

URBAN DEVELOPMENT DIRECTORATE

MINISTRY OF WORKS

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

LAND USE / MASTER PLAN GABTALI UPAZILA SHAHAR BOGRA ZILA

MAY, 1991

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MAY, 1991

TECHNO SERVE INTERNATIONAL

620 SHAHEENBAG, OLD AIR-PORT, TEJGAON, DHAKA.

TO WHOM IT MAY CONCERN

The undersign has carefully reviewed and checked the Landuse/Master plan for Upazila Shahar prepared by M/S Techno serve International, 620 shaheenbag, old Airport, Dhaka and found it to be acceptable.

Md. Abdul Maki Sarker
27/8/70

CHAIRMAN,
Upazila Parishad
Sabail, Bogra.

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1. INTRODUCTION

In the Government's recent policy of overall administrative re-organization, the upazila has been recognized as the most significant tier of administration. Each upazila centre will be the focal point of all upazila level administrative activities. Thus the development of upazila centre is the government's key strategy for social, economic and infrastructural upliftment of the upazila region.

The administrative re-organization has delegated more power to the upazila authority for planning, programming and controlling development activities within the upazila region. It is expected that with geared up administrative, social and economic activities the upazila headquarters can be relieved from the curse and ills of unplanned growth through the preparation and implementation of the land use/master plan.

The land use/master plan prepared for the headquarters will serve as a guideline for a planned and coordinated development of prospective headquarters' town upto year 2009. When successfully materialised, the land use/master plan will cause orderly growth of the town and its land uses. It will provide effecient transport network, promote development of commerce and industries, resulting in-generation of employment and will indicate more rational use of land. The plan will reserve all provisions necessary for modern civic life.

It is a promise to the potential dwellers of the headquarters for a healthy, pleasant and functionally efficient living environment. Preparation of land use/master plan is the first step of the programme for bringing the whole of the upazila under planned development. It is expected that other important alternative settlements of the upazila based on hierarchy will be taken up soon for planning and development to render them healthy, pleasant and growth generating centres.

Planned development is the prime objective of the land use/master plan. However, there is a common feeling that planning means a total development involving huge volume of fund. But such an idea is not fully correct. Planned development to a large extent, can be ensured through effective enforcement of development control regulations.

In the light of the above circumstances, it is felt that the upazila centre should grow up expeditiously and the preparation of land use/master plan for such centre is of utmost importance for better utilization of regions. land, people and natural resources. With this end in view, the government has planned to engage consultants for preparation of land use/master plan for every upazila shahars of Bangladesh.

CHAPTER-II

2. METHODOLOGY OF SURVEY AND ANALYSIS

The objectives and scope of services for preparation of the land Use/master plan for upazila shahar have been stated in section-2, and section-3 of the Term of Reference (TOR) respectively. To fulfil the requirements of objectives and scope of services it was needed to go through the following methodology for conducting existing land use and socio-economic survey.

2.1 Existing Land Use Survey

Mauza maps in the scale of 1 inch equal to 330 feet were collected from the D.L.R Office covering whole of the designated study area and traced out with plot boundaries and numbers to prepare field survey sheets. Plot to plot survey of current uses of land were marked on the survey sheets. The layout of the special features were drawn on the survey sheets. The survey for current uses of land were completed for the whole of the designated study area.

2.2 Preparation of Existing Land Use Map

The survey sheets were compiled in the laboratory and existing land use map were prepared in hatches. The land use map was examined and analysed and finally shahar area was delineated. From the survey sheets a base map of existing land use was prepared in graphics.

2.3 Existing Land Use Analysis

A table on existing land use was prepared from the base map. The quantity of land under different uses were calculated by grid method and consequently, there might have some errors of calculations. The percentage of land under different uses were also calculated.

2.4 Socio-economic Survey and Data Analysis

A format of questionnaire containing 7 items and 95 variables was prepared and administered to collect the data on socio-economic condition of the people of the shahar area. Five percent of the total households were interviewed by field investigators on random basis. Data thus collected were tabulated and analysed to determine the socio-economic characteristics of the shahar area. The land use master plan would be prepared to meet the socio-economic needs of the people of the shahar area and catchment area.

2.5 Detailed Land use Survey

A detailed land use survey was conducted and completed by the survey team for 200 acres of core area (scale 1/1000). Layout of all man-made structures will be plotted to the correct scale. The level of land and flooded area were demarcated by physical varification. Contour maps will be collected from the BWAFDA and compared with the survey map and finally contours were interpreted on the survey map and it will be presented in the 3rd report.

2.6 Hierarchy of Settlements

The hierarchy of settlement was determined on mauza basis depending on population, economic activities, social infrastructure provisions, transport linkages and related other characteristics. In order to determine the hierarchy of settlements, necessary socio-economic indicators were selected and they were given assumed weightages. Data and information on selected indicators were collected during the field survey from the upazila headquarters. These data were tabulated and they were multiplied by assumed weightage to determine the gravity of each mauza of the concerned upazila. Accordingly relative gravitational circles were drawn on the geographical centres of each mauza which shows the importance of respective unions.

2.7 Catchment Area and Planning Area

To determine the catchment area, data on commuting distance and service area of the upazila shahar were collected during the field survey. The catchment area was determined and delineated through studies on commuting distance. Service area, Physical features, growth of settlements of the upazila headquarters and surroundings. The shahar area was determined on analysis of existing land use survey. Trend of development of settlement, availability of buildable lands and physical features of the centre and surroundings have been given due considerations.

DISTRICT BOGRA SHOWING UPAZILA SCALE: 1" = 4 Miles



LEGEND

- District Boundary
- Upazila Boundary
- Marked Roads
- Unmarked Roads
- Railway Line
- River & Khali
- District H.O.
- Upazila H.O.
- Other Place
- Project Upazila

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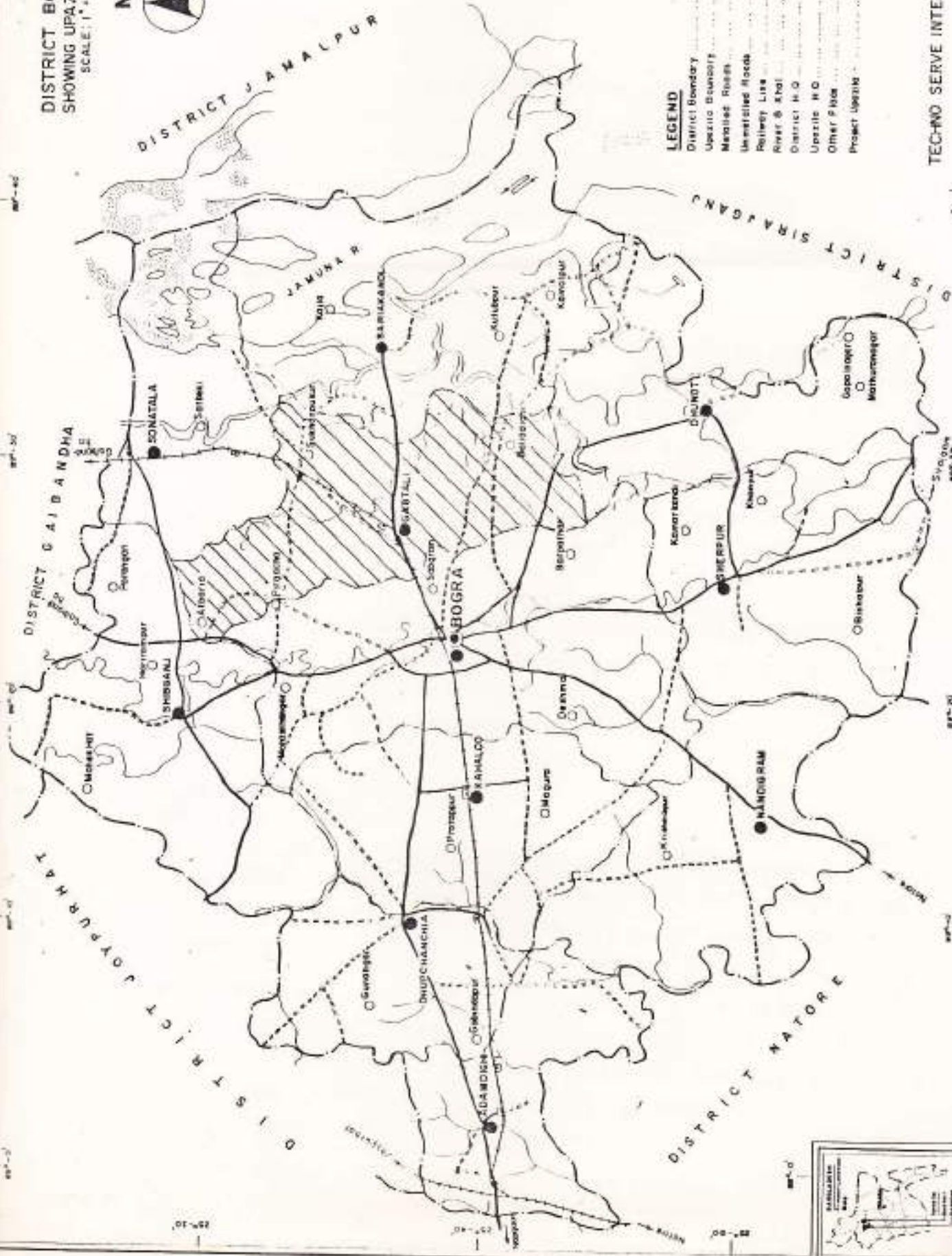
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MP-10



3. THE UPAZILA IN IT'S DISTRICT CONTEXT

3.1 Brief History

The upazila created in 1914, there was a big "Gob" tree, in the present are of the upazila. One Abir Akand came here and settled for the first time under the Gob tree. The Local people are in the opinion that the name of the Upazila has been derived from the name of the 'Gob'tree.

