Chapter- 2
CRITICAL PLANNING ISSUES

2.1 Existing Development Pattern

2.1.1 General

Within a timeframe of two decades, Dhaka spanned both north, east and west ward triggering urban development both haphazard and few planned by Government. The progress of urban development has occurred with unrivaled speed and dimension. The development trend has propelled the city's growth into the future with amazing velocity; an entirely new urban reality accelerated the current development trends within the city which became characterized, by a steady population growth and density, an ongoing haphazard urbanization with moderate economic growth and a rapid motorization.

In Location-11, haphazard and unplanned urban growth and development pattern exist. Few residential areas are planned and most of the areas are unplanned. There is no clearly defined industrial zone in the project area. Major portion of the lands are non-urbanized with scattered rural settlements. A part of this location is full of water bodies and wet lands. Infill development in the low-lying areas is noticeable picture in this location.

2.1.2 Socio-economic Profile

a. Family Size

The Table 2-1 shows the distribution of Union-wise male and female population in the project area. The table also presents the distribution of household size of the project area, where the highest household size (7.02) is experienced in the Rampura Union and the lowest (5.90) household size in Matuail Union.

Table 2-1: Union wise Average Household Size

Union Name	Household Number	Sex		Total	Household Size
		Male	Female		
Demra	178	630	493	1,123	6.31
Matuail	268	865	717	1,582	5.90
Rampura	466	1,819	1,452	3,271	7.02
Nandipara	271	893	795	1,688	6.23
Dakshingaon	95	321	269	590	6.21
Total	**1,278**	**4,528**	**3,726**	**8,254**	**6.46**

Source: Socio-Economic Survey, 2006

b. Age and Sex Structure

The overall age-sex composition of population of the project area appears to be somewhat different from the national scenario and this is due to population growth and urbanization in the project area. Table 2-2 shows that about 37.74 percent of the sample population is 19 years of age or bellow; about 26.57 percent population are within the age group of 20 to 34 years. About 22.76 percent are in the age group of 35 to 49 years, about 9.79 percent population are in the age group of 50 to 64 and the rest 3.14 percent are of age 65 years and above.

Table 2-2: Age Sex structure of the Project Area

Age Group	Male		Female		Total	
	Number	%	Number	%	Number	%
Below 5	161	1.95	120	1.45	281	3.40
5-14	1111	13.46	848	10.27	1959	23.73
15-29	1209	14.64	1153	13.97	2362	28.61
30-44	1114	13.5	932	11.3	2046	24.80
45-59	653	7.91	493	5.97	1146	13.88
60 and above	280	3.39	180	2.18	460	5.58
Total	**4,528**	**54.86**	**3,726**	**45.14**	**8,254**	**100.00**

Source: Socio-Economic Survey, 2006

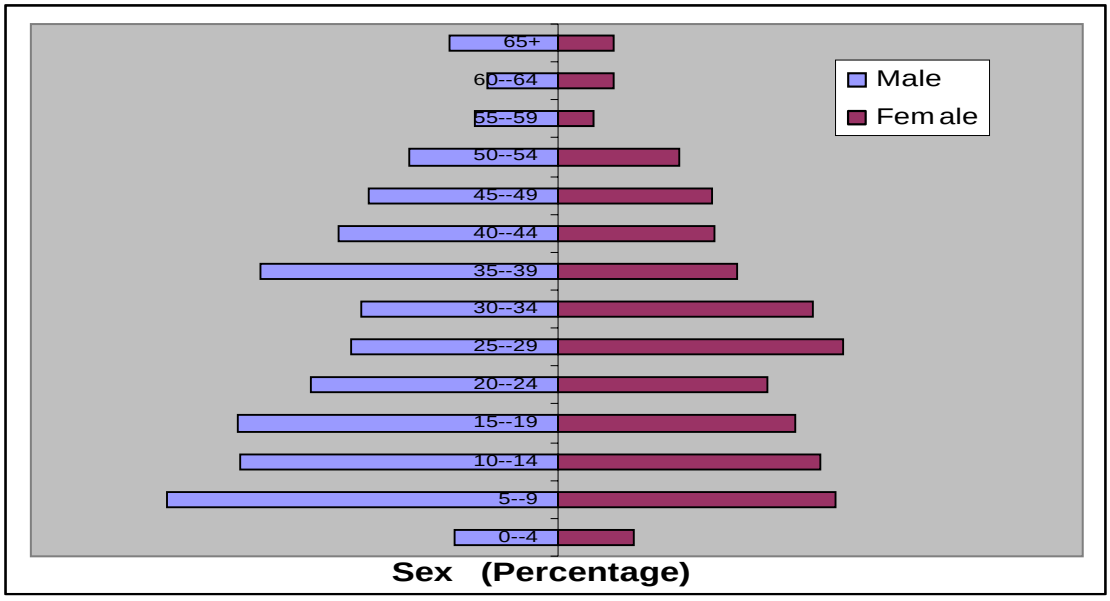


Figure 2-1: Age-Sex Pyramid

Source: Socio-Economic Survey, 2006

The above age-sex pyramid shows a graphic scenario of the age and sex distribution of the project area population. This indicates the project area population to be currently in a state of population transition with birth rate falling, which indicated by the shortening of the base of the pyramid, although by the adjacent Rows above do not mention as same in this regard.

c. Religious Groups

Table 2-3 shows the religion wise population distribution in the project area. The common prediction regarding the population-religion that was assumed that the Muslim population will be significantly high in all the Unions of the project area and hence the survey result shows about 98 percent are Muslims and the rest 2 percent are Hindus. In all the Unions, the survey data do not present any other religious households.

Table 2-3: Household by Religion

Name of the Union	Religion								Total	
	Muslim		Hindu		Buddhist		Christian			
	Number	%	Number	%	Number	%	Number	%	Number	%
Demra	1,003	12.15	120	1.45	0	0.00	0	0.00	1,123	13.61
Matuail	1,556	18.85	26	0.31	0	0.00	0	0.00	1,582	19.17
Rampura	3,248	39.35	23	0.28	0	0.00	0	0.00	3,271	39.63
Nandipara	1,685	20.41	3	0.04	0	0.00	0	0.00	1,688	20.45
Dakshingaon	590	7.15	0	0.00	0	0.00	0	0.00	590	7.15
Total	**8,082**	**97.92**	**172**	**2.08**	**0**	**0.00**	**0**	**0.00**	**8,254**	**100.00**

Source: Socio-Economic Survey-2006

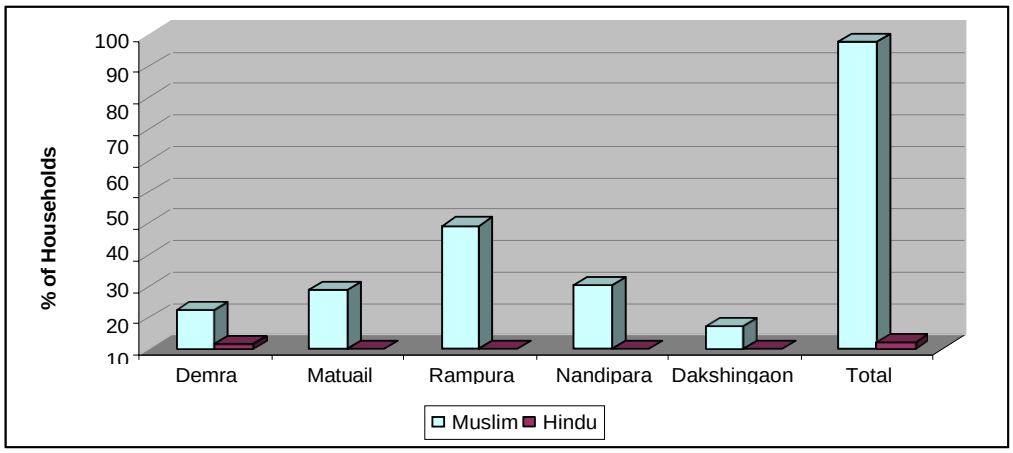


Figure 2-2: Union wise Religious People (in Percentage)

Source: Socio-Economic Survey, 2006

d. Educational Status

Table 2-4 represents the educational status of the population of the project area. Among the surveyed households about 13 percent population are illiterate, 33 percent have elementary level of education, about 22 percent have junior level of education, about 10 percent respondents have S.S.C. level education, about 18 percent have H.S.C and higher level of educational qualifications and the rest 4 percent population are under aged in the project area.

