

Chapter-2

Critical Planning Issues

2.0 Introduction

The current Chapter is about critical planning issues and development problems of the planning area as ascertained during the course of the study. The Chapter also makes a review of the prevailing development planning issues in the area.

2.1 Existing Development Pattern

2.1.1 General

Substantial spatial growth has taken place in the planning area during last few decades in different sectors caused by economic proliferation. Developments include, residential, commercial and industrial and service facilities.

The main characteristics of spatial development are:

- i. The development usually follows major roads;
- ii. Development takes place in areas where land level is high and free from flooding;
- iii. Manufacturing establishments primarily choose locations that give them economies of scale, that is, the locations which help lowering the cost of production;
- iv. Housing estates choose cheap locations in remote areas to maximize profit and with a long term objectives of development;
- v. Development is taking place in a dispersed manner.
- vi. Most buildings do not have approval from RAJUK, the controlling authority of the area.

Map-2.1 shows the pattern of spatial growth in the planning area.

2.1.2 Socio-economic Profile

The current section of the report studies the socio-economic profile of the planning area. Detail data of socio-economic survey is presented in **Annex-2.1**.

Demography

Since Savar constitutes the overwhelming part (78%) of the planning area the analysis of demographic changes of Savar Upazila is well enough to give indication to the overall situation of the planning area regarding demographic variables. It is evident from consecutive population census reports that population of Savar has been rising substantially over the years causing rapid urbanisation. During 20 years between 1981 to 2001 population of Savar Upazila increased by about 2,01618 persons, which means every year over 10 thousand people were added on average to the area since 1981. From 1991 to 2001 the population growth of Savar has been tremendous (59.47%). During 1991-2001 period the population growth rate was 8.63% compared to 4.46% during the previous decade. With the increase in population the density of population has also shot up from 1349.49 persons per sq.km in 1991 to 2152.00 persons per sq.km in 2001. Another indication of rapid urbanisation is the increased literacy rate of the area.

The literacy among 7+years of population increased from about 38% (1991) to over 56% in 2001. **Table-2.1** shows changes in different demographic variables that took place in Savar Upazila over 1981-2001 decades. The demographic changes over '80s and '90s period, clearly indicates a trend of rapid urbanization process in the planning area. From 1981 to 2001 the density increase was more than double. Though the density is much lower than the Dhaka core, trend indicates high density clusters in particular locations like, Karnapara, Savar proper, Nabinagar, Hemayetpur, Baipail areas along Ashulia road, where spontaneous high density settlements are imminent. It is observed that all the said areas are developing as sprawls. As a result they are devoid of many basic urban services, like, piped water supply, drainage, waste management, adequate and standard road network.

Urbanisation without proper management has potential dangers of environmental degradation, like, drainage congestion, solid waste management problems, loss of livability caused by haphazard development and traffic management problems. The ensuing problems call for formation of municipalities in these areas. There was no

attempt in the past to prepare and execute a land use plan to streamline development of land uses in the entire planning area.

Table- 2.1: Changes in Demographic Variables in Savar Upazila 1981-1991

Variable	Year		Increase Over 10 Years
	1981	1991	
Density of Population	935 persons per sq.km	1,349 persons per sq.km.	44.28 %
Literacy Rate (7 years+)	25.20 %	37.80 %	50.00%
Attendance to Educational Institution	24,880	69,855	181%
Urban Population	8.50 %	100.00 %	1076% (declared)

Source : National Population Census Report 1991, Community Series, Zila: Dhaka, BBS.

Table-2.2: Demographic Changes in Savar Upazila Over Two Decades 1981 – 2001

Year	Variable				
	Household (No.)	Population (No.)	Growth Rate	Density/ Sq.km	Literacy (7+ years)
1981	43,284	2,61,904	-	934.94	25.20%
1991	656,956	3,78,034	4.46	1349.49	37.80%
2001	1,28,000	6,02,860		2152.00	56.19%

Source: National Population Census Reports, 1981, 1991, 2001, BBS.

Sex ratio (M/F) of Savar Upazila was 1.13 in 1981 that is 121 males for every 100 female, that increased to 1.21 in 1991. The data for 2001 could not be presented as population figures have not yet been published by the Census Commission.

Urban-Rural Demographic Split

In 1981 the urban population of the Savar Upazila constituted only 8.50% of the total population of the Upazila. In 1991 BBS declared the entire Savar as urban. This happened as BBS declared the entire Savar as a part of Dhaka Statistical Metropolitan Area or Dhaka Mega City. The Upazila is being urbanised fast owing to expansion of manufacturing and real estate development by commercial housing companies, development of residential accommodation and promotion of retail activities. However these exist still large areas under farm use.

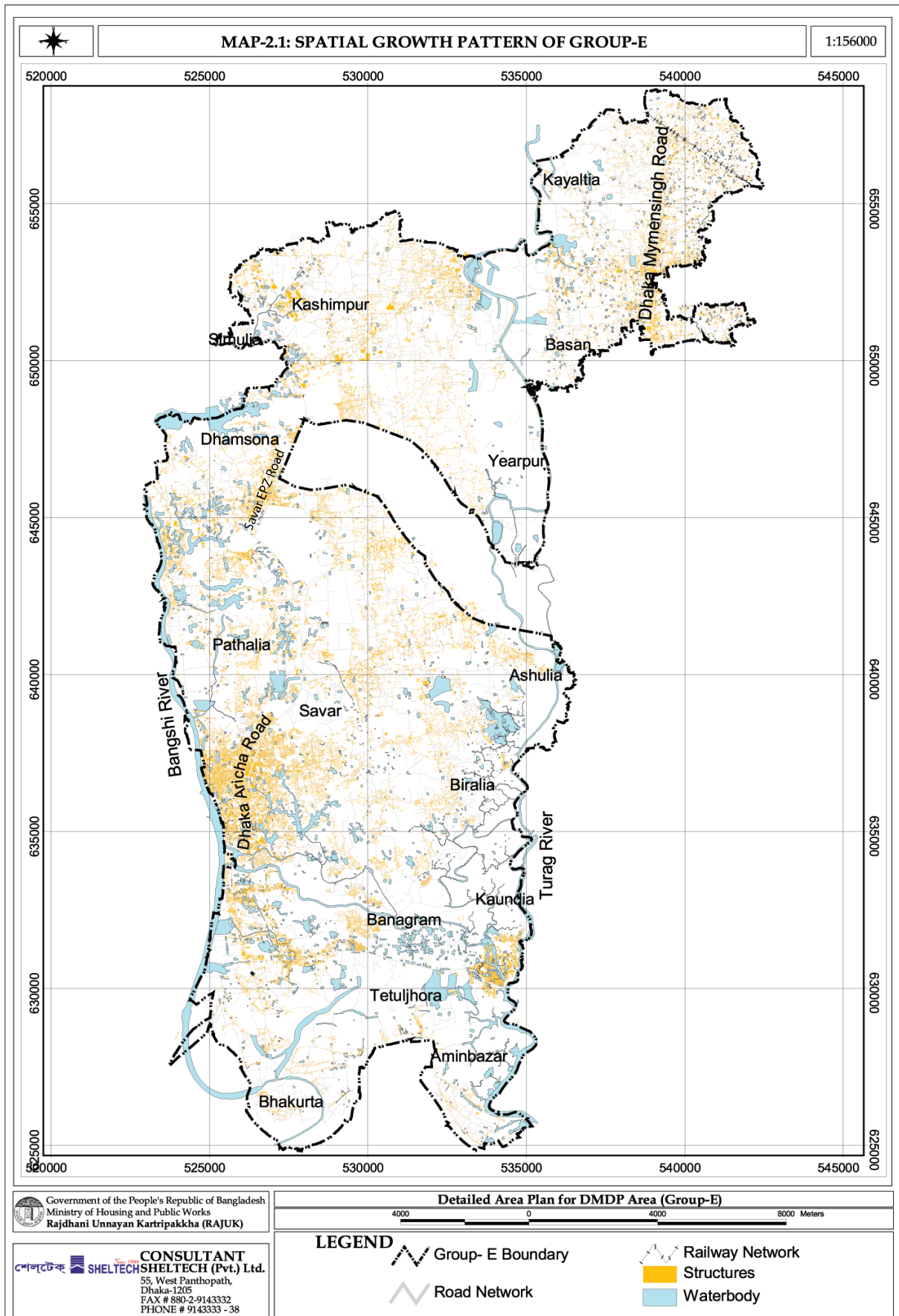
Driving Forces Behind Urbanization and its Impact

There has been 56.19% population growth in between 1991 to 2001 in Savar. This has been the result of expansion in manufacturing activities in the area owing to locational advantages and induced by growth of Export Processing Zone in the area. The increase in population has also led to increased density.

Demographic transformation has led to a number of impacts in the study area as briefed below.

- i. Without planning settlements have developing in sprawl.
- ii. Most new areas are devoid of basic municipal services-water supply, drainage, waste management, open space recreation facilities, etc.
- iii. There is no urban local government in large part of the planning area to provide municipal services. Savar Paurashava occupies only a small part of the study area, while spatial development is almost everywhere in the study area.
- iv. Filling up of natural drainage channels and flood zone is likely to pose serious threats for flood as the run off area will increase due to urbanization.

Socio economic status of the planning area is described below:



a. Family Size

Though there are differences between a household and a family size, the data gathered from the study area provided information only about household. As can be seen from the **Table-2.3**, the average household size in the entire study area has been found 4.5 persons.

Table-2.3: Percentage Distribution of Family/household Size

No. of Family Member	Savar		Gazipur		Total	
	No	%	No	%	No	%
1	52	0.80	9	0.63	61	0.77
2	524	8.07	136	9.46	660	8.33
3	1143	17.61	261	18.16	1404	17.71
4	1868	28.78	418	29.09	2286	28.84
5	1434	22.10	308	21.43	1742	21.98
6	732	11.28	153	10.65	885	11.16
7	326	5.02	72	5.01	398	5.02
8	192	2.96	47	3.27	239	3.02
9	89	1.37	17	1.18	106	1.34
10	130	2.00	16	1.11	146	1.84
Total	6490	100.00	1437	100.00	7927	100.00
Average family size						4.50

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

About 29 percent of the families consist of 4 members. Only 1.84 percent families have 10 members. About 73 percent of the families contain below 3 to upper 6 members. It is also an indication that currently people prefer to have smaller families that is they adopt family planning measures to keep the family size under control.

b. Age and Sex Composition

The distribution of household population in the designated area by five-year age groups and sex is shown in **Table-2.4**. The entire population is roughly equally divided into males and females. There are more people in younger age groups than in older groups because of high fertility in the past.