3.1.1 Location of Upazila Shahar

Gabtalí is one of the upazila of Bogra district. It is located at a distance of 26 km (16 miles) from district headquarters. It lies between 24° and $25^{\circ}01'$ north latitude and $89^{\circ} 22'$ and $89^{\circ}33'$ east longitude. It is bounded in the north by sonatola Shibgonj upazila, in the south by Dhunat upazila in the east by sariankanli upazila and in the west by Bogra sadar upazila and shibgonj upazila. It comprises a total area of 239.6 sq.km. (92.5 miles) including and area of 80 sq. km. of river.

The upazila shahar is situated roughly around the intersection of longitude $49^{\circ} 26.5'$ east and latitude $24^{\circ}52'$ to $24^{\circ}53'$ north. It is Westernly located for East West direction and it is centrally located by north-south direction.

3.1.2. Physiography

The general aspect of the district is that of a great plain unbroken through out its whole extent. Its landscape, being an absolute dead level, only by a slight slope, amounting in the whole length of the district to a few feet from the north-west towards the south and south-west.

The rivers Karatoya and phuljur divide it longitudinally into positions, whose characteristics are very distinct. The eastern portion is smalls, containing some what less than two-fifths of the entire of the district, may be regareded as forming part of the flood plains of the Jamuna.

The western portion of the district presents a marked contrast to the eastern. It is well wooded scrub jungle being found in parts and is generally above flood level. Its soil is a hard compact clay and of raddish colour.

3.1.3. River System

There are quite a few rivers in the district of Bogra. Taking the Karatoya as the central dividing water channel the other rivers may be classified into the eastern and the western system. The eastern rivers are Monas, charkdaha and Khamati besides a few other smaller ones. Through the Khair tracts in the western parts the Nagar, the Tulshiganga and other minor streams. All western rivers are the tributaries of the Antrai which itself flows into the Jamuna (Map-1).

3.1.4. Soils.

A very good idea of the relative firmness of the two soils poli and Khair is afforded by the manner of digging wells in use in the two tracts. In poli land the well is lined with earthenware rings to prevent the earth falling in from above and choking up the well. In Khair land the well is dug straight down without any such artificial supports. Rice, Jute and Rabi crops are grown in the poli tracts but Khair is fit for the cultivation of paddy only.

3.1.5. Climate

The climate of Bogra is not much different from other north western districts of Bangladesh. The year is distinctly divided in to a hot and dry summer, hot and wet monsoon, and dry winter. The hot weather commences in April and lasts the greater part of three months. Rain started from June to middle of October. The average temperature is between 68° - 69°F with extreme minimum and maximum ranging between 43° F and 87° F for that period. The average monthly rainfall is about 12.51" inches. Individual months during the monsoon season sometimes do have rainfall more than 33 inches.

3.1.6 Agriculture.

Rice is the staple crop of the district and one of the main sources of food supply. The principal crops are transplanted aman, Broadcast aman, Aus, Jute, Rape and Mustard Tobacco, Potatoes, and sugarcane.

Paddy is grown everywhere and accerents for more than 90% of the area under this crop. Paddy is extensively grown in the three allusion Upazilas of Gabtali, Dhunot, and Shariakandi. Boro paddy is rarely grown, save in the char areas.

3.2 Population and Settlement Distribution

3.2.1 Zila

According to the population census report of 1981, the population of Zila are 2108622 persons. The total pumber of households is 379016 the total area of the zila is about 2922 sq.km. The density of population of the zila is 721persons. The rate of growth of population of zila are 2.92 percent.

3.2.2 Upazila.

The total area of the Upazila is about 291 sq.km. The total number of households of the Upazila are 42193. The total population of the upazila in 1981, are 221858. The average density of total population are 762 persons per sq.km. The annual rate of growth of population of Upazila area is 2.13 percent.

TABLE-1
DISTRIBUTION OF POPULATION AND SETTLEMENTS

Locality	Area in Sq.km.	Population 1974	Population 1981	Density of Pop. 1974	Rate of Growth 1974-1981
Upazila	291	191315	221858	762	2.13
Zila	2922	1723262	2108622	721	2.92

Source : Bogra District Statistics - 1987

Table No.1.02 and 1.03

TABLE - 2

POPULATION AND LABOUR FORCE 1981

Locality	Population		Population (10 Years)		Labour force		Married Women (15-49 Years)
	Total	Male	Total	Male	Total	Female	
Zila	2108616	1074383	1397723	719712	587664	25920	414550
Upazila	221852	113161	147695	7957	64401	2514	40180

Source : Upazila Statistics Vol. 1 - 1985

Table No.2.02 Page 39

Bangladesh Bureau of Statistics.

3.3 Economic Performance and Transport Linkages

3.3.1 Employment and Underemployment

Zila

The total population of Bogra Zila is 2108616 persons, out of which 1074233 persons are males and 1074383 persons are females. The total number of population in the age group of 10 years and above is 1397723 persons. The total number of labour force of the Zila is 587664 persons. The rest of the labour force are house-wives, student and underemployed. Amount the labour force the participation of males are 560744 persons and females are 26920 persons respectively. For details table no. 2 may be seen.

The total labour force of Zila is 587664 persons out of which 476801 persons are directly or indirectly engaged in agriculture. The remaining 111114 persons employed in non-agricultural sectors. For details Table No.2 and 3 may be seen.

TABLE-3: OCCUPATIONAL CLASSIFICATION OF POPULATION 1981.

Locality	Agriculture		Non-Agriculture		Others
	Cropping	Non-Cro- pping	Manufact- ture.	Business	
Zila	465575	11226	4417	55732	50965
Upazila	45231	1198	442	545	7675

Source : Upazila Statistics Vol. 1-1985
Table No.2.04.Page 69 Bangladesh
Bureau of Statistics

Upazila

The total population of the Upazila is 221852 persons, out of which 113161 persons are males and 108691 persons are females. The total number of population in the age group 10 years and above is 147695 persons. The total number of labour force in the Upazila is 64401 persons and the rest 40180 persons are housewives, students and underemployed situation of the Upazila is comparatively better than the Zila.

The total number of labour force employed is 64401 persons, out of which 46429 persons are employed directly or indirectly in agriculture and the rest 17972 persons are engaged in non-agricultural sectors. For details Table No.2 and 3 may be seen.

3.3.2 Income and Expenditure.

The data on income and expenditure of the Zila or of the Upazila are not available for analysis. The data on income and expenditure of the study area have been collected through socio-economic survey and analysed in the section on 'socio-economic conditions' of the Upazila.

3.3.3 Transport Linkages.

Roads

There are only 173 miles metalled road in the Bogra Zila. The length of semi-metalled road is 49 miles. The non-metalled road is about 2385 miles. The main mode of communication is buses, autorickshaw, rickshaws and train services.

The total length of metalled road in the Upazila is 9 miles, Semi-metalled is 3 miles and non metalled road is 380 miles. The main mode of communication is bus and rickshaw. The distance between the Zila headquarters and the Upazila headquarters is 16 miles or 26 km. For details of transport linkages the table No.4 and the Zila map may be seen.

TABLE-4: ROAD MILEAGE BY TYPE, DISTANCE AND MODES OF COMMUNICATION 1981-1982

Locality	Road km. by type			Distance from district head Quater.	Modes
	Metalled	Semi-metalled	Non-Metalled		
Zila	173	49	2385	-	-
Upazila	9	3	380	16 miles/ 26 km.	Bus 26 km.

Source : Upazila Statistics, Vol.1, 1985
Table No.6.01
Page 198 Bangladesh Bureau of Statistics.

3.4 Social and Economic Infrastructures of the Upazila Region.

3.4.1 Market and Commerce.

Village markets play an important role in the country's economy. According to the data collected from the Upazila headquarters, there are 31 markets in the Upazila region of Gabtali. They meet once or twice in a week. One market serves 7157 persons.

3.4.2 Education.

There is two colleges in the Gabtali Upazila. The total number of high/Junior high schools is 23. There are 91 primary schools in the Upazila region. The teacher-student ratios in college, High/Junior high school, primary schools are 30, 28 and 48 respectively.

3.4.3 Health and Welfare.

There are one hospital and 10 dispensaries with 10 beds, 8 doctors and 5 paramedics in this Upazila. This shows that there is one doctor, and one paramedic available for every 27,732 and 44,372 persons respectively.

