

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

**LANDUSE PLAN
SARIAKANDI UPAZILA SHAHAR
BOGRA ZILA**

APRIL 1988

পরিচালক
বগুড়া উচ্চব পরিদপ্তর,
মেদুন বাণিজ্য, ঢাকা।

বিষয় :- কৃষি বিভাগ পরিকল্পনা সচেতনত্বক বিলুপ্ত বিবেচিত
হওয়া প্রস্তরে।

অন্বয়,

আপনার মনুর হইতে বি কলকাতাটি এন্ড প্রান্তি-কে মেওয়া কৃষি বিভাগ
পরিকল্পনা প্রস্তরে আমজা বিবেচনা করিত্ব দেখিয়ুছি। উহা আবশ্যে উপ-জেলা উচ্চব এবং
জন সচেতনত্বক বিলুপ্ত বিবেচিত হইয়াছে।

বিবেচিত
—৩৩২/১২—

উপ-জেলা চেষ্টাপ্রয়োজনীয় ।
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REPORT - IV

LANDUSE PLAN
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Table of Contents

Chapter - I

INTRODUCTION

1.1	Background of the project	1
1.2	Methodology adopted for the project	2

Chapter - II

THE UPAZILA IN ITS ZILA CONTEXT

2.1	Location and Physical Characteristics of the Upazila	6
2.2	Population and Settlement Distribution	7
2.3	Economic performance and transportation linkage	12
2.4	Social Infrastructure	20
2.5	Current Development Projects	20
2.6	Hierarchy of Settlement	29

Chapter - III

THE UPAZILA HEADQUARTERS

3.1	Sphere of Influence/Attractiveness	33
3.2	Definition of Upazila Shahar Area	33
3.3	Existing Landuse, Facilities and Utilization Characteristics	35
3.4	Physical Opportunities and Constraints	46

Chapter - IV

FORECASTS

4.1	Population, Household structure and Density	50
4.2	Labour Force and Employment	52
4.3	Estimates on Migration	55
4.4	Design Population	55
4.5	Provision Standards and Land Requirements	55

Chapter - V

LANDUSE PLAN

5.1	Approach, Concept, Planning Principles	60
5.2	Plan Description	61

Chapter - VI

PROGRAMMING AND IMPLEMENTATION

6.1	Priority Action, Cost Implication	67
6.2	Phasing, Urban Deferred	68
6.3	Development Control	70
6.4	Monitoring and Reviewing	70

APPENDICES

List of Tables

2-1	Area, population change and density of population in Sariakandi Upazila compared to other Upazilas of Bogra Zila	8
2-2	Number of Unions, Mouzas and Villages in different Upazilas of Zila Bogra	9
2-3	Union-wise distribution of population within the Upazila Sariakandi	11
2-4	In migration and Out migration	12
2-5	Gross District products at current prices in greater Bogra Zila	13
2-6	Economic performance : Crop production, 1981-82	15
2-7	Economic performance : Livestock and Poultry, 1982	16
2-8	Industrial development in the Upazila compared with other Upazilas/Zila	17
2-9	Economically active population according to population census 1961, 1974 and 1981 in Bogra Zila	18
2-10	Average daily Wage rates of selected industrial labourers in Upazilas and Zila	19
2-11	Length of pucca, semi-pucca and kutcha roads 1982	21
2-12	Number of railway and bus stoppage 1982	21
2-13	Number of buses, trucks, auto-rickshaw and rickshaws, bullock carts and country boats	22
2-14	Transport mode and linkage points of Zila and Upazila	23
2-15	Number of Hats, Bazars and Tubewells in the Upazila	24
2-16	Health and Family Planning Units, 1982	25
2-17	Physical services and facilities, 1982	26
2-18	Current Development Projects, 1985-86 of Sariakandi Upazila	27
2-19	Hierarchy of Settlements by concentration of population	30
2-20	Hierarchy of Settlement in terms of Service concentration	31
3-1	Detailed of Sphere of Influence(Catchment Area) of Sariakandi Upazila	34
3-2	Detailed of Study Area, Sariakandi Upazila, 1986	36

3-3	Existing landuse in the Study Area	38
3-4	Administrative, Govt. and Autonomous body	39
3-5	Educational landuse	39
3-6	Health facilities	41
3-7	Socio-cultural landuse	41
3-8	Water body	41
3-9	Landuse by roads	42
3-10	Urban Services	42
3-11	Industrial landuses	45
3-12	Commercial landuses	45
3-13	Land value in the Upazila Shahar, 1986	45
4-1	High, medium and low projections in the Sphere of Influence of the Upazila Shahar Sariakandi, 1985-2000	51
4-2	Density of population against medium range projection in the Sphere of Influence, Upazila Shahar Sariakandi	52
4-3	Household size on medium population projection in the Sphere of Influence, Upazila Shahar Sariakandi	53
4-4	High, medium and low projection of resident population of the Upazila Shahar (Study Area) Sariakandi, 1985-2000	53
4-5	Household size on medium population projection in the Upazila Shahar Sariakandi	54
4-6	Density of population against medium range projection in the Sariakandi Upazila Shahar	54
4-7	Forecasting of labour force of Zila, 1985-2000 (medium range projection 1961-81, growth rate 2.46% of active population)	56
4-8	Distribution of migrant labour in the Zila Bogra, Upazila Sariakandi and other Upazilas, 1985-2000	57
4-9	Distribution of migrant labour in the Sariakandi Upazila, 1985-2000	57
4-10	Total projected population of Upazila Shahar Sariakandi, 1985-2000	58
4-11	Design population for housing and services of Sariakandi Upazila Shahar, 1985-2000	58
5-1	Proposed Landuses, 1985-2000	65
6-1	Phases of development, 1985-2000	69

Chapter - I

INTRODUCTION

This Final report on the preparation of Landuse Plan of the Upazila Shahar Sarikandi(Zila Bogra)is submitted in accordance with the Agreement signed between the Urban Development Directorate and B.Consultants & Planners, on August 10,1986.

