line
- National Highway
- Regional Road
- Upazila Road
- Waterbody

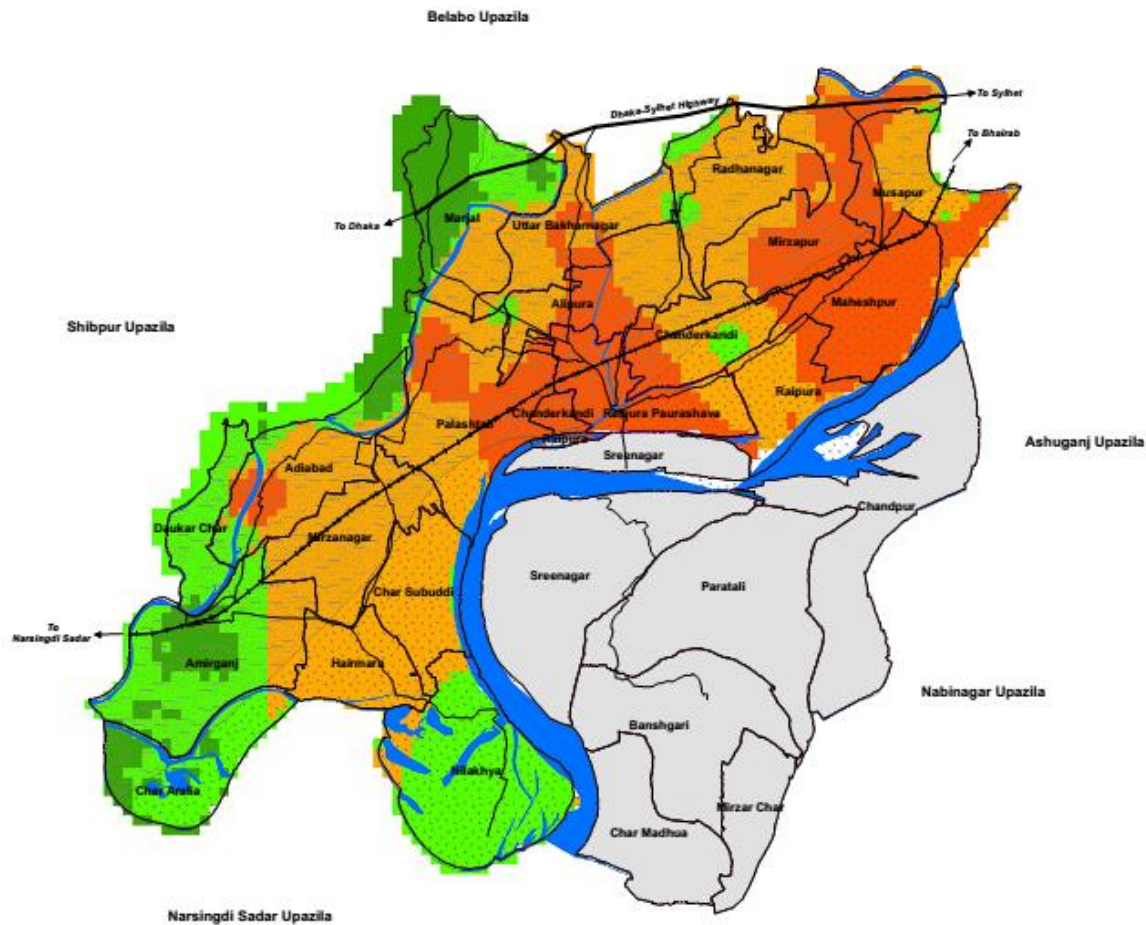
PREPARATION OF DEVELOPMENT PLAN FOR FOURTEEN UPAZILLA

Government of the People's Republic of Bangladesh
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INFRASTRUCTURE SUITABILITY IN RAIPURA UPAZILA