There is also a sign of slight decline in fertility in recent past (**Figure-2.1**). The overall age composition of study area population appears to be somewhat different from date of the national scenario and this is perhaps because of rapid industrialization in the area. About 36% of the population is younger than 19 year, 28% have age between 20-34 years, 21% is of age 35-49 years, about 8% is in age 50-59 years and nearly 7% is of age 60 years or older. The age distributions of male and female population are almost identical. However, the proportion of male in the older age group appears to be slightly higher compared to female.

Because of non-availability of past data by age and sex for the areas comprising the designated area for Group-E, no attempts are made for population's projections.

Table-2.4: Percentage Distribution of the Study Area Population by Age and Sex

Age in Years	Male		Female		Total	
	No	%	No	%	No	%
0-4	1251	6.72	1202	7.50	2463	7.11
5-9	1483	7.97	1311	8.18	2799	8.08
10-14	1455	7.82	1399	8.73	2868	8.28
15-19	2196	11.80	2147	13.4	4365	12.60
20-24	1582	8.50	1293	8.07	2868	8.28
25-29	1917	10.30	1762	11.00	3689	10.65
30-34	1615	8.68	1418	8.85	3038	8.77
35-39	1550	8.33	1309	8.17	2858	8.25
40-44	1312	7.05	1115	6.96	2425	7.00
45-49	1122	6.03	921	5.75	2040	5.89
50-54	1007	5.41	721	4.50	1718	4.96
55-59	730	3.92	495	3.09	1213	3.50
60-64	599	3.22	428	2.67	1019	2.94
65+	791	4.25	501	3.13	1278	3.69
Total	18610	100.00	16022	100.00	34643	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

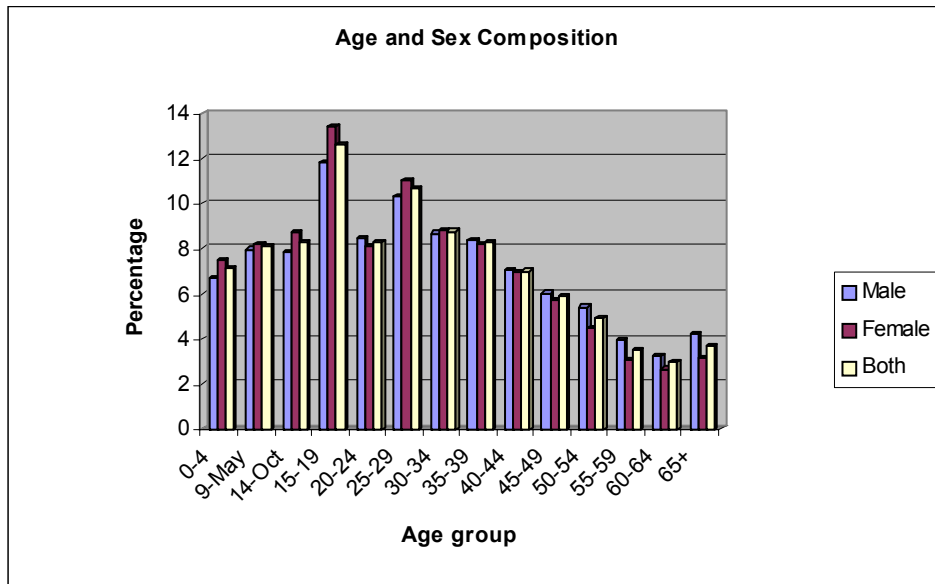


Figure-2.1: Percentage distribution of the study area population by age and sex

c. Religious Status

Religious composition of the study area population has various implications for area planning and overall welfare of the population. Data collected through the socio-economic survey is given in the Table-2.5. Over 92 percent people of the study area belong to the Muslim community followed by 6.70 percent Hindu, 0.98 Christian and only 0.15 Buddhist. This is observed that the number of Hindus have reduced in the country between 1991 and 2001 as many of them have migrated to neighbouring India.

Table-2.5: Percentage Distribution Study Area Population by Religion

Religion	Savar		Gazipur		Total	
	N	%	N	%	N	%
Muslim	5976	92.08	1330	92.55	7306	92.17
Hindu	424	6.53	107	7.45	531	6.70
Christian	78	1.20	0	0.00	78	0.98
Buddhist	12	0.18	0	0.00	12	0.15
Total	6490	100.00	1437	100.00	7927	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

d. Educational Status

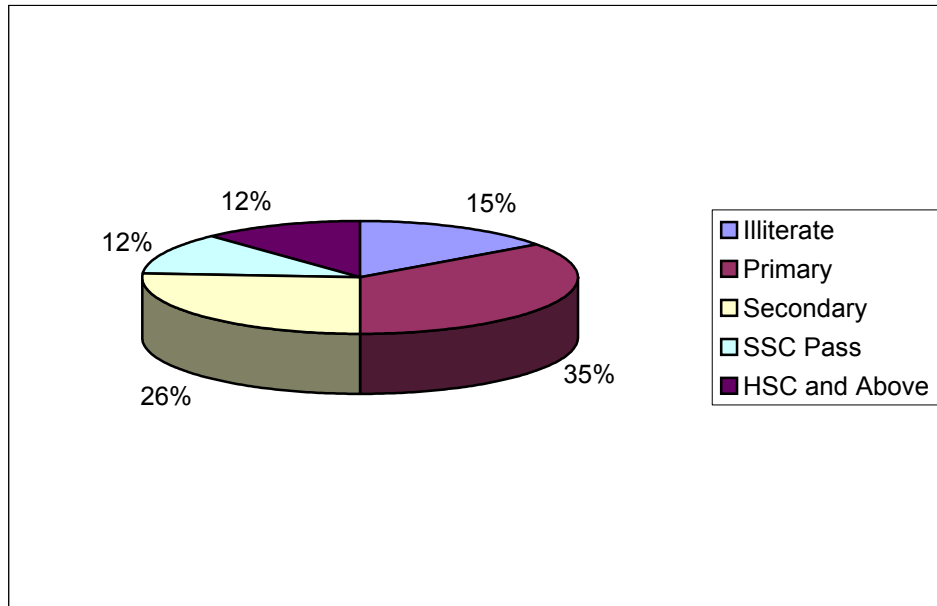
Table-2.6 presents the distribution of male and female population aged 6 years or above by the highest level of education completed or attended, according to residence. The designated area where survey was conducted has both municipal and non-municipal (called 'other') areas.

Table-2.6: Percentage Distribution of the Age 6 years or above by Level of Education

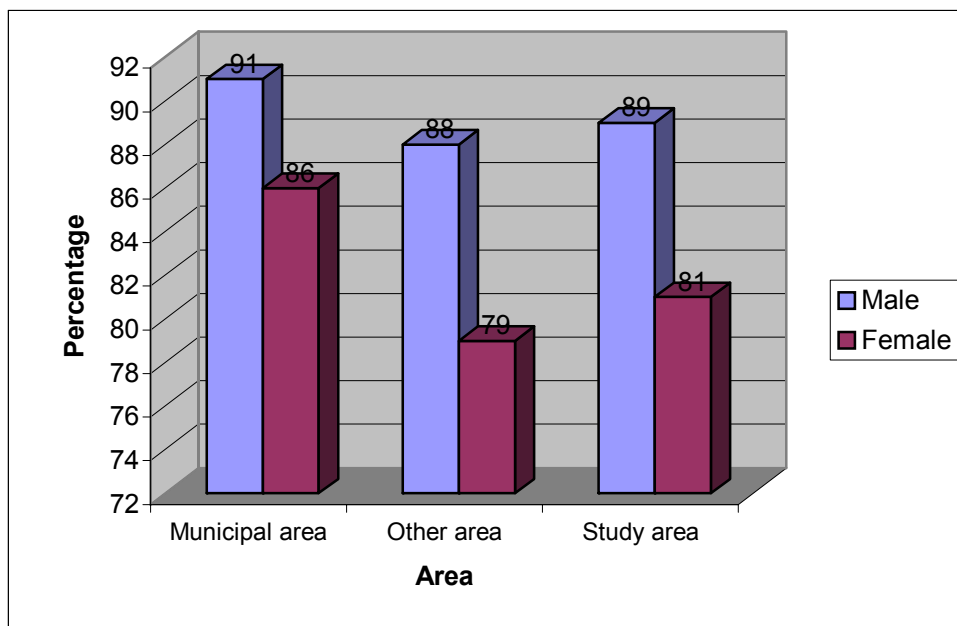
Education	Population (%)								
	Municipal Area			Other Area			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Both
Illiterate	9.07	13.99	11.53	12.08	20.60	16.34	11.43	19.08	15.26
Primary	27.87	32.46	30.17	34.17	37.45	35.81	32.82	36.31	34.56
Secondary	24.23	27.11	25.67	25.26	27.00	26.13	25.04	27.03	26.03
SSC	14.52	11.91	13.22	14.26	9.64	11.95	14.32	10.17	12.24
HSC	9.36	5.62	7.49	6.81	3.72	5.26	7.36	4.15	5.76
Graduate	8.42	3.22	5.82	4.05	1.19	2.62	4.99	1.66	3.32
Doctor	1.63	0.20	0.92	0.37	0.08	0.23	0.64	0.11	0.37
Masters	3.34	0.85	2.10	1.47	0.53	1.00	1.88	0.60	1.24
Technical	0.08	0.00	0.04	0.20	0.03	0.12	0.17	0.03	0.10
Vocational	0.05	0.00	0.03	0.00	0.03	0.01	0.01	0.02	0.02
Religious	0.72	0.20	0.46	0.66	0.28	0.47	0.67	0.26	0.47
Alem	0.13	3.78	1.96	0.07	0.00	0.03	0.08	0.00	0.04
Others	0.56	0.64	0.60	0.60	0.57	0.59	0.59	0.59	0.59
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

Overall, 15% of the total population aged 7 years or above have never attended school, and the remaining 85% have primary or higher level of education. About 35% have completed or attended primary school, 26% have attained some secondary level of education, only 12% have completed SSC and the remaining 12% have HSC or other level of education (Figure-2.2).