3.4.4 Urban Services and Utilities.

There is water supply system in the Upazila headquarters area. Recently electricity and sanitary facilities are also available. Out of 217 villages of the Upazila, 6 villages have so far been provided with electricity facilities. There are 16 post offices and one telegraph office in the Upazila.

3.5 List of current Development Projects :

The list of current development projects are taken by the Upazila parishad is given below, Table-5

TABLE-5

CURRENT DEVELOPMENT PROJECTS 1988 -89 UPAZILA GABTALI, BOGRA.

SL NO	NAME OF PROJECTS	ESTIMATE	PROGRESS
1.	Agriculture and Irrigation	1,90,000.00	100%
2.	Small & Cottage Industries	20,000.00	100%
3.	Transportation & Communication	10,50,500.00	100%
4.	Housing & Maintenance	2,52,560.00	100%
5.	Education Development	98,000.00	100%
6.	Health & Social Welfare	41,000.00	100%
7.	Sports & Culture	70,000.00	100%
8.	U.P. Physical works	67,000.00	100%
9.	Miscellaneous	95,600.00	100%
Total :-		18,84,660.00	100%

Source : Office of the Upazila Engineer, Gabtali, Bogra.

3.6 Synthesis : Identification of Hierarchy of Settlements in the Upazila.

In Bangladesh, socio-economic functions are not concentrated in one centre nor they are found completely dispersed. For this reason the hierarchy of settlements should not be determined on centre basis. Mauza-wise consideration of functions will have specific locations. Therefore, it would better to analyse the data for determination of hierarchy of settlements on mauza basis.

In determining the hierarchy of settlements 18 main socio-economic indicators have been selected (Table No.6). Data on these indicators on mauza have been collected from the Upazila headquarters. The distribution of socio-economic indicators on mauza basis has been shown in Table No.7.

The selected socio-economic indicators have been given assumed weightage for each (Table No.8). According to the given weights, the gravity of each function located in each mauza have been calculated (Table No.8). Finally, the total weight of each mauza have been found out. According to the weight ranking has been made. They are connected with shortest road linkages with Upazila shahar.

TABLE-6 : INDICATOR OF SETTLEMENT HIERARCHY AND WEIGHTS.

Sl no.	Infrastructures	Abbreviation	Weight
1.	Public Institution	pi	5-10
2.	Commerce	ch	1-5
3.	Industrial Establishment	In	1-5
4.	Police Station	Ps	1-5
5.	Health and Welfare	Hw	1-5
6.	College	Co	5-10
7.	High School	Eh	3-6
8.	Primary School	Ep	1-2
9.	Post Office	Po	1-5
10.	Telegram and Telephone	Tt	1-5
11.	Electricity	Et	2-5
12.	Religious Institution	Ri	1-5
13.	Road Pucca	Rp	1-5
14.	Station (Rail, Water, Bus)	Ri	1-5
15.	Recreation (Park, Playing)	Re	1-5
16.	Bank	Bk	1-5
17.	Area 500 Acres	Ar	1-6
18.	Population 500 persons	Pn	1-6

TABLE - 7

DETERMINATION OF HIERARCHY OF SETTLEMENT BY WIEGHTAGE METHOD.

Name of Mouza	Pi	Ch	In	Ps	Hw	Ec	Eh	Ep	Po	Tt	Et	Ri	Rp	St	Re	Bk	Ar	Pn	Total	Rank
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Gabtali	8	5	5	5	5	8	7	4	4	7	8	4	7	5	5	5	5	5	102	1st
Joybhoga	-	5	5	-	-	-	4	4	4	-	4	-	3	-	-	-	3	4	32	5th
Mohisbathan	-	-	-	-	-	-	4	4	-	-	2	2	2	2	-	-	3	3	24	7th
Nashipur	3	-	-	-	-	3	5	4	4	-	3	3	2	3	2	2	3	2	37	3rd
Baliadighi	3	-	-	-	-	3	5	4	4	-	3	3	2	3	2	-	3	3	38	2nd
Durgahata	3	-	-	-	-	3	5	4	2	-	3	3	2	3	-	-	2	2	32	5th
Ramesharpur	3	-	-	-	-	3	5	3	2	-	2	2	2	2	2	-	2	4	32	5th
Kagail	4	-	-	-	-	3	5	3	2	-	2	2	2	2	2	-	3	4	34	4th

TABLE - 8

LIST OF INDICATORS OF SETTLEMENT HIERARCHY

Name of Mouza	Pi	Ch	In	Ps	Hw	Ec	Eh	Ep	Po	Tt	Et	Ri	Rp	St	Re	Bk	Ar	Pn
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Gabtali	2	1	1	1	1	2	2	3	1	1	1	1	1	2	1	4	300	2187
Joybhoga	-	1	1	-	-	-	1	1	-	-	1	-	1	-	-	-	715	2933
Mohisbathan	-	-	-	-	-	-	1	1	1	-	1	1	1	1	-	-	1222	6677
Nashipur	1	-	-	-	-	-	1	2	1	-	1	1	1	1	1	-	3383	12093
Baliadighi	1	-	-	-	-	-	1	2	1	-	1	1	1	1	1	-	2758	9502
Durgahata	1	-	-	-	-	-	1	1	1	-	1	1	1	1	-	-	2716	8855
Ramesharpur	1	-	-	-	-	-	1	1	1	-	1	1	1	1	1	-	1584	8738
Kagail	1	-	-	-	-	-	1	1	1	-	1	1	1	1	1	-	1681	6266

CHAPTER-IV

4. SOCIO-ECONOMIC CONDITIONS OF THE STUDY AREA.

According to the instructions given in the scope of work 4.3 of the TOR, the socio-economic survey for the study area was conducted and completed for 130 households. The main objectives of the socio-economic survey were to find out the social and economic conditions of the study area. The results of analysis of socio-economic data may help locate adequate functions of government's services and facilities of basic needs in the upazila shahar which will bring some significant improvement in the quality of life of rural people. The data collected through socio-economic survey are analysed in the following paragraphs.

4.1 Population Characteristics.

According to socio-economic survey of 130 households contains 700 persons.

The distribution of population by age group has been shown in Table No.9. The highest number of population is found in the age group of 16 to 20 years accounting 10.86 percent of the total population. It indicates that the people of younger age group have been concentrated in the Upazila centre for jobs and education. It has also been noticed that beyond the age group of 35 years the number and percentage of population have gradually fallen.

TABLE-9: AGE AND SEX COMPOSITION OF POPULATION OF STUDY PLAN AREA

Age Group (Years)	Male	Female	Total	Percentage
0 - 5	38	30	68	9.71
6 -10	32	27	59	8.43
11-15	33	30	63	9.00
16-20	40	36	76	10.86
21-25	36	36	72	10.29
26-30	28	27	55	7.86
31-35	28	28	56	8.00
36-40	24	23	47	6.71
41-45	22	22	44	6.29
46-50	22	21	43	6.14
51-55	27	27	54	7.71
56-60	20	20	40	5.71
60+above	12	11	23	3.29
Total :	362	338	700	100

Source : Field Survey, 1989

There are 107 males for 100 females in the study area which character of urban population. Due to the upgradation of upazila, economic activities have already been started in the Upazila centre and people of younger generation have been concentrated in and around the Upazila centre for jobs.

4.2 Household Characteristics.

In the study area, 130 households containing 700 persons have been surveyed. The size of house-hold is 5.38 which is lower than the district average.

There are 135 pucca structures in the study area. There are 500 semi-pucca and 400 kutcha structures. In the study area 130 structures are unclassified. The structural conditions of the study area are poor, for detail Table No.10. May be seen.

TABLE-10 : HOUSEHOLD STRUCTURES OF THE STUDY AREA, 1989.

Household Structures	No.of Household	Percentage
Pucca	135	11.59
Semi-Pucca	500	42.92
Kutchra	400	34.33
Unclassified	130	11.16
Total :	1165	100.00

Source : Field Survey, 1989.

4.3 Economic Performance.

The total number of population of age group 10 years and above is 700 persons, out of which 265 persons of 37.86 percent are employed in different sectors of economic activities, The number of persons unemployed or about 50% including housewives and students.

TABLE - 11 : EMPLOYMENT STRUCTURES, 1989.

Employment Structures	Persons	Percentage
Employed	265	37.86
Unemployed	350	50.00
Invalid	85	12.14
10+ Population	Total : 700	100.00

Out of Source : Field Survey, 1989.

Out of 305 persons, 185 persons or 60.66 percent are engaged in agriculture. The number of persons engaged in business is 40 or 13.11 percent. Only 60 persons are employed in service. The total of other professionals amounts 20 persons or 6.56 percent of the total population.

TABLE-12 : PROFESSIONS STRUCTURE OF POPULATION, 1989.

Professions	No.of Population	Percentage
Agriculture	185	60.66
Business	40	13.11
Service	60	14.67
Others	20	6.56
Employed :	Total : 305	

Source :Field Survey, 1989.

