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**GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
MINISTRY OF WORKS
URBAN DEVELOPMENT DIRECTORATE**

**LAND USE PLAN
BELKUCHI UPAZILA SHAHAR
SIRAJGONJ ZILA**

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THE SURVEYS
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SECTION : I INTRODUCTION

1.1 REVIEW OF PROJECT BACKGROUND

This report is submitted in fulfilment of the Terms of Agreement signed between the Urban Development Directorate and THE SURVEYS for preparation of Landuse Plan of Balkuchi Upazila Shahar under Sirajganj Zila.

As a predominantly agrarian country, more than 50 percent of the Bangladesh's GDP is derived from agricultural sector, which provides employment to about 85 percent of the labour force. However, despite substantial dependency on agriculture, urban growth in Bangladesh is exceedingly high compared to other neighbouring countries. Only 8.74 percent of the country's population was reported to be living in urban areas as per 1974 estimation, in 1981 which was found to be about 15 percent.

Huge population growth and lack of employment in the countryside, pushes a large number of people to the urban centres. Rural-Urban migration plays a significant role in the urbanisation process. At the present rate of growth, the urban population of the country will be doubled within the next 11 years.

Despite it's dependency on agriculture, Bangladesh, for the sake of development, must take care of proper urbanisation because the urban centres are the focal point of all development activities. Formation of upazila system is a great achievement in the socio-political history of Bangladesh. It is a great step forward for decentralisation of development in the vast rural areas with upazila headquarters as the focal point. It is inevitable that in course of time the upazila headquarters will emerge as small shahars endowed with all urban facilities. But urban growth in these small town, without proper planning may adversely affect the quality of life, both, in the urban as well as in the rural areas.

Town planning is an effective tool, recognised all over the world, to render services for human habitations, a better living, working and enjoyable environment. Planned urban development plays dividends in the form of healthy, decent and efficient living environment.

1.2- THE PRESENT STUDY

This report is the third in its series that contains the description and implementation aspects of land use plan with background study of the upazila and the study area.

At the outset, a brief review of the upazila features has been made followed by introduction and analysis of the catchment and the study area. In the subsequent chapters population, labour force and employment forecasts have been made followed by plan description and recommendations on costs, development control and monitoring and review of the plan.

1.3 THE TASK AHEAD

Preparation of land use plan of the upazila shahar is just the first phase of a comprehensive planning and development programme. It is expected that for the sake of planned and rational development, planning of other urban centres, in order of hierarchy, will be taken up soon. The implementation of physical plans of this shahars will promote not only the planned development of the physical environment but will also help boost up economic development of the upazila.

CHAPTER II : UPAZILA IN IT'S DISTRICT CONTEKT

2.1 PHYSICAL CHARACTERISTICS

Location

Belkuchi upazila is situated a little to the west from the centre of Bangladesh within 24⁰-22' north latitude and 89⁰-37' east longitude. Belkuchi is under the administrative jurisdiction of newly constituted Sirajganj Zila. It has the River Jamuna in the east, Chawhali and Shahjampur upazilas in the south, Shahjampur upazila in the west and Sirajganj sadar upazila in the north.

The entire upazila covers an area of about 130 sq. km. which is equivalent to 50.2 sq. miles and consists of 6 unions, 96 mouzas and 137 villages.

Climate

The area has a pronounced tropical monsoon climate. There are three main seasons, the monsoon season from June to October, is warm and humid and about 80 percent of the total annual rainfall is received ; the winter, from November to February, when very little rainfall occurs and has the lowest temperature and humidity in the year ; and the pre-monsoon, from March to May, has the highest temperature and evaporation rates in the year and periodic thunder showers. About 15 percent rainfall of the year occurs during the period.

Mean annual rainfall is 269.24 centimeter (106 inches) as recorded from Pabna. Absolute maximum and minimum rainfall for Pabna are 1227 centimeters and 15 centimeters (483 and 6 inches) respectively, recorded for the year 1983.

Geology, Landform and Soils

The upazila consists of old Ganges flood plain under mature Delta physiographic sub-regions. This sub-region lies to the north of the present channel of the Jamuna and receives flood water from Jamuna. This area does not receive extensive silt deposit and more of it is subject to regular erosion.

The upazila consists of calcareous dark grey and brown floodplain soils.

2.2 POPULATION AND ITS' DISTRIBUTION

Within Zila

According to 1981 population census report, the total population within the newly constituted Sirajganj Zila, stood at 18,78,025 persons. Out of it's 9 Upazilas, the Shahjadpur Upazila has the highest population (341806). Table 2.1 shows distribution of population within 9 Upazila of the Zila. Belkuchi Upazila is the fifth largest Upazila of the Zila with a population of 1,87,414 persons and a density of 1442 per sq. Km., which is the highest in the Zila.

Table : 2.1

POPULATION DISTRIBUTION : SIRAJGANJ ZILA

Upazila	Population		Population density/Sq. Km. (1981)
	1974	1981	
Belkuchi	149915	187414	1442
Chowhali	100885	106046	484
Kamarkhanda	75616	85557	933
Ka zipur	178389	213885	597
Raigonj	153961	181280	680
Shahjadpur	278760	341806	1089
Sirajgonj	275680	340147	1119
Tarash	87450	108585	365
Ullapara	258351	313305	748
Total :	1559007	1878025	783

Source : 1. District Statistics, Pabna, 1983

2. Village Population Statistics, Pabna, 1974.

Within Upazila

Total population of the upazila in 1981 was 187414, out of which 98,149 are males and 98,265 are females. There are 110 males for every 100 females in the upazila as against 105 for the district. About 10 percent of the district population live in this upazila in an area of 5.4 percent of the district. The population density is about 1442 persons per sq.km. According to 1981 census, the number of households of the upazila are 31240. The average family size is 6.0. The table 2.2 presents the details of population statistics of the upazila.

Table :.2.2

POPULATION DISTRIBUTION : BELKUCHI UPAZILA (1981)

Name of Union	Area in sq.km.	No.of House-hold	Total Population (NO.)	Male (No.)	Female (No.)	Density in sq.km.	Family Size	Sex Ratio
Baradhul	4.38	1537	7486	3871	3615	1709	4.87	107
Belkuchi	20.42	6412	37105	19664	17441	1817	5.79	113
Bhangabari	25.93	5048	31557	16686	14871	1217	6.25	112
Daulatpur	23.81	7644	46876	24465	22411	1969	6.13	109
Dhukuriabera	28.43	5092	31553	16309	15244	1110	6.20	107
Rajapur	26.93	5507	32837	17154	15683	1219	5.96	109
Total :	129.90	31240	187414	98149	89265	1442	6.00	110

Source : Bangladesh Population Census, 1981, BBS.

Migration

Migration is a significant factor to urbanisation. Generally, to avail facilities like, industry, commerce and other economic activities , and for employment opportunities in various economic sectors, people concentrate to come in the urban area. But in case of Belkuchi, it is some what different from general trend of migration to urban area. The trend experienced in the study area is specially influenced by it's exceptional geographical position and community based economic activity.

Immigration in the study area has been found 37.9 percent. The highest immigration is 78.6 percent found in Chala mouza and no immigration was recorded in Konabari Pathar and Kamarpara Shernagar mouza (Ref. Table 2.3).

Table : 2.3
MIGRATION IN THE STUDY AREA

Mouza	Sample Household (Nos.)	Immigrated Household (Nos.)	Percent of Migrant Household
Nisiboyra	4	3	75.00
Subrasara	10	7	70.00
Konabari Pather	4	-	-
Garamashi	24	6	25.00
Khidramatia	32	11	34.38
Kamarpara Shernagar	20	-	-
Chala	28	22	78.57
Mokundagati	31	9	29.03
Total :	153	58	37.91

Source : Field Survey Data, 1986

Survey also reveals that 72.42 percent of immigrant households have migrated into the study area after becoming victim of river erosion and 13.8 percent immigrant households migrated in the study area for availing employment opportunities in handloom factory (Ref. Table 2.4)

Table : 2.4
REASONS FOR MIGRATION

Reasons	No. of migrant Households	Percent
River erosion	42	72.42
For employment	8	13.79
For business	5	8.62
For better living facilities	1	1.72
For social security	2	3.45
Total :	58	100.00

Source : Field Survey Data, 1986

2.3 ECONOMIC PERFORMANCES AND TRANSPORT LINKAGES

Employment and Under Employment

The 1981 population census data shows there are about 1225,270 economically active population in the Sirajganj Zila, which is approximately 65.2 % of the total population of the zila. Farming is the principal occupation where most of the labour force is employed. Other occupations are, non-farm wage labouring, industrial labour, trade, service and self-employment. About 39.4% of the total labour force are engaged in household works. There is no information available about under-employment. However, data shows, there are about 18.8 % not working population in the Zila.

In Belkuchi Upazila, about 64.6% or 121,168 persons are found to belong to the labour force. Main employment generating sources are same as the Zila. Main employment generating sector is agriculture, providing employment to about 16% of the total labour force. Rest are employed in non-farm wage labouring, self-employment, household, etc. About 20% have been found not working. There is no information available about under-employment in the Upazila.

Table 2.5 shows details of comparative data about the employment and unemployment situation in the zila and in the upazila.

TABLE : 2.5

COMPARATIVE PICTURE OF EMPLOYMENT
IN THE ZILA AND IN THE UPAZILA IN
PERCENT

Broad Occupation Head	Zila	Upazila
Cultivation	26.0%	15.9%
Agri-noncrop	0.6 %	0.4%
Manufacture	4.1 %	13.9%
Business	5.0 %	7.9%
Others	6.1 %	5.2%
Household	39.4 %	37.4%
Not working	18.8 %	19.3%

Source : Bangladesh Bureau of Statistics

Income and Expenditure

Income and expenditure structure is the determinant of standard of living. Information have been collected from study area through sample survey, about income which will give some indication about the pattern of income and expenditure of the upazila people.