Educational attainment is somewhat better in municipal area (Figure-2.3). About 88% among municipal population against 84% of other area population have some level of education. Also, 89% of all male and 81% of all female have some level of educations. Educational attainment appears to be consistently better among males both in municipal and other areas.



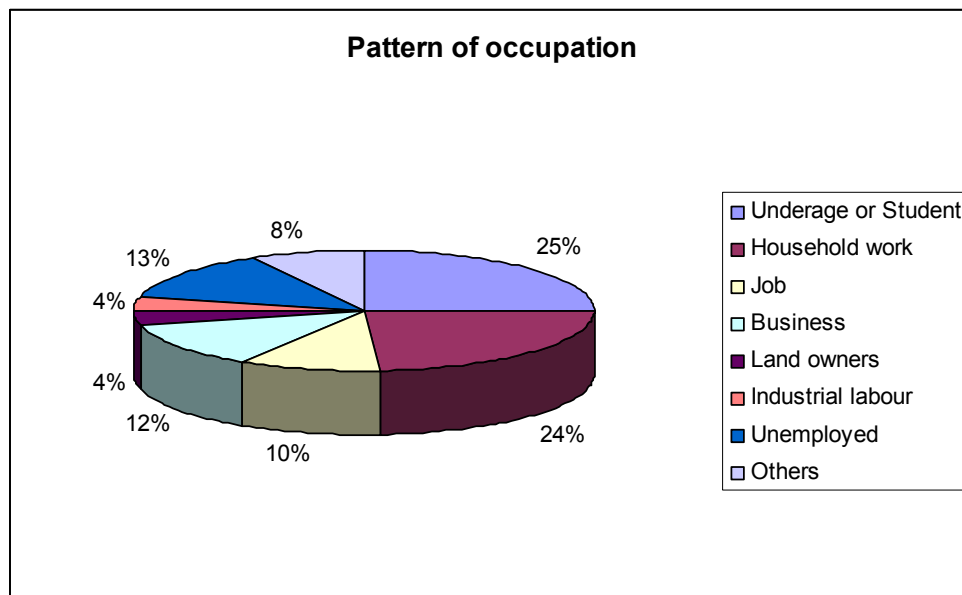
e. Occupation Employment Pattern

Occupational pattern of population does not reflect expected urban feature. About 25% is either underage or student, about 24% (46% female and 0% male) is involved in household works, 10% work in government/private/autonomous organization, 12% is involved in business, 4% land owners, 4% industrial labour, 13% unemployed, and the remaining (8%) involved in other activities like, day labouring, skilled/unskilled professions, etc. (Figure-2.4 & Table-2.7).

Table-2.7: Percentage Distribution of the Study area Population by Sex and Occupation

Category	Male		Female		Total	
	N	%	N	%	N	%
Self Employed	305	1.75	0	0.00	265	0.82
Govt./Autonomous	720	4.13	210	1.41	870	2.69
Private Company	1428	8.19	675	4.53	2021	6.25
Business	3756	21.54	419	2.81	3755	11.61
NGO Worker	37	0.21	70	0.47	113	0.35
Rickshaw/Van Puller	214	1.23	0	0.00	188	0.58
Motor Driver	560	3.21	0	0.00	488	1.51
Skilled Mechanics	504	2.89	19	0.13	463	1.43
Industrial Labour	520	2.98	621	4.17	1168	3.61
Day Labour (Non-farm)	282	1.62	0	0.00	246	0.76
Land Owner Farmer	1678	9.62	0	0.00	1462	4.52
Sharecropper	204	1.17	0	0.00	178	0.55
Day Labour (Agri.)	319	1.83	0	0.00	278	0.86
Household Works	0	0.00	6841	45.90	7869	24.33
Unemployed	1812	10.39	2170	14.56	4075	12.60
Student	4138	23.73	3768	25.28	7940	24.55
Day Labour	249	1.43	0	0.00	217	0.67
Others	713	4.09	110	0.74	747	2.31
Total	17438	100.00	14904	100.00	32343	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005



f. Income and Expenditure Levels

Monthly household income and expenditure indicate socio-economic status of the population. It also allows examining the household saving rate. Here, income means income of a household for a month from all sources such as production, property, salary and business and expenditure means amount of money that a household spends for all types of consumption.

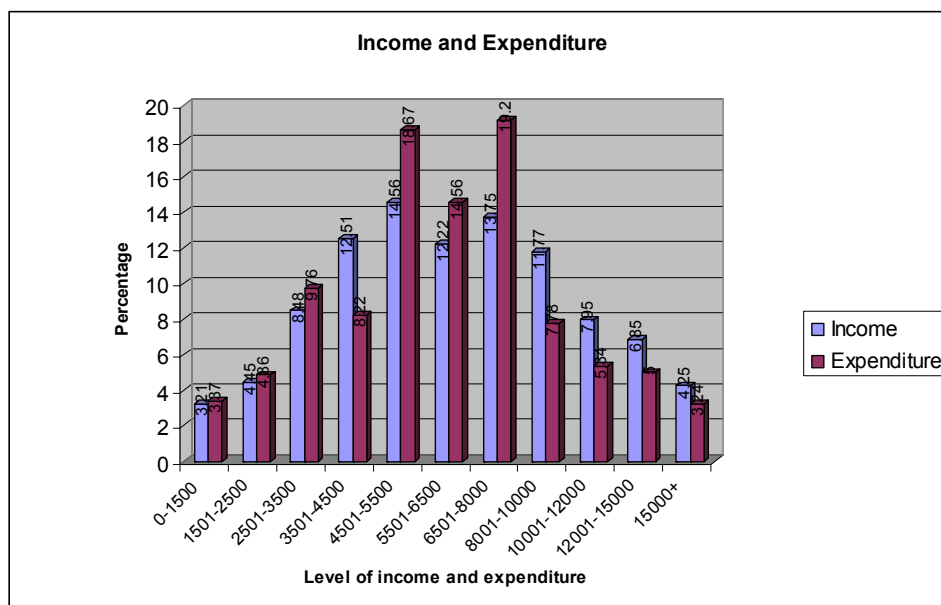


Figure-2.5: Percentage of the study area household by income and expenditure

Table-2.8 and Figure-2.5 shows that the households with monthly income of more than Tk. 8000 spend less than income and these households are able to save some money. But the situation is opposite among the low income group households. About 29% households have monthly income less than Tk. 4500, 52% households have monthly income between Tk. 4501 and Tk. 10,000, and 19% have monthly income more than Tk. 10,000. As regards monthly expenditure, 26% household spends Tk. 4500 or less, 60% can afford to spend Tk. 4500-10,000, and about 14% spend more than Tk. 10,000 for a month.

A study (1996) sponsored by Planning Commission and ADB set poverty line for the poor at monthly income/expenditure at Tk. 3500. Taking account of inflation and cost of living, if current poverty level is set at Tk. 4500, then 29% households of the study area will be below the poverty line in terms of income.

Table-2.8: Percentage Distribution of Households by Monthly Income and Expenditure

Income/Expenditure Range	Income		Expenditure	
	N	%	N	%
0-1500	254	3.21	267	3.37
1501-2500	353	4.45	385	4.86
2501-3500	672	8.48	774	9.76
3501-4500	992	12.51	652	8.22
4501-5500	1154	14.56	1480	18.67
5501-6500	969	12.22	1154	14.56
6501-8000	1090	13.75	1522	19.20
8001-10000	933	11.77	617	7.78
10001-12000	630	7.95	423	5.34
12000+	880	11.10	653	8.24
Total	7927	100.00	7927	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

g. Source of Income

Table-2.9 shows percentage of households by sources of income. A household receives income from more than one source. Salary and business area dominate sources of the household monthly income. In the study area, salary accounts for about 30% of all household incomes, followed by business (29%). Income from agriculture accounts for around 19%, daily wage 10%, house rent 13%, livestock 8%, property 4% and foreign remittance 5%. Some households also derive income from handicrafts, fisheries, and other sources.

Table-2.9: Percentage of Household by Sources of Income (multiple response)

Income Source	Household	
	N	%
Salary	2418	30.50
Property	580	7.32
House rent	1004	12.67
Business	2311	29.15
Daily wage	771	9.72
Agriculture	1470	18.55
Livestock	617	7.78
Fisheries	122	1.54
Handicrafts	274	3.46
Remittance	347	4.38
Others	409	5.16
Total	7927	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

h. Migration

Following graph (**Figure-2.6**) shows the migration status in the study area of Group-E. The household socio-economic survey reveals that around 66% of the population is migrated from different parts of the country.

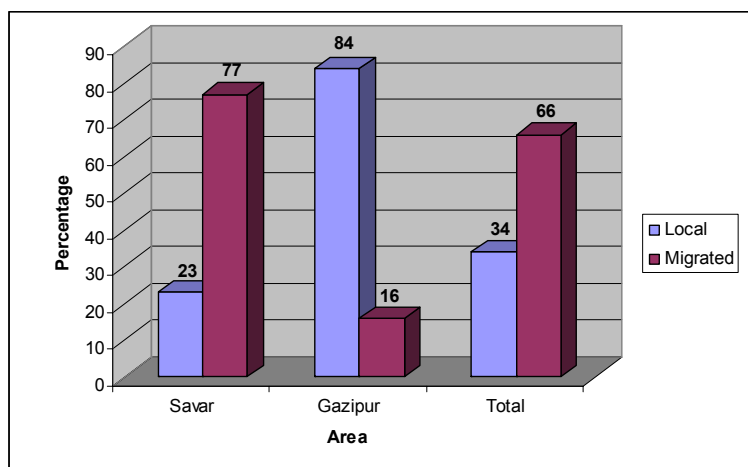


Figure-2.6: Area wise percentage of migration status

The pattern of migration is little bit different in this peri-urban study area than the Dhaka city core. Over 81.34 percent of the migrants are from greater Dhaka district, particularly, around the study area (**Table-2.10**). Migrants coming from greater Barisal constitute 3.26 percent, which is the highest figure, followed by Comilla (2.66%), Mymensingh (2.43%) and Faridpur (2.26%). Migrants are mostly engaged as factory workers and in informal economic activities.