1.1 Background of the project

The Government considering the present socio-economic condition prevailing in Bangladesh, recently took the decision of Administrative re-organization. The Upazila has been recognized as the most significant tier of the administration. So each Upazila centre will be the focal point of all Upazila level administrative activities. It will plan and develop all social, economic and infrastructural upliftment of the Upazila Region. This also reflects the National Policy of bringing development administration and service facilities to the door step of the rural masses and to ensure better delivery of governmental services to the people.

Project objectives

The TOR mentions the following objectives of the landuse plan of the Upazila Shahars :

- To improve the quality of life in the rural areas.
- To serve as locational and spatial guidelines of landuses.
- To facilitate public and private development through physical planning.
- To serve as a technical backup for planned growth of human settlements.
- To enhance capability of physical planning in future urban growth.

- Detailed Landuse Plan of the Upazila Shahar to help formulation of spatial setting of urban activities with certain design standards.

Scope of services

The study will cover the following major aspects related to the preparation of Landuse Plan of the Upazila Shahar :

- Determination of the Study Area for Survey and data collection.
- Detailed existing Landuse Survey.
- Collection of socio-economic and demographic information.
- Analysis and compilation of the data and information to forecast future population and land requirements for various services and facilities.
- Detailed plan for development of Township.
- Provision of development plan for economic activities and investment facilities.
- Development of framework and strategy for management and control with institutional arrangement for effective implementation of the plan.

1.2 Methodology adopted for the project

A flow chart of activity in Diagram-1 illustrates different stages of work. The specific methodology for different project works are discussed below :

Collection of information from Secondary sources

Relevant maps e.g. Upazila maps, Mouza maps, Countour maps and useful literature such as Census Reports, District Gazetters etc. were collected for a thorough study of the project.

Field survey

Field survey included a wide range of data collection. The survey was carried out by the groups of professionally trained experts, investigators and surveyors. One team performed the socio-economic survey and the other landuse survey of the Upazila Shahar. The questionnaires and checklists used in the survey are given in the Appendices.

Socio-economic Survey

Socio-economic survey was carried out through household questionnaire survey, catchment area survey, hierarchy of settlements survey and interviews with some selected persons from Government Officials and private individuals at Upazila level.

Household Questionnaire Survey

A 10% sample of the total households in each mouza included in the Study Area was considered for household questionnaire (Appendix-1) Survey. The Study Area was determined during the reconnaissance survey. Samples of the household were proportionately distributed on income and occupation groups in all the mouzas of the Study Area.

Catchment Area Survey

To determine the zone of influence of the catchment area of the Upazila Shahar, interviews with local knowledgeable persons and the users of services like market, health, education, transport, administration etc. were undertaken. On the basis of these interviews and field observation on existing transportation network and distribution of sub-centres/growth points, the Catchment Area or the Zone of Influence of the Shahar is determined.

Hierarchy of Settlements Survey

To identify a hierarchy of settlements in the Upazila, mouza-wise population and services / facilities were listed using a structured format (Appendix-II). Population of mouzas in the Census Year 1981 and the concentration of services and facilities were considered to determine the hierarchy of settlements in the Upazila.

Interviews

Interviews with relevant persons were useful to gather various information related to the preparation of landuse plan and for a cross-check of the collected data through other surveys. This also helped to conceptualize the various issues in respect of landuse plan of the Upazila Shahar.

Landuse Survey of the Upazila Shahar

Landuse survey was conducted in the Study area of the Shahar identified during the reconnaissance survey. The mouza map of scale 1"=330' was used in the survey to plot the existing landuses. Boundary and layout of different categories of landuses were recorded on the map.