Non-agriculture activities are most dominating income earning sector of the study area. The average annual family income from agriculture is almost half of the average family income received from non-agriculture sector. Data shows that the average annual family income from agriculture sector is Tk. 12,544 as against Tk. 22,557 for non-agriculture sector. The total annual average income for the study area comes to Tk. 19,537 including both agricultural and non-agricultural sectors. All these information is provided in table 2.6.

Table : 2.6
DISTRIBUTION OF HOUSEHOLDS BY
ANNUAL INCOME WITH SOURCES

Income Group	No. of Households		
	Agriculture	Non-Agriculture	Total
Below Tk. 5,000	25	3	28
Tk. 5001 - Tk. 10,000	15	16	31
Tk. 10001 - Tk. 20,000	6	70	76
Tk. 20001 - Tk. 30,000	4	18	22
Tk. 30001 - Tk. 50,000	5	15	20
Tk. 50001 + above	2	10	12
Total :	57	132	189
Mean (Tk.) :	12,544	22,557	19,537

Source : Field Survey, 1986

Table 2.7 shows that the average annual expenditure for fooding is Tk. 12095 for clothing Tk. 556 for health care Tk. 1123, for housing Tk. 684 for education Tk. 702 and for others Tk. 2853 .

Table : 2.7
DISTRIBUTION OF HOUSEHOLDS ANNUAL EXPENDITURE
BY TYPE

Level of Expenditure	No of Households					
	Fooding	Cloting	Health Care	Housing/ Repai- ring	Educa- tion	Others
Below Tk. 500	-	98	60	39	58	43
Tk. 501 - Tk. 1,000	-	40	11	7	6	29
Tk. 1001 - Tk. 2,000	-	11	8	1	4	33
Tk. 2001 - Tk. 4,000	-	3	13	-	8	24
Tk. 4001 - Tk. 6,000	10	1	1	1	1	8
Tk. 6001 - Tk. 10,000	46	-	2	-	-	5
Tk. 10001 - Tk. 15,000	68	-	1	1	-	3
Tk. 15001 - Tk. 20,000	14	-	-	-	-	3
Tk. 20001 + above	15	-	-	-	-	5
Total :	153	153	96	49	77	153
Mean (Tk.) :	12,095	556	1123	684	702	2853

Source : Field Survey, 1986

Agriculture and Non-Agriculture

Table 2.8 indicates that about 63 percent of the upazila is arable, inclusive of current fallow of 2.04 percent. Area not available for cultivation includes homestead, orchard, bushes, pond/ditches and other water bodies occupies about 37 percent of the gross area. About 50 percent area is double cropped and 18 percent is triple cropped. The total cropped area of the upazila comes to 14752 hectares (36437 acres), giving a cropping intensity of 187 percent which is higher to the district average of 155 percent.

Table : 2.8
EXISTING LANDUSE OF BELKUCHI UPAZILA

Landuse Type	Area in		Percent of	
	(ha.)	ac.)	Net area	Gross area
Gross area	13000	(32110)	-	-
Cropped area	14752	(36437)	-	-
Net cropped area	7872	(19444)	-	60.55
- Single cropped area	2440	(6027)	31.0	-
- Double cropped area	3984	(9840)	50.61	-
- Triple cropped area	1448	(3577)	18.39	-
Area not available for cultivation	4863	(12012)	-	37.41
Current fallow	265	(654)	-	2.04
Cropping Intensity	187	percent	-	-

Source : Upazila Statistical Office, Belkuchi, 1986

Area under principal crops, yields and estimated production for the year 1985-86 in Belkuchi upazila is presented in Table 2.9.

TABLE : 2.9
AREA AND PRODUCTION

Crops	Area in		Production (ton)	Average Yield/ hectare (ton)
	ha.	ac.		
Boro	549	1356	1433	2.61
Aus (L)	3043	7516	3621	1.10
T.Aus (HYV)	962	2376	2386	2.48
T. Aman (L)	3335	8237	4302	1.29
T.Aman (HYV)	1035	2556	2650	2.56
B.Aman (L)	268	662	338	1.26
Boro (L)	1310	3236	1742	1.33
Jute	1437	3549	1198	0.83
Wheat	871	2151	1195	3.26
Potato	357	882	1165	3.26
Mustard	446	1102	361	0.81
Pulses	631	1559	492	0.78
Others	598	1477	556	0.93

Source : Upazila Agriculture Office, Belkuchi, 1986

Paddy is the most dominant crop in the upazila while jute ranks as second important crop. Aus and T. Aman are the major summer crops. Wheat is an important rabi (winter) crop followed by Pulses and Mustard. Boro (HYV) ranks as the highest in estimated yield (2.61 ton per hectare).

The upazila is a deficit area having deficit of 12427 tons per year according to Upazila Authority.

Livestock

Reliable statistics on the livestock situation in the upazila area lacking. Those available, are rudimentary in nature. However, available data about livestock population of the area have been collected from the upazila livestock office, and are presented in Table 2.10

Table : 2.10
INFORMATION ON LIVESTOCK AND POULTRY

Livestock/Poultry	Number
Cattle	47687
Buffaloes	2318
Goats/Sheep	21104
Poultry	72400

Source : Upazila Livestock Office, Belkuchi, 1986

Fishery

Fishery is one of the important primary activities in the upazila. The upazila has 12.9 sq. km. of river area. The estimated total fisheries area (closed and open water) in the upazila is about 1680 hectares. Total production from pond fisheries comes to about 650 tons. The estimated total production from open water fisheries are not available.

Industry

Belkuchi upazila is widely known for it's handloom industry. The number of handloom units available in the upazila is 4520 with 21300 looms. The total number of workers engaged in these handloom units are about 41600 persons. The type of cloth produced in these industries are mostly coarse and supplied to other part of the country. Other than handloom industry, 208 units of rural industries which includes paddy processing, oil mill, pottery, goldsmith, blacksmith, gur processing etc. exist in the upazila, where 905 persons are regularly employed.

Roads and Transport Facilities

The upazila has direct access to the district headquarter (Sirajgonj) and other important places, both by road and waterway.

Table 2.11 indicates the total length of various categories of roads in the upazila. The upazila has a total 10 km. of metalled roads and about 4 km. of semi-pucca roads. It has road connection with surrounding upazilas including important markets and growth centres. These roads become unnegotiable by any vehicular modes during monsoon period.

Table : 2.11

INFORMATION ON ROAD NETWORK OF THE UPAZILA

Type of Road	Road length in km.
Metalled	10
Semi-pucca	4
Kutchha	88.5

Source : Upazila Engineering Office, Belkuchi, 1986.

2.4 SOCIAL AND ECONOMIC INFRASTRUCTURE

Drinking Water Facilities

There is no centrally distributed piped water supply system in the upazila. Public Health Engineering (PHE) under the assistance of UNICEF has sunk a considerable number of hand tubewells (HTW) to cater needs of drinking water requirements of the upazila. The number of PHE installed and private hand tubewells are 1348 and 1375 respectively. Table 2.12 presents the total number of HTWs by ownership types.

Table : 2.12
INFORMATION ON HAND TUBEWELL NUMBER

Union	No. of Tubewell		
	PHE	Private	Total
Belkuchi	314	467	781
Rajapur	286	227	513
Bhangabari	216	192	408
Daulatpur	261	188	449
Dhukuribera	248	197	445
Boradhul	113	104	217
Total :	1438	1375	2813

Source : Public Health Engineering Office, Belkuchi, 1986.

Electricity

33 KV power distribution system is in operation in Belkuchi upazila under Bangladesh Power Development Board. Only 8 villages so far been electrified with 1360 domestic, 514 commercial and 52 low tension industrial connections. Table 2.13 presents the details of electricity supply information.

Table : 2.13
INFORMATION ON ELECTRICITY

Name of Union	Type of Connection (Nos.)			Total
	Domestic	Commercial	LTI	
Belkuchi	950	430	39	1419
Bhangabari	360	81	12	453
Daulatpur	50	3	1	
Total :	1360	514	52	1926

Source : Resident Engineer, PDB, Belkuchi, 1986.

Sanitation

There is no sanitation and sewerage disposal system in the upazila. PHE Department under 'Village Sanitation Programme' has distributed 799 sets of sanitary units to the interested people at a subsidised rate. Table 2.14 illustrates more on this issue.

Table : 2.14
INFORMATION ON DISTRIBUTION
OF SANITARY UNITS BY THE

Union	Number
Belkuchi	316
Daulatpur	205
Rajapur	70
Bhangabari	195
Dhukuriabera	13
Total :	799

Source : Public Health Engineer Office, Belkuchi, 1986.

Communication and Postal Facilities

Link with adjacent upazila and district headquarters are maintained through V.H.F. tele-communication system. For external calls, the system operates through Sirajganj. There are about 45 number of telephone connections found in the upazila. A good number of telephone connections are availed by the Government offices and Institutions. There is a telephone exchange office in the upazila headquarters. There are about 3 sub-post offices, 11 branch post offices and 2 wireless stations are in operation in belkuchi upazila.

Health and Family Planning Services

Belkuchi upazila has a Health Complex located in the existing upazila headquarters. In addition to the Health Complex, 2 health sub-centres are also located in two different union headquarters. The upazila has 3 Family Welfare Centres for providing family planning services.

Literacy and Education Institutions

Literacy rate for 5 years and over population of the upazila stands at 22.8 percent against the district rate of 19.2 percent. The literacy rate for all ages is 18.7 percent.

The upazila has 93 primary schools having strength of 24,683 students while the number of secondary schools are 24 including 2 girls and 2 junior schools. The upazila has a college having 15 teachers and 550 students. Besides, there are 2 Sr. Marashas, 3 Dakheli Madrashas and 16 Ebteday Madrashas that exist in the upazila. Table 2.15 presents information on various categories of educational insitutions alongwith their enrolment, number of teachers etc.