The income and expenditure of 130 households are available. The annual income of 50 households are upto Taka 10,000.00 only, The annual income of 40 households lies between Taka 10,001 to 20,000.00. The annual income of 30 households lies between Taka 20,01.00 to 30,000.00. The expenditure of 25 households lies between this range. The expenditure of 2 households lies between Taka 30,001.00 to 40,000.00. The expenditure of 3 households lies between Taka 40,001.00 to 50,000.00 and expenditure of zero households lies between Taka 50,001.00 + above. The maximum expenditure of household about 70 nos. or 53.85% lies upto Tk.10,000.00 and about 30 household or 23.08% lies between Tk.10,001.00 to 20,000.00. (Table-13 and Table-14).

TABLE-13 : ANNUAL INCOME PATTERN OF THE HOUSE-HOLD IN THE STUDY AREA, 1989.

Range(Tk)	Income	Percentage
+10,000	50	38.46
10,001-20,000	40	30.77
20,001-30,000	30	23.08
30,001-40,000	6	4.62
40,001-50,000	3	2.31
50,001+ above	1	0.77
Total :	130	100.00

Source : Field Survey, 1989.

The main source of income of the people of the study area is agriculture and business. The main field of expenditure is food and clothing.

4.4 Small Scale and Cottage Industries.

There is one small scale and cottage industry complex in the shahar area which is funded by the upazila parishad.

4.5 Educational Institutions.

There are 3 primary schools in the study area of Gabtali Upazila shahar area. The total number of teachers in 3 schools are 12 persons. There is one high school for boys and one high school for girls. There is one college in the study area.

TABLE-14 : ANNUAL EXPENDITURE PATTERN OF THE HOUSE-HOLD IN THE STUDY AREA, 1989.

Range (Tk.)	Expenditure	Percentage
+10,000—	70	53.85
10,001-20,000	30	23.08
20,001-30,000	25	19.23
30,001-40,000	2	1.54
40,001-50,000	3	2.31
50,001+ above	-	-
Total:	130	100.00

Source : Field Survey, 1989.

4.6 Administrative Institution.

Administrative institution includes both the government and semi-government offices. There are 19 administrative offices located in the upazila study area. The commuting distances of officials are 1 to 2 kilometers.

4.7 Financial Institutions.

There is only four bank branches in the upazila headquarters of shahar area of Gabtali.

4.8 Health and Welfare.

There is a charitable dispensary in the Upazila centre. There is only one family planning centre in the study area. The upazila health complex is located within the shahar area (Map 3).

4.9 Recreational Facilities.

There is no notable recreational facilities in the upazila centre. But there is two playgrounds in front of boys high school and college.

4.10 Distance of Important places from Home.

The distance of roads of 100 households is within 03 km. Only 50 households lie within one kilometre distance.

The working places of most of the households are within 1-2km. Approximately 88 percent of the households are located within 0.5 km. distance from the primary schools. About 77 percent of household are located within 0.5 km. radius of the high school. Rest of the households are located within 2 km. radius.

More than 80 percent of the households are located within 0.5 radius of the market. Rest of the households are within 2 km. distance.

4.11 Available Facilities.

According to the socio-economic survey, 70 percent of the people answered that there is no scope of employment in the upazila. Health facilities are not adequate. The facilities for recreation exists in the upazila. There is telephone service in the upazila headquarters. The upazila is devoid of social and economic facilities. Under this circumstances an upazila shahar can not be developed.

5. THE UPAZILA HEADQUARTERS.

5.1 Definition of sphere of Influences/Attractiveness: Functions located in space have dynamic influences on surrounding areas.

- It may be assumed that the zone of influence of any functional centre varies directly with the potentiality of the centre. Physical barriers and discontinuation of settlements are the main constraints of the zone of influence. But specialised functions have greater zone of influence. But specialised functions have greater zone of influences.

In the Upazila headquarters, major government services have their zone of influences over whole of the Upazila region. Social functions like hospital, colleges, sports, stadium etc. may have greater zone of influences even spreading beyond the territorial boundaries of the Upazila region.

The zone within the commuting distance of Upazila Headquarters may be called the catchment area of the Upazila headquarters. The information and data collected during socio-economic survey from the Upazila headquarters and surroundings have been analysed and described in the preceding chapter on socio-economic condition of the study area. Here, we shall throw some light on socio-economic analysis.

On verification of physical facilities and commuting distances the mauzas shown in the table have been included in the catchment area. For details of area, population of 1961, 1974 and 1981, the table No.15 may be seen.

5.2 Definition of Shahar Area.

To prepare the land use/master plan for Gabtali Upazila Shahar in order to serve as locational guidelines indicating places of work, residence and to facilitate public and private developments at the Upazila centre through physical planning approach, around the Upazila headquarters. The survey map was analysed very carefully and found that almost all the non-agricultural functions have been located around the Upazila headquarters. There are scattered settlements around the Upazila headquarters. For details of area and population have been shown in the table 16.

TABLE-14 : CATCHMENT AREA WITH ACRES/HECTARES AND POPULATION

Mouzas	Total Area		Area Involved		Population involved		
	Acre	Hectare	Acre	Hectares	1961	1974	1981
Joybhoga	715	290	190	77	589	400	868
Gordaha	438	177	168	68	335	618	819
Meru	521	211	346	140	195	370	377
Pancha Katuli	350	142	350	142	1343	1757	2027
Sagatia	670	271	670	271	1838	2576	2998
Chack Mala	79	32	79	32	262	355	383
Mashundi	668	271	668	271	730	2385	2999
Telihata	205	83	205	83	1684	843	636
Kismatsithupur	428	173	428	173	817	936	1136
Hamidpur	875	354	605	245	1313	1666	1724
Chakla	268	109	143	58	402	483	616
Haparia	184	75	184	75	374	469	541
Chak Kathuli	532	215	432	215	941	1360	1444
Madhya-Kuthuli	701	384	701	284	1463	1918	2276
Mendipur	251	102	251	102	987	771	1226
Bahadurpur	390	158	390	158	744	1006	1171
Baiotoha	258	104	258	104	740	934	1097
Naruamala	267	108	267	108	481	570	727
Prathamarchheo	542	219	470	190	1387	2077	2510
Sondabari	470	190	470	190	1387	2077	2510
Chak-Bochai	218	88	218	88	418	610	695
Padmapara	336	136	336	136	1002	1407	1665
Baikhan	198	80	198	80	364	425	635
Sartaz	246	100	246	825	100	1012	1464
Chak Sadu	170	69	170	69	591	867	1021
Dourail	195	79	195	79	422	538	664
Khidraperi	678	275	678	275	630	972	1321

Mouzas	Total area		Area Involved		Population Involved		
	Acre	Hectare	Acre	Hectare	1961	1974	1981
Unchurki	1063	431	878	356	1496	2258	3044
Beguni	1025	415	1025	415	2236	3990	4475
Rahimapara	358	145	358	145	411	533	614
Akondapara	276	112	276	112	807	1103	1179
Dhonajoy	1157	469	1157	469	2472	3213	3839
Nepaltali	909	368	909	368	2461	3292	4066
Buruz	862	349	862	349	1969	2571	2967
Jathalida	596	241	596	241	1271	1666	1976
Kadamtali	792	321	792	321	1652	2102	2616
NizKafta	850	344	850	344	1922	2537	3012
Kismatkakara	157	64	157	64	137	164	202
Ghak Radhika	302	122	302	122	590	751	875
Sukun Pukur	236	96	236	96	618	747	931
Parkakra	394	160	394	160	968	1327	1528
Nasererpara	90	36	90	36	237	359	448
Momenhata	206	83	206	83	279	426	485
Donar	1083	439	1083	439	2246	2510	3 417
Chalk Bhonar	285	115	285	115	533	800	971
Total :	21493	8705	19772	8008	43844	59751	72195

Source : Population census report of Bogra district 1961, 74, and 81
BBS, Govt. of Bangladesh.

TABLE-15 : POPULATION OF STUDY AREA.

Name of Mouzas	Total Area		Area Involved		Population Involved		
	Acre	Hectare	Acre	Hectare	1961	1974	1981
Gabtali	299	121	299	121	1156	1638	2187
Jaybhoga	715	290	500	203	1225	1925	2125
Gordaha	438	177	270	109	1025	1320	1408
Meru	521	211	175	71	520	630	720
Unchurki	2062	430	240	97	800	970	1050
Hamidpur	874	354	270	109	825	1240	1680
Chakla	268	109	125	51	405	602	720
Total :	4177	1692	1879	761	5956	8325	9890

Source : Population Census report of Bogra District, 1961, 74 & 81.
BBS, Govt. of Bangladesh.

5.3 Existing Land use : Facilities and Utilisation Characteristics.

The land use survey reveals that table-17 constitute about 1879.00 acres or 761.0 hectares of land showing different land use characteristics. The survey indicates that a large portion of the study area is under agricultural activity. The detail of land use categories have been described in table No.17 and the following sub-paragraph.

5.3.1 Commerce

There is a market centre in the Upazila shahar study area. It covers 15.0 acres of land. It is located in the mauza of Gabtali on the both side of Bogra Gabtali road. Many mills have been set up in an unplanned manner in the market centre of the upazila shahar area.

5.3.2 Industry.

There are 2 saw mills which are situated in Gabtali mauza, 2 rice husking mills one is situated at Joybhoga mauza and the other is situated at Umchurki mauza in the Upazila shahar area. It covers an area of about 4.00 acre of land.