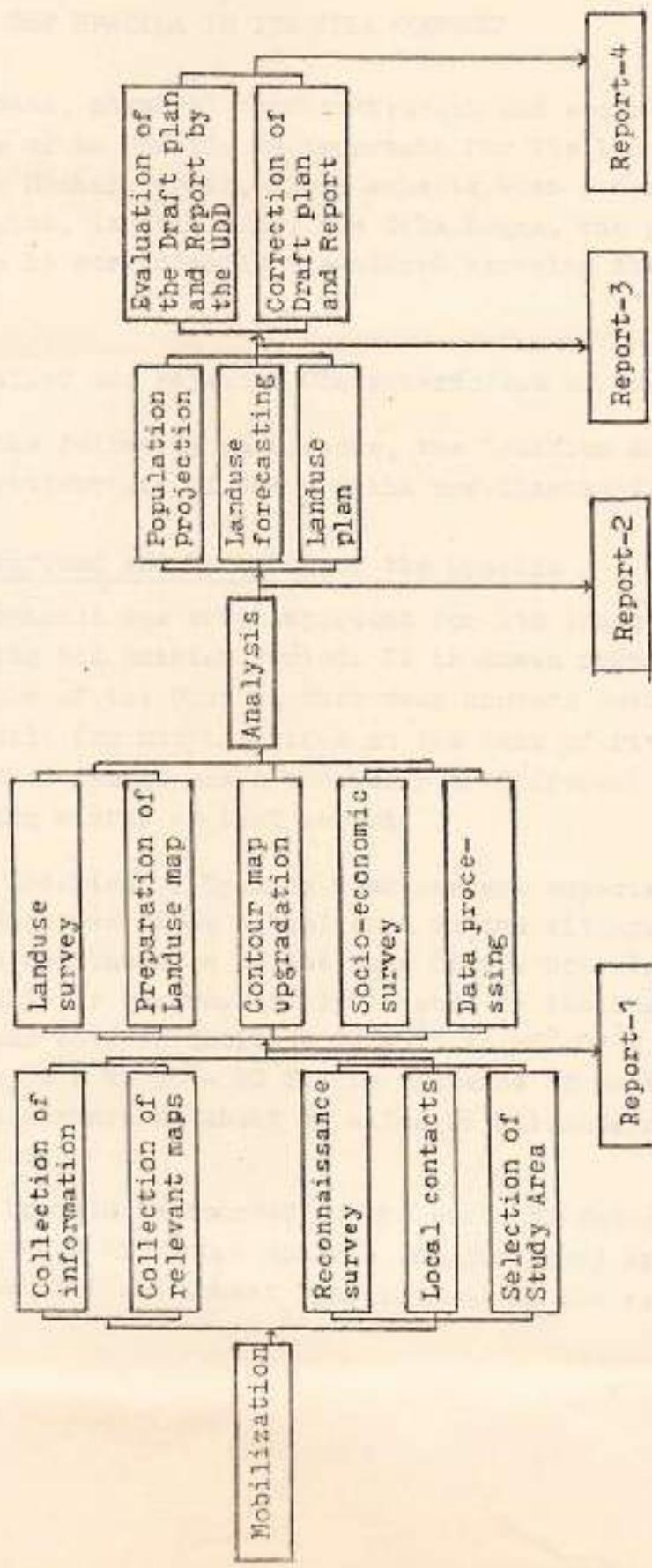
Survey of the Town Service Centre

The Town Service Centre(Core Area) of the Upazila Shahar was surveyed using the contour map of Bangladesh Water Development Board. This map was upgraded noting all changes from the previous one and naming all existing man made structures and physical features.

Data processing and analysis

The data and information collected through field surveys have been processed manually and in most cases presented in tabular and graphical forms. The required maps for the project have been developed using the relevant information.

Diagram - 1
FLOW CHART OF ACTIVITY



Chapter II
THE UPAZILA IN ITS ZILA CONTEXT

The background, physical characteristics and socio-economic performance of an Upazila is important for the Landuse Plan of the Upazila Shahar. Again, these aspects when compared with its broader region, in this case, the Zila Bogra, the position of the Upazila is more clearly visualized exposing the necessity of its Shahar.

2.1 Location and Physical Characteristics of the Upazila

In the following paragraphs, the location and physical characteristics of the Upazila are discussed.

Background and Location of the Upazila

Sariakandi was once important for its indigo factory during the British Period. It is known from the local people of the Upazila that many hunters used to visit this Upazila for hunting birds on the bank of river Jamuna. This part of Jamuna was a sanctuary of different kinds of birds during winter at that period.

The location of Upazila Headquarters especially the Police Station was first established in the village Sariakandi. This continued to be the name of the Upazila. Sariakandi Upazila is geographically located on the East of Bogra Zila Shahar between Latitude $24^{\circ}45'N$ to $25^{\circ}-03'N$ and Longitude $89^{\circ}-32'E$ to $89^{\circ}-40'E$. The distance of Sariakandi Upazila Headquarters is about 16 miles(26 kilometers) from Bogra Shahar.

The Upazila is bounded on the north by Gaibandha Zila , on the south by Dhunat Upazila and Sirajganj Zila, on the west by Gabtali and Dhunat Upazilas and on the east by Jamalpur

Zila. Map - 1 shows the location of the Upazila in the context of the Zila Bogra.

Physical characteristics

The general topography of the Zila Bogra is flat. The river Jamuna flows on the east of the Zila. The eastern part of the Zila is low lying with sandy soil and the major parts of the area are inundated during the rainy season.

The Upazila Sariakandi is comparatively low-lying area compared to its adjoining other Upazilas of the Zila. Almost the whole Upazila is subject to monsoon floods and the areas on the bank of Jamuna are subject to serious erosion. The Upazila Shahar area is also under the threat of erosion.

The Zila Bogra lies just on the north of the Tropic of Cancer. The characteristic features of the climate in this part and the Upazila Sariakandi are mild and equable temperature, high humidity and plentiful rainfall.

2.2 Population and Settlement Distribution

The population and settlement distribution within the Zila and Upazila are discussed in the following paragraphs.

Within the Zila

According to 1981 population census, the total population in Bogra Zila was 2108616 of which 1074232 males, and 1034384 females. The density of population was 1871 persons per square miles (722 persons per square kilometre).

Table 2-1 shows that the increase of population in 1981 over 1974 is 22.36% against 21.80% for the country. Again the increase of population of the Zila in 1974 over 1961 is 34.32%. The table also shows the Upazila wise distribution of population within the Zila.

Table 2-1
Area, population change and density of population in Sarishandi
District compared to other Upazilas of Bogra District

Upazila/District	Area sq. miles	Population		1951 population per sq. miles	Density per sq. miles	Variation % 1951-54	1974 population per sq. miles	Density per sq. miles	Variation % 1951-74	
		1951	1974							
Ganekandi	135	347	14975	1105	14.60	201378	1492	34.99	176725	
Upazila										
Sherpur Upazila	115	295	87801	763	28.69	134220	1167	52.87	172236	
Zunai	"	244	116759	1229	28.34	168783	1777	44.56	206455	
Honiogram	"	103	265	58319	566	22.83	87802	852	50.56	172428
Kundighi	"	170	14264	2186	15.38	106865	1619	(-) 25.90	152590	
Dupachuri	"	63	162	67358	1059	17.36	96807	1533	43.42	117778
Kahaloo	"	93	239	82732	899	19.92	117584	1264	42.03	141298
Bogra										
Zadar	"	157	403	232645	1482	26.21	339066	2160	47.74	439613
Gabtali	"	93	259	192539	806	82.47	259938	2796	35.03	221852
Gantola	"	85	218	-	-	27.12	-	-	-	135798
Shibgarh	"	122	314	151394	1241	27.12	210964	1729	39.35	251722
Gair	"	1427	2896	1282967	1138	23.15	1723262	1529	34.32	2106616
Total										1671
										22.36
										18.69
										20.03
										27.33
										21.49
										27.43
										0

Source: Bangladesh Bureau of Statistics, Bogra district

Statistics, 1983

The Upazila wise distribution of unions, mouzas and villages within the Zila are shown in Table 2-2.

Table 2-2 Number of Unions, Mouzas and Villages in different Upazilas of Zila Bogra.

Upazila / Zila	Unions	Mouzas	Villages
Adamdighi	7	114	214
Dupchachia	6	115	232
Kahaloo	9	116	276
Bogra Sadar	21	262	352
Gabtali	10	116	212
Sonatala	6	81	-
Sibganj	12	245	468
Sariakandi	13	134	199
Sherpur	10	225	322
Dhunat	10	91	206
Nondigram	5	235	212
Bogra Zila	109	1784	2695

Source : Bangladesh Bureau of Statistics, Bogra District Statistics, 1983.