Table : 2.15
INFORMATION OF EDUCATIONAL INSTITUTIONS

Type of Institutions	Institutions (Nos.)	Student (Nos.)	Teacher (Nos.)
Govt. Primary School	80	20,933	387
Non-Govt. Primary School	13	3,750	51
Jr. High School	2	721	13
High School (Girls)	2	957	17
High School (Boys)	20	7,684	234
Ebteday Madrasha	16	688	47
Dakhely Madrasha	3	574	26
Senior Madrasha	2	383	20
College	1	550	15
Total :	139	36,240	810

Source : Upazila Education Office, Belkuchi, 1986.

Storage, Marketing and Banking Facilities

The upazila has a total of 18 marketing centres, of which 7 are daily, 4 are weekly and 7 are bi-weekly market. Among the markets , three are growth centres identified by the Planning Commission. Table 2.16 shows the details of market centres exist in the upazila.

Table : 2.16
INFORMATION ON MARKET CENTRE

Type of Market	Number	Facilities Available (No.)		
		Govt. Shed	HTW	Electricity
Daily	7	1	6	5
Weekly	4	3	4	1
Bi-weekly	7	4	7	3
Total :	18	8	17	9

Source : Upazila Statistics Office, Belkuchi, 1986.

No reliable statistics on the number and capacity of private storages are available. The public storage are mostly structured but the capacity is insufficient. The upazila Engineer of Belkuchi reported that there are 7 godowns with total capacity of 2040 tons.

The number of bank branches in the upazila are 6 including 3 branches of Janata Bank alone.

Other Facilities

The number of social welfare organisations, clubs in the upazila are 26 including 12 numbers of unregistered organisations for welfare activities.

For providing recreation facilities, there are 2 cinema halls and one public library. There are 46 number of mosques and 20 number of temples in the upazila for providing religious facilities.

2.5 CURRENT DEVELOPMENT PROJECTS

Each financial year, since 1983-84, Belkuchi upazila was awarded around Tk. 40 lakh for undertaking various development works within upazila for it's upliftment. In 1985-86 financial year the upazila was allotted a fund of Tk. 40.21 lakh by the government. The upazila authority worked out a programme to spend this for implementing various development works. The above fund was reallocated for carrying out development works under different sectors as follows :

- | | | | |
|------|--------------------------------------|---|---|
| i. | Agriculture, Irrigation and Industry | : | intensive crop programme, demonstration farm, seeds programme, fisheries, plantation, poultry, drainage, irrigation, cottage industries, etc. |
| ii. | Physical Infrastructure | : | development of roads, bridges, culverts, supply of drinking water, village sanitation etc. |
| iii. | Socio-economic Infrastructure | : | development of educational institutions, health measures, sanitation and immunisation, social welfare activities. |
| iv. | Sports and Culture | : | promotion of games and sports, cultural activities. |
| v. | Miscellaneous | : | births and death registration, disaster relief, contingencies repair and maintenance of different buildings of upazila parishad. |

2.6 SYNTHESIS : IDENTIFICATION OF HIERARCHY OF SETTLEMENT IN THE UPAZILA

With respect to dimension and growth none of the settlements matches the headquarters area mouzas. Chala is the last ranking mouza of the headquarters area where all the major upazila level establishments are situated. Mukundagati and Khidramatia are the 2nd and 3rd ranking mouzas, also parts of the headquarters area. Binnabari and Gumurkhi are the 4th and 5th ranking settlements. Gopalpur, Daulatpur, Ajagara, Dhukuria and Radhunibari are the 6th, 7th, 8th, 9th and 10th ranking settlements of the upazila. From 4th to 10th settlements are located beside the study area, where important economic, Social and other physical infrastructure facilities exist. Table 2.17 shows the 1st 10 settlements in order of hierarchy. (This ranking of settlements has been prepared on the basis of methods placed in annex 'B'. Details of settlement list has been placed in Annex 'A' of Report-II).

Table : 2.17
HIERARCHY OF SETTLEMENTS
(First ten Settlements)

Hierarchy Rank	Mouza	Score Obtained	Group
1st	Chala	176	
2nd	Mukundagati	153	A
3rd	Khidramatia	148	B
4th	Binnabari	98	
5th	Gumurkhi	88	
6th	Gopalpur	84	
7th	Daulatpur	78	
8th	Ajagara	77	
9th	Dhukuria	68	
10th	Radhunibari	67	C

Ref : Annex - A

After scoring of each settlement on the basis of infrastructure and facilities they were grouped upto identify the key settlements. Each group is ranged by 50 scores. The highest group is ranged by 150-200 scores, as marked by A. Thus, 100-150=B, 50-99=C, 49-1= D. There are only two settlements in group A namely, Chala and Mukundagati, both shahar area settlements. Khidmati is the only group settlements, also falls in headquarters area (Ref: Table 2.17, Fig: 2 shows only the A, B and C category of settlements).

CHAPTER III: THE UPAZILA HEADQUARTERS

3.1 DEFINITION OF SPHERE OF INFLUENCE

The sphere of influence of Belkuchi Upazila Shahar is spread over 23 mouzas of the Upazila under it's 5 union (Ref. Table 3.1). The total area under the sphere of influence has been calculated as 2660.91 ha. 10.27 Sq. Mile) or 26.6 sq. Km. with a total population of 39739 persons as per 1981 census. For the years 1961 and 1974 the population figures for the catchment area was found 20,282 and 32,100 respectively. Table 3.1 and Figure 2 illustrates details about the catchment area. Total area of the sphere of influence forms about 20.46 of the Upazila area.

Table : 3.1
ZONE OF INFLUENCE : BELKUCHI UPAZILA SHAHAR

Mouza	Total Area		Involved Area		Total Population			Involved Population		
	Hectare	Acre	Hectare	Acre	1961	1974	1981	1961	1974	1981
Chala	190.61	471	38.57	95.47	3720	6628	8235	754	1344	1669
Augria	223.48	552	223.48	1216	1216	1871	2311	1216	1871	2311
Bamanbari	165.18	408	165.18	408	605	902	1114	605	902	1114
Sobnasara(Part)	197.98	489	146.86	362.68	1578	2483	3140	1127	1724	2167
Nagganti	53.44	132	53.44	132	563	893	1099	563	893	1099
Baritabari	65.99	163	65.99	163	554	817	1015	554	817	1015
Tamal	383.40	947	383.40	947	5329	8063	9952	5329	8063	9952
Konabari	46.95	116	28.45	73.42	251	428	544	159	387	345
Chandangati	48.70	145	58.70	145	228	327	466	228	327	466
Deloakandi	95.55	236	95.55	236	586	873	1107	586	873	1107
Garamashi	195.46	483	50.93	126	1487	2469	3110	388	644	812
Senerbangabari	138.87	343	138.87	343	758	1131	1381	758	1131	1381
Gobgachhi	164.78	407	164.78	407	292	447	541	292	447	541
Syamganti	38.87	96	38.87	96	171	243	324	171	243	324
Nisiboyra(Part)	68.02	168	42.75	105.54	613	979	1226	238	354	448
Boyra	117.81	291	117.81	291	1009	1524	1868	1009	1524	1868
Mamudpur	157.09	388	157.09	388	1454	2201	2726	1454	2201	2726
Saldair	30.77	76	30.77	76	178	256	305	178	256	305
Khidra Goprikhi	65.59	162	65.59	162	599	886	1109	599	886	1109
Jamtail	149.39	369	149.39	369	1438	2174	2696	1438	2174	2696
Mughulia	131.58	325	131.58	325	538	892	1093	538	892	1093
Dhuldiar	169.64	419	169.64	419	801	1214	1518	801	1214	1518
Khidramatia (Part)	221.05	546	143.22	353.68	4901	8530	10426	1543	2933	3673
Total :	3130.30	7732	2660.91	6572.45	28869	13131	16406	20282	32100	39739

Source : Bangladesh Bureau of Statistics

3.2 DEFINITION OF THE SHAHAR AREA

The existing Belkuchi Upazila Shahar is in small urban Centre. For the purpose of conducting investigating into the prospective shahar area a tentative shahar area was delineated comprising 9 mouzas, either partly or fully distributed over 4 union of the upazila. Keeping the study area unchanged the consultants proposes about 629.15 ha. or 6.29 sq. km (3.03 sq. miles) as the study area, taking existing Upazila Complex as the main concentration point. Table 3.2 shows the details of the shahar area.

TABLE : 3.2

SHAHAR AREA

Mouza	Total Area		Involved Area		Total Population			Involved Population		
	Hectare	Acres	Hectare	Acre	1961	1974	1981	1961	1974	1981
Nisiboyra (Part)	68.02	168.0	25.23	62.32	613	979	1226	375	625	778
Sabnasara (Part)	197.98	489.0	51.14	126.32	1578	2483	3140	451	759	993
Konabari (Part) Pathar	46.95	116.0	18.52	45.74	251	428	544	92	157	199
Garamashi (Part)	195.46	483.0	144.53	357.0	1487	2469	3110	1099	1825	2298
Khidarmatia (Part)	221.05	546.0	77.86	192.31	4901	8530	10426	4901	5597	6753
Kamar Para Sher nagar (Part)	205.67	508.0	50.51	124.76	3028	4869	5923	842	1345	1715
Chala (Part)	190.61	471.0	152.03	375.0	3720	6628	8235	2966	5284	6566
Mukundagati	190.61	270.0	109.33	270.05	1420	2658	3341	1420	2658	3341
Total :	1235.0	3051.0	629.15	1553.99	16998	29044	35945	12146	18250	22623

Source : Bangladesh Bureau of Statistics (BBS)

3.3 EXISTING LANDUSE FACILITIES AND UTILIZATION CHARACTERISTICS

A landuse survey was conducted by the consultants the shahar area which shows details of existing landuse pattern and land utilization characteristics.

The shahar area comprises 9 mouzas of which one is full and the rest 8 are part. Soils of the area are newly formed from the river Jāmna. After shifting several times, threatened by erosion, the headquarters of Belkuchi upazila has lastly been set up at the present location. As upazila headquarters it is comparatively undeveloped, all the establishments and facilities and also habitations have not yet fully developed. The survey and investigations shows a substantial land either lying vacant or are being used for agriculture.