Table 2-4: Educational Status

Education	Name of the Union										Total	
	Demra		Matuail		Rampura		Nandipara		Dakshingaon			
	N	%	N	%	N	%	N	%	N	%	N	%
Illiterate	79	0.96	202	2.45	615	7.45	138	1.67	76	0.92	1,110	13.45
Elementary	481	5.83	532	6.45	838	10.15	637	7.72	209	2.53	2,697	32.68
Junior	136	1.65	439	5.32	558	6.76	477	5.78	187	2.27	1,797	21.77
S.S.C	69	0.84	166	2.01	327	3.96	191	2.31	70	0.85	823	9.97
H.S.C	16	0.19	17	0.21	232	2.81	59	0.71	31	0.38	355	4.30
Degree	14	0.17	15	0.18	262	3.17	64	0.78	3	0.04	358	4.34
Doctor/ Engineer /Advocate	0	0.00	1	0.01	48	0.58	17	0.21	0	0.00	66	0.80
Master Degree and Above	1	0.01	7	0.08	128	1.55	32	0.39	0	0.00	168	2.04
Technical (Diploma)	68	0.82	92	1.11	21	0.25	17	0.21	0	0.00	198	2.40
Vocational	178	2.16	28	0.34	64	0.78	0	0.00	0	0.00	270	3.27
Religious / Madrasa	11	0.13	0	0.00	32	0.39	0	0.00	0	0.00	43	0.52
Under age	70	0.85	73	0.88	138	1.67	52	0.63	14	0.17	347	4.20
Alim	0	0.00	10	0.12	1	0.01	0	0.00	0	0.00	11	0.13
Others	0	0.00	0	0.00	7	0.08	4	0.05	0	0.00	11	0.13
Total	**1,123**	**13.61**	**1,582**	**19.17**	**3,271**	**39.63**	**1,688**	**20.45**	**590**	**7.15**	**8,254**	**100.0**

Source: Socio-Economic Survey-2006

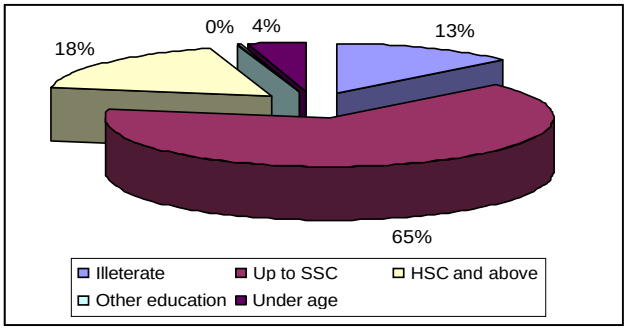


Figure 2-3: Educational Status

Source: Socio-Economic Survey, 2006

Figure 2-3 shows the view of educational qualifications of the population in the project area in a broadly categorized way. The most significant and observable fact is that about 65 percent of the project area's population have school level educational qualification i.e. from elementary to S.S.C. level of education.

e. Occupation/Employment Status

The occupation pattern of the project area's population is a very diversified and dynamic as well. Table 2.5 shows the distribution of household occupation of the project area. Hence, the significant portion of population is engaged in business (13.08%) and on the other hand, 11.51 percent-surveyed population are unemployed in which 6.71 percent are completely unemployed in consideration of income generating activities and 4.8 percent population is under age.

Table 2-5: Occupational Status

Occupation		Union					Total
		Demra	Matuail	Rampura	Nandipara	Dakshingaon	
Self Employed	Number	1	0	8	3	0	12
	%	0.01	0.00	0.10	0.04	0.00	0.15
Govt. Service/ Autonomous Body	Number	20	60	130	71	14	295
	%	0.24	0.73	1.57	0.86	0.17	3.57
Staff of Non Govt. Office	Number	54	55	304	86	33	532
	%	0.65	0.67	3.68	1.04	0.40	6.45
Business	Number	167	246	384	199	84	1080
	%	2.02	2.98	4.65	2.41	1.02	13.08
NGO Staff	Number	3	14	14	7	0	38
	%	0.04	0.17	0.17	0.08	0.00	0.46
Rickshaw/ Van Puller	Number	1	41	114	37	4	197
	%	0.01	0.50	1.38	0.45	0.05	2.39
Car Driver	Number	15	47	39	22	18	141
	%	0.18	0.57	0.47	0.27	0.22	1.71
Skilled Mechanic/ Technician	Number	10	1	21	20	12	64
	%	0.12	0.01	0.25	0.24	0.15	0.78
Industrial Worker	Number	9	108	88	10	4	219
	%	0.11	1.31	1.07	0.12	0.05	2.65
Day Labourer (Non-agri)	Number	40	16	111	36	0	203
	%	0.48	0.19	1.34	0.44	0.00	2.46
Farmer (Land Owner)	Number	2	0	13	3	1	19
	%	0.02	0.00	0.16	0.04	0.01	0.23
Share Cropper	Number	0	0	10	0	0	10
	%	0.00	0.00	0.12	0.00	0.00	0.12
Day Labour (Agri.)	Number	60	5	9	8	0	82
	%	0.73	0.06	0.11	0.10	0.00	0.99
Household Work	Number	293	476	803	516	183	2271
	%	3.55	5.77	9.73	6.25	2.22	27.51
Unemployed	Number	86	59	314	72	23	554
	%	1.04	0.71	3.80	0.87	0.28	6.71
Student	Number	291	374	672	515	192	2044
	%	3.53	4.53	8.14	6.24	2.33	24.76
Under Age	Number	69	72	182	58	15	396
	%	0.84	0.87	2.20	0.70	0.18	4.80
Day Labour (gen.)	Number	0	7	9	16	7	39
	%	0.00	0.08	0.11	0.19	0.08	0.47
Expatriate	Number	0	0	0	0	0	0
	%	0.00	0.00	0.00	0.00	0.00	0.00
Disable People	Number	0	0	0	0	0	0
	%	0.00	0.00	0.00	0.00	0.00	0.00
Others	Number	2	1	46	9	0	58
	%	0.02	0.01	0.56	0.11	0.00	0.70
Total	**Number**	**1123**	**1582**	**3271**	**1688**	**590**	**8254**
	%	**13.61**	**19.17**	**39.63**	**20.45**	**7.15**	**100.00**

Source: Socio-Economic Survey-2006

f. Source of Income

The income sources of the project area's population are diversified. Table 2-6 represents the source-wise income distribution in the Unions of the project area. The major significant income sources of the population are about 37 percent of their income comes from house rent about 30 percent income comes from salary (salary from service, both private and public sectors) and about 16 percent income comes from business. Although the project area is a part of eastern fringe of the Mega city Dhaka but from the poultry/livestock as a source of income represent the area's income at a level of 0.05 percent on the whole sources of income.