Within the Upazila

Table 2-1 shows that in 1981 the total population of Sariakandi Upazila was 176726, out of which 90471 males and 86255 females. In 1974 the population of Sariakandi was 201378. The percentage variation of population between 1974 and 1981 was 12.24% while the increase of population between the period 1961 and 1981 was 18.47%. The density of population is 1309 persons per square mile(511 persons per square kilometre)which is much less than the National average density of population (1566 persons per square mile or 612 persons per square kilometre). Table 2-3 shows the union wise distribution of population within the Upazila.

AGE- SEX PYRAMID

SARIKANDI UPAZILA

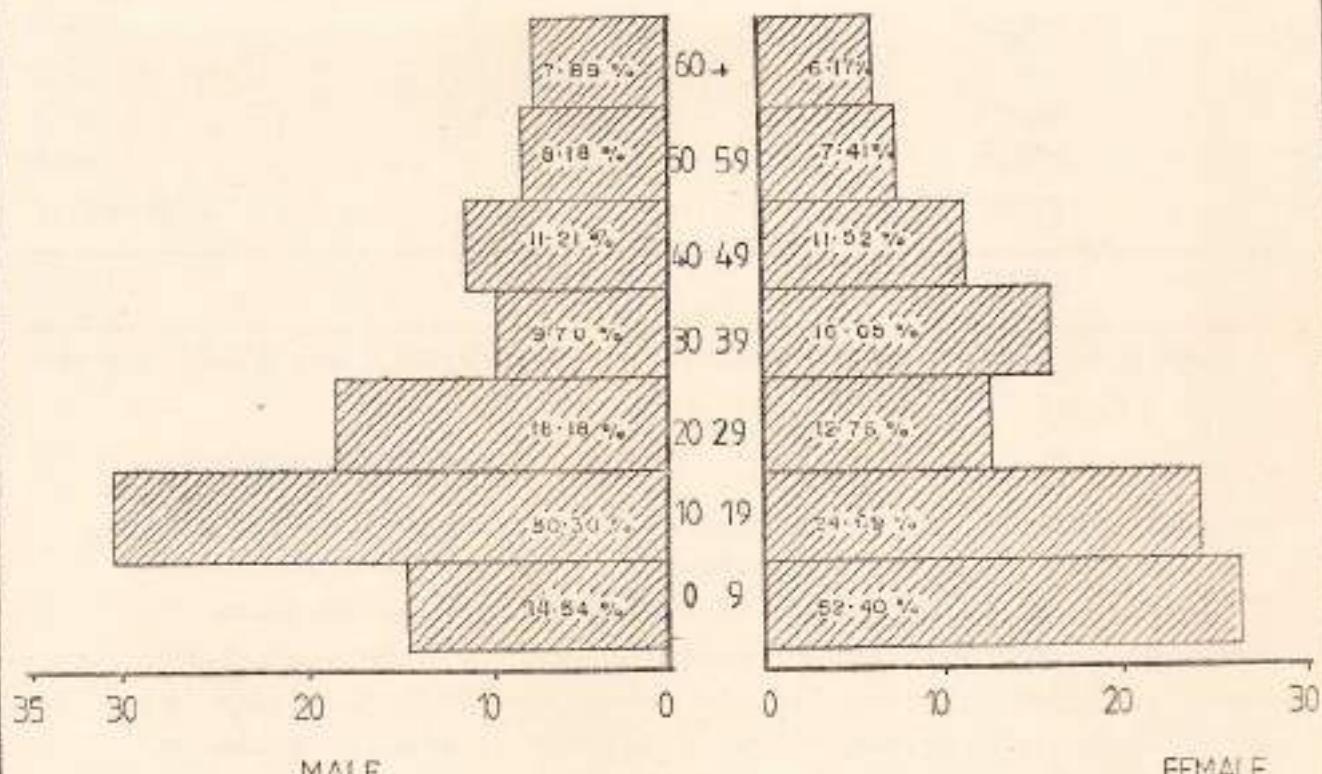


Table 2-3 Union-wise distribution of population within the Upazila Sariakandi.

Name of Unions	Number of Households	Number of Population
Bhala Bari	2055	11530
Bohail	2910	15034
Chandan Baisha	2741	14510
Fulbari	3976	21474
Hat Sherpur	2750	14601
Kamalpur	3851	20062
Kazla	2048	10963
Kornibari	3349	16802
Kutubpur	3385	18150
Marchi	2788	13791
Sariakandi	3722	19809
Total	33575	176726

Source : Bangladesh Bureau of Statistics, Union Statistics, 1983.

Migration Pattern

Table 2-4 presents the data on both in and out-migration in the context of the Zila. According to the Bangladesh Bureau of Statistics, the net life time migration of the Greater Bogra Zila was (-) 11577 counted in the Census Year 1961, out of which (-) 8960 were males and (-) 2617 females. The corresponding figures in 1974 were 37518 in-migrants and 54006 out migrants. The net migration of the Census Year 1974 were (-) 16488, of which (-) 10816 were males and (-) 5672 females. The probable reason behind negative migration was -

- i) Out migration of Hindus to India;
- ii) Out migration of inhabitant by the process of river erosion;
- iii) Out migration of rich and educated people to other urban centres or areas within the country.

Table 2-4 In migration and Out migration of Bogra Zila.

Sex	Migration							
	1961			1974				
	Life time in- migration	Life time out- migration	Life time net migration	Life time in- migration	Life time out- migration	Life time net migration	Life time in- migration	Life time out- migration
Male	21479	30439	(-) 8960	14375	15191	(-) 10816		
Female	28727	31344	(-) 2617	23143	28815	(-) 5672		
Total	50206	61783	(-) 11577	37518	54006	(-) 16488		

Note : (-) indicates net out-migration from the Zila.

Source : Bangladesh Bureau of Statistics, Statistical Year Book, 1982.