The area is a high density area with compactly built houses of kutchha structure. The economy of the shahar is dominated by weaving practices. More than 60% of the households have manually operated looms within their houses that procures lungis, sarees and other handloom products of meet country wide demand. About 31 acres of land have been found used by loom factories.

This section has reference to Figure - 3A. Please also see table 3.3 for details of land use information.

TABLE : 3.3

PRESENT LANDUSE PATTERN

Landuse Type	Area hectare (Acre)								Total	Percentage
	Misboyra	Subna-sara	Konabari Pather	Garamashi	Khidra-atia	Kamarpara Shernagar	Chala	Mukundagati		
Agriculture	21.84 (53.94)	43.11 (106.48)	13.35 (32.97)	108.26 (267.41)	66.65 (164.62)	37.90 (93.60)	108.1 (267.16)	67.83 (167.54)	467.11 (1153.80)	74.25
Residential	2.51 (6.28)	5.96 (14.72)	4.34 (10.72)	26.35 (65.08)	5.38 (13.29)	6.42 (15.86)	29.56 (73.01)	8.97 (22.16)	89.49 (221.04)	
Education	-	-	-	0.30 (0.74)	0.31 (0.77)	-	0.34 (0.84)	3.18 (7.85)	4.13 (10.2)	0.66
Administrative	-	-	-	-	-	-	3.79 (9.36)	-	3.79 (9.36)	0.60
Commerce	-	-	-	-	-	-	1.48 (3.66)	8.13 (20.08)	9.61 (23.74)	1.53
Industry	-	0.26 (0.64)	-	1.32 (3.26)	0.64 (1.58)	3.26 (8.05)	0.71 (1.75)	6.34 (15.66)	12.53 (30.94)	1.99
Health	-	-	-	-	-	-	-	3.84 (9.48)	3.84 (9.48)	0.61
Socio-cultural	-	-	-	0.15 (0.37)	0.84 (2.07)	0.12 (0.30)	1.21 (2.99)	0.42 (1.04)	2.74 (6.77)	0.44
Urban Service	-	-	-	-	-	0.16 (0.40)	1.30 (3.21)	0.06 (0.15)	1.52 (3.76)	0.24
Recreation	-	-	-	-	-	0.23 (0.57)	1.50 (3.71)	0.44 (1.09)	2.17 (5.37)	0.34
Road	0.68 (1.68)	0.61 (1.51)	0.42 (1.04)	1.65 (4.08)	3.02 (7.46)	1.16 (2.87)	1.69 (4.17)	6.23 (15.39)	15.45 (38.2)	2.46
Waterbody	0.11 (0.28)	1.20 (2.97)	0.41 (1.01)	6.50 (16.06)	0.96 (2.37)	1.22 (3.01)	2.01 (4.96)	3.51 (8.67)	15.92 (39.33)	2.53
Others	0.09 (0.22)	-	-	-	0.06 (0.15)	0.04 (0.10)	0.27 (0.67)	0.38 (0.94)	0.84 (2.08)	0.13
Total :	25.23 (62.32)	51.14 (126.32)	18.52 (45.74)	144.53 (357.0)	77.86 (192.31)	50.51 (124.76)	152.03 (375.5)	109.33 (270.05)	629.1 (1553.99)	100

Source : Landuse Survey Data, 1986

It shows, the highest percentage (74.25) percent) of land in and around the shahar area still remains under agricultural use. The next highest use goes to settlements with 89.49 hectares (221.04 acres). There are 4.13 hectares (10.2 acres) of land for various educational institutions from primary school to college. General upazila level offices takes about 3.79 hectares (9.36 acres). The health and family planning facilities in the study area covers 3.84 hectares (9.48 acres). Commerce and industries, which comprise bazar, shops and a few small scale processing establishments have an area of about 22.14 hectares (54.68 acres). Land covered by socio-cultural, urban services and recreational facilities amounts to 2.74 hectares (6.77 acres), 1.52 hectares (3.76 acres) and 2.17 hectares (5.37 acres) respectively. There are about 11 miles of road network in the study area that constitute about 15.46 hectares (38.2 acres) of the study area.

3.3.1 Existing Landuse Analysis

Residential

Chala and Garmansi where the existing headquarters area are located, also have the major concentration of settlements. Mouza Kamarpara, Nishi Boyra, Konabari Pather, Sobrasara and Khidramatia have comparatively smaller areas under homesteads. The highest areas of 29.56 hectares (73.01 acres) and 26.35 hectares (65.08 acres) belonging to homesteads have been found in mouza Chala and Garamasi. Total area covered by homesteads in the study area stands at 89.49 hectares (221.04 acres), which is about 14.22 percent of the study area (Ref: Table 3.3).

Education

It has been identified through conduction of physical survey that one college, three high schools, two for boys, one for girls, four primary schools exist in the study area. The college and two high schools are situated at Mukundagati. Four primary schools, each having area between 0.31 hectare (0.75 acre) to 0.34 hectare (0.84 acre) are situated Khidramatia, Chala and Garamasi. Total land belonging to educational facilities stands at 4.13 hectares or 10.2 acres which is about 0.66 percent of the study area.

Administrative

Under administrative uses, the survey has identified 3.79 hectares (9.36 acres) of land for various offices. It covers upazila Complex and other upazila level government offices. Upazila complex is located in Chala mouza.

Health

No other health facilities, except upazila Health Complex is existent in the study area. The upazila Health Complex provides both health and family planning services. It is situated in Mukundagati on an area of 3.84 hectares or 9.49 acres.

Commerce and Industries

At Mukundagati, the principal activity area of the shahar has two bazars. There is another bazar at Chala. Besides, there are also a large number of road-side shops. The area has also some rice mills, flour mills and weaving industry. Total land area belonging to commerce is 9.61 hectares (23.74 acres) and to industry is 12.53 hectares (30.94 acres).

Socio-Cultural

Socio-cultural facilities in the study area consists of mosques, mandir, graveyard, eidgha etc. The survey has identified 11mosques, 1 mandir, 1 eidgha and 2 graveyards within the study area. Total land under these facilities have been calculated as 2.74 hectares (6.77 acres).

Urban Service

Regarding urban services, the study area shows very low profile. Only 1.52 hectares of land have been found under this use which include godown, post office, telegraph office etc.

Recreation

There are two cinema halls in the shahar area. Besides, for games and sports people use play grounds of educational institutions. Two separate play grounds exist at Chala and Mukundagati. Land belonging to recreational facilities constitute 2.17 hectares or 5.37 acres.

Road

In total 18 Km. (11 miles) of road network has been identified in the study area, of which 6 km. are pucca, 3 km. are semi-pucca and the rest are kutcha roads. Total land belonging to road networks accounts to 15.46 hectares (38.2 acres).

Water Body

Water bodies in the study area consists of Pond, Khal, River, Ditches etc. A total area of 15.92 hectares (39.33 acres) belong to different water bodies.

Agriculture

Agriculture is the most dominant land use in the study area. Mouzas of the study area, like, Konabari Pathar, Nisiboyra and Sobnasara are very much rural in Character. Land resources in the study area are used mainly for agricultural purpose with small pockets of homesteads. Within the entire study area, overall 74.25 percent of the land have been found to belong to agricultural use. Large amount of land under agricultural use in the study area indicates the un-developed urban Character of the shahar.

Others

In the others head, the survey has identified only 0.84 hectare (2.08 acres) land, under the use of an orphanage located at Chala mouza.

3.4 PHYSICAL OPPORTUNITIES AND CONSTRAINTS

Opportunities

The study area has substantial land area for expansion and development of the upazila shahar. Particularly in Mukundagati and Khidramatia, substantial land is available where contiguous development of the shahar can be possible, which is also to some extent true for Chala and Goramasi. New expansion of shahar area will in a large scale reduce the present level of agricultural out-put. However, judicious planning can achieve a better solution, where more development will be possible in a small area. It is likely that in consideration of social and economic background of the area it will not be possible to achieve a large scale expansion. It has been estimated that about 60 percent land of the study area readily available for building. Rest of the land will require about 4 to 6 feet filling to make them buildable.