Legend

Surface Geology

- Alluvial sand
- Alluvial silt
- Madhupur clay residuum
- Water Body

Infrastructure Suitability

- Class
- Very Good
 - Good
 - Moderate
 - Poor

- Char Area
- Upazila Boundary
- Paurashava Boundary
- Union Boundary
- Rail line
- National Highway
- Regional Road
- Upazila Road

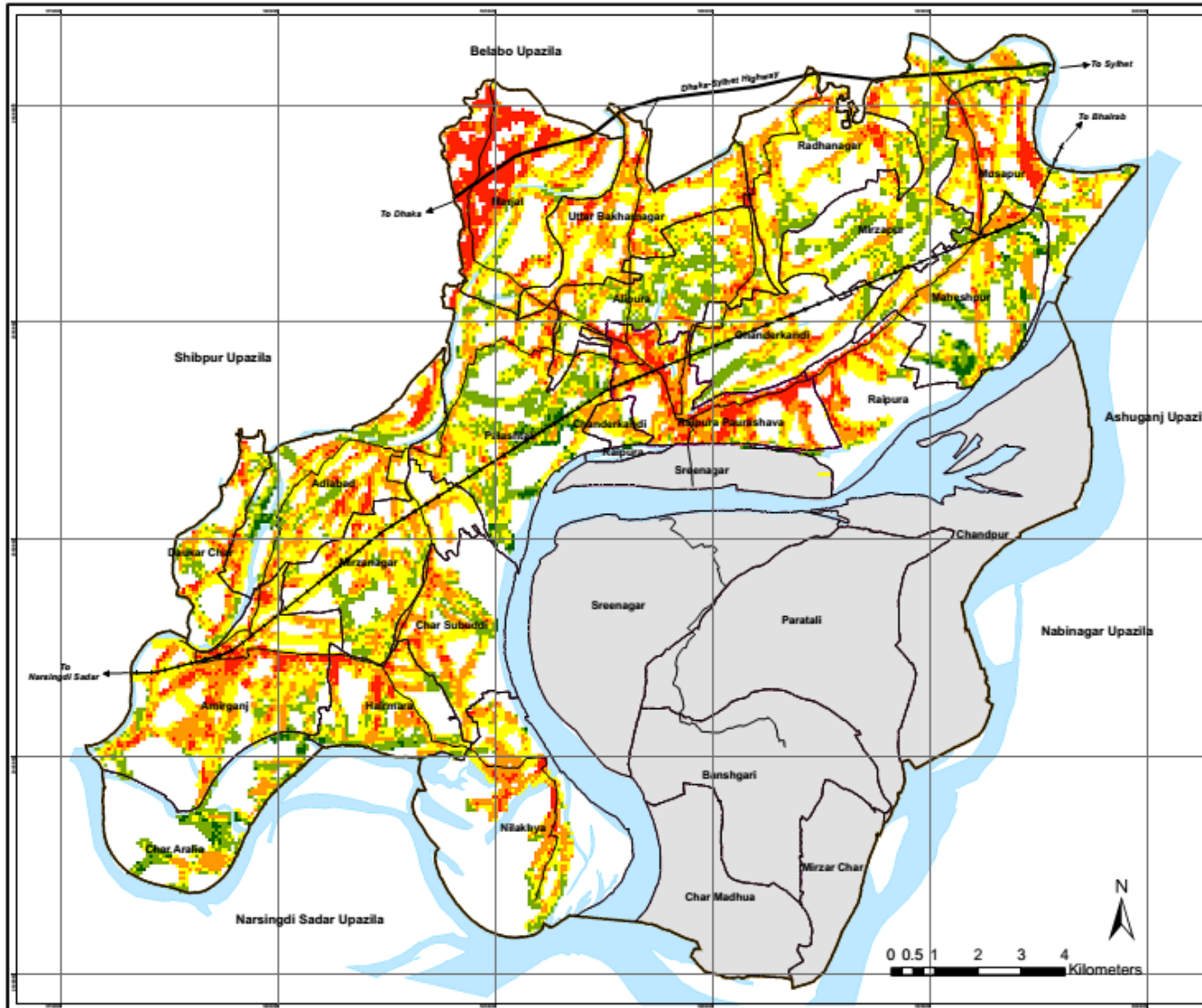
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LAND SUITABILITY FOR HUMAN SETTLEMENTS OF RAIPURA UPAZILA