Table 2-6: Source of Income

Income source (in percentage)	Union					Total
	Demra	Matuail	Rampura	Nandipara	Dakshingaon	
Salary	3.61	6.08	11.86	6.42	2.08	30.06
Income from assets	0.33	0.52	5.83	2.44	0.25	9.37
House rent	6.05	10.18	9.5	7.79	3.55	37.06
Business	1.6	2.39	7.6	3.27	1.21	16.06
Wages (daily)	1.87	0	0.31	0.28	0	2.46
Agriculture	0	0	0.06	0	0	0.06
Poultry/Livestock	0.05	0	0	0	0	0.05
Pisciculture	0	0	0.25	0	0	0.25
Cottage Industries /Handicraft	0.07	0	1.5	0.06	0	1.64
Remittance	0.04	0	2.71	0.19	0.05	2.99
Total	**13.61**	**19.17**	**39.63**	**20.45**	**7.15**	**100**

Source: Socio-Economic Survey, 2006

g. Income and Expenditure Level

Income and expenditure pattern of the population reflects their socio-economic status and the status of the area as well. The income and expenditure pattern also refer to the savings status of a selected population in a certain area. The income and expenditure here presents the monthly income from different sources and expenditure for different items of household and their other common needs. Monthly income levels by Unions are presented in the table below. Table 2-7 shows the household monthly income is distributed in a situation of unequal status i.e. we find a high-income inequity among the households. From the survey data, it is significant and unbolted that about 83 percent households' monthly income is up to Tk. 8,000, where only about 11 percent of the households' monthly income is Tk. 8,001 to 15,000 and about 6 percent of the household earn monthly Tk. 15,000 and above.

Table 2-7: Distribution of Households' Monthly Income

Income Range(Tk.)	Union Name					
	Demra	Matuail	Rampura	Nandipara	Dakshingaon	Total
0-1500	0.46	0.41	2.27	0.44	0.06	3.78
1501-2500	0.78	0.86	3.17	1.46	0.20	6.59
2501-3500	1.41	2.07	5.12	2.07	1.15	11.93
3501-4500	3.49	1.75	3.53	2.30	0.50	11.55
4501-5500	3.22	3.92	3.01	3.53	0.79	14.17
5501-6500	3.11	4.53	5.32	5.00	2.62	20.31
6501-8000	1.12	4.96	3.29	3.67	1.86	14.53
8001-10000	0.12	1.14	2.85	1.65	0.24	6.08
10001-12000	0.12	0.57	1.29	0.54	0.00	2.57
12001-15000	0.09	0.05	1.67	0.30	0.00	2.24
15000+	0.00	0.70	4.94	0.25	0.00	6.25
Total	**13.93**	**20.97**	**36.46**	**21.21**	**7.43**	**100.00**

Source: Socio-Economic Survey, 2006

Table 2-8 shows Income Expenditure pattern of the project area. Among the all areas, about 27.35% households have monthly expenditure within the range of 5501-6500 Tk, which is followed by 26.21% households who expend monthly within the range of 6501-8000 Tk.

Table 2-8: Percentage Distribution of Household Monthly Expenditure

Expenditure Range(Tk.)	Union Name					
	Demra	Matuail	Rampura	Nandipara	Dakshingaon	Total
0-1500	-	-	-	-	-	-
1501-2500	0.21	0.24	1.04	0.00	0.08	0.83
2501-3500	0.42	1.21	0.00	1.00	0.12	4.39
3501-4500	0.84	1.66	5.21	2.14	0.24	7.95
4501-5500	4.85	3.97	4.17	3.99	0.94	19.39
5501-6500	2.74	5.10	0.00	6.28	3.03	27.35
6501-8000	3.59	6.23	7.29	4.09	2.56	26.21
8001-10000	0.63	1.50	0.00	1.71	0.31	6.59
10001-12000	0.63	0.57	0.00	1.05	0.08	3.33
12001-15000	0.00	0.08	6.25	0.19	0.00	0.91
15000+	0.00	0.40	12.50	0.76	0.08	3.03
Total	**13.93**	**20.97**	**36.46**	**21.21**	**7.43**	**100.00**

Source: Socio-Economic Survey, 2006

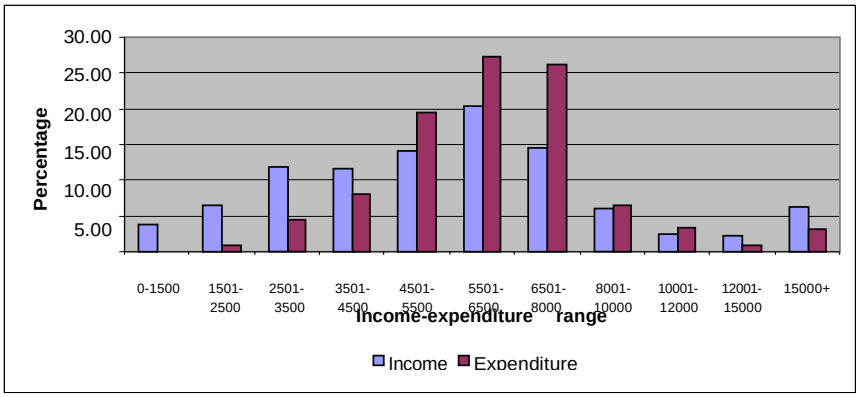


Figure 2-4: Income-Expenditure Pattern

Source: Socio-Economic Survey, 2006

The most important significance between income and expenditure pattern of the project area's household is more reflective and clear in the Figure 2-4. What we see from the figure is that the income group of up to Tk. 8,000 per month does not have any savings, while they have to manage some part of their expenditure through some other ways, like borrowing or any other informal ways. On the other hand, the income-group of Tk. 8,001 to 15,000 per month has a very small saving and the income-group of Tk. 15,001 and above per month has a handsome savings. Another significant phenomenon is that a very small percentage of population (about 3 percent) earn higher level of income, while about 97 percent household is under the income level of Tk.15, 000. This indicates the high-income inequity in the project area and that refers to diversified socio-economic classes as well.

h. Migration

Table 2-9 shows that 62.65 percent households are originated from the local areas (unions) of the project area, while 37.35 percent households have migrated from the different areas and regions of Bangladesh and settled in the project area. Considering the origin of the birth places Rampura Union shows the highest score as 31.25 percent while the Dakshingaon Union shows the lowest score (1.02%) as the settlers those households are migrated from other places to the project area and the Matuil (11.38%) and Nandipara (14.55%) Unions show the maximum households that are locally originated.

Table 2-9: Origin of the Respondents

Union	Origin of the Respondent				Total	
	Yes		No			
	Number	%	Number	%	No.	%
Demra	97	7.60	81	6.33	178	13.93
Matuail	145	11.38	123	9.59	268	20.97
Rampura	67	5.21	399	31.25	466	36.46
Nandipara	186	14.55	85	6.66	271	21.21
Dakshingaon	82	6.41	13	1.02	95	7.43
Total	**801**	**62.65**	**477**	**37.35**	**1278**	**100.00**

Source: Socio-economic Survey, 2006

The status of in and out migration of household members in the project area is shown in the Table 2-10. For the national economy, the migration to outside the country is very important because of inflow of remittance. The remittance of out-migrated people serving in different overseas countries is one of the main income sources of many households in the project area. The significant phenomenon between in and out migration is that the out-migration rate is comparatively higher than in-migration rate in the Unions of the project area.

Table 2-10: Migration Status

Union	In-migration		Out-migration		Total Population
	Total	%	Total	%	
Demra	2	0.18	6	0.53	1123
Matuail	7	0.44	0	0.00	1582
Rampura	22	0.67	307	9.39	3271
Nandipara	3	0.18	18	1.07	1688
Dakshingaon	5	0.85	0	0.00	590
Total	**39**	**0.47**	**331**	**4.01**	**8254**

Source: Socio-economic Survey, 2006

2.1.3 Landuse

a. Residential Areas

The land used for residential purposes amounts to 2175.73 acres. The land for residential area covers 42.63 percent of the total area. The residential areas are distributed throughout the project area. In the project area, a very few residential areas are planned and most of the area are unplanned.

b. Industrial and Commercial Areas

There are many heavy industries in the project area and most of the industries are established by the side of the road. However, there is no clearly defined industrial zone in the project area. However, industrial area covers 60.58 acres of land representing 1.19 percent of total area. Commercial activities are done only in the central areas of the project area. The commercial activities cover 6.56 acres of land. They cover 0.13 percent of the total area.

c. Non urbanized Areas

Major portion of the lands are non-urbanized with scattered rural settlements. There is no gas, water supply and sewerage system available in most of the area.