Table-2.10: Percentage Distribution of Migrated Household by Greater District of Origin

Greater District of origin	Savar		Gazipur		Total	
	N	%	N	%	N	%
Barisal	167	3.35	3	1.29	170	3.26
Bogra	54	1.08	3	1.29	57	1.09
Chittagong	13	0.26	0	0.00	13	0.25
Comilla	139	2.79	0	0.00	139	2.66
Dhaka	4034	80.86	213	91.81	4247	81.34
Faridpur	113	2.26	5	2.16	118	2.26
Jessore	42	0.84	0	0.00	42	0.80
Khulna	23	0.46	0	0.00	23	0.44
Kustia	33	0.66	0	0.00	33	0.63
Mymensingh	127	2.55	0	0.00	127	2.43
Narshingdi	21	0.42	0	0.00	21	0.40
Rajshahi	83	1.66	4	1.72	87	1.67
Rangpur	70	1.40	3	1.29	73	1.40
Sylhet	5	0.10	0	0.00	5	0.10
Tangail	65	1.30	1	0.43	66	1.26
Total	4989	100.00	232	100.00	5221	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

2.1.3 Landuse

a. Residential Areas

Settlements are found particularly in areas of higher elevation following linear pattern along side the roads. Savar Paourashava (SPZ 17.1) is the oldest and the most built up part of the study area. Apart from core Savar in most areas new residential developments are coming up as dispersed settlements in high lands. The trend of settlement growth is greater in areas close to the main road and industrial concentrations. Naljani, Itahata and Bhegra, Surabari, Gobinmda Bari, Dakshin Panishail, Diabari, Puba baghbari of Gazipur have major residential concentrations. In Savar Upazila part of the study area major residential concentrations are in Savar, Badda, Genda, Tetuljhora, Polashbari, Banshbari, Baipail, Dhalpur, Rajashan, Pathalia. Dispersed settlements make provision of services difficult. About 17 percent of the study area is occupied by residential land use including rural homestead. There are some public sector housings in the area that include, Cantonment residential colonies, Radio Colony, Jahangirnagar University Staff Housing, PATC Staff Housing, Agrani Bank Residential Area, etc. However, there are also large numbers of private commercial and cooperative housing estates where structures are yet to be developed.

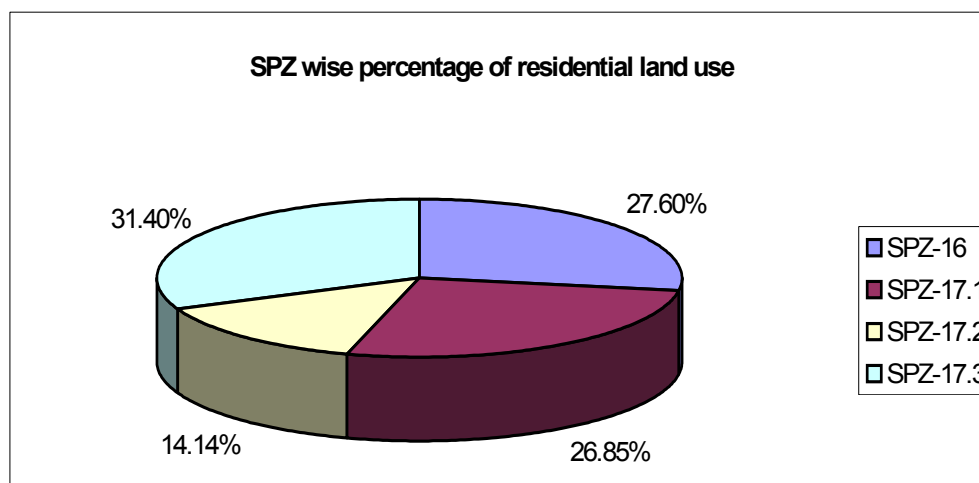


Figure-2.7: SPZ wise percentage of residential land use

SPZ 17.1 that is Saver Paourashava is the most built up part of the study area. About 48.23 percent out of about 17 percent of the built up part of the study area is occupied by residential use, the highest land use of the SPZ 17.1.

b. Industrial Areas

The Group-E area is important for industrial development in the outskirts of Dhaka City. Cheap flood free land along with good communication and physical infrastructure offer excellent opportunity for industrial development in the area. It is observed from physical feature survey that, the highest numbers of industries (48 percent) are found in SPZ-17.3 as the zone covers about 45% of the study area. The second highest numbers (34 percent) of industrial establishment take place in SPZ-17.1 (Dhamsona). The establishment of Dhaka Export Processing Zone (DEPZ) and availability of relatively flood free land in this zone make the area more attractive for industrial investment. These industries are developed to support the EPZ as backward linkage industries.

The main industrial agglomerations are observed in Savar, Karnapara, Savar (SPZ-17.1) and Baipile, close to EPZ (SPZ-17.2), Kulsur, Dakshin Shayampur, Tetuljhora, Kandi Baliarpur of Hemayetpur area. The most critical problem about industrial development is that they are growing almost anywhere without having any control over them. This is likely pose serious threat to environment in future.

Though large number of industrial establishments have been found in the study area, the total coverage is only 781.35 acres (excluding EPZ) that is very much insignificant compared to the total study area.

c. Commercial Areas

Commercial developments are found in major activity areas. Commercial area occupies only 297.84 acres of land constituting 0.41 percent of the total area that includes group of road side retail shops, hats, bazaars, wholesale markets, etc. The major problem about commercial development is that they develop as chain along road. Without have adequate provision for road width or parking the roads in commercial area become too congested for smooth movement of vehicular traffic and pedestrians. Major shopping malls are found in Savar and Baipail and along the main road around EPZ and Baipail-Tongi Road.

d. Amenities and Urban Facilities

There is serious shortage of play field and parks for local level active and passive recreation. Absence of open space particularly affects children and the adolescent groups in terms of growth of their body and mind. Adolescent devoid of playing areas are often found to get involved in drug addiction and anti social activities. A variety of uses like bank, health facilities, power sub station, treatment plants, engineering workshops, hotel, restaurant, police, fire brigade and like are included in this category of land use. It has been found from the survey that service activities occupy 112.16 acres of land in the study area.

e. Non Urbanized Area

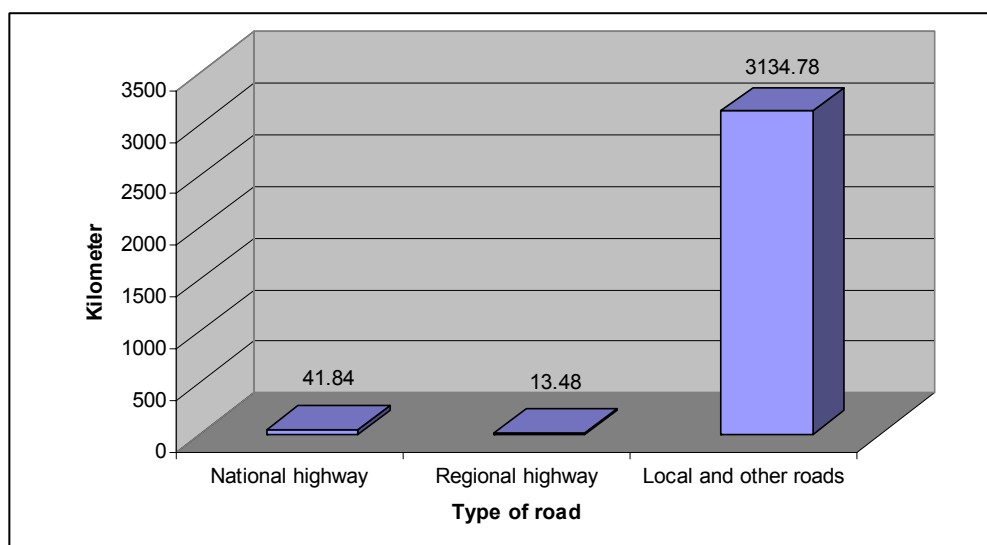
Within the study area major land coverage is non-urbanized. They are either low lying vacant land or belong to agriculture, and or water body. The total area belonging to non-urbanized category constitutes over 75 percent of the total planning area. So there are still vast opportunities for urban expansion. But urbanization has to proceed with land filling to raise it above flood level which is costlier. Vacant lands are mostly fallow lands where no agriculture works are done due to indiscriminate land filling and for want of irrigation water after the monsoon.

2.1.4 Infrastructure

a. Circulation Network

Geographically, most of the study area lies above flood level and as a result road is the prime means of movement. Two major highways pass through the study area connecting Dhaka with the northern and north-western districts of the country. These are, Dhaka-Paturia/Aricha Highway connecting north-western districts; and Dhaka-Mymenshingh Road leading to northern districts. Besides, Dhaka-Ashulia Road links Dhaka-Tongi Road with Nabinagar-Chandra Road connecting Dhaka-Tangail and Hemayetpur-Singair Road connects Dhaka with Manikgaj through Singair Thana as regional highway. Within the study area there are R-1 and R-2 roads connecting the vast rural areas with the district headquarters through thana and union headquarters.

It has been observed from the physical infrastructure survey that the study area is served by about 3190 km of road in which 42 km national highway, 13 km regional highway and 3135 km local and other roads. The highest part of the national (7.96 km) highway passes through Pathalia Union followed by Savar Paurashava (7.17 km) and Dhamsona Union (5.36 km).



Parts of three regional highways pass through the study area sharing three unions namely, Basan (9.33 km), Pathalia (1.27 km) and Ashulia (2.88 km). These roads are Dhaka bypass, Joydebpur-Kaliakair road, Nabinagar-EPZ road and Ashulia-Tongi road.

All roads in the category of Upazila and Union roads are being accounted as local and other roads. It is observed from the physical infrastructure survey that about 3135 km roads of this category exist in the study area. These include bituminous, HBB and earthen roads.