Constraints

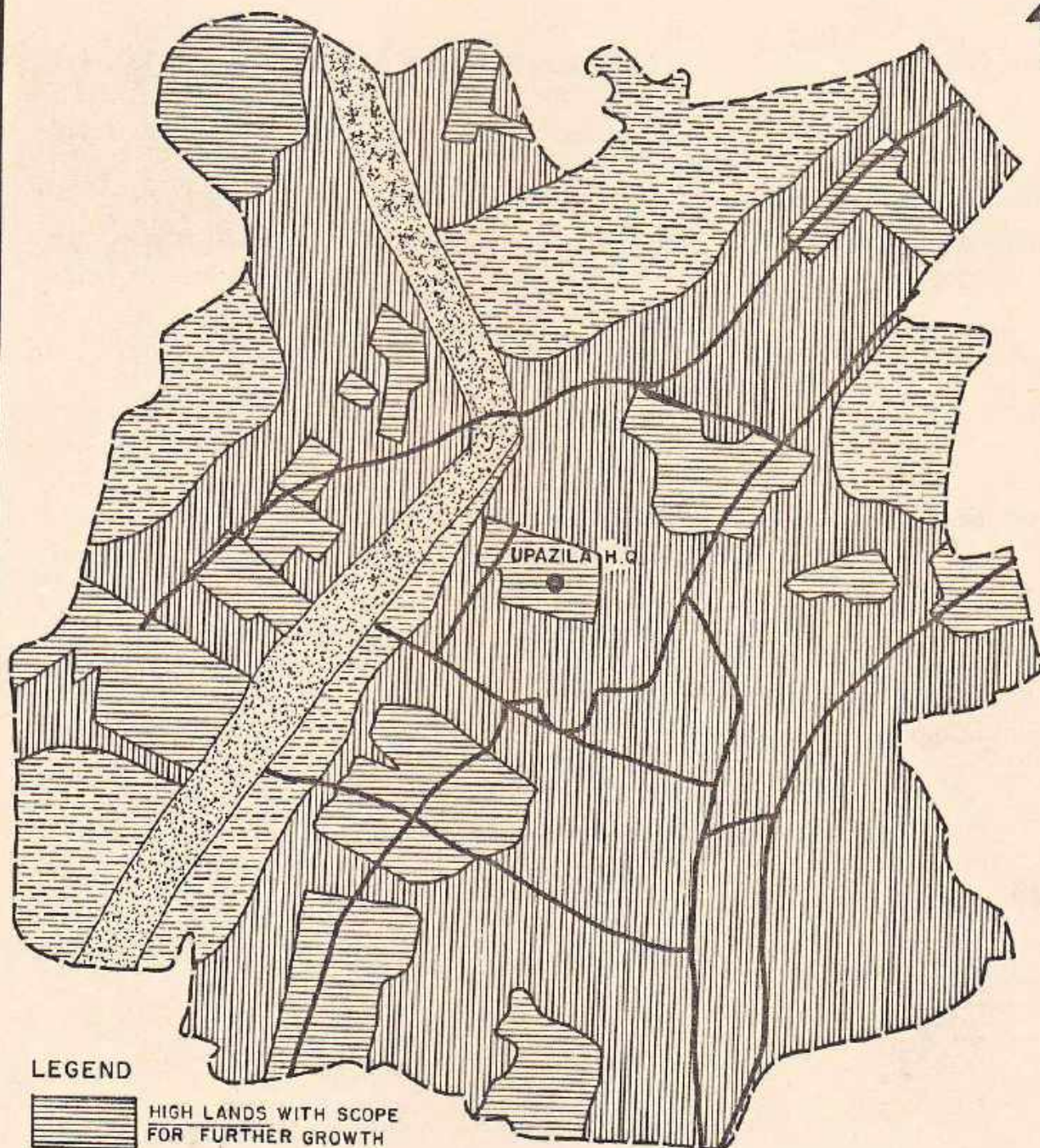
Belkuchi Upazila Shahar is a small township without having adequate provision for basic urban facilities and good communication system. There is a market in the shahar. But because of inadequate transportation link with other urban centres and markets there is little scope of increasing activities in the market. In absence of sufficient economic activities, there is little scope of generating employment in the shahar in near future.

Land to be Reserved for Agriculture and Other Uses

The area, designated to be the boundary of the shahar encompasses substantial agricultural lands. An important segment of the shahar area will have to be kept reserved for agriculture purpose, which can be put into use for food production to meet important part of the food demand of the shahar.

Land Liable to Flooding

About 40% of the prepared shahar area is subject to annual inunderation ranging from 3 to 5 feet. The low lands put under any landuse provision will have to be raised to make it flood free.



LEGEND

-  HIGH LANDS WITH SCOPE FOR FURTHER GROWTH
-  MEDIUM HIGH LANDS WITH SCOPE FOR FUTURE URBAN EXPANSION
-  MEDIUM LOW LANDS SUBJECT TO ANNUAL INUNDATION/CROP LANDS
-  VERY LOW LANDS, RECLAMATION NOT FEASIBLE/CROP LANDS
-  MAJOR ROADS
-  STUDY AREA BOUNDARY

URBAN DEVELOPMENT DIRECTORATE
MINISTRY OF WORKS
GOVT. OF THE PEOPLE'S REPUBLIC OF BANGLADESH

PHYSICAL CONSTRAINTS AND OPPORTUNITIES

ZILA : SIRAJGANJ

UPAZILA : BELKUCHI

THE SURVEYS
22/16-17, TAJMAHAL ROAD, MOHAMMADPUR, DHAKA

SCALE : NOT TO SCALE

FIG. 3B

CHAPTER IV : FORECASTS

4.1 POPULATION, HOUSEHOLD STRUCTURE AND DENSITY

4.1.1 Population Within Sphere of Influence

Projection of population within sphere of influence area has been made considering past trends in growth rates. The rates of population growth during three intercensal periods were as follows :

1961 - 1974	: 3.40 %
1974 - 1981	: 3.12 %
1961 - 1981	: 3.30 %

On the basis of above growth rates we assume the high, medium and low level growth rates for projection as follows :

High level growth rate	: 3.50 %
Medium level growth rate	: 3.00 %
Low level growth rate	: 2.50 %

Based on above growth rates following projections of population, household and density of population for the years 1987, 1990, 1995 and year 2000 A.D. are made for the catchment area.

Table : 4.1
FORECASTS OF POPULATION,HOUSEHOLD AND
DENSITY FOR SPHERE OF INFLUENCE
(High Level)

Item	Base year	Forecast years			
	1981	1987	1990	1995	2000
Population	39799	48923	54242	64422	76514
Household Size (assumed)	6.00	6.00	6.00	6.00	6.00
No. of Household	6633	8154	9040	10737	12752
Density/sq. km.	1496	1838	2038	2421	2875

Note : 1. Population growth Rate : 3.50 %
2. Catchment Area : 6572.45 acres/ 2660.9ha/ 26.61 sq. km.

The size of population was 39799 in 1981 in catchment area. For the years 1987, 1990, 1995 and the year 2000 the projected population for the area stands at 48923, 54242, 64422 and 76514 respectively.

The number of households was 6633 in 1981 based on 6.00 as family size. The household figures will according to projection, be 9040, 10737 and 12752 in the 1990, 1995 and 2000 A.D. respectively. Population density/Sq. Km. will increase from 1496 in 1981 1838 and 2421 in 1995 and 2875 in the year 2000 A.D.

Medium Level Projection

Table : 4.2
FORECASTS OF POPULATION, HOUSEHOLD AND
DENSITY FOR SPHERE OF INFLUENCE
(Medium Level)

Variables	Base Year	Forecast year			
	1981	1987	1990	1995	2000
Population	39799	47522	51929	60199	69788
Household Size (assumed)	6.00	6.00	6.00	6.00	6.00
No. of Households	6633	7920	8655	10033	11631
Density/Sq. Km.	1496	1786	1951	2262	2623

Note : 1. Population Growth Rate : 3.00 %
2. Catchment Area : 6572.45 acres

Medium level projection of population, household and population density/Sq. Km. have been presented in Table 4.2. It shows, population, household and density of catchment area, as 69788, 11631 & 2623 respectively in the year 2000 A.D.

Low Level Projection

Table : 4.3
FORECASTS OF POPULATION, HOUSEHOLD AND
DENSITY FOR SPHERE OF INFLUENCE
(Low level)

Variables	Base year	Forecast years			
	1981	1987	1990	1995	2000
Population	39799	46155	49703	56235	63625
Household Size (assumed)	6.00	6.00	6.00	6.00	6.00
No. of Household	6633	7692	8284	9373	10604
Density/Sq. Km.	1496	1734	1868	2113	2391

Note : 1. Population Growth Rate : 2.50%
2. Catchment Area : 6572.45 acres

As can be seen from Table 4.3 under low level projection, the sizes of population, household and density of population/Sq. Km. will be 63625, 10604 and 2391 respectively in the year 2000 A.D.

4.1.2 Population Within Shahar Area

Similar to catchment area, the projection of shahar area population has been based on past trends in growth rates. The rates of population growth during the intercensal periods were as follows :

1961 - 1974 : 3.32 %
1974 - 1981 : 3.15 %
1961 - 1981 : 3.26 %

Based on above factual growth rates prevailing over different intercensal periods, we assume the high, medium and low level growth rates for projection as follows :

High Level Growth Rate : 3.50 %
Medium Level Growth Rate : 3.00 %
Low Level Growth Rate : 2.50 %

On the basis of above growth rates the following projection of population, household and density is made for shahar area.

High Level Projection

Table 4.4
FORECASTS OF POPULATION, HOUSEHOLD AND
DENSITY FOR (SPHERE OF INFLUENCE)
(High Level)

Variables	Base year	Forecast year			
	1981	1987	1990	1995	2000
Populaiton	22623	27809	30833	36620	43493
Household Size (assumed)	5.97	5.97	5.97	5.97	5.97
No. of Household	3789	4658	5165	6134	7285
Density/Sq. Km.	3597	4421	4902	5822	6915

Note : 1. Population Growth Rate : 3.50 %
2. Catchment Area : 1553.99 acres/629.15 ha/6.29 Sq. Km.

According to 1981 census populaiton of shahar area was 22623, which rises to 43493 in the year 2000 A.D. The number household and density were 3789 and 3597 respectively in 1981 that will increase to 7285 and 6915 in the year 2000 A.D. Growth rates for high level projection has been assumed 3.50% Table 4.4 illustrates details of high level projection.

Medium Level Projection

Table 4.5
FORECAST OF POPULATION, HOUSEHOLD AND
DENSITY FOR SHAHAR AREA
(Medium Level)

Variables	Base year	Forecast Years			
	1981	1987	1990	1995	2000
Population	22623	27013	29518	34219	39670
Household size (assumed)	5.97	5.97	5.97	5.97	5.97
No. of Househld (assumed)	3789	4525	4944	5732	6645
Density/Sq. Km.	3597	4295	4693	5440	6307

Note : 1. Population Growth rates : 3.00%
2. Area : 1553.99 acres/629.15 ha/ 6.29 Sq. Km.

As Table 4.5 shows under medium level projection the population, household and density of population/ Sq. Km. will be 39670, 6645 and 6307 respectively in the year 2000 A.D.

Low Level Projection

Table 4.6

FORECASTS OF POPULATION, HOUSEHOLD AND
DENSITY FOR SHAHAR AREA
(Low level)

Variables	Base Year	Forecast Year			
	1981	1987	1990	1995	2000
Population	22623	26236	28253	31966	36166
Household & size (assumed)	5.97	5.97	5.97	5.97	5.97
No. of households	3787	4395	4732	5354	6058
Density/Sq. Km.	3597	4171	4492	5082	5750

Note : 1. Population Growth rate : 2.50%
2. Area : 1553.99 acres/629.15 ha/6.29 Sq. Km.