2.1.4 Infrastructure

2.1.4.1 Infrastructure: Physical

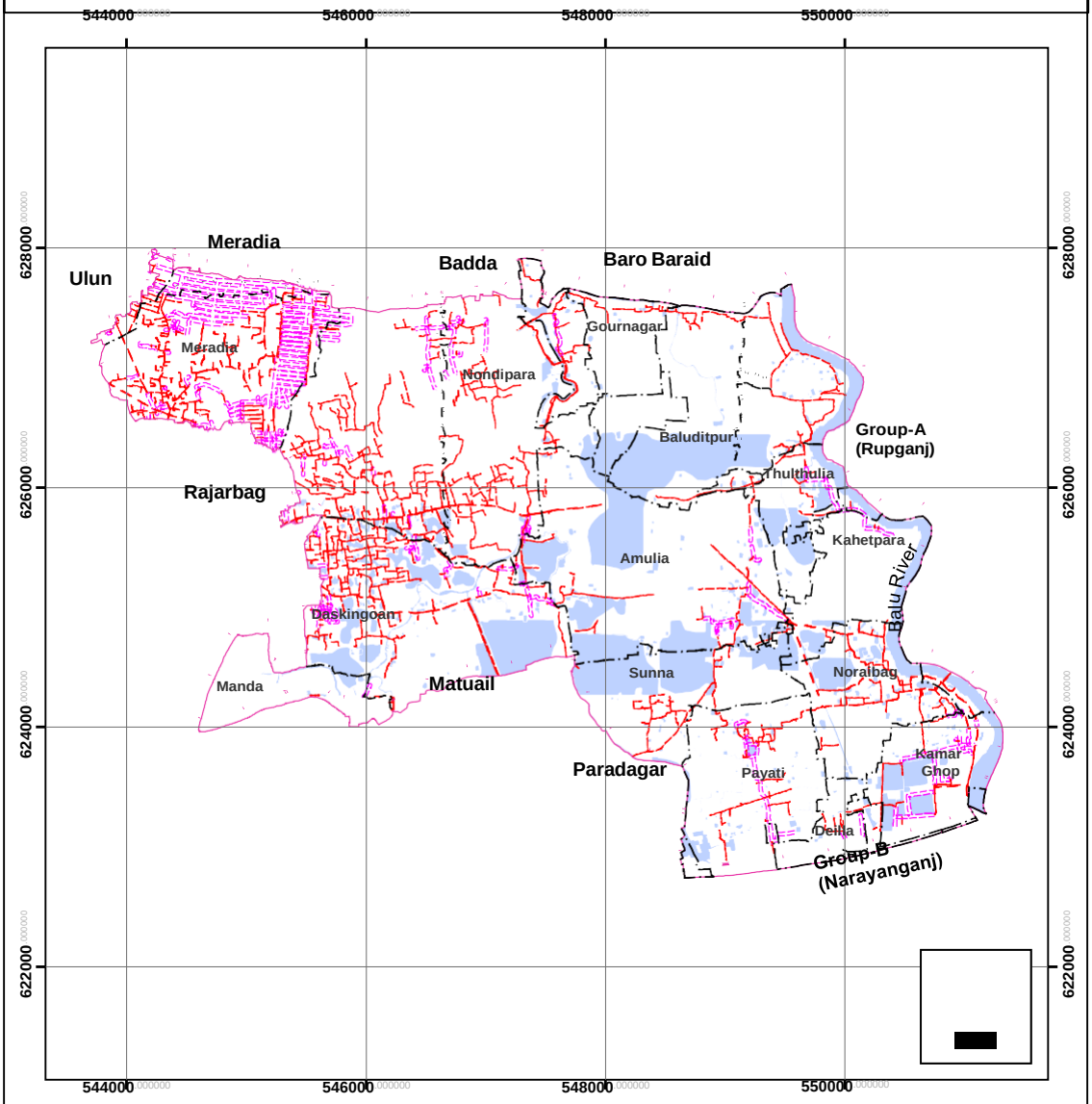
a. Circulation Network

The review of land use pattern of Location-11 shows that the most dominant land use is agriculture, which is about 35.9% of the total land. The next major land uses are open area and residential, occupying about 0.02 % and 42.63 % respectively of the project area. Beside these, water body covers about 17.65 % of land and other land uses are negligible. Land use under roads is only 1.91 % (**Map 2-1**).

The review of the physical feature survey of existing road networks revealed that various types of road exist having different width and without any proper circulation pattern. There are different categories of roads like pucca, semi-pucca and katcha in the project area. The total length of pucca roads is 36.81 km. The condition of pucca roads is not same in all locations in the project area. Some of these roads are good and some are in poor condition. The next category of the roads is semi pucca, also called HBB (Haring Bone Bond) or brick soling road, which have been identified as of almost similar in character in the whole project area. The length of semi pucca roads is about 47.98 km. The significant portion of the roads is katcha and its length is about 60.33 Km.

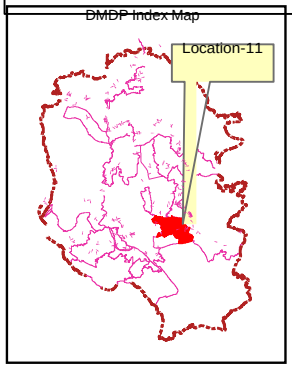
The analysis of circulation network shows that there is no proper circulation pattern in the project area. As the proportion of residential, industrial and mixed uses are low, transport network have not been properly developed. Tertiary and access roads are also inadequate and very narrow. Again all of the existing roads do not follow any proper circulation pattern.

Map 2-1: Existing Road Network in the Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area [Location-11]

DMDP Index Map



0 600 1,200 2,400 3,600 4,800 Meters

Legend

- Group boundary
- Mauza boundary
- Mouza Sheet boundary

Road_Type

- Road (Pucca)
- Road (Semi-pucca)
- Road (Katcha)
- Waterbody

Source: Physical Features Survey, 2005-06

a. Utility Services

Sewerage System

The project area is outside of the jurisdiction of Dhaka City Corporation. Therefore, there is no sewerage coverage in the project area. People dispose their sewers naturally.

Solid Waste Management

There is no solid waste management system in the project area. People dispose the solid waste in a traditional way like throwing the generated waste in a place near by their homestead.

There is a large dumping ground in the project area (Matuail). The solid waste is transported from Dhaka city to this site. The dumping ground causes severe environmental problem in the rainy season, as it is an open one. The problem includes strong bad smell, air and water pollution.

Water Supply System

People in the project area are using tube well for the supply of drinking water. For other household use surface water like ponds, ditches, canals and river are utilized. The house hold use includes bathing and cleaning of cooking utensils etc.

Gas Supply System

The gas supply system does not cover the project area.

Electricity

Power received from the National Grid is distributed by several sub-stations located at various sites in the city. The electricity supply is maintained and managed by Dhaka Electric Supply Authority (DESA). There are frequent voltage drop and erratic supply / load shedding coupled with power failure; it is essential to set up more sub-station or production of electricity. So far the electricity, presently supplied by DESA and DESCO through 33/1 kV. Sub-station and 132/33 kV. Grid sub-stations through underground and overhead distribution line. The consumption of electricity is increasing rapidly due to high rate of residential buildings, commercial and industrial uses. Load shedding is a routine work for almost all areas.

Tele- Communications

The Tele-Communication system in Location-11 is provided by BTCL through Telephone exchange located in different areas. Extensive mobile network introduced by private companies has met the short falls experienced in the government sector operated Telephone system. Land phone covers a part of the project area and all the area has the coverage of different mobile phone companies like Grameen Phone, Bangla link, City Cell and Robi.