Table-2.11: Union wise Percentage of Road Length by Hierarchy

Name of the Union	Length of Road (in km) (%)			
	National Highway	Regional Highway	Local and other Roads	Total
Basan	4.66 (11.14)	9.33 (69.21)	432.74 (13.80)	446.73 (14.00)
Kasimpur (Part)	3.51 (8.39)	0 (0.00)	88.55 (2.82)	92.06 (2.89)
Kayaltia (Part)	2.67 (6.38)	0 (0.00)	220.09 (7.02)	222.76 (6.98)
Simulia Union (Part)	0 (0.00)	0 (0.00)	7.56 (0.24)	7.56 (0.24)
Savar Paurashava	7.17 (17.14)	0 (0.00)	513.9 (16.39)	521.07 (16.33)
Dhamsona Union (Part)	5.36 (12.81)	0 (0.00)	222.82 (7.11)	228.18 (7.15)
Pathalia Union	7.96 (19.02)	1.27 (9.42)	300.54 (9.59)	309.77 (9.71)
Aminbazar Union	1.49 (3.56)	0 (0.00)	41.3 (1.32)	42.79 (1.34)

Name of the Union	Length of Road (in km) (%)			
	National Highway	Regional Highway	Local and other Roads	Total
Ashulia Union	0 (0.00)	2.88 (21.36)	273.44 (8.72)	276.32 (8.66)
Bangram Union	1.48 (3.54)	0 (0.00)	162.02 (5.17)	163.5 (5.13)
Bhakurta Union	0 (0.00)	0 (0.00)	199.18 (6.35)	199.18 (6.24)
Biralia Union	0 (0.00)	0 (0.00)	305.85 (9.76)	305.85 (9.59)
Kaundia Union	1.33 (3.18)	0 (0.00)	58.21 (1.86)	59.54 (1.87)
Tetuljhora Union	6.21 (14.84)	0 (0.00)	216.52 (6.91)	222.73 (6.98)
Yearpur Union	0 (0.00)	0 (0.00)	92.06 (2.94)	92.06 (2.89)
Total	41.84 (100.00)	13.48 (100.00)	3134.78 (100.00)	3190.1 (100.00)

Source: Physical feature survey, 2005-2006

Over 64 percent of roads in the study area have been found katcha or unpaved (Table-2.12). Bituminous and HBB roads almost equally share rest of the study area road length. The study area accommodates two national highways. One connects Dhaka with south-western region of Bangladesh through Paturia Ferry Ghat and the other highway links the capital city with northern districts through Uttara-Ashulia-Chandra-Tangail-Jamuna Bridge. Nabinagar-Baipail (EPZ) Road links both the highways. The total of bituminous roads in the study area stands at 572.86 km. Following table shows the type of roads according to their percentage of length within the study area.

Table-2.12: Union wise Percentage of Road Length by Type of Construction

Name of the union	Length of Road (in km) (%)			
	Bituminous	HBB	Katcha	Total
Basan	74.11 (16.59)	60.06 (13.44)	312.56 (69.97)	446.73 (100.00)
Kasimpur (Part)	16.17 (17.56)	6.25 (6.79)	69.64 (75.65)	92.06 (100.00)
Kayaltia (Part)	19.91 (8.94)	47.91 (21.51)	154.94 (69.55)	222.76 (100.00)
Simulia Union (Part)	0 (0.00)	0 (0.00)	7.56 (100.00)	7.56 (100.00)
Savar Paurashava	152.83 (29.33)	202.38 (38.84)	165.86 (31.83)	521.07 (100.00)
Dhamsona Union (Part)	48.21 (21.13)	13.83 (6.06)	166.14 (72.81)	228.18 (100.00)
Pathalia Union	74.45 (24.03)	62.42 (20.15)	172.9 (55.82)	309.77 (100.00)
Aminbazar Union	6.84 (15.99)	7.28 (17.01)	28.67 (67.00)	42.79 (100.00)
Ashulia Union	47.31 (17.12)	51.97 (18.81)	177.04 (64.07)	276.32 (100.00)

Name of the union	Length of Road (in km) (%)			
	Bituminous	HBB	Katcha	Total
Bangram Union	14.86 (9.09)	26.75 (16.36)	121.89 (74.55)	163.5 (100.00)
Bhakurta Union	13.98 (7.02)	5.8 (2.91)	179.4 (90.07)	199.18 (100.00)
Biralia Union	36.65 (11.98)	42.06 (13.75)	227.14 (74.27)	305.85 (100.00)
Kaundia Union	2.69 (4.52)	10.8 (18.14)	46.05 (77.34)	59.54 (100.00)
Tetuljhora Union	48.68 (21.86)	19.64 (8.82)	154.41 (69.33)	222.73 (100.00)
Yearpur Union	16.17 (17.56)	6.25 (6.79)	69.64 (75.65)	92.06 (100.00)
Total	572.86 (17.96)	563.4 (17.66)	2053.84 (64.38)	3190.1 (100.00)

Source: Physical feature survey, 2005-2006

The highest length of bituminous road (152.83 km) have been found in Savar Pourasva area which is the central part of the study area. It accommodates a considerable length of Dhaka-Aricha/Patuarua national highway. The Savar Paurashava shares about 14 percent of the paved road. Over 38 percent of the HBB roads fall in the Savar Paurashava. **Table-2.12** shows the details of road length according to type.

2.1.5 Land Ownership and Land Value

Household survey shows, over 81% of the families became owners of their landed property through the law of inheritance. Only 1.11% received their land through the means of gift, while 16.72% became owner by means of purchase. Due to rapid invasion of urbanization and consequent higher land value the native inhabitants are selling out their farm land to the new comers. **Table-2.13** gives details about the source of ownership.

Table-2.13: Percentage of Household by Sources of Ownership of the Area

Source of ownership	Savar		Gazipur		Total	
	No	%	No	%	No	%
Inheritance	4982	76.77	1394	97.00	6434	81.17
Gift	75	1.16	14	0.95	88	1.11
Lease	58	0.89	1	0.07	56	0.71
Purchase	1351	20.81	28	1.98	1325	16.72
Others	24	0.37	0	0.00	23	0.29
Total	6490	100.00	1437	100.00	7927	100.00

Source: Household socio-economic survey, DAP for DMDP, Group-E, 2005

Land value in the project area is determined by location and accessibility. Land value is changing everyday and a sharp increase of land value has been recorded in the recent times. Due to the advance progress of Industrial agglomeration, land value of the planning area has been increasing rapidly. This has also resulted in the further fragmentation of large agricultural plots. At the same time, difficult and expensive irrigation facilities has also led land owner to convert their agriculture land in to industrial use, which is also one of the major reasons for the increment of land value. Land value in Savar area ranges between Tk 10 lac to Tk 15 lacs per katha depending on location and accessibility.

2.2 Expected Development

2.2.1 Population

The current section makes projection future population of the planning area and the likely economic growth to take place.

Population Projection and Density

According to projection the population of 2010 in the planning area comes to 9, 48,208 that is about 10 lakh. The population will reach about 12 lakh by the year 2015. Details have been presented in the **Table- 2.14** below.

Table- 2.14: Planning Area Population Growth (Projected)

Upazila	Union Name	BBS Population		Projected Population Growth Rate (r = 4.42%)	
		1991	2001	2010	2015
Savar (Part)	Amin Bazar	27175	34845	51439	63865
	Ashulia	21543	42696	63029	78255
	Banagram	23591	28008	41346	51334
	Bhakurta	34452	36308	53599	66547
	Biralia	19316	24507	36178	44917
	Dhamsona	21486	64233	94822	117729
	Kaundia	14414	20065	29620	36776
	Pathalia	40054	66096	97572	121144
	Savar	78939	125005	184535	229115
	Tetuljhora	29565	45547	67238	83481
	Yearpur	17744	27818	41066	50986
	Savar Cantonment	8578	15013	22163	27516
	Total	336857	530141	782606	971665
Gazipur (Part)	Basan	38029	49987	73792	91618
	Kashimpur	26650	41608	61423	76261
	Kayaltia	15146	20584	30387	37727
	Total	79825	112179	165601	205607
Grand Total		416682	642320	948208	1177272

Source: Bangladesh Population Census 1991 and 2001, Community Series, Zila Dhaka, 1993 and 2007.

The density of population in Savar Upazila was 935 persons per sq.km in 1981 that increased to 4611 persons in 1991 and changed to 1482 persons per sq.km in 2001. Over a period of 20 years the density increased by 493 percent. In Dhaka City Corporation the density of population stands at 19,565 persons per sq. km (2001). It means that Savar has still enough room to accommodate large number population. According to 2001 population statistics the density of population per acre in the planning area was 6 persons. Savar Paurashava had the highest density with 7410 persons /sq.km, followed by Aminbazar (4199), Savar Cantonment (3952) and Dhamsona (3705). Aminbazar having the smallest area had the highest density. Owing to surrounding low land peripheral expansion is difficult in this union. The area developed as compact settlement. Details of density are shown in **Table- 2.15**.

Table-2.15: Union wise Population and Density

Population and Density/Acre (1991-2010)								
Upazila	Union Name	Area (Acres)	Pop ⁿ 1991	Density PPA	Pop ⁿ 2001	Density PPA	Pop ⁿ 2010	Density PPA
Savar (Part)	Amin Bazar	2011.16	27175	14	34845	17	51439	26
	Ashulia	4699.78	21543	5	42696	9	63029	13
	Banagram	4252.37	23591	6	28008	7	41346	10
	Bhakurta	5518.70	34452	6	36308	7	53599	10
	Biralia	7441.34	19316	3	24507	3	36178	5
	Dhamsona (Part)	4344.43	21486	5	64233	15	94822	22
	Kaundia	2866.77	14414	5	20065	7	29620	10
	Pathalia	7097.67	40054	6	66096	9	97572	14
	Savar	4228.34	78939	19	125005	30	184535	44
	Tetuljhora	5341.67	29565	6	45547	9	67238	13
	Yearpur	3537.51	17744	5	27818	8	41066	12
	Savar Cantonment	923.00	8578	9	15013	16	22163	24
	Total	52262.72	336857	6	530141	10	782606	15
Gazipur (Part)	Basan (Part)	7660.64	38029	5	49987	7	73792	10
	Kashimpur (Part)	8733.54	26650	3	41608	5	61423	7
	Kayaltia (Part)	3757.62	15146	4	20584	5	30387	8
	Total	20151.80	79825	4	112179	6	165601	8
Grand Total		72414.52	416682	6	642320	9	948208	13
Average Population Density of the Planning Area (2001)		Persons per Sq. Km : 1482 Persons per Acre : 6						

Source: 1. Bangladesh Population Census 1991, 2001, Community Series, Zila Dhaka, 2007.