Legend

Suitability for Human Settlement

- Lowest Suitable
- Less Suitable
- Suitable
- More Suitable
- Most Suitable

Char Area

Upazila Boundary

Paurashava Boundary

Union Boundary

Rail line

National Highway

Regional Road

Upazila Road

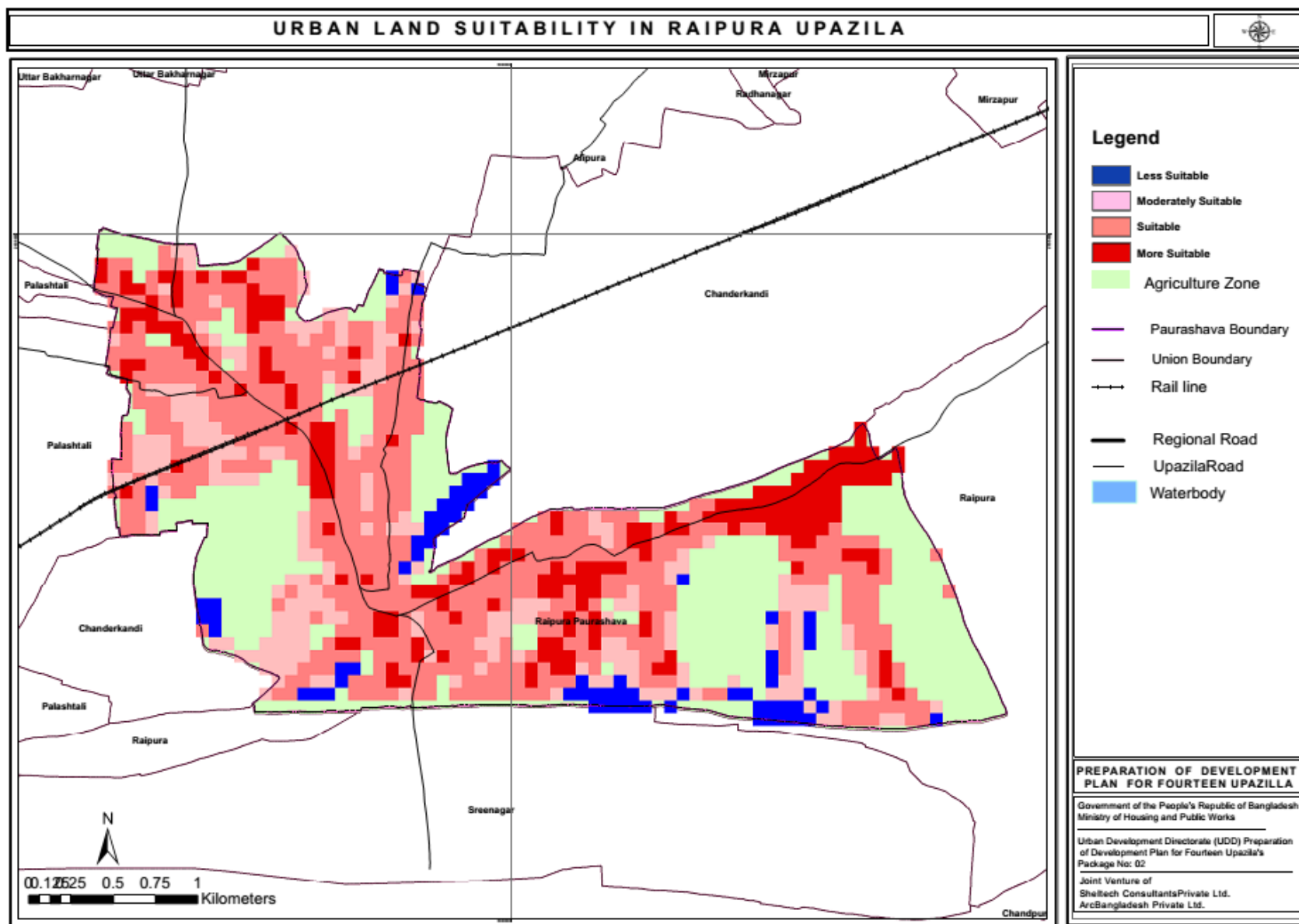
Waterbody

PREPARATION OF DEVELOPMENT PLAN FOR FOURTEEN UPAZILLA

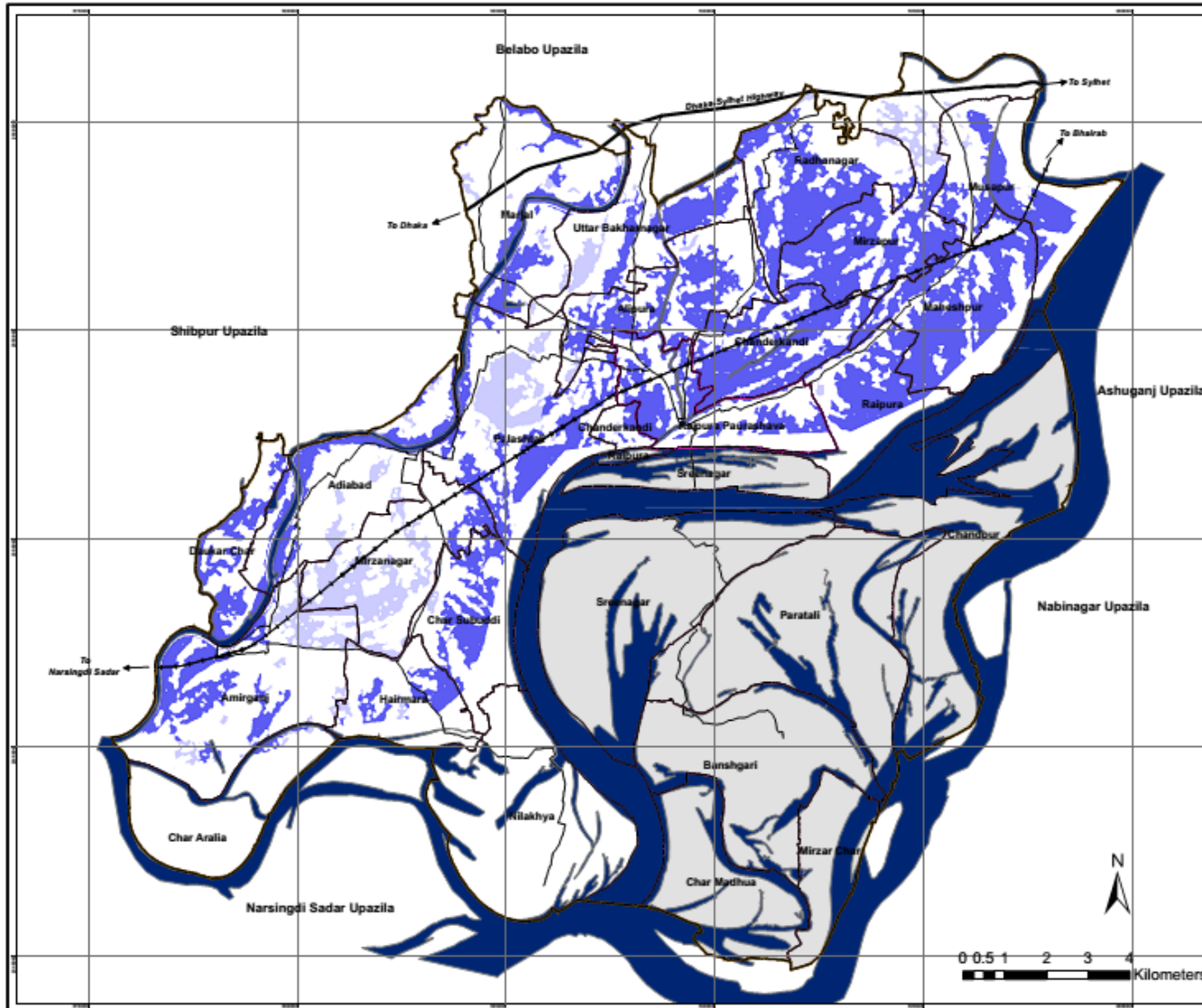
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LAND INUNDATED AREA DURING LAST 20 YEARS IN RAIPURA UPAZILA