2.1.4.2 Infrastructure: Social

Educational Facilities

Total 27 structures are being used for educational purpose. More than half (19) of the buildings are used for schools. There are 6 madrasas, 2 Kindergarten school in the project area. The table 2-11 shows the number of educational institutions and their occupied floor area.

Table 2-11: Different Types of Educational Institutions

Type	No. of Buildings	No. of institution	Percentage	Floor area	Percentage
High School	10	6	22.22	2158.82	27.88
Primary School	22	13	48.15	3947.17	50.97
Kindergarten	5	2	7.41	185.81	2.40
Madrasa	13	6	22.22	1452	18.75
Total	**50**	**27**	**100.00**	**7743.8**	**100.00**

Source: Field survey 2006

Recreational Facilities

Recreational facilities within the project area include, Cinema Hall, Park, Playground, Theatre Hall and Other Recreation facilities.

2.1.5 Land Ownership and Value

In the project area, private individuals own most of the lands. As the major portion of lands is in agricultural use, the value of land is not so high. After full implementation of the eastern bypass road cum embankment, the entire area will come under development projects. It is then the value of land will become high.

2.2 Expected Development

2.2.1 Population

According to 2001 census report the total population is 1,07,545 and the number of household is 25500.
Table 2-12 contains Mouza wise total area, population and household of the project area. The average gross density of population is 21.03 persons per acre and average size of household is 4.22.

Among the 19 Mouzas in 2001, Paschim Durgapur Mouza cover maximum area (942.70 acres) and Meradia Mouza represents the highest population (37299). The gross density of population is highest in Demra (84.86 persons per acre) and lowest in Mendipura Mouza (1 person per acre). There are three Mouzas namely; Uttar Durgapur, Chak Durgapur and Paschim Durgapur, which have no population data.

This table also shows projected population and density for the year 2007, 2011 and 2015. The statistics shows the average population density in 2015 is 27.44.

Table 2-12: Mouza-wise Distribution of Population (2001) and Projected Population

Name of Mouza	Area	H/H	Projected H/H			Pop.	Projected Population			Density	Projected Density		
	(Acre)	2001	2007	2011	2015	2001	2007	2011	2015	2001	2007	2011	2015
Amalia	880.31	678	761	822	888	3724	4182	4517	4880	4.23	4.75	5.13	5.54
Baludhitpur	508.32	457	513	554	599	2374	2666	2880	3111	4.67	5.24	5.67	6.12
Gaur Nagar	122.22	228	256	277	299	1234	1386	1497	1617	10.10	11.34	12.25	13.23
Mandipura (P)	17.91	2	2	2	2	9	10	11	12	0.52	0.58	0.63	0.68
Nasirabad	77.43	412	463	500	540	2251	2528	2731	2950	29.07	32.64	35.26	38.09
Purba Durgapur	15.60	56	63	68	73	322	362	391	422	20.64	23.18	25.04	27.05
Thalthulia	130.39	243	273	295	318	1090	1224	1322	1428	8.36	9.39	10.14	10.95
Uttor Durgapur	75.48	370	415	449	485	1078	1210	1308	1413	14.28	16.04	17.32	18.71
Chak Durgapur	13.94	18	20	22	24	98	110	119	128	7.03	7.89	8.53	9.21
Dakshingaon	575.83	5590	6277	6781	7325	26080	29284	31636	34177	45.29	50.86	54.94	59.35
Meradia (P)	477.89	8614	9672	10449	11288	37299	41882	45245	48879	78.05	87.64	94.68	102.28
Paschim Durgapur (P)	942.70	2754	3092	3341	3609	11121	12487	13490	14574	11.80	13.25	14.31	15.46
Deilla (P)	81.48	326	366	395	427	1658	1862	2011	2173	20.35	22.85	24.68	26.66
Demra	26.62	508	570	616	666	2259	2537	2740	2960	84.86	95.29	102.94	111.21
Ghop Dakshin (P)	92.07	607	682	737	796	2849	3199	3456	3734	30.94	34.75	37.54	40.55
Kamarghop	159.22	1345	1510	1632	1763	5458	6129	6621	7152	34.28	38.49	41.58	44.92
Naraibag	252.13	818	918	992	1072	3987	4477	4836	5225	15.81	17.76	19.18	20.72
Payati (P)	364.86	233	261	282	305	1198	1345	1453	1570	3.28	3.69	3.98	4.30
Sunna	299.84	241	271	292	316	1455	1634	1765	1907	4.85	5.45	5.89	6.36
Total	**5114.24**	**25500**	**28393**	**30516**	**32810**	**107545**	**120518**	**130040**	**140326**	**21.03**	**23.57**	**25.43**	**27.44**

Source: Bangladesh Population Census, 2001.BBS; P = Part.

2.2.2 Economic Activities

The area is predominantly agricultural. Most of the people are depend on agriculture. Some people are also engaged in informal sector activities. This is because of unemployment and rural poverty. Some of them are self-employed traders and some are mobile vendors/hawkers.

2.3 Development Problems

2.3.1 Hydrology

In implementing various infrastructures for development, drainage is generally given less importance and is normally considered the last or final steps for development. This scenario is particularly true for Bangladesh; although among different types of infrastructures, drainage has by far the heaviest impact on physical infrastructure network. As a result, physical environment, health, hygiene and standard of living suffer seriously. In development projects in Government, Semi-government and Public sectors, funds allocated for the project are mostly spent on buildings, roads and other tangible infrastructures and drainage comes as the final item of development. By the time drainage development is beginning to start, there appears to be shortage of fund, consequently as a matter of policy-do little or do-nothing situation appears and as eyewash, very little is done for drainage development. In case of urban development if drainage is not given due priority, the sufferings of the inhabitants and stakeholders will continuously increase with passage of time.

Flooding

Flood is a serious hydrologic event, which may cause inundation of geographical areas of a region. Flood may occur due to heavy rainfall for longer duration and sometimes by oncoming of excess flood water carried by the rivers. In Bangladesh flood occurs in most cases by over flow of river water coming from upper reaches of major international rivers such as the Ganges, Brahmaputra, Meghna and their tributaries. Serious hazards are experienced due to high magnitude long duration floods. Lives and properties are damaged by floods and living environment becomes intolerable.

Present greater Dhaka city experiences high magnitude flood almost in every ten years 2007, 1997 and 1988 floods for example submerged about 40 to 70 percent defined greater Dhaka city areas of 260 square km (64832 acres) of which 136 square km in west and 124 square km in east. During 1988 flood of 70 years return period vast areas of Bangladesh including Dhaka city was flooded by flood waters of Tongi khal, Balu, Turag, Buriganga and Sitalakkhya Rivers. These rivers are distributaries of the Brahmaputra, Jamuna, Gangas and Meghna rivers carrying water from India, Nepal, Bhutan and other neighouring countries. The depth of this flood was higher than the normal flood by 1.5 m and its duration was more than 4 weeks. As a result many posh areas of Dhaka city including diplomatic zones in Gulshan and Baridhara; Mirpur, Mohammadpur, Banani, Tejgaon and Dhanmondi etc. were submerged to depths ranging from 0.3 m to over 4.5 m and about 2.5 million people of the city were directly affected by the flood. The loss of property values like building, housing, school, college, university business and commercial areas and industries roads etc. were very high. In the wake of the 1988 flood, the Government of the Peoples Republic of Bangladesh constituted a committee in October 1988 known as Flood Action Plan (FAP) for flood protection and drainage of the Greater Dhaka City (**Map 2-2**) to investigate the causes of such flood and recommend solutions. Retention ponds are also recommended in the project area (**Map 2-3**).