Note: Popⁿ = Population

2.2.2 Economic Activities

As mentioned earlier, due to its, high and flood free land, cheap land price and good communication with the core Dhaka, Savar is highly preferred by the potential investors in industry and housing. DMDP anticipated a huge growth around DEPZ and over the years it happened so. With the establishment of second DEPZ in the same area further spatial densification is expected. The spatial growth thrust comes from the initial growth of backward and forward linkage industries based on activities in DEPZs. Many investors have purchased land for development of their factories who are waiting for the right time to make investment. It is expected that with the investment incentives by the government further local and foreign investment will be pouring in the study area. Dhamsona and Ashulia are the most potential for new investment in industrial ventures, as because of the economies of scale. Development of housing areas by real estate companies is further accentuating the growth possibilities in this area. Agglomeration of new population will lead to the growth of services enterprise to serve the local people. Particularly, huge employment is expected to be generated in the informal sector. The other pockets where expected economic growth is likely to occur are, old Savar and its surroundings, Karnapara and Hemayetpur–Haridhara Industrial area. These areas already have industries which is likely to expand further by taking advantage of the as well local economies of scale. The growth of industries and housing will lead to investment in the commercial sector.

2.3 Development Problems

Substantial part of the study area is devoid of infrastructure required to serve this rapidly growing suburb of mega Dhaka. The area is particularly deficient in physical infrastructure, like, standard road network, piped water supply, drainage and waste management. Following is a brief description of available social and physical facilities in the area.

2.3.1 Hydrology (Drainage and Flooding)

River System

The Detailed Area Plan (DAP) boundary is surrounded by the distributaries of the Brahmaputra-Jamuna River system, the Bangshi River, the Dhaleswari River, the Balu River and the Lakhya River. These are the peripheral rivers of Metropolitan Dhaka. On the other side, the Turag River and the Buriganga Rivers are distributaries of the Brahmaputra-Jamuna River passing through the central part of Dhaka Metropolitan area from north to south.

The land level ranges between (+) 15.00m and (-) 2.00m with respect to PWD. Substantial part of the study area is geographically a part of Madhupur Tract. Such lands are characterized by high, undulated land surface with red soil, criss crossed by flood plains and the level of land surface exhibits greater than gentle slope. The Bangshi River which took from the Old Brahmaputra River has been closed in early 1970's, presently acts almost entirely as drain for run off of Modhupur Tract. However in downstream it meets with Fatikjani a distributary of the Jamuna River. Further downstream majority discharge of the Bangshi River flows into the Turag River and with smaller flows into the Old Bangshi. The Turag River meanders through a fairly narrow defile between higher laying Modhupur. Passing through the boundary of Konabari Union and Basan Union of Gazipur, the Turag River still remains meander but widens. While passing through the boundary of Basan and Kasimpur it straightens and widens more and remains straight down to Ashulia. At further downstream, the Turag River then no more straight. The Tongi Khal takes off from the Turag River and the Karnatali River links the southern Bangshi River with the Turag River at Amin Bazar. The Turag River flows along the westerly boundary of the planning area from north to south. Group-E area, starting from Basan passing Kashimpur, Yearpur, Ashulia, Biralia, Kaundia and ends at Amin Bazar. The river has low bed slope, both sides of the river plain is low and deeply inundated annually by normal flood. In fact its flood plain acts as a flood water storage area. The Bangshi River that passes along the western boundary is well defined and its easterly bank is mostly free from flood except near Paithalia where the river plain is low and inundated annually by normal flood.

Annual Flooding

Flooding of the Detailed Area Plan project area of Group-E might occur from 3 sources (i) direct rainfall (ii) direct overland spillage from the boundary major rivers like the Jamuna and Old Brahmaputra and (iii) over bank spillage from the internal regional rivers, the distributaries of the Jamuna and Old Brahmaputra River. It is possible for each phenomenon to occur separately or in combination with any other. During monsoon season from June to October the predominantly high water levels in the Jamuna and the Old Brahmaputra river coupled with the high water levels in the regional rivers conveying spills from the Jamuna River, prevents the withdrawal of excess rain water from the internal flood plains. As long as the commanding water level in the boundary rivers remain high, the levels in the regional rivers also remain high and the removal of water, or transfer through, from the region is severely inhibited. Southern part of Savar area always suffered flooding caused by overflow of river water called the external flooding. Due to topographical reason this area never suffered from internal flooding.

Drainage System

The drainage of Detailed Area Plan project area takes place at 4 levels, the boundary river system (primary), the regional river system (secondary), the natural khal system (tertiary) and depressed land system (quaternary), the mechanism by which the region drain relates directly to this hierarchical system and its interconnections.

The mean annual rainfall experienced in Savar region amounts to some 1931mm, occurring predominantly over a period of 7 months from April to October. The excess precipitation, after evaporation and infiltration accumulates first in the depressions, until these have been reached their capacity. Gradually, the extent of inundation increases until the small khals, which link the depressions, begin to flow.

During monsoon season the high water levels in boundary rivers coupled with the high water levels in the regional rivers prevent the withdrawal of excess rain water from the internal flood plains. On recession of the boundary rivers the regional rivers can begin to discharge more efficiently and on their recession, the internal drainage begins to function. Hence the key to the drainage of the study area lies in the prolonged influence of the high river levels in the boundary rivers as well as the regional river levels.

Destruction of High Value Agricultural Land

Flood free lands close to Dhaka have already been developed. The Planning area of Group-E, Simulia Union of Joydevpur Thana and Basan Union, Kashimpur Union, Kayaltia Union, Dhamsona Union and Pathalia Union of Savar and Savar Poura area are some 25km from central Dhaka to the north- west, predominantly flood free and suitable for development. But these lands have been found as high value agricultural land by the Soil Survey Department, though the land owners do not use them for agriculture. These lands are suitable for growing vegetable and fruits and not paddy as they are higher in elevation and can not hold water. As cultivation is expensive in these lands the farmers set these lands aside as fallow lands. But much of these high value lands have been destroyed by non-farm development. New investors in manufacturing and housing are attracted to these lands as they are free from flooding.

Absence of Drainage Network and Encroachment of Natural Drainage System

Before the urban invasion started in the planning area, there was a natural drainage system in the area that drained out the excess rain water during monsoon and saved the area from flooding. Almost entire planning area is experiencing disappearance of its natural drainage network, while rapid urban growth is being taken place everywhere. This is posing a serious threat to new settlements by waterlogging. Since most natural drainage systems are being filled up by new land owners rainwater will become clogged at certain places causing water stagnation and flooding. There is no drainage development plan for the planning area undertaken by LGED or Water Development Board. Local drainage is hampered due to non-existence of urban local government. With the rapid urbanization some of the natural drainage systems have already been filled up by new developers, at other places the land owners by the side of state owned water courses encroached into the drainage system. This tendency has caused the drainage network to squeeze down and reducing their capacity to drain out enough water. Many of these natural drainage channels still exist which must be protected to save the area from flood vulnerability. Encroachment of the Bangshi, the Turag and Karna rivers is also alarming.

2.3.2 Geological Fault

Geological fault lines have been considered in DAP and development restriction in fault line areas would be followed as stated in DMDP Urban Area Plan Volume-II, (Part-3, Interim Planning Rules), page # 2. It has stated that “Structures above 2 storeys situated within 500 meters of a known geological fault is not allowed unless built to the BNBC standards for Seismic Zone 3 (BNBC Section 6 Chapter 2, 2.5)”. Details of geological faults have been provided in **Chapter-1**.

2.3.3 Spontaneous Development

Sprawl development is a major spatial feature of the study area. New settlers and investors in industrial concerns are indiscriminately buying land almost anywhere and building their establishments indiscriminately. Hardly any new structure has approval from RAJUK, the authority for giving construction approval. This trend is a potential environmental threat.

Development in Flood Flow Areas

Some major land filling projects have been executed within Savar south flood plain including within Turag river flood flow zone. Land filling within flood flow zone is reducing the area of Flood Flow Zone as such the storage capacity of flood water. Haphazard land filling increases the frictional surface and further reduces the velocity of flow. As a consequence the water level in flood flow zone is increasing and relatively high lands adjacent to flood plain are going under water and causing prolonged flooding. Land filling here and there and along transverse direction to flow is creating pockets of Flood Flow Zone and permanent problem of drainage congestion.

2.3.4 Transportation

a. Road

Communication network plays very important role in development of settlements. Houses and other establishments always prefer road side lands to have easy access. Roads in the planning area are developing without having any standard and plan. As a result, narrow roads with tortuous pattern are common. New houses and industrial structures are cropping up along these sub-standard roads. This is likely, to poise traffic movement problems in the future when development becomes denser.

Deficiency in infrastructure and services is one of the major critical problems of the planning area. The reasons for such deficiency are many and varied and are linked with development management capacity of the concerned public sector development agencies, non-availability of resources and appropriate decision making process.

Major deficits in infrastructure include,

- road, bridge and culvert,
- power, water and gas network.