Table 4.6 shows, in the year 2000 A.D. the total population of shahar area will be 36166, with 6058 as the responding number of households and 5750 as density of population per Sq. Km.

4.1.3 Migration

Indication of the pattern of migration in the study area has already been mentioned in Chapter II. The actual growth of population includes the migrants which is reflected in the growth rates. The growth rates found for each census period incorporates the aspects of migration during the intercensal period. The growth rates assumed for the projections under review are based on past trends. It is, therefore, considered unnecessary to incorporate the aspect of migration, again, the projection of future population.

4.2 LABOUR FORCE AND EMPLOYMENT

4.2.1 Labour Force : Within Sphere of Influence

It is estimated from 1981 census data, about 64.6 % of the Belkuchi Upazila population have age 10 years and above, that is, they belong to the labour force. Among the total labour force 18.8% do nothing, while another 39.4% are engaged in household works, meaning they are females. Since no data, past or present, on labour force of the catchment area is available it is difficult to make projection of labour force of the catchment area. This problem has been worked out by taking upazila data as the basis for projection of catchment area labour force. Thus it is assumed that in 1981 labour force of the catchment area was of the same trend as that of the catchment area.

Table : 4.7 shows, 64.65% of the catchment area population belong to the working age group (10 years and above) and it is assumed that this percentage will remain same throughout the years up to 2000 A.D.

Table 4.7 shows, in 1981 economically employed labour force in the catchment area as 10131 which is about 43.32% of the total working age population. It has been found from subsequent figures that percent as well as absolute number of economically employed population increase over the years, ultimately coming to 20123 in the year 2000 A.D. This is about 44.60% of the total working age population of the catchment area. In 1981 about 19.28% was found not working. It is assumed that with the increasing urbanisation and development this figure will go up. Keeping this anticipational in view the percentage of 'not working' population have been reduced gradually, although the absolute figures keep on slow increase because of increase in total population. The percentage of women folk to be engaged in household work have also been slightly reduced over the years with the assumption that there will be increasing participation of women folk in income earning activities. This, however hardly reduces the total number of females to be engaged in household work. The population not working will be 8392 and females in household work will stand at 16603 in the year 2000 A.D. (Ref. Table 4.7).

Table : 4.7

CATCHMENT AREA LABOUR FORCE PROJECTION.
(Bases on Medium Projection of Population)

Year	Total population	Labour force	Population 10 years and above		
			Not working	Engaged in house-hold work	Economically employed labour force
1981	39799	25730	4961 (19.28%)	9623 (37.40%)	11146 (43.32%)
1987	47522	30723	5837 (19.00%)	11429 (37.20%)	13457 (43.80%)
1990	51929	33572	6345 (18.90%)	12455 (37.10%)	14772 (44.00%)
1995	60199	38919	7317 (18.80%)	14400 (37.00%)	17202 (44.20%)
2000	69788	45118	8392 (18.60%)	16603 (36.80%)	20123 (44.60%)

Note : Figures, in Parenthesis indicate percent of total labour force.

4.2.2 Employment : Within Sphere of Influence

Table 4.8 shows distribution of labour force over various income earning pursuits.

Table : 4.8

DISTRIBUTION OF EMPLOYMENT: SPHERE OF INFLUENCE

Year	Economically employed labour force	Distribution of Employment			
		Agriculture	Manufacture	Business	Others
1981	11146 (100%)	1783 (16.00%)	1545 (13.86%)	877 (7.87%)	6941 (62.27%)
1987	13457 (100%)	2153 (16.00%)	1871 (13.90%)	1070 (7.95%)	8363 (62.15%)
1990	14772 (100%)	2356 (15.95%)	2068 (14.00%)	1182 (8.00%)	9166 (62.05%)
1995	17202 (100%)	2735 (15.90%)	2425 (14.10%)	1402 (8.15%)	10640 (61.85%)
2000	20133 (100%)	3179 (15.80%)	2858 (14.20%)	1660 (8.25%)	12426 (61.75%)

Source : Projected on the basis of 1981 data collected from, Community Tables of Thanas of Pabna District, 1986.

Table shows gradual decrease of agricultural population in non-agricultural employments like, manufacturer and business. It is expected that the initiation of Upazila system will bring forth investments in manufacture and business resulting in increasing employment.

4.2.3 Labour Force : Within Shahar Area

According to 1981 census report, about 65.67% of the total population of the shahar area belonged to the working age group, that is, having age 10 years and above. It is assumed that the same percentage of population will continue to belong to the labour force till the year 2000. On the basis of this trend, the following future projections of shahar area labour force is made. In 1981 about 21.32% of working age people were 'not working' while 35.20% used to do household works. The percent of economically employed labour force stood at 43.48%. It is assumed that gradually, with the increase in employment, the rate of 'not working' people will slow down, finally coming to 20.40% in the year 2000.

Table : 4.9

SHAHAR AREA LABOUR FORCE PROJECTION
(Based on Medium Projection of Population)

Year	Total Population	Labour force	Population 10 years & above age		
			Not working	Engaged in household work	Economically employed labour force
1981	22623	14856 (100%)	3167 (21.32%)	5229 (35.20%)	6460 (43.48%)
1987	27013	17739 (100%)	3725 (21.00%)	6299 (35.00%)	7805 (44.00%)
1990	29518	19384 (100%)	4032 (20.80%)	6746 (34.80%)	8606 (44.40%)
1995	34219	22472 (100%)	4629 (20.60%)	7776 (34.60%)	10067 (44.80%)
2000	39670	26051 (100%)	5314 (20.40%)	8962 (34.40%)	11775 (45.20%)

Note : Figures within parenthesis refer to percent of total labour force.

In the same way, the scope for female employment will increase in the Shahar area, resulting in reduction in the number of females engaged in household work. Table 4.9 shows, that the percent of females to be engaged in household work is reduced from 21.32% in 1981 to 34.40% in the year 2000. It is anticipated that there will be increasing participation of labour force in the income earning activities. Thus the percentage of economically employed population will increase from 43.48% in 1981 to 45.2 % in the year 2000. Increase in the level of employment will be caused by increasing urbanisation and economic activities.

4.2.4 Employment : Within Shahar Area

Table 4.10 shows distribution of labour force over various income earning activities in the study area.

Table : 4.10
DISTRIBUTION OF EMPLOYMENT: SHAHAR AREA

Year	labour force	Distribution of Employment			
		Agriculture	Manufacture	Business	Others
1981	6460	439 (6.79%)	1234 (19.10%)	634 (9.82%)	4153 (64.29%)
1987	7805	530 (6.79%)	1561 (20.00%)	781 (10.00%)	4933 (63.21%)
1990	8606	584 (6.79%)	1730 (20.10%)	869 (10.10%)	5423 (63.01%)
1995	10067	683 (6.78%)	2024 (20.10%)	1021 (10.15%)	6339 (62.97%)
2000	11775	797 (6.77%)	2373 (20.15%)	1207 (10.25%)	7398 (62.83%)

Source : Projected on the basis of Shahar area demographic data of 1981 collected from Community Tables of all Thanas of Pabna District, 1986

The table shows a large part of the working community is engaged in manufacture ; where there are large number of handlooms in almost every house. The number of manufacturing people will gradually increase. However, other occupations, like, professional, wage labouring will still dominate the occupation group.

4.3 STANDARD PROVISION AND LAND REQUIREMENT

The provision standard provided in TOR has been taken as the basis for determining the actual space standard and land requirement finally fixed for the land use plan. In some cases deviations have been made from the TOR to cope with prevailing situation of the brief description of the space standard stopted for the proposed land use plan including land plan including land requirement for various land uses.

Design Populaiton

1. For residential use, primary school play field, dispensary , community centre, mosque, the design population is considered as the projected medium range population of the study area for 2000 A.D. that is 39670 persons.
2. For all other uses the design population is considered as the projected medium range population of the study area plus the catchment area up to 2000 A.D. i.e. $(39670 + 69788) = 1,09,458$ persons .

Education Facilities

For education facilities new provision standards have been determined and land have been allotted accordingly. About acres of land have been kept earmarked for this sector (Ref. Table 4.11).

Table : 4.11
LAND REQUIREMENT FOR EDUCATION FACILITIES

Landuse facilities	Provision standard as per TOR	Recommended provision standard	Existing facilities		Recommended facilities (including existing)		
			No.	Area (acre)	No.	Area Acre Hectare	
Primary School	5000/2	5000/1.00	4	1.33	8	8.58	3.47
High school	20,000/5	20000/3.00	3	3.43	4	7.60	3.08
College	20,000/5	20000/3.00	1	5.44	1	5.44	2.20
Vocational training centre	(Not given)	Upazila/3.00	-	-	1	3.00	1.21
Total :				10.20			

Health Facilities

Table 4.12 shows the recommended health facilities including the number.

Table : 4.12
LAND REQUIREMENT FOR HEALTH FACILITIES

Landuse facilities	Provisions standard as per TOR	Recommended provision standard	Existing facilities		Recommended facilities (including existing)		
			No.	Area (acre)	No.	Area Acre Hectare	
Health Complex/Hospital	20000/5.00	30000/1.95	1	8.80	1	8.80	3.56
Dispensary	5000/1.00	3000/1.00	-	-	3	6.12	2.49
Mother and Childcare centre	5000/1.00	15000/1.00	-	-	3	5.47	2.21
Veterinary Hospital	-	-	1	0.69	1	0.69	0.28
Total :				9.49		21.08	8.54

The total land earmarked for this sector comes to about 21.08 acre, based on revised provision standards.

Commerce

Land earmarked for commerce stands at 29.32 acres. This also includes the existing bazar and commercial areas. For details please see Table 4.13.