5.3.3 Educational Institutions

There is one college ,one girls high school,two primary schools in Joybhoga mauza,there is one madrasa which is situated at Chakla mauza,there is one secondary school one primary school which is situated at Gabtali mauza. It covers an area of about 15.50 acres of land (0.82%) of total land uses.

5.3.4 Health Facilities.

There is one health complex and one charitable dispensary comprises about 6.00 acres of land about (0.32%) which is located at Gabtali mauza.

5.3.5 Administration.

There is one Upazila complex,one police station,one Upazila Court which is situated at Gabtali mauza, constituted a total land of about 11.00 acres (0.59%).

TABLE-16

EXISTING LAND USE PATTERNS IN THE STUDY AREA, 1989 Area in acres(Hectare)

Functions	Name of Mauzas in the study area						Total	Percentage
	Gabtal	Joybhoga	Gordaha	Unchurki	Neru	Hamidpur		
Commerce	12.00	3.00	-	-	-	-	15.00 (6.08)	0.80
Industry	3.00	1.00	-	-	-	-	4.00 (1.62)	0.21
Health	6.00	-	-	-	-	-	6.00 (2.43)	0.32
Administration	10.00	1.00	-	-	-	-	11.00 (4.46)	0.59
Recreation	4.5	-	-	-	-	-	4.50 (1.82)	0.24
Socio-Cultural	3.50	-	-	-	-	-	3.50 (1.42)	0.19
Education	5.5	10.0	-	-	-	-	15.50 (6.28)	0.82
Residential	35.00	40.00	45.00	25.00	10.00	10.00	180.00 (72.90)	9.58
Urban Services	7.2	1.5	-	-	-	-	8.7 (3.52)	0.46
Water bodies	3.0	8.0	12.00	6.5	-	10.00	46.50 (18.83)	2.47
Roads	16.00	12.00	8.00	7.00	4.00	6.50	64.00 (25.92)	3.41
Agriculture/ Forestry	193.30	423.50	205.00	201.50	161.00	243.50	1520.30 (615.72)	80.91
Grand Total :	299.00	500.00	270.00	240.00	175.00	270.00	125.00 1879.00	100.00

Source : Field Survey - September, 1989.

5.3.6 Socio-Cultural.

One graveyard, three mosques and one club is situated in Gabtali, Joybhoga and chakla mauzas with 3.5 acres of land (0.10%).

5.3.7 Recreation.

It covers about 4.50 acres of land about (0.24%). There is only one playground in the study plan area which is located at Joybhoga mouza in the college boundary.

5.3.8 Urban services.

There is one post office in Gabtali mauza, one PDB Office and one T&T office at Joybhoga mauza which covers an area of about 8.7 acres or 3.52 hectares (0.46%) of the total land uses.

5.3.9 Residential.

Residential use of land covering 190. acres . It constitutes about 14.90 percent land uses of the total uses. A large majority of this land contains traditional housing with concentric pattern of settlement. But in the Upazila shahar there are some modern designed house. There are 35.00 acres in Gabtali, 40.00 acres in Joybhoga, 45.00 acres in Gabtali, 25.00 acres in Unchurki, 10.00 acres in Hamidpur and 15.00 acres in chakla mauza (Table-16).

5.3.10 Water Bodies.

The water bodies cover an area of 46.50 acres (2.47%) of the total land. In this case only canals and tanks/Ponds are counted. It is situated at Gabtali.

5.3.11 Roads.

It covers about 64.00 acres of land (3.41%). In Gabtali mauza there are 16.00 acres of land, in Joybhoga 12.00 acres, in Gordaha 8.00 acres, in Urchurki 7.00 acres, in Meru 4.00 acres, in Hamidpur 6.50 acres and in chakla about 10.50 acres of land are found.

5.3.12 Agriculture/Forestry.

Major portion of the Upazila shahar study area is under agricultural activity. It covers about 1420 acres of land, 75.59% of the total area. The area is potential for growth of rice. It is surplus rice productive area.

5.4 Physical Opportunities and Constraints.

5.4.1 Land Tenure.

The land tenure system in greater Bogra is similar to that of almost whole of Bangladesh. The land revenue system introduced by the British rulers was again reinforced after partition of India subcontinent in 1947. By a legislation known as the East Bengal Estate Acquisition and Tenancy Act, 1950 all proprietary rights of the middlemen that is the zamindars and other subleases were abolished and agricultural tenants were given permanent, heritable and transferable rights in their hands. They were entitled to use the land

in any way they liked. They were to pay rent direct to the government. Thus direct relation was established between government and the people. In the process, the tillers of the soil became its real proprietors.

An amendments have been made recently by the present government that land use for dwelling units are not transferable. The Govt. of Bangladesh has also distributed 3 acres of khas land to the landless cultivators.

5.4.2 Land Value.

As per report of the survey, the value of land in and around the Upazila headquarters has greatly increased due to the upgradation of Upazila.

At present the value of an acre of residential land ranges from Tk.10,00,000.00 to 12,00,000.00. The value of fertile agricultural lands varies between Tk.2,25,000.00 to 3,00,000.00. The value of medium agricultural lands ranges from Tk.70,000.00 to 90,000.00 only.

5.4.3 Land Suitable for Building.

Buildable land is rare in and around the Upazila headquarters. The land on the north and south side of Bogra - Gabtali road where the Upazila complex and police station are located is buildable. On the east and west side of Gabtali-Sariakandi road the land is suitable for construction where the market, high school and other institutions are located in Jaybhoga Mauza.

5.4.4 Land to Reserve for Agriculture and Other Specific uses.

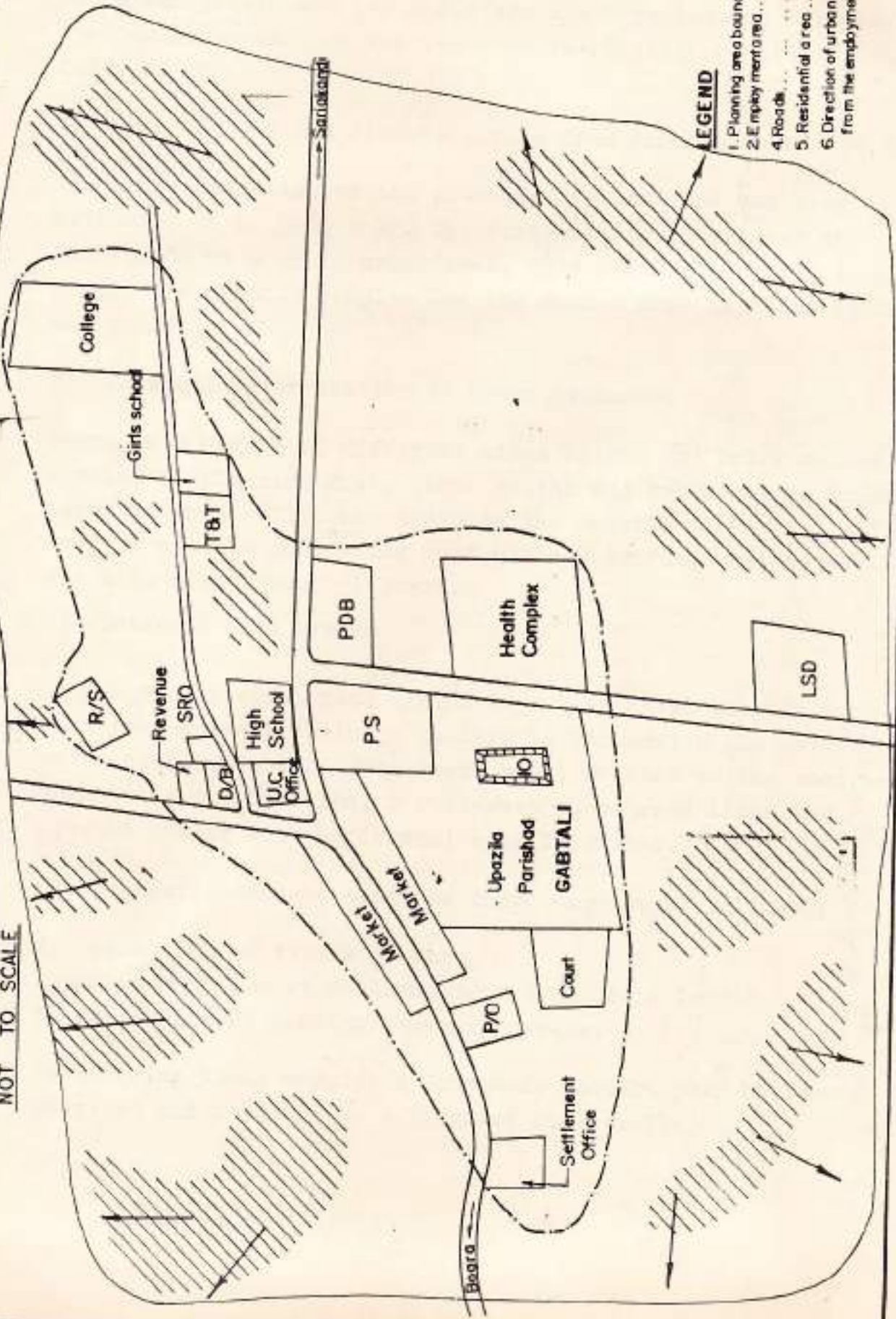
As stated in the Preceding paragraph, the agricultural lands on the west and north west of the Upazila headquarters are fertile and they should be kept reserved for the current use.