The entire area lacks systematic and planned road network. No road network plan was ever drawn up for this high intensity area. As a result sub-standard and ill designed roads are being developed spontaneously on community efforts. If this trend continues, in near future unplanned settlements like unplanned areas of Dhaka will soon develop here. Due to high demand for land by a fast growing economy, rapid development is taking place in the area without considering the suitability, adequacy and quality of road network. Since the investors have little or no option, they are forced to choose lands on narrow and low standard roads. Many existing roads have been found not properly served by standard bridges and culverts that pose impediments to smooth movement of vehicular traffic.

b. Conflict of Drainage and Waterways with Road Network

The Group-E area has vast linear shaped flood flow and sub-flood flow areas passing from north to south by its eastern periphery. These low lands get filled up with water during monsoon and serve as drainage path for vast water coming from the north as well as accumulated rain water. During dry season, however, they get dried up and used for farming. Only the narrow and meandering permanent water courses remain with water. In the wake of urbanization there will be need for new roads to be built across this flood flow areas to connect Savar and other activity areas with the Dhaka core. Building of roads across these lands in conventional manner by land filling would come in conflict with the free flow of flood water. This might put the metropolitan area as well as the settlements in the Group-E area into flood risk. Because the obstruction in the flood flow path will overflow the retention area and submerge the surroundings. To reduce this vulnerability, DMDP proposed some principles for road alignment. It recommended, *“Roads have to be aligned in such a way (and when necessary khals and ponds have to be somewhat remodeled) that as much as possible of the land along the roads can be put to high value uses, with khals and ponds in peripheral position, roughly halfway between a pair of parallel roads (the Banani lake between Gulshan and Banani is a good example of this principle, also the Gulshan lake between Gulshan and Badda).* “However, there can be exception, where road and canal run parallel to each other. In this case canal can serve as reserve space for later expansion of the road. The report also welcomes roads and drainage networks with waterways. In case of the planning area the Tongi-Ashulia-EPZ Road has already created such a conflict with the existing flood flow zone. To avoid any clash with flood flow zone, utmost attempt has been made by the consultant to avoid east-west roads. Wherever it becomes essential for any such road, it is suggested to build culverts and bridges across the water channels to allow free flow of water as much as possible.

c. Transportation Problem versus Urban Land Use

The plan would not be successful if there is no balance between landuse and transport planning. Many of the transportation problems is emanating from the conflict in the landuse. It is found that congestions are created due to the landuse along the side of the major roads. Moreover, linear development along the major road substantially reduces the efficiency of roads. Roads are also constructed with complete disregard to the projected generation of trips. Conflicting land uses also result in unnecessary congestion which could be otherwise avoided. Commercial landuse should be carefully planned along the major roads as they generate traffic congestion.

2.3.5 Utility Services

A key issue related to the sustainable development of planning area is accessibility to basic infrastructure and services like, water, power, sewerage, drainage and solid waste management. The rapid and almost uncontrolled growth of population has put these facilities under severe pressure, and mainly of them is highly deficient. Even a cursory analysis of the present state of affairs, infrastructure problems could become a cause of crisis. Sanitation and solid waste management are regional affairs but water supply, power and drainage are inter-regional issues. Thus critical need of advance action and arrangement is required for the adequate provision of physical infrastructure. For each component a broad augmentation plan to meet the projected requirement is essential.

a. Electricity

Electric supply is available in the planning area but the supply is not sufficient in relation to demand. This hampers Industrial production and normal life of the people.

b. Water Supply

There is no water supply network, not even in Savar Paurashava. Each household or enterprise has to arrange its own water procurement system. The usual method is hand tube well. As the ground water is easily available it is easy to get water by sinking a tube well. But such indiscriminate and uncontrolled extraction of ground water might endanger the source and affect supply to future users. Because the ground water table does not get replenished regularly to the extent it is emptied.

c. Gas Supply

Gas supply network is available area, but absent in rural parts of the planning area.

d. Sanitation

Proper system for drainage of waste water and hygienic toilets are essential components of modern living in urban area. The planning area lies outside WASA. However, 38% households have reported of having pucca toilet system, 44% semi-pucca and 40% household's katcha system. More than 6% reported of not having any toilet at all. Having some kind of sewerage system is higher in municipal area (98%) as compared with 90 % in other area. Regarding ownership of toilets, 76% households reported of having their own toilets, 23% have joint ownership and about 1% households use community toilets.

e. Drainage

The drainage area of Savar is 56.52sq. km. The existing drainage system in general consists of local open khals connected to the regional rivers. There are limited numbers of these connections and discharging points along the length of the regional river length, rather than uniformly distributed. In fact existing system is inadequate for draining storm water. It is further limited by siltation, dumping of solid wastes and encroachment in the form of local roads.

The embankment and the sluice gates of the Turag prevent spreading of flood water of Turag River towards left. Moreover, the pumping stations are discharging storm drainage water during flood season. In fact 60.84 sq.km area of Turag River left bank drainage area of Group C and 13.24 sq.km area of Tongi west zone drainage area of Group A discharging its excess water to the flood plain of Group E. But the internal flooding will increase with densification of population, industries, institutions, increase in road networks, etc. In order to protect the land from flooding and eliminate drainage problems and to enhance the security of people in the study area, an optimum flood protection and drainage improvement plan, comprised of either non-structural or structural measures, is essential.

f. Solid Waste Disposal

Because of particular consumption and production pattern urban land uses usually produce more waste than rural land uses. Study area is marked by the rapid growth of industries, mostly indiscriminate. These industries produce many different kinds of wastes. As there is no local government (except Savar Paurashava) these wastes are littered almost everywhere polluting the environment. There is no dumping site or transfer station, as a result waste is dumped everywhere. Solid waste collection system is available only in Savar Paurashava and collected wastes are dumped in DCC landfill site located in Banagram union beside Dhaka-Arich Highway. This is a potential environmental threat.

2.3.6 Amenities and Urban Facilities**a. Active and Passive Recreation****Active Recreation**

Active recreational facilities furnish opportunities for the physical growth of human body by actively engaging muscles in various games. Playground, stadium and playing fields are the facilities that offer such recreation. The demand for playgrounds in recent time has greatly increased due to the rapid development of organized athletics and games. The planning area seriously lacks public recreational open spaces particularly playfields. Absence of open space particularly affects children and the adolescent in terms of growth of their body and mind. Adolescent devoid of

playing areas are often found to get involved in drug addiction and anti social activities. The playfield available in 18 schools in the area also serve local communities.

Passive Recreation

Passive recreational facilities are provided to meet with needs of fresh air and enjoyment of the unspoiled nature. In congested city areas, it is not possible for the inhabitants to secure this type of recreation and therefore, the parks should invariably be provided to meet recreational needs of the people. Thus open spaces in the form of parks furnish the passive type of recreational open space. The provision of such open space is also lacking in the area. The available recreation and amusement parks include National Mausoleum, Nandan and Fantasy Kingdom. Since the area is still at the developing stage there are opportunities to create parks and other kinds of open space.

b. Educational Facilities

There are a number of educational facilities in the planning area as summarized below:

- i. 1 public and 1 private university.
- ii. 2 private medical colleges.
- iii. Many school, madrasa and college.
- iv. There are a few national level school/college.

Elementary schools on private initiatives are scattered all over the planning area where there are high density human settlements. They develop as per local demand. But most schools lack physical facilities and quality education. The government regulatory measures in this regard is highly lacking.

c. Market Facilities

Since most parts of the planning area are not covered by municipality, market places have not been developed in an organized manner. The existing markets are not appropriately located, not well arranged and do not have sufficient facilities. The field survey has identified 33 daily kitchen markets, 10 hats and 4 wholesale markets within the planning area. Hats sit once or twice a week and trade mostly on agro-products. The wholesale markets are located in Savar and Ashulia. Two markets are in Ashulia, the fast growing urban area, and one at Savar, by the riverside. Two hats have been found in Itahata and Jogitala and two bazaars in Joydepur chowrasta and Mogorkhal in Basan union. There is one hat in Kashimpur and two bazaars in Bagbari and Gobindabari in Kashimpur Union. In Kayaltia union there is one hat in Salna and three bazaars, namely, Banglabazar, Deshipara, Tekkathora.

Two bazars exist in Savar Paurashava area. One bazaar in the old part beside the Bangsi river and another bazar including retail vegetable market in the newly growing eastern part by the Dhaka-Aricha Road. Three small bazaars have been found in Ganakbari, Palashbari and Baipail under Dhamsona Union. One hat and one bazaar exist in Nayarhat, four bazaars in Gerua, Kurgaon, Khejurtek, Nabinagar under Pathalia Union.

d. Community Facilities

There exist significant numbers of religious facilities in the Group-E area. Community facilities like hospital/clinic, fire service station, post office, police station, power plant, and refueling station, etc. are also available. From the physical feature survey, it has been identified that there are 107 graveyards of various sizes, mostly small. Field survey identifies about only 17.61 acres of recreational open space including playfield in the planning area.

Details about community facilities in Group-E area have been presented in **Chapter-3**.

2.3.7 Environmental Concern

Environment is a major concern in newly growing areas, particularly where industries are coming up quickly. In absence of effective control mechanism many industries are polluting environment including the local water courses, ditches and beels and even the farm lands.

a. Flood Flow and Waterbody

The DMDP Structure Plan designated huge patch of lands under flood flow and sub flood flow zone, especially in Group-E area. Flood flow zone refers to areas that allow flowing of floodwater during monsoon. These areas are the traveling paths of flood water. Virtually, all flood and sub-flood flow areas are used for agriculture. There are plenty of water bodies like, pond, ditch, marshy land and khal in planning area. With urbanization and industrialization, many ponds and ditches are being filled up by the owners to make gains on increased land value. Uncontrolled draining of hazardous waste into the water courses pollutes the water affecting fisheries and crops in the planning area. Presently, there is no control as to which industry will be allowed where. Other concerns include, filling up of waterbodies creating risks of flooding, encroachment of kahls and rivers creating drainage congestion.

b. Pollutions

Liquid effluent discharged by growing industries in the planning area is a major environment concern. The liquid toxic waste is indiscriminately drained into the drainage channels that penetrate into farm lands, rivers and low lying areas. The most polluting manufacturing units include textile dyeing and chemical factories and garment and knit wear factories that indiscriminately dump their trash and waste materials around the factory. Dyeing units produce hazardous wastes harmful for fauna and flora.