2.3 Economic performance and transportation linkage

In the following paragraphs, the aspects of economic performance and transportation linkages in the Upazila Sariakandi compared with the Zila Bogra are discussed.

Economic performance

The performance of the Upazila in agricultural and non-agricultural sectors are discussed below. Also, the gross district products over different years are presented which shows the trend of economic growth in the broader region, i.e. the Zila Bogra.

Gross District Products :

Table 2-5 presents information on gross district products in the Zila Bogra. It shows that there is an increasing trend in almost all sectors of economy. This also indicates that the Upazila Sariakandi might also have experienced similar situation. But this may not be

Table 2-5
Gross District Products at current prices
in greater Bogra Zila

(Figures in million Taka)

Sectors	1977-78	1978-79	1979-80	1980-81	1981-82
1. Agriculture:	2692	3158	3211	3907	4234
i) Crops	2331	2706	2676	3387	3617
ii) Forestry	7	9	9	11	12
iii) Livestock	254	343	425	407	493
iv) Fishery	100	100	101	102	112
2. Mining and quarrying	-	-	-	134	149
3. Industry:	108	93	113	95	105
i) Large scale	82	66	80	39	44
ii) Small scale	26	27	33	-	-
4. Construction	194	309	298	418	590
5. Power, gas, water and sanitary services	11	12	12	14	16
6. Transport, storage and communication	193	216	245	403	489
7. Trade services	400	490	542	594	654
8. Housing services	269	350	411	466	516
9. Public administration defence	108	111	132	253	294
10. Banking and Insurance	45	66	91	120	122
11. Professional and miscellaneous services	263	343	453	545	667
12. G.D.P. at current market prices	4283	5148	5508	6854	7681
Indirect tax, net of subsidies	223	276	323	419	430
G.D.P. at current factor cost	4060	4872	5187	6435	7251
Population (in million)	2.60	2.65	2.74	2.80	2.85
Per capita G.D.P. at factor cost (Taka)	1562	1838	1892	2298	2544

Source: Bogra District Statistics 1983.

the fact as the Upazila is seriously a flood affected area subject to river erosion.

Performance in the agricultural sector :

The economy of the Upazila Sariakandi mainly depend on agriculture. In Tables 2-6 and 2-7, information on the production performance of the Upazila Sariakandi in major agricultural crops and livestock and poultry are shown.

Performance in the Industrial sector :

Table 2-8 presents information on industrial performance of the Upazila Sariakandi. It shows that the Upazila has a minimum level of industrial development. It's industrial development mainly include the handlooms.

Table 2-6
Economic Performance: Crop production, 1981-82

Production in manure in manure	Zila Bogra	Bogra District Share									
1. Rice (1980-81)	11234351 (100)	1126370 (9.68)	935981 (7.12)	892725 (7.18)	927995 (7.60)	1705650 (6.33)	1757159 (14.54)	-	906057 (14.97)	-	1013535 (0.63)
2. Wheat (%)	1139551 (100)	213253 (18.71)	211944 (18.59)	2729 (0.42)	35757 (3.42)	39126 (3.43)	172216 (15.11)	222494 (19.52)	-	126977 (11.14)	70690 (0.89)
3. Jute Bales (%)	750235 (100)	32995 (4.39)	198445 (19.25)	2925 (0.39)	2055 (0.27)	1855 (0.25)	106210 (14.16)	123555 (16.35)	-	154610 (21.27)	210 75
4. Sugarcane Bundles (%)	2411496 (100)	33840 (1.40)	58750 (2.44)	-	4810 (0.19)	31200 (1.29)	156000 (6.47)	239953 (24.82)	-	132050 (5.46)	-
5. Potato Bundles (%)	201259 (100)	405688 (22.10)	42858 (2.13)	53724 (2.64)	81957 (4.06)	64004 (3.17)	290745 (29.30)	160441 (8.94)	-	28630 (4.69)	24220 (1.45)
6. Pulses Bundles (%)	30217 (100)	3508 (1.49)	249 (0.82)	258 (0.65)	-	666 (2.26)	3134 (10.37)	3570 (12.80)	-	10379 (34.35)	91 (0.50)
7. Spices Bundles(%) (%)	196259 (100)	123191 (6.85)	25647 (13.08)	1952 (1.00)	602 (3.11)	6602 (3.45)	37957 (39.36)	63100 (2.18)	-	22055 (11.25)	2788 (1.42)

Fig. 1 parentheses indicate percentage.

Source: Bogra District Statistics 1983.

Table 2-7
Economic prevalence: Livestock and poultry, 1982

Categories	Egg	Uttara Nepal	Uttara Sherpur	Uttara Sarlahandi	Uttara Adamshing	Uttara Dip- tachhi	Uttara Rishalch	Uttara Beldih Sadar	Uttara Gorkha	Uttara Sone- tola	Uttara Shib- gong	Uttara Phular
1. Cattle												
No.	624562	52298	80697	24205	56000	39217	152503	98710	48512	173542	52795	
%	(100)	(6.34)	(10.99)	(2.95)	(6.00)	(4.75)	(19.10)	(11.97)	(5.65)	(21.05)	(7.09)	
2. Buffaloe												
No.	12268	2397	1095	938	820	606	179	209	790	1306		
%	(100)	(19.54)	(8.92)	(7.64)	(6.52)	(4.94)	(1.46)	(3.70)	(6.96)	(6.11)	(10.66)	
3. Goat												
No.	447874	7152	52805	10912	22000	22624	86000	89256	50271	49744	42269	
%	(100)	(1.59)	(11.79)	(2.44)	(4.91)	(5.09)	(19.20)	(12.69)	(11.21)	(11.10)	(9.24)	
4. Sheep												
No.	43706	3395	6804	3790	5600	3735	2000	4840	2325	1963	6710	
%	(100)	(7.44)	(15.56)	(8.67)	(12.61)	(6.55)	(4.57)	(11.07)	(5.52)	(4.43)	(15.35)	
5. Chickens												
No.	230275	85976	258365	10338	125000	14373	163712	265902	180525	452608	211125	
%	(100)	(5.72)	(11.22)	(4.51)	(5.43)	(6.16)	(15.66)	(11.53)	(7.54)	(20.96)	(9.17)	
6. Duck												
No.	410565	35559	54608	11453	50000	28936	65000	42405	25205	42359	25482	
%	(100)	(8.18)	(15.30)	(2.91)	(12.10)	(7.05)	(15.63)	(10.32)	(6.14)	(10.32)	(6.21)	

Fig. in parentheses indicate percentage.