2.3.2 Geological Fault

Geographically Bangladesh finds her in one of the most earthquake prone areas of the world. The Dhaka Metropolitan area is intersected by many geological faults. As per Earthquake Risk Index (ERI) Dhaka is one of the high-risk cities in the world. “Although geologically Dhaka is in the second earthquake prone zone, its vulnerability is due to its non-engineered structures’, said experts. The Structure Plan identified three fault lines.

Baunia Fault is a small feature in the Baunia depression, west of Dhaka Zia International Airport; this lineament is characterized by sigmoidal fractures. **Bansi Fault** is one of the major structural features in the area. It has developed in the western part of the Madhupur Tract, along which zone the Bansi River flows. The fault is approximately 70 miles long.

The western block is the down thrown block and the eastern block is the up thrown block. The Bansi Fault is also characterized by sharp fault scarps, hanging valleys, abnormal ground level and springs. **Turag Fault** is approximately 10 miles long. The feature is characterized by abnormal ground level. The northern block of the Turag Lineament moved west and the southern block east. The Turag River (Tongi Khal) flows along the northern boundary of the FAP-8A and FAP-8B project area embankments.

As these may pose restrictions to urban development (especially high rise construction), the alignment of the zone of influence has to be ascertained, while special building conditions may have to be included in the explanatory report that goes with the Detailed Area Plan. Development control should be exorcized in these areas through Building Construction Rules, 1996 and Bangladesh National Building Code (BNBC, 2006) to avoid any possible disaster due to earthquake. From geological setting and topography, it is clear that Dhaka City and its surrounding area have experienced major and minor faulting at different times. Some faults and lineaments were observed in satellite images and aerial photographs

and were confirmed through field surveys but, in many places, human settlement activities have destroyed the field evidences.

During field investigations, a sharp litho logical change observed in Dhaka City and its surroundings. There are many evidences of down-thrown blocks of the fault. Except for rapid subsidence, there is also evidence that there is a sharp lateral contract between layers. Considering various facts, it may be inferred that there is a displacement due to faulting. The north-south trend is considered the probable alignment of this fault. However, the project area falls in the earthquake Zone-2 of the seismic map of Bangladesh Besides main sediments of the many parts of the project area are poorly compacted, highly plastic, collapsible thick peat and organic clay layers. With the presence of organic layers and sediments with low compaction, the area is considered a weaker foundation layer.

Any civil construction needs attention and special foundation treatment as well as significant design is recommended. Provisions of BC Rules 1996 and BNBC 2006 have to be strictly followed.

2.3.3 Infrastructure and Services

For the road network, the Structure Plan suggests a grid pattern with distances between major roads of an average 1,200 m. Without reducing capacity, too far distances may be set at 1,500 m. or 2,000 m. for north-south roads, and 2,000 m. or 3,000 m. for east-west roads. In fact, in the Urban Area Plan such a more extensive road network is already adopted. Some of the major urban roads required to be double as national highways. The Dhaka – Chittagong road may serve as an example, as both gives access to the northern part of the DND triangle and serves long distance traffic. It is necessary to separate these functions by constructing service roads that take over the access function, with fly-overs to connect areas on both sides of the road. Even though in the planning period for the Detailed Area Plans, neither the need nor the resources will be there for actually building these service roads and fly-overs, reservations (RoWs) will have to be made, otherwise this will prove very difficult and costly later on. Reservations may also be made for bus lanes or even light railway tracks.

The review of the physical feature survey of existing road networks revealed that various types of road exist having different width and without any proper circulation pattern. There are different categories of roads like pucca, semi-pucca and katcha in the project area. The total length of pucca roads is 36.81 km. The condition of pucca roads is not same in all locations in the project area. Some of these roads are good and some are in poor condition. The next category of the roads is semi pucca, also called HBB (Herring Bone Bond) or brick soling road, which have been identified as of almost similar in character in the whole project area. The length of semi pucca roads is about 47.98 km. The significant portion of the roads is katcha and its length is about 60.33 Km.

2.3.4 Environmental Concern

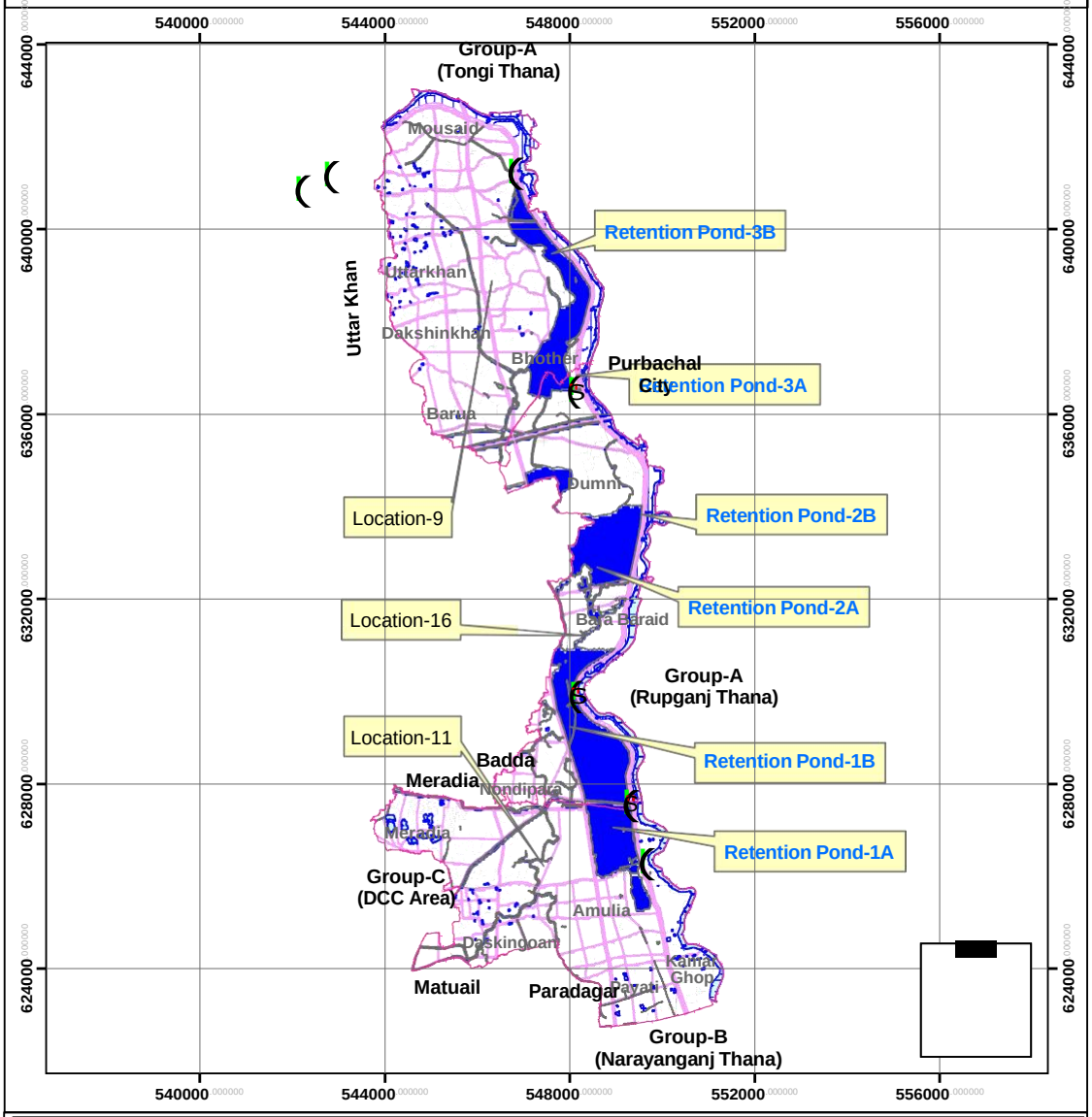
a. Flooding and Drainage

Flooding in the location-11 area is a major concern. It causes unbearable sufferings for the people by creating difficult situation for traffic movement as well as unhygienic environment that has long lasting consequences. Following are the main reasons for flooding in the area:

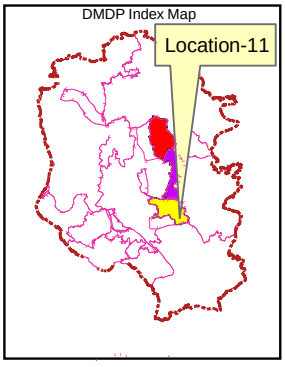
- Unplanned and uncoordinated development of the area;
- Continuous filling of wet lands for expansion of the city both by the public sector and private organizations;
- Unauthorized and illegal occupation and destruction of natural drainage system and retention basins;
- Inadequate storm water drainage facilities;
- Disposal of solid waste, waste water and septic waste into the drainage system;
- High water level in the peripheral river system.