Almost all the lands are agricultural flat plain land and comparatively sweetable for construction purposes.

SCHEMATIC CONCEPT PLAN

NOT TO SCALE

GABTALI UPAZILA SHAHAR



LEGEND

1. Planning area boundary
2. Employment area
3. Residential area
4. Roads
5. Direction of urban growth from the employment area

5.4.5 A Schematic Concept Plan

The urban growth and its structure are dependent on the size of the design population and local socio-physical condition as follows:

A) Urban Growth and Size Resulting from Population Growth

The base population of the planning area in 1981 has been estimated to be 9890 only. The forecasts would suggest the Upazila to be a small urban area. This area is expected to grow around the upazila complex and the market area in Mouza Gabtali and chakai.

B) Physical Determination of Urban Expansion

There is a number of different sizes kutchha and brick soling road within the planning area. These kutchha and brick soling roads make the area will connected with the upazila shahar and sariakandi by upazila connecting road which ultimately joints the high way with zila shahar of Bogra.

C) Internal Road system

So far the internal road system have been developing in such a way that the man-made drainage pattern is linked with the natural water courses. Gabtali Sariakandi road, a brick soling road, is connecting the Upazilas. A east-west pucca road links the upazila shahar with Sariakandi upazila shahar.

The schematic concept plan has three aspects as follows :

1. Direction of future growth
2. Concentration of employment/central/civic zone
3. Expansion of housing/community areas.

Considering these aspects a Schematic concept plan has been prepared and attached as a Diagram(Diagram-I).

CHAPTER - SIX : FORECASTS

6.1 POPULATION, HOUSEHOLD STRUCTURE, DENSITY

6.1.1 Within Sphere of Influence/Catchment Area :

A. Population :

The sphere of influence/catchment area of Gabtali Upazila Shahar is identified and includes mauzas in full or part covering an area of 19772 acres (8008 hectares). Total population of the catchment area was 72195 persons, 1981. Table 18 shows high, medium and low population projection of the catchment area for the years 1985, 1990, 1995 and 2,000 A.D.

TABLE-18 : HIGH, MEDIUM AND LOW POPULATION PROJECTION OF THE CATCHMENT AREA, 1985-200 .

Year	Projections			
	High	Medium	Low	
	Pop.1974	Pop.1981	Pop.1961	Pop. 1974
	Growth Rate= 2.74		Growth Rate= 2.52	
			Growth Rate= 2.41	
1985	80439	79752	79410	
1990	92080	90320	89451	
1995	105405	102289	100762	
2000	205405	115843	113504	

Source : Figures for 1961, 1974, 1981 are quoted from 1961, 1974 and 1981 government census publication.

Note : Population of 1981 Census is considered as base year.

B. Density of Population

The density levels in the catchment area is considered to be number of persons per acre/hectare over the different plan periods. The level of population is shown in the following table-19.

TABLE-19 : POPULATION DENSITY FORECASTS IN THE CATCHMENT AREA (MEDIUM PROJECTION).

Aspects	1985	1990	1995	2000
Population	79752	90320	102289	115843
Density-Per Acre	4.03	4.57	5.17	5.86
Per Hectare	9.95	11.28	12.76	14.47

Note : Area is determined by field survey.

C. HOUSEHOLD STRUCTURE :

Household structures have been expressed in term of household size. The forecasted household sizes over the different plan periods are as follows

TABLE-20 : HOUSEHOLD SIZE FORECASTS IN THE CATCHMENT AREA
(MEDIUM PROJECTION)

Aspects	Year			
	1985	1990	1995	2000
Projected Population	79752	90320	102289	115843
Household Size	5.1	5.0	4.7	4.2
Member of Household	15638	180.64	217.64	27582

Note : The base year of household size 5.0 as considered in 1981.

6.1.2 Within Shahar Area :

A. Population :

In Table-21 Population of the Upazila Shahar on high, medium and low projection over different plan periods are presented.

TABLE-21 : HIGH, MEDIUM AND LOW POPULATION PROJECTS
IN THE SHAHAR AREA.

Year	Projections					
	Low		Medium		High	
	Pop. 1974	Pop. 1981	Pop. 1961	Pop. 1981	Pop. 1961	Pop. 1974
	Growth Rate=2.49		Growth Rate=2.59		Growth Rate= 2.61	
1981	9890		9890		9890	
1985	10912		10955		10964	
1990	12340		12449		12471	
1995	13955		14147		14186	
2000	15781		16076		16137	

Source : Figures of 1961, 1974 and 1981 are quoted from Census Documents of 1961, 1974 and 1981.

Note : Population of 1981 is considered as base population.

B. Population Density :

The consequent levels of population in the Upazila Shahar Area will likely be as follows (Table-22) :

TABLE-22 : POPULATION DENSITY FORECASTS IN THE SHAHAR AREA (MEDIUM PROJECTION)

Aspects	Year			
	1985	1990	1995	2000
Projected Population	10955	12449	14147	16076
Shahar Area				
- Acres	1879	1879	1879	1879
- Hecates	761	761	761	761
Density				
- Per Acre	5.83	6.63	7.53	8.56
- Per Hectare	14.40	16.37	18.59	21.14

Note : The area within the Upazila Shahar/Paurashava is determined by field survey.

C. Household Structure :

The forecasted household sizes and number of households are likely to be as shown in Table-23.

TABLE-23 : HOUSEHOLD STRUCTURE FORCASTS IN THE SHAHAR AREA.

Aspects	Year			
	1985	1990	1995	2000
Projected Population	10955	12449	14147	16076
Household Size	5.1	4.6	4.2	3.1
Number of Households	2148	2706	3368	5186

6.1.3 Migration Aspects :

There is not enough statistical information on the migration aspects at the Upazila levels. However, the migration aspects have to be considered in terms of population growth in the Zila context, future economic development prospects in Zila and Upazila levels and population policy of the government. In view of absence of adequate information, elaboration of the aspects in this plan are not possible.

6.2 LABOUR FORCE AND EMPLOYMENT

It is described in the previous Chapter Two.

6.3 LAND REQUIREMENT PROVISION STANDARDS

Land requirements of the Upazila Shahar are determined on the basis of

- Population growth on Upazila Shahar as forecasted for Upazila Shahar Area and Catchment Area.
- Spatial consequences of government's administrative decentralization at Upazila level.
- Local natural features/conditions: Problem and opportunities.
- Availability of existing services and facilities.
- Circulation system of Upazila Shahar.

The standard provisions as noted in the TOR of Urban Development Directorate are generally followed in allocating land for different uses.

The estimated land requirements for different uses in the Upazila Shahar Area are presented in Table-24 :

TABLE-24: LAND REQUIREMENTS OF THE UPAZILA SHAHAR, 1985-2000.

Classification of uses	Provision standard	Existing land		Land requirement according to TOR		According to plan provision	
		Acre	Hectare	Acre	Hectare	Acre	Hectare
1	2	3	4	5	6	7	8
1. Commerce -Shops/Markets (Shahar popn + Catchment area)	1.5 acres/ 1,000 popn.	15.00	6.08	197.88	80.14	30.00	12.15
2. Industry (Shahar popn + Catchment area)	-Do-	4.00	1.62	197.88	80.14	25.00	10.12
3. Education :		15.50	6.28	111.64	45.09	28.00	11.34
-Primary Schools (Shahar popn). 5000 Popn.	2 acres/ 5000 Popn.	3.50	1.42	6.43	2.60	5.00	2.02
-Secondary Schools (Catchment Area+ Shahar Popn).	5 acres/ 20,000 popn.	4.00	1.62	32.97	13.35	8.00	3.24
-College (Catchment + Shahar popn).	5 acres/ 20,000 popn.	6.00	2.43	32.97	13.35	8.00	3.24
-Vocational Centre	5-10 acres per Upazila.	-	-	6.00	2.43	2.00	0.81
-Others(Madrasha) (catchment +S.Popn)	5 acres/ 20,000 popn.	2.00	0.81	32.97	13.35	5.00	2.02
4. Health (Catchment + Shahar popn).		6.00	2.43	36.19	14.66	10.00	4.05
-Dispensary/ Maternity/ Childcare (Shahar popn).	1 acre/ 5,000 popn.	-	-	3.22	1.30	2.00	0.81
-Health Complex/ Hospital	5 acres/ 20,000 Popn.	6.00	2.43	32.97	13.35	8.00	3.24
5. Administration/ Judiciary	12 acres/ Upazila Shahar	11.00	4.46	12.00	4.86	12.00	4.86
6. Recreation : (Catchment Area +Shahar popn.)		4.50	1.82	155.01	62.78	17.00	6.89
parks	1 acre/ 1,000 popn.	-	-	131.92	53.43	5.00	2.02
-Cinema	0.5 acre/ 20,000 popn.	0.50	0.20	3.30	1.34	2.00	0.81
-Stadium/ play field	3 acres/20,000 popn.	4.00	1.62	19.79	8.01	10.00	4.50