Source: Eggta District Statistics 1983.

Table 2-0 Industrial development in the Upazila compared
with other Upazilas / Zila.

	Sher-	Seria-	Adam-	Dupche-	Kaha-	Bogra-	Gab-	Sona-	Shin-	Dhaka-	Hindi-
	pur	kandi	dighi	chis	loo	Sadar	tali	tala	ganj	Elahat	Gram
1. Cottage Industry :											
Number of establishments	549	-	802	-	372	1378	694	-	941	876	447
Persons engaged(in total)	1630	-	2580	-	1133	4286	1952	-	2225	2085	1291
Production cost(in lac Tk.)	117	-	44.50	-	31.40	468.00	79.2	-	244.6	139.0	44.4
Sales value(in lac Tk.)	157.2	-	91.40	-	55.80	631.60	142.6	-	341.8	237.0	71.8
2. Handloom Industry :											
Number of establishments	380	150	1100	810	1700	2220	1600	250	1650	80	550
Persons engaged(in total)	250	560	630	620	750	900	690	140	750	250	310
Production (in yard)	27000	27000	90000	63000	140000	180000	5000	5000	15000	1000	10000

Source : Bougra District Statistics, 1983.

Employment situation

Information on employment situation at Upazila level is not available. Therefore, the information available with the Bangladesh Bureau of Statistics are used to have an overview of the employment situation in the Upazila. Table 2-9 shows that compared with Bangladesh, the percentage of economically active population over the years are gradually increasing. The rate of increase for female population has been higher than that of male population.

Table 2-9 Economically active population by Zila according to population census 1961, 1974 and 1981 in Bogra Zila.

	Economically active population(Fig. in thousand)									
	1961			1974			1981			Both sex
	Male	Female	Both sex	Male	Female	Both sex	Male	Female	Both sex	
Zila	457 (3.08)	10 (0.38)	467 (2.68)	598 (3.04)	23 (2.65)	621 (3.03)	721 (3.21)	37 (3.11)	758 (3.20)	
Bangla- desh	14802 (100)	2640 (100)	17443 (100)	19650 (100)	869 (100)	25519 (100)	22430 (100)	1189 (100)	23619 (100)	

Figure in parenthesis indicates percentage.

Source : Bangladesh Bureau of Statistics, Statistical Year Book, 1982, P.144, Table 4.2.

Income-Expenditure Pattern

Upazila level information on income-expenditure pattern of the population are not available. Therefore, information on daily wage rates of different occupation categories in the Zila has been considered as the basis of overviewing the situation on income - expenditure pattern in the Upazila.

Table 2-10 Average daily wage rates of selected industrial labourers in Upazila and Zila.

(Tk. per day)

Type of Labour		1977-78	1978-79	1979-80	1980-81	1981-82
Cotton Textile (Double sider)	Skilled	10.75	11.00	11.36	12.42	15.54
	Unskilled	9.85	10.06	10.09	10.17	11.50
Handloom (Weaver)	Skilled	12.00	12.53	15.00	15.00	15.36
	Unskilled	10.00	10.03	12.70	12.33	13.44
Bakery (Karigat)	Skilled	12.00	12.31	14.00	14.00	15.00
	Unskilled	10.00	10.58	10.58	12.00	12.18
Turner of a factory which manufactures or repairs	Skilled	12.92	13.88	14.73	15.00	16.44
	Unskilled	10.00	11.50	11.73	11.75	13.87
Oil Mill (Mustard) (Line man)	Skilled	10.25	11.23	12.75	13.15	16.44
	Unskilled	8.10	9.81	10.45	11.00	13.87
Sugar Mill (Panman)	Skilled	-	-	-	-	16.33
	Unskilled	-	-	-	-	12.33
Book Binder	Skilled	11.00	12.25	14.00	14.00	14.36
	Unskilled	8.50	10.77	11.09	10.25	11.25
Compositor in printing press	Skilled	11.78	12.14	13.50	13.75	16.45
	Unskilled	8.86	10.34	10.73	11.90	13.18

Source : Bogra District Statistics, 1983.

Transport linkages

In the Zila Bogra, train and bus services are the major inter district mode of transportation. In the early decades of the twentieth century, river and streams played important role in transportation and communication. The existing transport facilities of the Upazila compared with other Upazilas of the Zila are presented in Tables 2-11, 2-12 and 2-13.

The principal transportation mode and linkage points within Zila and Upazila are shown in Table 2-14.

2.4 Social Infrastructure

In Tables 2-15, 2-16 and 2-17 information on the existing social infrastructure of the Upazila are presented. These Tables present information on hats and bazars, health facilities and other urban services and community facilities.

2.5 Current Development Projects

The Upazila Authority with the grant of ADP (Annual Development Programme) undertakes different projects in various development sectors such as agriculture, irrigation, animal husbandry, education, transportation, communication, building construction, physical infrastructure, health and social welfare and small & cottage industry for the development of the Upazila. Besides these, there are some foreign organisations which also undertakes several projects for developing different infrastructure facilities of the Upazila. CARE, WFP are performing the construction and reconstruction works of roads against food for work programme. Table 2-18 shows the detail picture of Current Development Projects undertaken by (i) Upazila Parishad (ii) CARE and (iii) Food for Works Programme (WFP).

Table 2-11

Length of pucca, semi pucca and kutchha roads 1982

Zila/Upazila	Pucca		Semi pucca		Kutchha	
	Mile	KM	Mile	KM	Mile	KM
Bogra Zila	237	379	68	107	2678	4285
Sherpur Upazila	46	74	10	16	250	400
Sariskandi Upazila	7	11	2	3	222	355
Adamdighi Upazila	17	27	2	3	129	206
Dupchachis Upazila	15	34	7	11	153	245
Kechaloo Upazila	10	16	5	8	561	838
Bogra Sadar Upazila	90	144	23	37	482	771
Gantoli Upazila	14	22	2	3	211	328
Sonatola Upazila	-	-	-	-	-	-
Shibganj Upazila	30	48	9	-	261	418
Dhunat	-	-	5	-	35	56
Mondigram	8	-	3	-	287	459

Source : Bogra District Statistics 1983.