Legend

- Land not Suitable for any other use (Waterbody)
- Land Suitable for Agriculture
- Land Moderately Suitable for Other Uses
- Not Inundated
- Char Area
- Upazila Boundary
- Paurashava Boundary
- Union Boundary
- Rail line
- National Highway
- Regional Road
- Upazila Road

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BROAD LANDUSE ZONING

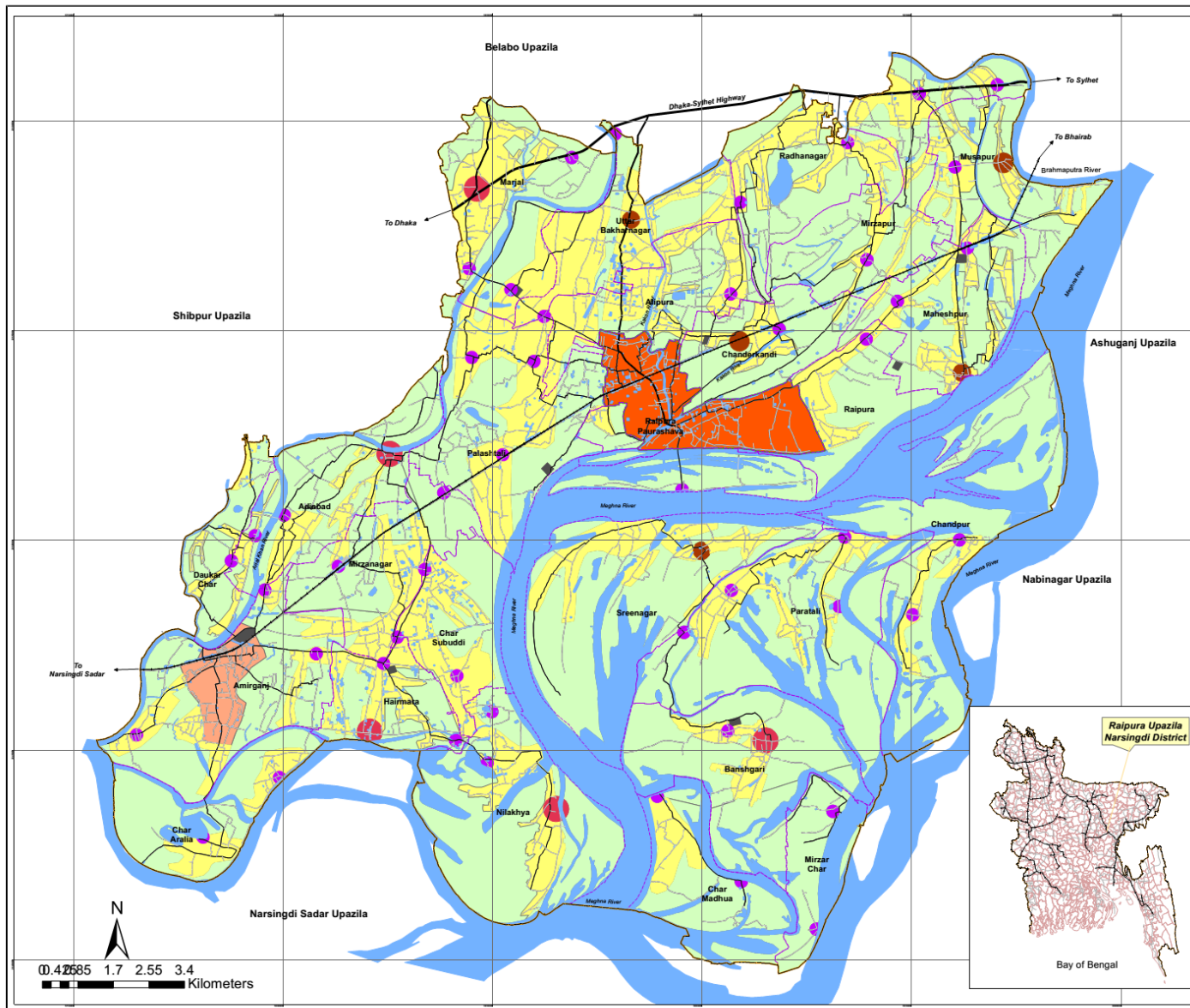
Total area of Raipura Upazila is segregated under some broad classes that will basically guide future growth with wide aspects. Definitions of eight broad classes of Upazila Structure Plan are given below for conceptualizing focus of the future magnitude as well as illustration of the policies and strategies.