This not only affects the living environment and ecology in general but also the local agriculture in particular. Mitigation to this problem lies in setting up effluent treatment plants in industrial areas, so that liquid waste can be treated before discharging into the water system. Common effluent treatment plant can solve the problem of liquid waste management at low cost per unit of enterprise. But as most industries are scatteredly located it is difficult to set up common effluent plant. Some industries have ETP, but they hardly use the system as it raises their cost of production. There is serious slack in enforcement of environmental control regulations. The Tannery Estate being set up in south-western corner of the study area contains provision of such a common treatment plant. It is suggested to set up such plants at DEPZs and other suitable places of industrial agglomeration. A heavy/noxious industry zone can be setup for heavy and polluting industries. A waste water treatment plant can be set up that may be shared by all the industries generating waste toxic waste water. The ministry of Industries may take the initiative for this purpose. Cost of development and operation may be realized from the beneficiary establishments in the zone. Landfill site of DCC in Aminbazar area is another environmentally concerned establishment in the planning area. The river water will be contaminated through leaching from this landfill site and the surrounding environment would be greatly polluted.

c. Loss of Bio-diversity

In Savar, Ashulia and Dhamsona of Group-E area, industries are developing sporadically without treatment plant. Tannery Estate has also been proposed beside Bangshi River, where effluent treatment plant is necessary to purify industrial waste. Due to the presence of indiscriminate industries untreated industrial waste water pollutes the rivers and their tributaries, and kahls. The intensity or density of commercial, industrial, and residential land uses generally directly relates to their effect on freshwater ecosystems and biodiversity. Densely developed urban areas tend to contribute more contaminants to and modify freshwater ecosystems more dramatically than suburban areas of less intense development. The location of urban development also affects the severity and character of its threat to freshwater ecosystems and biodiversity. The sprawl and haphazard urban development makes the condition more severe. Urban development tends to be more detrimental to natural resources when it displaces prime farm land, when it occurs on or near fragile ecosystems or when it occurs in areas with significant topographic relief, leading to severe erosion and sedimentation problems. Impervious surface cover such as roads, parking lots with the resultant storm water delivery, water withdrawals for use and discharge of wastewater and physical manipulation of the stream / river channel are the major elements of urbanization held responsible for the alteration to freshwater ecosystem and biodiversity.

d. Potential Hazard

Groundwater is replenished or recharged through surface water seeping from land surface, streams or lakes into the ground or through precipitation percolating into the ground. For the groundwater table to stay at the same level, the amount of recharge must equal the amount of discharge. It is reprehensible that vested quarters or groups all over the planning area make offence by diminishing the arable lands, grabbing lands by filling low lying areas, encroaching

rivers, lakes, khals, etc. Indiscriminate exploitation of ground water by dyeing industries is resulting in the lowering of ground water table which will have negative impact on environment. It is not worth mentioning that urbanization poses a threat to our groundwater supply. Indiscriminate urban development increases the amount of impervious (nonporous) surface in a watershed. Impervious surface inhibits groundwater recharge, because precipitation cannot penetrate to the surface. As a result, groundwater is being gradually depleted. There is another concern that if soil is contaminated or surface runoff is polluted, the quality of the groundwater will also be affected. Polluted groundwater and/or a diminished supply of groundwater are of particular concern where groundwater is the major source for drinking and irrigation water. With the growing industries of various kinds the risk of ground water pollution in the planning area is increasing fast.

e. Health and Safety

The main sources of health and safety concerns in the planning area come from degrading environmental conditions. Some of these concerns are direct and some are indirect. The direct concerns come from drinking water supply, waste management, drainage management and water pollution. Solid waste management in non-municipal area does not exist. Waste is dumped indiscriminately increasing the risk of disease spread. There is no provision of waste water treatment which increases the risk of water contamination leading to health risk when contaminated water is used for washing and other purposes. Liquid toxic materials from industries are polluting waterbodies and surroundings. When polluted water is used for crop production the pollutants penetrate the food chain that endangers human health.

f. Control controlling Instruments

There are several laws and regulations by which the respective authorities can play vital role in controlling the unplanned development in the planning area. They are as follows:

- i. Town Improvement Act, 1953
- ii. Dhaka Master Plan, 1959
- iii. Dhaka Metropolitan Development Plan, 1995-2015
- iv. Bangladesh National Building Code, 2006
- v. Dhaka Mahanagar Imarat Nirman Bidhimala, 2008
- vi. Besarkari Abashik Prokolper Bhumi Unnayan Bidhimala, 2004
- vii. Jaladhar Sangrakkhan Ain, 2000

But due to absence or inadequate of application, these acts and rules have become ineffective and plan violation has become a common practice.

2.3.8 Shelter and Settlement

Owing to ineffective development control, indiscriminate and unplanned growth of settlements has become a common phenomenon. New areas are coming under settlements without adequate provision of infrastructure and services. On the other hand, due to rising land price it has become very difficult to provide secured shelter to the urban poor at their affordable prices. The majority of the people of the planning area are in the middle and low income range and they are unable to buy land in the established urban areas. As a result, they try to find shelters in remote areas without basic services including proper access facilities. This is resulting in conversion of remote agricultural lands into settlement where living environment provides little or no basic services resulting in urban deprivation.

The present socio-economic activities going on in the study area has their quantitative and qualitative effects. The main thrust of socio-economic activities in the Group-E area comes from the three different sectors-industry, commerce and housing. There are some net quantitative and qualitative results of all these activities. Quantitative results of urban expansion come with the increase in population, settlement, commercial development and services. From 1981 to 1991 there was over 44% increase in population of Savar area, while from 1991 to 2001 the growth was 55.29%. This increase was generated largely by the growth of increasing number of industrial concerns in the area where large number of workers are employed. New employments lead to the growth of dwelling units and other services. Again services also give employment to large number of employees. In this way substantial quantitative changes occurred in the study area over the years.

Qualitative effects are experienced in the form of spatial growth and deterioration of environment. Fallow and agricultural land transformation into settlement comprising housing, industry and commerce are the major qualitative changes. Environmental consequences arise from encroachment of natural drainage path, indiscriminate dumping of solid waste, pollution of water and soil by toxic discharge from industries.

2.3.9 Lack of Co-ordination among Public Sector Agencies

There is lack of coordination among different public sector agencies about development management and service provision in following areas.

a. Duplication of Efforts

Some agencies are performing same tasks without any intervention by the government. For building plan approval Dhaka Metropolitan Building Construction Rules, 2008 empowers Urban Development Agencies (RAJUK in case of study area) of divisional cities and paurashavas. But in study area both, paurashava and RAJUK approve building plans. These create serious problems as paurashavas in most cases take a liberal attitude towards building construction rules while giving construction approvals. Both Water Development Board and LGED undertake drainage and flood control schemes, sometimes without any coordination among them. LGED constructs rural roads within RAJUK area without consulting RAJUK.

b. Disregard of Approved Plan

According to Building Construction Rules any construction must be preceded by approval from the RAJUK. But most public and private sector agencies do not seek permission either from RAJUK or from local paurashava. This is sheer violation of. Besides, most individual and real estate developers violate their approved plans during construction to add additional space to their structures.

2.4 Current Public Sector Investment Program

The current public sector investment in the study area is listed below. **Map-2.2** shows the location of current investment projects.

Conversion of Dhaka –Aricha Road into a Four Lane Road

The RHD is engaged in a project to gradually convert the Dhaka-Aricha Road into four lane highway in order to increase road efficiency and avert accident. The first phase of the work has already been completed from Hemayetpur upto Nabinagar with the extension of edges on both sides and construction of a road divider.

Tannery Estate at Harindhara

Bangladesh Small & Cottage Industries Corporation (BSCIC) under the Ministry of Industries is developing a Tannery Estate in Harindhara area of south-west Savar to rehabilitate the tanneries agglomerated at Hazaribagh of core Dhaka. The project is nearing completion.

Truck Stand at DEPZ Area

Government is constructing a truck stand near DEPZs at Dhamsona to streamline haphazardly parked trucks in the area. This will free the area from traffic congestion caused by indiscriminately parked trucks.

Foot Over Bridge near DEPZs

During factory opening and break hours in DEPZs thousands of female workers cross Nabinagar-Chandra Road. This creates severe traffic congestion regularly on the road disrupting vehicular traffic movement. Government is constructing a foot over bridge across the road near DEPZs to ease traffic movement.

2.5 Stakeholders Wish List

As per ToR the consultant carried out a series of consultations with the local stakeholders on various issues relating to planning and development. The stakeholders included local public sector agencies, local community, private developers and NGOs. Analyzing the discussions and findings a wish list of the stakeholders has been presented in table- 2.16.

Table-2.16: Problems and Wish List of the Stakeholders

Stakeholder	Identified Problem	Wish List
1. Savar Paurashava	<ul style="list-style-type: none"> - lack of resources to facilitate development of the paurashava; - low level of holding tax collection; - absence of piped water supply network; - absence of comprehensive drainage network; - unpaved roads and absence of new connecting roads. 	<ul style="list-style-type: none"> - development of road network; - creation of park and play ground for children; - power to sanction building plans; - control of polluting industries so that environment of the paurashava can be protected. - streamlining the bus stoppage and bus movement in the main road.
2. Chairmen of the study area Union parishads Amin Bazar Kaundia Dhamsona Yearpur Ashulia Tetuljhora Kashimpur Kayaltia Pathalia Banagram Bhakurta	<ul style="list-style-type: none"> - transportation problems due to poor quality of roads; - lack of water supply; - environment pollution by industries; - slum created social problem; - no drainage system; - water logging, - industrial waste is polluting crop land; - lack of quality roads, - lack of Gas supply in remote areas; - water pollution in Bongshi river by adjacent industries; - lack of standard and quality roads; - future threat of soil pollution because of waste dumping by DCC; - low development fund provided by the government. 	<ul style="list-style-type: none"> - improved and quality roads; - removal of pollutant industries or resolve water pollution of farm lands; - ensure gas supply in the interior areas; - improve water supply system.
3. World Vision	<ul style="list-style-type: none"> - undeveloped road network in poor areas; - unemployment and low income of the people; - low literacy rate; - lack of access to health services. 	<ul style="list-style-type: none"> - improvement of local physical infrastructure facilities, mainly roads in the underprivileged and un-served areas so that poor people can easily go to their work places and undertake economic initiatives to improve their livelihoods; - protection of environment from undesirable discharge of effluent by industries; - creation of employment opportunities for the poor; - promotion of education and health facilities for the underprivileged.