Map 2-4 shows the alignment of the project area over the fault lines.

Map 2-2: Flood Control and Drainage of eastern Fringe Area (Location 9, 11 & 16)



Preparation of Detailed Area Plan (DAP) for DMDP Area (Location-9, 11 & 16]



0 1,550 3,100 6,200 9,300 12,400 Meters

Legend

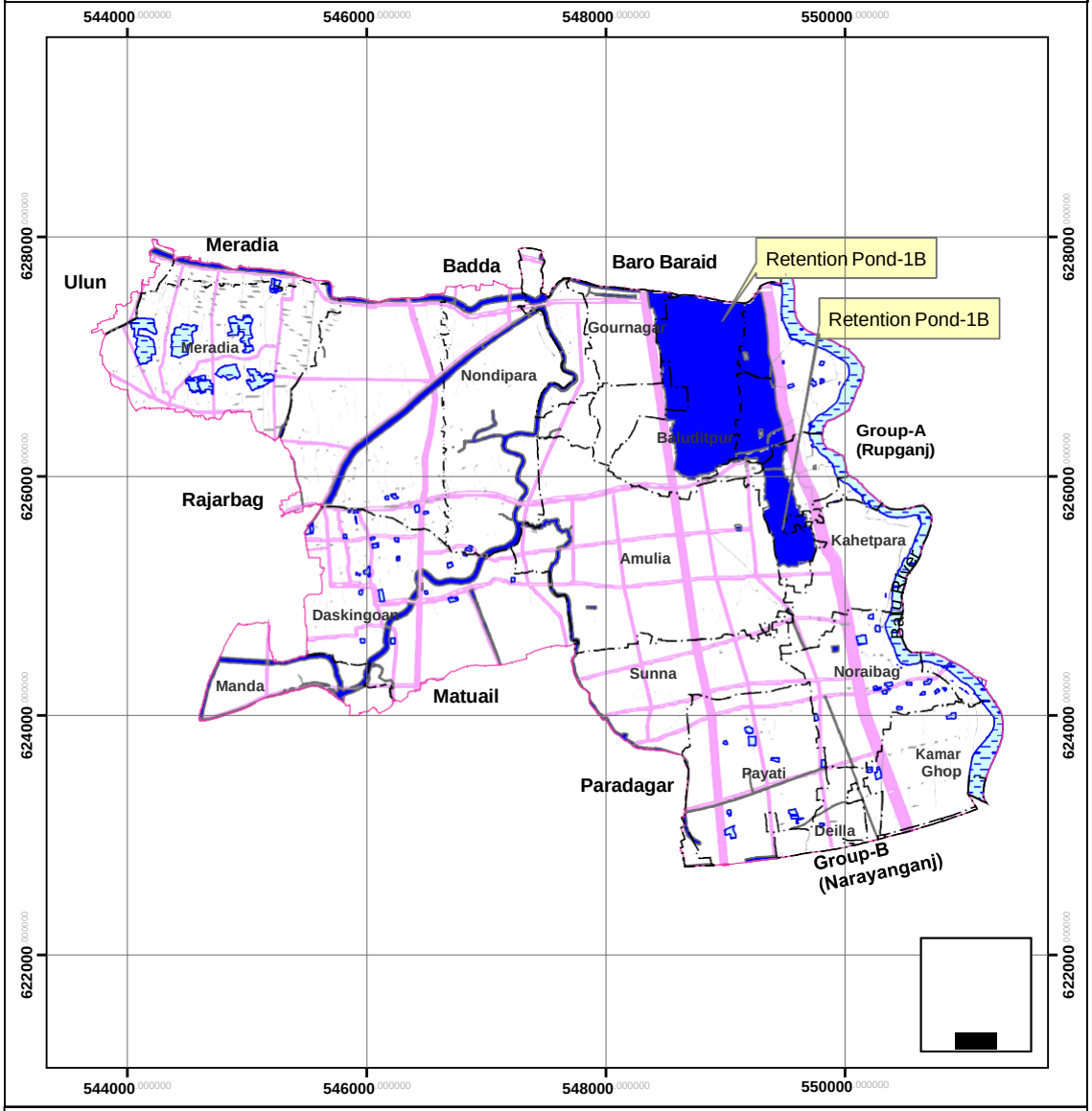
- Pump Station
- Regulator
- Group boundary

Landuse Categories

- Flood Flow Zone
- Proposed Road Network
- Transportation & Communication
- Water Retention Area
- Waterbody

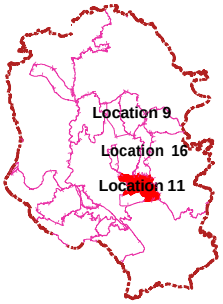
Source: BWDB, Halcrow, 2006 and Proposed by Consultants

Map 2 3: Proposed Retention Pond in th Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area [Location-11]

DMDP Index Map



0 600 1,200 2,400 3,600 4,800 Meters

Legend

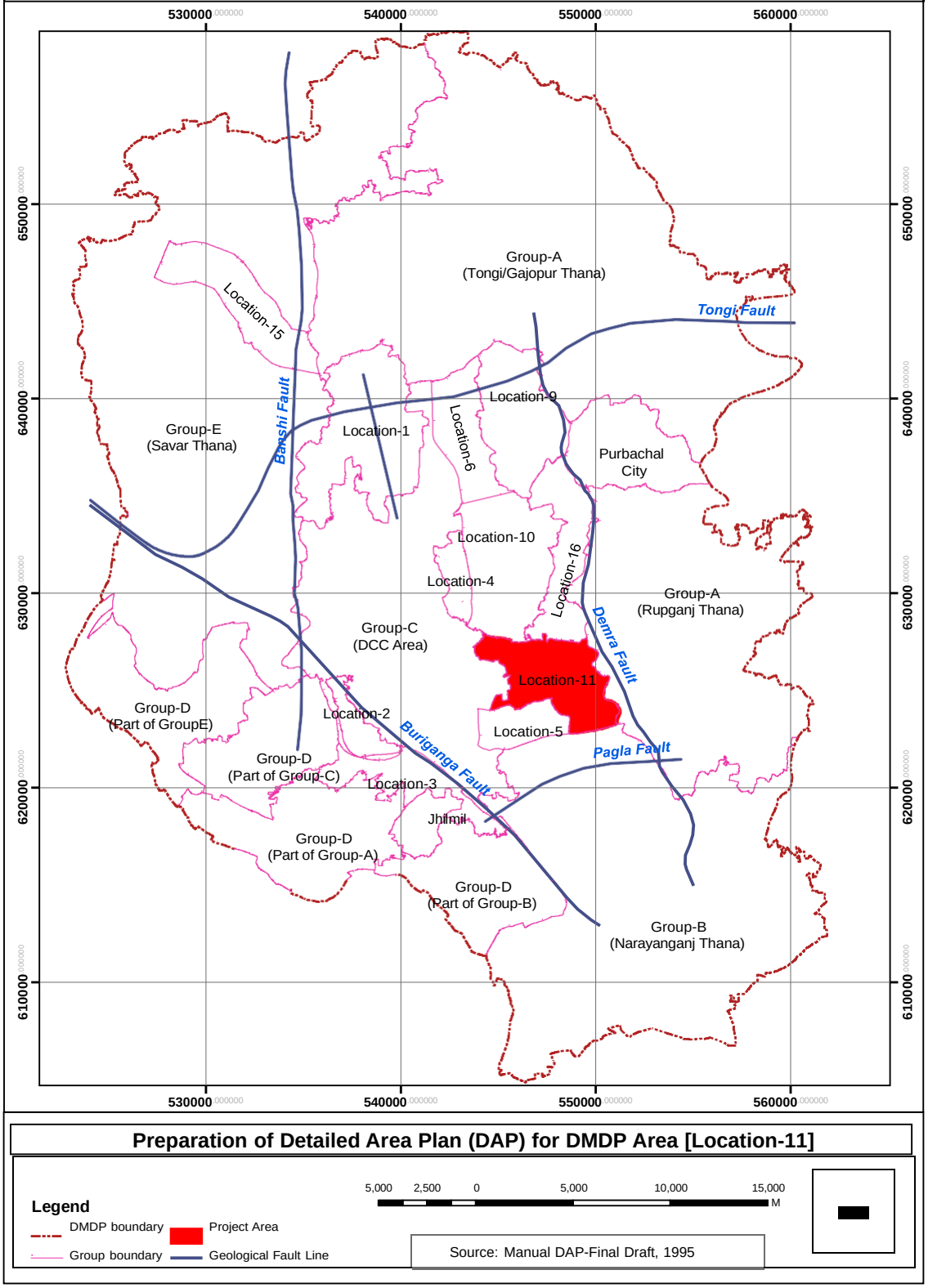
- Group boundary
- Mauza boundary
- Sheet boundary