Table: Structure Plan Categories of Raipura Upazila.

Structure Plan Categories	Defination	Area (acre)	%
Agricultural Area	Agricultural land (also <i>agricultural area</i>) denotes the land suitable for agricultural production, both crops and livestock.	১৬৬৬৬	১৯
Circulation Network	Circulation network contains major road network and railways linkage with regional and national settings.	১৬৬৬৬	১৯
Existing Growth Center	Growth centres are service centres (rural or urban) which has a potential for further development and hence need to be supported by further public and private sector investment. It has been conceived as points of attraction for the people who otherwise would go to large congested urban areas. Rural Growth Centre is a centre which provides goods and services to its own population as well as its surroundings population creating balanced socio-economic development of an area.	১৬৬৬৬	১৯
New Growth Center	Hat bazar area which has the potentiality of new development in smaller context and has a good connectivity and prospects to serve local community by increasing commercial activities.	১৬৬৬৬	১৯
Hat Bazar	Hat Bazar serves as a trading venue for local people in rural areas. These area is considered as the market place for the villages provide a noticeable number of commercial activities and have a higher concentration of structures than the rural settlement area.	১৬৬৬৬	১৯
Industrial Zone	Industrial Zone refers to a zone for industries and associated uses in specific areas where special consideration of the nature and impacts of industrial uses is required. And two major types of industries are considered in this zone; Agro-based industry and heavy industry.	১৬৬৬৬	১৯
Existing Urban Area	This area is also known as built-up area or core area. This is defined as the area which has the highest concentration of services; it also has the highest population concentration and density at the present day. Height restriction or density zoning can be the tool to control the present growth trend and establish the targeted density.	১৬৬৬৬	১৯
New Urban Area	This zone will be the required additional area for future planned urban development as per population projection. Existing physical trend of growth and potential areas shall have to be consider for new urban land development. New facilities and services like road, drains, footpath, waste transfer station and other civic services will be provided. This area is proposed to grow within the plan period (2035). This zone also accommodates the required area for proposed public facility like administrative services, utilities, recreational area, major religious educational area, etc.	১৬৬৬৬	১৯
Rural Settlements & Vegetation	Rural settlement is a sparsely populated community that exists in the upazila, away from densely populated urban centers and has low population density. This area is predominantly influenced by agriculture, homestead faming and vegetation.	১৬৬৬৬	১৯
Waterbody	Water bodies containing areas equals to or more than 0.25 acres including khal, canal, ponds and river.	১৬৬৬৬	১৯
Total		৪৫১৩৭.০৩	১০০.০০

Source: Prepared by Consultants, 2017.