Table 2-12

Number of railway and bus stoppage 1982

Zila/Upazila	Rail station		Bus stoppage	
	No.	%	No.	%
Bogra Zila	13	100.00	33	100.00
Sherpur Upazila	-	-	4	12.12
Sariskandi Upazila	-	-	2	6.06
Adamdighi Upazila	4	30.77	5	15.15
Dupchachia Upazila	1	7.69	3	9.09
Kechaloo Upazila	2	15.38	2	6.06
Bogra Sadar Upazila	1	7.69	2	6.06
Gantoli	3	23.07	1	3.03
Sonatola	2	15.38	-	-
Shibganj	-	-	4	12.12
Dhunat	-	-	2	6.06
Mondigram	-	-	4	12.12

Source: Bangladesh Bureau of Statistics, Bogra District Statistics, 1983 P. 147, Table 7.09

Table 2-15

Number of buses, trucks, auto-rickshaw and Rickshaws,
bullock carts and country boats.

Zila/ Upazila	Bus	Truck	Auto- Rickshaw	Rickshaw	Country Boats	Bullock Carts
Bogra Zila	30 (100)	192 (100)	185 (100)	6604 (100)	526 (100)	12560 (100)
Sherpur Upazila	7 (2.26)	8 (4.17)	-	210 (3.18)	10 (1.74)	1200 (9.55)
Sariakandi Upazila	2 (0.64)	-	5 (2.70)	123 (1.86)	175 (30.38)	210 (2.47)
Adamdighi	7 (2.26)	13 (6.77)	10 (5.4)	475 (7.19)	30 (5.20)	960 (7.64)
Dupchachia	4 (1.29)	3 (1.56)	-	347 (5.24)	-	380 (3.03)
Kahaloo	-	-	4 (2.16)	200 (3.03)	5 (0.86)	1080 (7.96)
Bogra Sadar	250 (80.91)	160 (83.33)	131 (70.81)	4124 (62.44)	50 (8.68)	500 (3.98)
Gabtoli	8 (2.59)	-	8 (4.32)	600 (9.08)	85 (14.76)	300 (2.39)
Sonatola	3 (0.97)	3 (1.56)	2 (1.08)	300 (4.54)	150 (26.04)	400 (3.18)
Shibganj	2 (0.64)	5 (2.60)	25 (13.51)	175 (2.65)	10 (1.74)	260 (2.07)
Dhunet	12 (3.88)	-	-	13 (0.19)	50 (8.68)	2500 (19.90)
Nondigram	14 (4.52)	-	-	37 (0.56)	11 (1.91)	4750 (37.82)

Note : Figure in parentheses indicate percentage
 Source: Bogra District Statistics 1983.

Table 2-14 Transport mode and linkage points of Zila and Upazila.

Transportation	Principal linkages
1. Road transportation :	
- Pucca roads	
Sirajgonj - Rangpur road	Upazila Sherpur, Zila Shahar Bogra, Upazila Sibgonj and important places like Bogra Rajbari, Sherpur Tola Mosque.
Nongaon - Kazipur road	Upazila Shahar Adamdighi, Dupchachia, Kahaloo, Zila Shahar of Bogra Pourashava.
Natore - Joypurhat road	Upazila Shahar Mandigram, Zila Shahar Bogra, Upazila Shahar Gabtali, Zila Shahar Joypurhat and important place like Mohastangar(a historical place).
Sherpur - Sariskandi branch road	Upazila Sherpur, Zila Shahar Bogra, Upazila Gabtali and Upazila Sariskandi.
- Katcha Road	
2. Railway :	
Naogaon - Keunia	Connects Upazila centres Adamdighi, Dupchachia, Kahaloo, Gabtali and Zila Shahar Bogra.
3. Water way :	
Sirajgonj - Sibgonj	Connects Upazila Sherpur and Sibgonj, Zila Shahar Bogra.
Sirajgonj - Kaunia	Connects Upazila Dhunat and Sariskandi.

Source : Field Survey , September 1987.

Table 2-15

Number of Hats, Bazaars and Tubewells in the Upazila

Zila/ Upazila	Daily bazar		Weekly or bi-weekly hats		Tubewell for drinking water	
	No.	%	No.	%	No.	%
Bogra Zila	58	100.00	151	100.00	17860	100.00
Sherpur Upazila	2	3.45	11	7.28	2832	15.85
Sariskandi Upazila	7	12.07	19	12.58	2036	11.39
Adamdighi Upazila	6	10.34	10	6.62	2287	12.81
Dupchachia Upazila	4	6.89	13	8.60	771	4.32
Khalloo Upazila	1	1.72	20	13.25	995	5.58
Bogra Sadar Upazila	12	20.68	26	17.22	2521	14.11
Gatboli Upazila	10	17.24	19	12.58	1500	8.40
Sonatola Upazila	9	15.52	8	5.30	1050	5.88
Shibganj Upazila	3	5.17	7	4.64	1670	9.35
Hunat Upazila	2	3.45	6	3.97	1415	7.92
Nondigram Upazila	2	3.45	12	7.95	782	4.37

Source: Bogra District Statistics 1983.