Proposed Landuse Categories

- Flood Flow Zone
- Proposed Road Network
- Transportation & Communication
- Water Retention Area
- Waterbody

Source: BWDB, Halcrow, 2006 and Proposed by Consultants

Map 2-4: Fault Lines in Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area [Location-11]

Legend

DMDP boundary
Group boundary
Project Area
Geological Fault Line

5,000 2,500 0 5,000 10,000 15,000 M

Source: Manual DAP-Final Draft, 1995

Drainage congestion increases further with the urban sprawl development. Faulty design, solid-waste and rubbish dumping, encroachment and un-authorized structures, siltation, lack of renovation and re-excavation are the main causes of drainage congestion. Drainage system that exists in the study area is not enough to carry the surface run-off properly. The outlets of these drainage networks are mostly connected with the natural channels or khals like Beupar khal. Dumni khal, Bhatara khal etc. But, the conditions of these natural khals are dilapidated due to unauthorized encroachment. These khals have also been silted up due to re-excavation; as a result they cannot carry the water properly, which generates drainage congestion. Thus, many areas are subjected to water logging during the heavy rainfall causing inconvenience to the people of the area. It negatively impacts health and sanitation problem, disrupts of business and commercial activities, disrupts communication, outbreak of water borne diseases, loss to economic activities etc.

b. Pollution

The surface water quality of Balu river, ponds and beels is polluted in respect of pH, turbidity and coliform bacteria with national standard. The main causes of surface water pollutions are from city wastewater, sanitary sewage, solid waste dumping and discharge of untreated industrial wastes. With implementation of the DAP, the surface water pollution level may further increase for high volume of discharge of waste water, sanitary sewerage, over spilling of pit and septic tank, industrial effluents, surface run-off of katcha bazaars, indiscriminate solid waste dumping.

Fall of ground water table is a common phenomenon in project area during dry period (February-May). With expansion of urbanization and industrialization through this project, the ground water table may further fall if present tradition of using ground water is continued. Groundwater pollution due to manganese, iron and hardness is a major problem in the project area. With expansion of urban area, more dependency on groundwater sources may increase the pollution level of sub-surface water.

c. Loss of Wetlands and Depletion of Ground Water

Earth filling fills up the beels, ponds and khals. Wastewater affects the aquatic ecosystem and makes the beels, ponds and khals unproductive and as a result the aquatic plants, fishes and animals die or migrate to other places. For high price of highlands, the developers enlarge their hands to the low cost wetlands. Number of ponds in the study area is reduced every year to accommodate housing and commercial structures. These encroachments of rivers, lakes, khals, diminishing of the arable lands, filling of low-lying areas are the major cause of loss of groundwater recharge sources. Polluted groundwater and/or a diminished supply of groundwater are of particular concern where groundwater is the major source for drinking and irrigation water. As wetlands play an important role as a reservoir of rain and floodwater. They are also important to maintain the balance of ecosystems and for replenishing the ground water level through seepage.

d. Controlling Instruments

For sound and sustainable development, there exist some controlling instruments such as

i. Town Improvement Act 1953
ii. Dacca Master Plan 1959
iii. Dhaka Metropolitan Development Plan 1995-2015
iv. National Environmental Policy 1992
v. Environmental Conservation Act 1995
vi. Environmental Conservation (Amended) Act 2010
vii. Environmental Conservation Rules 1997
viii. Jaladhar Sangrakkhan Ain 2000
ix. Dhaka Mahanagar Imarat Nirman Bidhimala 2008
x. Besarkari Abashik Prokolper Bhumi Unnanayan Bidhimala 2004
xi. Bangladesh National Building Code 2006

Due to absence of application and very weak provision of punitive measure for its violation, these acts and rules have become ineffective and plan violation has become a common practice.

2.3.5 Shelter and Settlement

The problem of Shelter is still acute as a major section of existing population is living below the standard and it has been projected by Center for Urban Studies (CUS, 2006) by 2015, 40% of Dhaka's population will live in Slums. However, this figure is based on aspect of natural growth rate and migration as usual. This figure threats that one of the major function of DAP will be to readjust the consolidated population to other surrounding areas beyond the central part.

It is well understood that in the socio-economic context of the country, the major shelter problem lies with the low-income population. The population density and the quality of life in the slums are alarming. Government agencies, including RAJUK need to be more aware for this section of population. However, it is already suggested in DMDP that role of RAJUK will be that of a facilitator and needs to remove the impediments in the supply, transfer and regulations of land for shelter. The government agencies should take care to ensure basic public health and minimum impact of natural hazards on shelter through flood control, drainage instruments and other measures. (DMDP, Vol-I, p 30). Their housing can be provided by government, private formal and private informal sector. Among these, the first two needs to be ensured. Through DAP, RAJUK can take the role to promote, demonstrate, and facilitate the provision of shelter mainly through indirect measures.

2.4 Current Public Sector Investment Program

Table 2-13 shows the current investment project in the project area.

Table 2-13: List of Current Investment Project and Implementing Agency

Serial No.	Project Name	Implementing Agency
1.	Demra Bridge	RHD
2.	Khilkhet to Purbachal Road	RAJUK

2.5 Stakeholders' Wish List of Projects

Stakeholders wish list include following projects:

- Mitigation of Water logging problem on priority area basis.
- Develop the banks of water bodies as recreation spots by removing all illegal occupants.
- Widening of the existing access road to the optimum level.
- Refurbishment of potential sites in old Dhaka and other parts of Dhaka City and develops them as centers of tourist attraction.
- Develop a Theme Park in the most suitable position based on common people interview.
- Replacement of katcha toilets by sanitary latrines/sewerage system in the whole project area.
- Improvement of Solid Waste management system to prevent environmental degradation, especially in and around the industrial areas.
- Construction of a new road to lessen the traffic congestion problem.
- Improvement of the playground and parks exists.
- Development of Swimming Pool and Indoor Games Training Facilities.

Revitalization of present under-utilized facilities due to socio-political or Economical circumstances by providing special incentive in the form of revenue and fiscal measure.