1	2	3	4	5	6	7	8
7.	Socio-Cultural : Catchment Area+ Shahar popn.)	3.50	1.42	69.96	28.33	13.00	5.26
	-Community Centre (Shahar popn).	1 acre/ 20,000 popn.	-	0.80	0.32	1.00	0.41
	-Religious Facilities	0.5 acre/0.50 5,000 popn.	0.20	1.61	0.65	2.00	0.81
	-Public Library	0.5 acre/ 5,000 popn.	-	1.61	0.65	2.00	0.81
	-Cemetery/ Graveyard	5 acres 20,000 popn.	2.00	0.81	32.97	13.35	6.00
	-Edgah	5 acres/ 20,000 popn.	1.00	.405	32.97	13.35	2.00
8.	Urban Services : (Catchment area + Shahar popn).	8.70	3.52	39.60	16.04	15.00	6.07
	- Post Office	0.5 acre/ 20,000 popn.	2.00	0.81	3.30	1.34	3.00
	- Telephone Exchange	0.5 acre/ 20,000 popn.	2.00	0.81	3.30	1.34	3.00
	- Bus Terminal	1 acres/ 20,000 popn.	1.00	0.405	6.60	2.67	2.00
	- Fire Station	"	-	-	6.60	2.67	1.00
	- Water supply	"	3.70	1.49	6.60	2.67	4.00
	- Electricity supply	"	-	-	6.60	2.67	1.00
	- Petrol Pump	"	-	-	6.60	2.67	1.00
9.	Roads (including local roads)	8% of total proposed land	64.00	25.92	150.32	60.88	150.00
10.	Residential : (Shahar popn)	60 persons per acre	180.00	72.90	279.93	113.37	272.00
	- General	—	180.00	72.90	267.93	108.51	260.00
	- Housing Estate	—	-	-	12.00	4.86	12.00

1	2	3	4	5	6	7	8
11.	Urban Deferred 10% of built up area	-	-	187.90	76.10	46.00	18.63
12.	Cattle or poultry 10 acres/ Farm Upazila	-	-	10.00	4.05	10.00	4.05
13.	Water Bodies (Reserve)	46.50	18.83	46.50	18.83	46.50	18.83
14.	Agriculture/ Forestry	1420.30	575.22	384.49	155.72	1204.50	487.81
TOTAL :		1879.00	761.00	1879.00	761.00	1879.00	761.00

7.0 APPROACH, CONCEPT, PLANNING PRINCIPLES :

7.1 Approach :

The planning approach has been adopted in pursuance of government's decision to develop the Upazila Shahar. The present land use/Master plan would guide the Upazila Shahar Authority to prepare detailed plans and to control development. Recommendations have been made in accordance with legal and administrative matters.

7.2 Concept :

Before actually drawing up the plan, land requirements have been assumed on the basis of (a) design population and (b) overall urban service requirements for the population of Upazila Shahar and the population of the sphere of influence. The regional transportation network specially road networks, Shaharwise services like administration, other offices, market, etc. are located along the main road where land prices would be high.

7.3 Planning Principles :

The urban area is visualized in terms of central area, residential areas and recreation areas which have been integrated into a structure. Gird-iron pattern has been favoured with a mix of concentric overlay. For residential areas a maximum number of 5,000 population, who require at least one primary school, has been considered to be an urban neighbourhood. In order to ensure minimum cost, land acquisition except for road has been limited. Existing social facilities have been proposed to be augmented. Five year phased development of new facilities and upgradation of existing facilities are described in Table-25.

7.31 Land Use Criteria:

A total of 1879 acres of land has been identified for the township of Gabtali Upazila by the year 2000. According to the plan provision about 14.48 percent of land is proposed to be utilized for housing purpose. For commercial and industrial purposes a ratio of 0.80 and 0.80 land respectively has been earmarked. Educational institutions by 2000 will need about 1.49 percent land. In health sector, dispensary, maternity clinic, hospital and health

centre, etc., will be established and expanded and land requirement for these facilities will tend to be around 0.53 per cent. With the expansion of township, more administrative set up will be required to be built up. For that adequate provision of 0.64% land has been kept. The small township of (Gabtali) of today will grow as a model one for which necessary provision of parks, cinema hall, stadium, open space, etc. has been made on 17.00 acres 0.90%. In a sprawling township socio-cultural side cannot be ignored and community centre, cemetery, religious facilities have to be created to meet the basic needs of the town dwellers. This will be taken care of with a provision of 0.69% of land. The other important sector is road for which considerable provision (7.98%) has been provided in the land use plan with the growth of township. The question of its security comes in the forefront and the Upazila has to maintain security personnel like police, VDP, Ansar, Fire-men, etc. and land use plan has also allocated sufficient land for their housing as well as activities. The Land use/master plan has practically visualised all the relevant activities of a modern town but still there might be more urgent need in future. To address this need about 2.45% of land has been kept as reserve/urban deferred. Each category of proposed land use is described below :

7.4 PLAN DESCRIPTION AND PHASED GROWTH

A scenario of land use/master plan by 2000 at Gabtali Upazila Shahar has been summarised at Table-25. The land use plan as described in the earlier chapter is not proposed to be materialised without studying the pros and cons of such plan. A careful growth model has been used to arrive at this growth by 2000. The growth has been phased out at three distinct period. The first phase will run through 1985-90. The second phase will cover the period from July 1990 to June 1995 while the terminal phase has been taken for the remaining period upto June 2000. Among other considerations population growth model has been the prime influential factor for land use plan. There are three population projections. Medium projection has been considered to be most acceptable one and based on this projection our land use/master plan has finally been evolved. In our medium projection the population will increase from the existing to over 12449 by 1990 and another 1698 will be added by 1995 which will reach about 16076 by the year 2000. This trend in population growth has been the basis of our land use/master plan. Each category of proposed land use is described in brief, below :

TABLE-25 : LAND USES IN THE PLAN
(ACCORDING TO PLAN PROVISION)

Sl No	Categories of land uses	Existing Area		Proposed Area		Percentage
		Acres	Hectares	Acres	Hectares	
1.	Commerce	15.00	6.08	30.00	12.15	1.60
2.	Industry	4.00	1.62	25.00	10.12	1.33
3.	Education:	15.50	6.28	28.00	11.34	1.49
	-Primary	3.50	1.42	5.00	2.03	0.27
	-Secondary	4.00	1.62	8.00	3.24	0.43
	-College	6.00	2.43	3.00	3.24	0.43
	-Others	2.00	0.81	7.00	2.84	0.37
4.	Health	6.00	2.43	10.00	4.05	0.53
5.	Administration/ Judiciary	11.00	4.46	12.00	4.96	0.64
6.	Recreation	4.50	1.82	17.00	6.89	0.90
7.	Socio-cultural	3.50	1.42	13.00	5.26	0.69
8.	Urban Services	8.70	3.52	15.00	6.07	0.80
9.	Roads	64.00	25.92	150.00	60.75	7.98
10.	Residential	180.00	72.90	272.00	110.16	14.48
11.	Urban Deferred	-	-	46.00	18.63	2.45
12.	Water Bodies (Reserve)	46.50	18.83	46.50	18.83	2.47
13.	Agriculture/ Poultry and Cattle Farm.	-	-	10.00	4.05	0.53
14.	Agriculture/ Forestry	1420.30	575.22	1204.50	487.82	64.10
TOTAL		1879.00	761.00	1879.00	761.00	100.00

1. Commerce:

With the increase of population commercial activities will increase and for this activities additional land requirement will be limited to 30.00 acres and that will also be met in phased manner.

2. Industry:

With the increase of population industrial activities will increase. For this purpose an additional land requirement will be limited to 25.00 acres and that will also be met in phased manner.

3. Education:

Physical planning for establishment of educational institution has been viewed on the ground that within a limited space a considerable number of students will need to be accommodated and from an area of 15.50 acres it will increase to 28.00 acres by 2000.

4. Health:

More clinic and dispensaries are expected to be established by 2000 and there will be a need for 10.00 acres land to create such facilities. The growth from existing to 1995 will be normal but from the next phase the growth will gain momentum in this sector.

5. Administration/Judiciary:

The total need of infrastructural facilities will be fully met by 1990 and this will be maintained in 2nd and 3rd phases.

6. Recreational:

Among the recreational facilities park, open space, cinema hall, stadium get prominence. By 1990 all these facilities will be created on 20.00 acres, These facilities will, however, be expanded and modernised in subsequent period with an earmarked area of 17.10 acres by 2000. A fullfledged stadium/play ground on about 10.00 acres of land is proposed to be completed by 2000. The cinema hall will not need much space and an area of 2.00 acres has been set-aside to establish it including provision for expansion. With the growth of the Shahar necessity of adequate open space and park will be felt to facilitate breathing space for the dwellers and an area of 5.00 acres is proposed to be

allocated at the rate of 1000 persons per acre. Like other land use planning, all recreational facilities will be created in phases.