Table : 4.13

LAND REQUIREMENT FOR COMMERCE

Landuse facilities	Provision standard as per TOR	Recommended provision standard	Existing facilities		Recommended facilities (including existing)		
	Pop/Area (acre)	Pop/Area (acre)	No.	Area (acre)	No.	Area Acre Hectares	
Bazar	1000/1.5	20000/5.27	2	19.48	2	19.48	7.89
General Commercial Use	1000/1.5	20000/4.92	-	4.25	-	9.84	3.98
Total				23.73		29.32	11.87

Industry

For establishing new industries it is recommended to earmark 56.04 acres, as per revised standard provision (Ref. Table 4.13).

Administration

As per recommendations of TOR the consultants have kept provision of 12.00 acres to accommodate various public offices in the upazila (Ref. Table 4.14)

Table : 4.14

LAND REQUIREMENT FOR ADMINISTRATION

Landuse facilities	Provision standard AS PER TOR	Existing Area		Recommended Area (including existing)	
	Pop/Area (acre)	(acre)		Acre	Hectare
Administration Upazila/17.15		9.36		12.00	4.86

Recreation

The plan keeps provision for about 18.07 acres for providing various categories of recreation facilities in the Upazila Shahar (Ref. Table 4.15).

Table : 4.15

LANDUSE PROVISION FOR RECREATION FACILITIES

Landuse facilities	Provision standard as per TOR	Recommended provision standard	Existing facilities		Recommended facilities (including existing)	Area	
			No.	Area (acre)		Acre	Hectare
Park	1000/1.00	20000/0.40	-	-	1	5.47	2.21
Play ground	1000/1.00	8000/2.00	2	4.28	4	7.16	2.90
Stadium	20000/3.00	Upazila/3.90	-	-	1	3.80	1.54
Cinema Hall	20000/0.50	20000/0.19	2	1.09	2	1.09	0.44
Auditorium	20000/0.50	20000/0.55			1	0.55	0.22
Total :				5.37		18.07	7.31

Urban Service

Total land allotted for urban services is 17.34 acres that include, post office, bus station, launch ghat, police station and jail, etc. (Ref. Table 4.16).

Table : 4.16

LAND REQUIREMENT FOR URBAN SERVICES

Landuse facilities	Provision standard as per TOR	Recommended provision standard	Existing facilities		Recommended facilities (including existing)	
			No.	Area (acre)	No.	Area Acre Hectare
Post Office	20000/0.50	20000/0.40			3	0.91 0.37
PDB/REB	20000/0.30	20000/0.10			1	0.55 0.22
T & T	20000/1.00	20000/0.19			1	1.04 0.42
Bus Station	20000/1.00	20000/0.60			1	3.28 1.33
Fire services	Not mentioned	Upazila/0.57			1	0.57 0.23
Dak Bungalow	Not mentioned	Upazila/0.60			1	0.60 0.24
Police Station	20000/2.00	20000/1.00	1	2.13	1	5.48 2.22
Jail	Not mentioned	20000/0.60			1	3.28 1.33
Godown	Not mentioned	- -	3	1.63	3	1.63 0.66
Total :				3.76		17.34 7.02

Socio-Cultural

Socio-cultural facilities include community centre, mosque, library, graveyard, etc. Total land earmarked for socio-cultural facilities, stands at 16.6 acre. Table 4.17 gives details of socio-cultural facilities.

Table : 4.17
LAND REQUIREMENT FOR SOCIO-CULTURAL FACILITIES

Landuse facilities	Provision standard as per TOR	Recommended provision standard	Existing facilities		Recommended facilities (including existing)	
			No.	Area	No.	Area Acre Hectare
Community centre	20000/1.00	20000/1.00	-	-	3	2.31 0.94
Mosque, Eidgah	5000/0.50	Upazila/2.89	11	2.89	11	2.89 1.17
Library	(Not mentioned)	-	1	-	1	0.40 0.16
Graveyard	20000/3.00	20,000/2.00	2	3.89	3	11.00 4.45
Total :				6.78		16.6 6.72

Road

The study area already has 11 miles of road net work. The plan proposes 11.48 miles of additional roads under different categories. The total area under roads comprise 88.44 acres.

Table : 4.18

LAND FOR ROAD REQUIREMENT

Road Category	Existing		Recommended (including existing) Mileage	Area	
	Mileage	Area (acre)		Acre	Hectare
Unspecified	11	38.20	-	-	-
60' wide			3.50	25.48	10.32
40' wide			4.00	19.38	7.85
24' wide			14.98	43.58	17.64
Total :	11	38.20	22.48	88.44	35.87

Residential

About 794.77 acres of land have been kept for residential area.

Table : 4.19

LAND FOR RESIDENTIAL USE

Landuse facilities	Provision standard as per TOR	Recommended provision standard	Existing facilities	Recommended facilities (including existing)	
	Pop/Area (acre)	Pop/Area (acre)	Area (acre)	Acre	Hectare
General	Net 50 persons/acre	35 persons/	221.03	734.77	297.48
Planned	"	-	-	60.00	24.29
Total			221.03	794.77	321.77

Of the total residential land 60.00 acres will be acquired and developed in planned manner.

Reserve and Urban Deferred

It is proposed to reserve 69.81 acres as reserve and 194 .19 acres for future urban expansion. The percent of land as reserve and urban deferred stands at 4.49% and 8.56% respectively.

Table : 4.20
RESERVED AND URBAN DEFERRED

Landuse Facility	Area (acre)	Percent
Reserve (water body, ponds, ditches, etc.)	69.81	4.49
Urban Deferred	133.00	8.56

Table 4.21 gives the summary of land uses allotted to various land use facilities.

Table 4.21
LAND USES IN THE PLAN (2000 A.D.)

Use Type	Area		Percent
	Acre	Hectare	
Residential	794.77	321.77	51.14
Commerce	29.32	11.87	1.89
Industry	56.04	22.69	3.61
Education	24.62	9.97	1.58
Health	21.08	8.54	1.36
Administration	12.00	4.86	0.77
Socio-cultural	16.60	6.72	1.07
Urban Service	17.34	7.02	1.12
Road	88.44	35.81	5.69
Recreation	18.07	7.31	1.16
Urban Deffered	133.00	53.85	8.56
Reserve	69.81	28.26	4.49
Agriculture	272.90	110.48	17.56
Total :	1553.99	629.15	100.0

CHAPTER V : LAND USE PLAN

5.1 APPROACH, CONCEPT AND PRINCIPLES

Approach

The fundamental objective behind the initiation of Upazila system is to render Government services to the door steps of rural masses in a most effective manner and in turn promote development in vast undeveloped rural areas of the country. Keeping this objective in view the consultants have adopted an approach, to plan Upazila Shahar, which is more akin to the development. The plan takes care to promote commercial activities in the area which will have far reaching impact on development of the Upazila. Besides, to encourage living in the shahar, adequate facilities have been provided in terms of roads, recreation, social and urban services.

This will invite migration of people in the shahar and will promote activities which will be more conducive to development.

Concept

The aim of the present land use plan in the develop Bellkuchi Upazila Shahar as a self-contained town, both, in terms of geographical and economic sense. It will not only serve as the growth centre for development of the Upazila but will also establish itself as an important commercial point in the Zila for generating economic activity and employment.

Planning Principles

Following principles have been taken care of during preparation of the land use plan.

- that the existing developments in the area is to be taken care of
- that unproductive fallow lands should be put into effective use
- that existing water channels should be preserved to enable better drainage of storm water

5.2 PLAN DESCRIPTION

During preparation of the plan, the planner has given due consideration to the facilities already prevailing in the study area. There are large number of facilities that have already cropped up in the area, that include Upazila Complex, Health Complex, Bazar, etc. There are many facilities existing in the area that have no mention in the TOR. The planner has retained these facilities and establishments. Following sections describe the plan provisions.

Education

Field survey has ascertained existence of 4 primary schools in the study area. The plan proposes in total 8 primary schools for the year 2000. This will give one school for every 5000 population. Four new schools will be set up at Garamashi, Mukundagati, Chala and at Konabari pather. Existing schools will be extended to standard size of one acre each.

The plan proposes 4 high schools including the existing three schools. The new school will be meant for girls exclusively and will be located at Chala, north of court area. The schools will have average area of 1.90 acres.

The existing college covers an area of about 5.44 acres. No new college has been suggested.

In addition to general education a vocational training centre will be set up at Chala near the proposed stadium. It will have an area of about 4.65 acres.

Health

In health sector plan proposes 3 dispensaries and 3 mother and child care centres. The existing Health Complex and the veterinary clinic will be retained in their respective places and no extension has been recommended.

The three dispensaries and mother and child care centres will be located at west Garamshi, South Chala and at north Chala mouza. The average area for a dispensary and mother and child care centre has been suggested 2.04 acres and 1.82 acres respectively.

Commerce

The existing bazar at Mukundagati covers a large area of about 19.48 acres. This bazar will be retained in its place and no new bazar has been suggested because of its overwhelming large size. However, about 9.84 acres have been recommended as general commercial use. About 60 feet wide strip from each side of the north-south 60 feet wide road have been earmarked as general commercial use, from girls school at south up to bridge at north, near godown area.

Industry

The industrial area of the Shahar has been located at north-east Chala over an area of about 25.10 acres. Its location at one end of shahar that will free the Shahar from possible pollution from industries.

Administration

The existing administrative area of the Upazila Complex encompasses an area of 9.36 acres. The plan recommends it to extend the area on the south-east over an area of about 12.00 acres as per TOR.

Recreation

Presently the study area has 2 play fields. The plan proposes 4 play fields for the population up to the year 2000 A.D. The new play fields will be located at Konabari and Khidramatia.

The study area will have one park located at north-west Kamarpara - Sernagar, on an area of 5.47 acres. The only stadium will be built at the heart of the Shahar at Chala, beside the 60' wide road.