STRUCTURE PLAN OF RAIPURA UPAZILA (DRAFT)



Legend

- Upazila Boundary
- Union Boundary
- Paurashava Boundary
- Rail line
- National Highway
- Regional Highway
- Upazila Road
- Union Road
- Village Road
- Agriculture
- Circulation Network
- Growth Center
- Hat Bazar Area
- Industrial Zone
- New Growth Center
- New Urban Area
- Rural Settlement
- Urban Area
- Waterbody

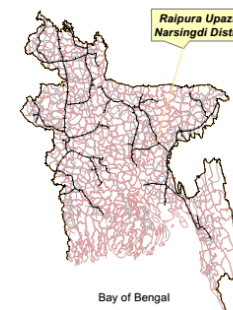


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Policies of Structure Plan

The following policies were put forward to achieve Structure Plan goal:

Policy 1: Density Control

Policy 2: Densification of Residential Areas through People's Participation

Policy 3: Creation of trained grassroots level family planning workers for motivational works

Policy 4: Encourage investment in business

Policy 5: Reduce cost of doing business

Policy 6: Support SME for creation of jobs and economic upliftment

Policy 7: Employment Generation through Development of Potential Sectors

Policy 8: Develop efficient inter upazila communication facilities

Policy 9: Maintenance or repairing of roads

Policy 10: Development of missing linkages

Policy 11: For better accessibility transport terminals should be located at major roads

Policy 12: Improvement of road

Policy 13: Functional and hierarchical road network development

Policy 14: Incepting drainage network plan in response of water logging problems

Policy 15: Facilitating access for all citizens to basic level of services in water supply and sanitation

Policy 16: Facilitating access for all citizens to electricity supply

Policy 17: Facilitating access for all citizens to basic level of services in water supply and sanitation

Policy 18: Facilitating access for all citizens to electricity and gas supply

Policy 19: Incepting Drainage Network Plan in response of Water logging problems

Policy 20: Preservation of natural Water resources

Policy 21: Ensuring Safe Sanitation to Citizen

Policy 22: Identifying the hazard risk zones

Policy 23: Pollution Control

PLAN PROPOSALS

Proposed Road Network of Raipura Upazila

Table: Proposed Road Type of Raipura UpazilaUpazila.

Land use Category	Hierarchy of Roads	Length (km.)	%
Circulation Network	National Highway	7.93	.90
	Primary Road	34.06	3.8
	Secondary Road	232.82	26.48
	Tertiary/Local Road	604.35	68.74
Total		879.17	100.00

ROAD NETWORK PLAN OF RAIPURA UPAZILA (DRAFT)



Legend

- Upazila Boundary
- Union Boundary
- Paurashava Boundary
- Rail line
- Road_Proposed
- National Highway
- Regional Highway
- Upazila Road
- Union Road
- Village Road
- Waterbody



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PLAN PROPOSALS (URBAN AREA)

Proposed Road Network of Raipura Paurashava

Table: Proposed Road Type of Raipura Upazila

Landuse Category	Hierarchy of Roads	Length (km.)	%
	Primary Road	6.97	13.91
	Secondary Road	14.14	28.23
	Tertiary/Local Road	28.96	57.08
Total		50.08	100.00

Proposed Facilities of Raipura Upazila

Table: Proposed Facilities of Raipura Upazila

NO	Proposed Facilities	Union Name	Area
1	Agricultural Training Center	Maheshpur	0.42
		Marjal	0.38
		Radhanagar	0.97
2	Agro-based Industry	Banshgari	9.99
		Chanderkandi	5.67
		Hairmara	7.97
		Maheshpur	10.99
		Marjal	10.17
3	Brick Field Zone	Maheshpur	7.89
		Palashtali	10.57
4	Cattle Hat	Hairmara	2.16
5	Cluster Village	Char Madhua	8.51
6	Cng/Tempoo Stand	Adiabab	0.93
		Amirganj	3.46
		Char Madhua	0.59
		Hairmara	0.34
		Mirzanagar	1.62