7. Socio-cultural:

Under socio-cultural facilities necessary provisions for community centre 1.00 acre, cemetery/graveyard 6.00 acres, public library 2.00 acres, other religious facilities 2.00 acres and an area of 13.00 acres of land has been kept for plan provision upto the year 2000 A.D.

8. Urban Services:

Gabtali Upazila Shahar will continue to remain a small township in the foreseeable future. Like other big urban town it will not get all urban character even by 2000 A.D. So the proposed urban services will be limited to provide telephone exchange, post offices, etc. and for these services initially 10.00 acres of land will be necessary which will be increased to 15.00 acres by 2000. However, one thing can not be all together ruled out that with passages of time there may be need for more urban services. Adequate thought has been given to this aspect and under urban deferred necessary provision has been made to meet such situation.

9. Roads:

Road becomes an important aspect in any township. In a planned town every household should be linked with road connection. The land use/master plan has, therefore, made adequate provision for building roads and in order of priority it is being closely equated with housing sector 7.98 percent of land of the Shahar has been set aside for road against 14.48 per cent in case of housing accommodation. The town plan should basically start with road building and other activities should oscillate around the roads. Construction of roads should be completed within the first phase on 150.00 acres of land including existing and in subsequent phases these roads land should be maintained.

10. Housing/Residential:

As indicated earlier housing or residential purpose will consume lion's share of the total land area of Gabtali Upazila Shahar. About two-third of the earmarked land for housing will be required by the end of first phase and in the remaining phases

over 272.00 acres will be needed to give minimum housing facilities to the projected population of Shahar. The land use will not unnecessarily intend to block land from the very beginning of special planning rather it will go by phase so that the unutilized land may be gainfully utilized elsewhere.

11. Urban Deferred:

Over 2.45 per cent of the land of the proposed township area will be reserved for future requirement. Many unforeseen requirement may crop up in future dates to meet such situation 2.45 per cent reserved land seems reasonable. But due care has been given so that no lopsided construction takes place on the deferred areas.

12. Water Bodies:

During the physical survey in the area it was found that an area of 46.50 acres remained under different water bodies namely, tanks, ponds, khals etc. which will continue to remain as water bodies even by the year 2000. These water bodies though not being utilized for physical infrastructure but accruing immense benefits to the town dwellers and it was, therefore, decided to keep the area unchanged.

13. Agriculture/Poultry and cattle farm:

About 10.00 acres of land has been proposed for this purpose in the Upazila Shahar area upto 2000 A.D. which Covers 0.53 percent.

14. Agriculture/Forestry:

Agriculture is a primary occupation and it is quite incompatiable with township. Agriculture should be preactised outside the town area. Since, Gabtali Upazila shahar did not grow in a modern concept, agriculture existed side by side with urbanisation. Agriculture occupied more than 1420.30 acres of land in the Upazila Shahar area. The agricultural land will decline to about 1377.50 acres by 1990. This will further decrease to 1271.50 acres by 1995. By the terminal year, the size of agricultural land will be limited to 1204.50 acres. Demand for poultry and dairy products will continue to increase with increase of urbanisation. Hence, necessary provision has been made to establish poultry and dairy farming in the vicinity of Upazila Shahar.

The above mentioned land uses have been proposed on the basis of existing sites and areas and maximum lands in accordance with the increase of population. All services would grow in this proportion.

8.1 PRIORITY ACTIONS, COST IMPLICATIONS

The present land use plan has been thought out of the considerations of growth points within the newly recognized zila region. The thrust of development activities that are assumed to be occurring within the zila till the end of the present century, will determine the growth of the Upazila Shahar. The land use/master plan is a guideline for the orderly development of the Upazila Shahar depending on the size of design population and not obviously an instrument to bring about to the level of larger of places in the country till the end of the present century. The local Govt. Administrative Reorganisation Ordinance 1982 has brought about this thrust of development by implications. There are 17 functions enumerated in the second schedule. Some of these relate to generation of non-agricultural activities and employment at the Upazila Shahar. In the continuum of urban places, Gabtal Upazila Shahar is probably at the lower level. The level of township should be considered a potential place in the next 10 to 15 years considering urbanization as a mechanism to the improvement of the quality of life. The rice and rabi crops ^{resources} in this part, the Bangladesh will probably provide an impetus to the growth. The sectoral development priorities are assumed to be as follows consequent upon the discussion below :

- 8.1.1 Drainage channels within the Upazila Shahar are to be maintained and implementation of such activities should be given priority.
- 8.1.2 The low-lying areas within the shahar area are to be developed in such a way that there is a trade off between costs of development and income in the long run.
- 8.1.3 Investments for the Upazila Shahar should be made in such a way that achievements would generate associated developments. Such basic developments have been proposed in terms of commercial developments and small scale industries utilising resources of the Upazila. The design of physical and social infrastructure has been made cost effective on the basis of assumed growth of tax base with the increase of population.

8.2 PHASING, URBAN DEFERRED

The plan should be implemented in phased at an interval of 5 years upto 2000 A.D. which should be related to the national 5- year development plans. The following table shows the phasing of development activities according to the plan.

TABLE-26: PHASING OF INFRASTRUCTURE DEVELOPMENT 1985-2000 A.D.

Sector	1st phase		2nd Phase		3rd phase		Percentage (3rd phase)
	1985-90		1990-95		1995-2000		
	Acres	Hectares	Acres	Hectares	Acres	Hectares	
1. Commerce	18.00	7.29	25.00	10.12	30.00	12.15	1.60
2. Industry	10.00	4.05	15.00	6.08	25.00	10.12	1.33
3. Education	20.00	8.10	24.00	9.72	28.00	11.34	1.49
4. Health	8.00	3.24	10.00	4.05	10.00	4.05	0.53
5. Admin/Judiciary	8.00	3.24	10.00	4.05	12.00	4.86	0.64
6. Recreation	10.00	4.05	15.00	6.08	17.00	6.89	0.90
7. Socio-cultural	10.00	4.05	12.00	4.86	13.00	5.26	0.69
8. Urban Services	10.00	4.05	12.00	4.86	15.00	6.07	7.98
9. Road	120.00	48.60	140.00	56.70	150.00	60.75	7.98
10. Housing/ Residential	235.00	95.18	242.00	98.01	272.00	110.16	14.48
11. Urban Deferred	46.00	18.63	46.00	18.63	46.00	18.63	2.45
12. Water Bodies (Reserve)	46.50	18.85	46.50	18.85	46.50	18.83	2.47
13. Agriculture/ poultry and Cattle Farm	10.00	4.05	10.00	4.05	10.00	4.05	0.53
14. Agriculture/ Forestry	1327.50	537.64	1271.50	514.96	1204.50	487.82	64.10
TOTAL	1879.00	761.00	1879.00	761.00	1879.00	761.00	100.00

8.3 DEVELOPMENT CONTROL

All development should be subject to planning control including all changes of use of existing buildings and the changes of use of land not involving the erection of buildings. It will be necessary to define the uses that will normally be permitted in the various zones. Building giving rise to special siting problems, such as petrol filling stations, cinema and hotels will require special condition.

Additional matters which should be subject to planning control, such as, height of buildings, site coverage, density of houses per acre, preservation of trees, realisation of fees and taxes etc. should be adequately setout in an appropriate planning regulation for Upazila Shahar area.

It is desirable that planning control, in accordance with the land use plan, should be exercised as soon as the draft plan has been prepared, delay in the exercise of control might result in some proposals being endangered.

But, at present there is no planning regulation to exercise the control on the development at the Upazila centre. The provision of the "Municipal Ordinance" is applicable only for the declared Municipalities and the "Town Improvement Act 1953" is applicable for Rajdhani Unnayan Kartipakha.

Hence, we suggest that an appropriate planning regulation for all urban centres and potential urban centres should be framed as soon as possible. In the meantime the provisions of the "Municipal Ordinance" may be extended temporarily for development control at the Upazila centre and the Upazila Engineer should act as the "Authorised Officer" as the provision of "Building Construction Act" for giving planning permission in the Upazila Shahar area.

8.4 MONITORING AND REVIEW

The present land use plan is a broad guide line for the development of Gabtali Upazilla Shahar. The Proposal of the Plan are evolved on the basis of existing conditions, and the expected trend in growth and their future projections and estimates. Any significant change in any of the basic criteria may make it necessary to revise some of the proposals embedded in the plan. Hence the plan should be periodically reviewed.

It is suggested that the progress in the implementation of the proposals of the plan or any change or deviation from the plan should be monitored once in a year by the Upazila Parishad should also seek advice from Urban Development Directorate in case of difficulty in the implementation of the plan.

On the basis of the monitoring of the progress, Urban Development Directorate should review the plan once in a year and make revision incorporating the change and modifications in the plan. The revised plan should be sent to the Upazila Parishad Office every year. But this process is likely to be cumbersome and the consuming, moreover, town planning is a profession in its own right, and hence, we recommend that a qualified Urban Planner should be appointed to take charge in each of the Upazila to guide, control and implement the planning and development activities, to act as "Authorised Officer" and to monitor and review the land use/Master plan of the Upazila Shahar area.