As closed recreation the plan proposes 2 cinema halls and a auditorium. Both the cinema halls are in existence . The auditorium will be established north of Health Complex, beside the main 60' wide road.

Urban Services

Under urban services plan proposes 3 post offices including one general post office, areas for REB/PDB, T & T, bus station, fire service, dakhungalow, police station and jail. The existing establishments, godowns will remain in their respective places.

Socio-cultural

Under socio-cultural facilities the plan proposes 3 community centres, 11 mosques, 1 library and a graveyard on an area of 16.60 acres. No new mosque has been proposed as there already exist 11 mosques and one eidgah. Existing mosques will be extended.

Roads

In the road sector the land use plan proposes 22.48 miles of 24', 40' and 60' wide roads. There will be about 3.50 miles of 60 feet wide road, 4.00 miles of 40 feet wide road and 14.98 miles of 24 feet wide road. The existing major roads of the Shahar will be converted into primary and secondary roads and narrow roads into 24 feet wide local roads.

Residential

For residential area, average density has been assumed as 50 persons per acre. The plan proposes about 794.77 acres for residential area that include the existing residential areas. The area forms about 51.14 percent of the study area. About 60.00 acres or 7.5% of the residential area has been proposed to be developed as planned residential neighbourhood through acquisition. This area will be located in mouza Mukundagati, close to the heart of the town.

Reserve and Urban Deferred

The plan proposes about 69.81 acres or 4.49 of the study area as reserve land located on the northern and western part of the study area. It also includes the water bodies. The area meant for future urban use (urban deferred) account for about 133.00 acres. The areas for urban deferred has been placed at Garamashi area.

Agriculture

The plan suggests about 272.90 acres of land to retain under agricultural use. These lands are already under agriculture and do not now required by the shahar. Unless any serious need arises they can remain with agriculture. These lands can supply food to the shahar people to meet a part of their food demand. The lands to remain under agriculture are located at Konabari.

CHAPTER VI : PROGRAMMING AND IMPLEMENTATION

6.1 PRIORITY ACTIONS AND COST IMPLICATIONS

Priority Actions

Prior to implementation of plan it is necessary to fix up priority actions based on future requirement, possible resource availability and rational judgement, For implement the present plan following priority actions are recommended.

- a. The condition of roads in the Upazila is poor. There is inadequate road net work in the area and except a few major roads, almost all the roads are kutcha, narrow in width and unusable during monsoon. It is suggested to develop all major roads of the shahar.
- b. After development of roads, it is necessary to develop important commercial areas and markets. If there is any demand for industrial land, industrial areas may also be developed in phases.
- c. With the geared up activities in the field of trade, commerce and industries, demand for residences will go up, which will call for development of residential areas. Residential areas adjacent to built up areas should be taken up first.
- d. In order to attract people and promote social and economic activities, attention should be paid on development of recreation facilities, like, cinema hall, park, library and stadium/play ground.

Cost Implications

It is extremely difficult to determine the actual cost of development for the schemes under the land use plan. Because, the plan only earmarks land for any particular use and does not suggest specific building or establishment with its size, shape and dimension. Under cost implications aspect of the present report, the consultants therefore, consider only the cost of land acquisition, site development and road construction. Table : 6.1 gives details of cost estimates for development under various sectors of the land use plan.

Table : 6.1
COST ESTIMATES

Sector	Area to be acquired and developed		Cost of land acquisition	(Tk. in lakh)	
				Cost of land/ road development	Total Cost
	Acre	Hectare	Tk.	Tk.	Tk.
Education	14.42	5.84	62.00	57.16	119.16
Health	11.59	4.69	49.84	45.94	95.78
Commerce	5.59	2.26	24.04	22.15	46.19
Industry	29.09	10.16	107.89	99.45	207.34
Administration	2.64	1.07	11.35	10.47	21.82
Road	50.24	20.34	216.03	199.15	415.18
Recreation	12.70	5.14	54.61	50.34	104.95
Urban Service	13.58	5.50	58.39	53.83	112.22
Socio-cultural	9.82	3.98	42.25	38.92	81.17
Residential	60.00	24.29	258.00	237.82	495.82
Total :	205.67	83.27	884.40	815.23	1699.63
+ Contingency, overhead and price escalation as 15% of total cost					254.94
Grand Total					1954.57

Note : 1. Value of land has been assumed as Tk. 4.30 lakh per acre.

2. Value of carried earth per 1000 cft has been assumed as Tk . 1300/-

3. Average depth for land filling and development has been assumed as 7 feet.

For providing education facilities it will be needed to acquire additional 14.42 acres. The total cost involved for acquisition and development of these lands will be Tk. 119.16 lakhs.

Additional 11.59 acres will be required and developed to provide health facilities as per plan which will incur about Tk. 95.78 lakh. Under commercial use 5.59 acres will be acquired at a cost of Tk. 24.04 lakh. Total cost under this sector involves Tk. 46.19 lakh including cost of development.

Industrial sector will involve a cost of Tk. 207.34 lakh. For road the total cost involved is Tk. 415.18 lakh that involves cost of additional land for old roads and land acquisition for new roads plus cost of development.

Recreation facilities will be developed at a cost of Tk. 104.95 lakh, while land for urban services will be provided at a cost of Tk. 112.22 lakh development of socio-cultural facilities involves a cost of Tk. 139.49 lakh.

Under residential sector only 60.00 acres of land will be acquired for creation of totally planned residential area. The total cost of land acquisition and site development will involve Tk. 495.82 lakh. This, however, excludes development of roads and other ancillary facilities.

Table : 6.2

PHASING OF IMPLEMENTATION							
	(Tk. in lakh)						
Sector	Phase-I:1988-93		Phase-2:193-98		Phase-3:1998-2003		Estimated Total cost in (Tk)
	Share of work	Cost (Tk)	Share of work	Cost (Tk)	Share of work	Cost (Tk)	
Education	30.00%	35.75	30.00%	35.75	40.00%	47.66	119.16
Health	35.00%	33.52	25.00%	23.95	40.00%	38.31	95.78
Commerce	40.00%	18.47	35.00%	16.17	25.00%	11.55	46.19
Industry	25.00%	51.83	35.00%	72.57	40.00%	82.94	207.34
Road	27.00%	112.10	30.00%	124.55	43.00%	178.53	415.18
Administration	30.00%	6.54	35.00%	7.64	35.00%	7.64	21.82
Recreation	35.00%	36.73	30.00%	31.49	35.00%	36.73	104.95
Urban Service	35.00%	39.28	30.00%	33.66	35.00%	39.28	112.22
Socio-cultural	30.00%	24.35	35.00%	28.41	35.00%	28.41	81.17
Residential	20.00%	99.16	35.00%	173.54	45.00%	223.12	495.82
Total :	26.93%	457.73	32.23%	547.73	40.84%	694.17	1699.63
+ Contingency overhead and price escalation Q. 15%	26.93%	68.66	32.23%	82.16	40.84%	104.12	254.94
Grand Total :		526.39		629.89		798.29	1954.57

6.2 PHASING AND URBAN DEFERRED

Phasing

The implementation of land use plan will be carried out in 15 years under 3 plan periods from 1988-93 to the year.

Phase - 1 : 1988-1993

Approximately 26.93% of the total expenditure will be spent during this period. This plan period will be marked by development of basic infrastructure, like road, bazar, college, cinema, play ground and jail.

Phase - 2 : 1993-1998

During the second plan period about 32.23% of the total expenditure will be made. In this period it is suggested to develop post office, areas for Primary and high school, dispensary and mother and child care centre, areas of administration, industrial zone, roads, stadium, dak bungalow, launch ghat, graveyard and planned residential area.

Phase - 3 : 1998 - 2003

Phase - 3 will mark by the development of mosque, library, community centre, areas of T & T, PDB, bus station police station, fire station, auditorium, part and play ground, road, part of commercial area, primary school, high school and vocational training centre. During this phase about 40.84% of the works will be done.

Table 6.2 gives details of phasing of development works.

Urban Deferred

About 8.56% of the net planning area has been earmarked as urban deferred. This areas will be utilised to accommodate increasing pressure of urban activities in future. As far as the economy of the catchment area and the surroundings is concerned, it is very unlikely that any remarkable urban growth will take place in the area in near future. The area measuring 133.00 acres will be enough to accommodate any unforeseen needs. These lands may remain under agricultural use until they are put into any urban use.

6.3 DEVELOPMENT CONTROL

To promote planned and orderly development land use plan can only serve as a guideline. It will not give use of individual buildings nor will it set forth building codes. To supplement provisions of land use plan it is, therefore, necessary to have control measures over each and every development that might take place within the planning area. All development, including public buildings should be put under planning approval. Any development must be in accordance with the zoning of Master Plan. There must also be detailed regulations for construction of buildings and other developments regarding such matters as, siting, height, appearance, set back and site coverage. These are necessary to ensure balanced, orderly and healthy environment. For preparation of detail development control regulations the following aspects may be taken into consideration.

Use of Land

Provisions of land use plan should be strictly adhered regarding use of land. The development control authority should exercise power to regulate construction of buildings and other development as per provisions of land use plan.

Use of Building

Power should also be exercised to control change of use of buildings, which might have adverse effect upon the surroundings. However, liberal rules should be devised to accommodate time to time change.

Set Back Rules

Rules are necessary for proper siting of buildings from social, health and environmental point of view.

Set back rules are the most important instruments for development control. The rules set in the E.B.C. Act 1952 can not be fully adopted for Upazila headquarters. A new set of rules based on social, economic land environmental conditions for the Upazila should be prepared through amendment of and addition to existing rules.

6.4 MONITORING AND REVIEW

A land use plan keeps on changing with the change in time. The plan is not an end in itself, rather it is the beginning of the whole process. As such it should not be treated as static. It will need to be monitored with regular continuously. Measures should be adopted for continuous monitoring of Land use Plan every six month with respect to it's level of implementation and problems of development control, problems of financing implementation, etc. This will enable taking appropriate measures at the right time.