NO	Proposed Facilities	Union Name	Area
7	Cold Sstorage	Musapur	1.51
		Banshgari	0.44
		Char Madhua	0.57
		Marjal	1.05
		Mirzapur	0.68
		Mirzar Char	0.96
		Paratali	1.96
		Radhanagar	1.12
8	Community Clinic	Raipura	0.47
		Sreenagar	0.38
9	Dairy Farm	Banshgari	1.00
		Maheshpur	3.92
		Maheshpur	1.35
10	Dairy Farm/Cow Hatchery	Marjal	3.28
		Raipura	3.43
11	Graveyard	Mirzanagar	2.51
12	High School	Amirganj	1.42
		Radhanagar	3.19
		Chanderkandi	0.39

NO	Proposed Facilities	Union Name	Area
13	Hospital	Uttar Bakharnagar	2.39
14	Housing Area	Palashtali	0.24
15	Industrial Zone	Amirganj	26.71
16	Kitchen Market	Char Aralia	0.72
		Nilakhya	0.33
		Uttar Bakharnagar	1.78
17	Land Office	Adiabab	0.76
		Nilakhya	0.42
18	Low Cost Housing	Raipura	0.23
19	Neighborhood Market	Mirzapur	3.79
20	Neighborhood Park	Musapur	3.67
21	Park	Maheshpur	1.24
		Sreenagar	2.07
22	Passenger Shed	Adiabab	0.37
		Amirganj	0.24
23	Picnic Spot	Paratali	1.10
24	Playground	Chanderkandi	0.50
		Palashtali	0.55
25	Primary & High School	Chanderkandi	0.34
26	Public Toilet	Adiabab	1.14
27	Recreational Park	Amirganj	6.09
28	Rural Core Housing	Musapur	7.06
29	Shelter Center	Banshgari	1.98

NO	Proposed Facilities	Union Name	Area
30	Solar Panel	Chandpur	2.93
		Char Madhua	2.93
		Nilakhya	2.93
		Paratali	2.93
		Sreenagar	2.93
31	Tempoo Stand	Amirganj	0.54
		Maheshpur	1.24
		Marjal	1.29
		Uttar Bakharnagar	0.71
32	Truck Terminal	Amirganj	4.01
33	Veterinary Development Center	Daukar Char	1.95
		Paratali	1.21
34	Vocational Training Institute	Amirganj	0.71
		Uttar Bakharnagar	0.78
35	Waste Transfer Station	Alipura	0.24
		Amirganj	0.80
		Marjal	0.70
		Mirzapur	0.33
		Nilakhya	0.68
		Palashtali	1.32
		Paratali	0.31
		Radhanagar	0.63
		Raipura	0.51
		Uttar Bakharnagar	0.62
36	Water Treatment Plant	Daukar Char	1.94
37	Wholesale Market	Marjal	6.58
		Sreenagar	1.65

Proposed Facilities of Urban Area

Table: Proposed Facilities of Raipura Paurashava

NO	Proposed Facilities	Area
1	Bus Terminal	0.83
2	CNG/Tempoo Stand	0.79
3	Community Clinic	1.24
4	Housing Area	26.05
5	Low Cost Housing	25.20
6	Neighborhood Park	5.94
7	Park	1.94
8	Poura Market	2.90
9	School	0.31
10	Stadium	5.03
11	Tempoo Stand	0.66
12	Waste Disposal Station	15.78
13	Waste Transfer Station	0.59
14	Water Treatment Plant	1.87

Consultation Meeting in Raipura Upazila





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