Table 2-16

Health and Family Planning Units, 1982

Zila/ Upazila	Upazila health complex	Chari- table despen- saries		Mission Hospital		Other health centres		Family planning Units
		No.	Beds	No.	Beds	No.	Beds	
Bogra Zila	9 (100)	90 (100)	45 (100)	1 (100)	40 (100)	1 (100)	23 (100)	63 (100)
Sherpur Upazila	1 (11.11)	10 (11.11)	2 (4.44)	-	-	-	-	9 (14.29)
Saria- Kandi Upazila	1 (11.11)	10 (11.11)	4 (8.89)	-	-	-	-	10 (1.50)
Adam- dighi Upazila	1 (11.11)	10 (11.11)	5 (11.11)	-	-	1 (100)	3 (100)	6 (9.52)
Dupcha- chia	1 (11.11)	10 (11.11)	7 (2.22)	-	-	-	-	1 (1.59)
Khalloo	1 (11.11)	10 (11.11)	4 (8.89)	-	-	-	-	4 (6.35)
Bogra Sadar	-	-	7 (15.56)	1 (100)	40 (100)	-	-	11 (17.46)
Gobtoli	1 (11.11)	10 (11.11)	10 (22.22)	-	-	-	-	3 (12.69)
Sonatola	-	-	6 (15.33)	-	-	-	-	-
Shib- gonj	1 (11.11)	10 (11.11)	4 (8.89)	-	-	-	-	5 (7.93)
Dimuat	1 (11.11)	10 (11.11)	1 (2.22)	-	-	-	-	7
Nondi- gran	1 (11.11)	10 (11.11)	1 (2.22)	-	-	-	-	2 (3.17)

Note : Figure in parentheses indicate percentage

Source: Bogra District Statistics 1983.

Table 2-17

Physical services and facilities, 1982

Zila/ Upazila	Cinema hall no.	Regis- tered clubs No.	Public libraries No.	Dek- Bengali govt. other offices No.	All Elec- trifi- cation No.	Rural tele- graph village No.	Tele- graph Office	Post Office
Bogra	11	20	10	17	283	116	11	128
Zila	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
Sherpur	2	2	7	7	26	16	7	9
Upazila	(18.18)	(10.00)	(10.00)	(5.08)	(8.48)	(13.79)	(9.09)	(7.03)
Saria- Kandi	-	-	1	1	29	4	1	74
Upazila				(5.08)	(10.25)	(3.45)	(9.09)	(10.94)
Adam- sighi	2	4	6	2	47	10	1	9
	(10.10)	(20.00)	(60.00)	(11.76)	(16.61)	(8.62)	(3.09)	(7.03)
Dup- chachia	1	3	-	1	36	10	7	9
	(9.09)	(15.00)		(5.08)	(12.72)	(8.62)	(9.09)	(7.03)
Kanhaloo	-	-	-	7	26	4	1	72
				(5.08)	(9.19)	(3.45)	(9.09)	(9.09)
Bogra	6	9	1	5	-	53	1	22
Sadar	(54.55)	(45.00)	(10.00)	(29.41)		(45.68)	(9.09)	(17.19)
Gabtoli	-	-	-	-	23	2	1	75
					(8.13)	(1.72)	(9.09)	(11.72)
Sonatola	-	-	-	1	6	1	1	9
				(5.08)	(2.12)	(0.86)	(9.09)	(7.03)
Shibganj	-	-	1	2	32	23	1	16
			(10.00)	(11.76)	(11.31)	(11.21)	(9.09)	(12.5)
Dhunat	-	-	-	1	26	2	1	12
				(5.08)	(8.48)	(1.72)	(9.09)	(9.35)
Nondigram	-	1	-	2	22	1	1	1
		(5.00)		(11.76)	(7.77)	(0.86)	(9.09)	(0.78)

Note : Figure in parenthesis indicates percentage.

Source: Bogra District Statistics 1983.

Table 2-18 Current Development Projects, 1986-87
of Sariakandi Upazila

Sl. No.	Name of Sector and Schemes	Fund allocation in Tk.
	<u>Agriculture and Irrigation</u>	193350
	<u>Small & Cottage Industry</u>	195000
1.	Establishment of cottage industry at Koratitola, Pakulia, Bulbari, Bokua, Hindukandi, Baluhata and Ruteshpur.	
	<u>Transportation and Communication</u>	455000
1.	Construction of 15'-0" culvert at Nizbalail, 8'-0" culvert at Chaihata and 10'-0" culvert at Karibari	
	<u>Development of Housing and Physical Infrastructure</u>	231000
1.	Construction of Toilet at Narchi Matoda High school, Sariakandi mosque, Chandanbaisha mosque, Bhalua high school and at Upazila Parishad Public Library.	
2.	Construction of Hindukandi primary school.	
3.	Construction of Banguli Ferry ghat shed at Narchi union.	
	<u>Socio-economic Infrastructure</u>	151000
	<u>Health and Social Welfare</u>	337500
	<u>Sports and Culture</u>	72000

Source : Upazila Nirbahi Officer's office, Sariakandi,
September, 1986.

VPP 1986-87

Project No.	Name of Scheme	Project cost (Bheat mds.)
1. CAN/01	Construction of road cum embankment from Pakuria to Mithonerpara.	139.939 MT
2. CAN/02	Reconstruction of road from Kashiha to Chilapara road to Kutubpur to Sariakandi road near Bottola.	85.181 MT
3. CAN/03	Reconstruction of road from Radhakanapur to Nizehinkapur Ferry Chat.	111.391 MT

CIRE 1986-87

1. CARE/01	Reconstruction of road starting from Sariakandi to Bogra C.B road at Kuptola village to the last border of Sariakandi Upazila at Korodanga village.	3228 mds.
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PTW 1986-87

1. Genl./01	Reconstruction of road starting from Sariakandi Police station to Nizbelail village via Hindukandi, Deuli, Titporol & Ramchandrapur and Kurdra Bolial.	442.246 MT
2. Genl./02	Reconstruction of road from Sariakandi Bazar to Paikpara primary school.	51.379 MT

Source : Upazila Nirbahi Officer's office, Sariakandi,
September, 1986.

It is notable that the projects are distributed in different Union Parishads with a rational allocation of fund passed in the Upazila Parishad Meeting. This has, therefore, a spatial consequence to develop physical infrastructure and urban services in the Upazila in the near future.

2.6 Hierarchy of Settlements

Tables 2-19 and 2-20 show the hierarchy of settlements in terms of population growth over the Census Years and the ranges of services provided by the settlements to its population.

Table 2-19 shows that the smaller settlements with population upto 500 in hierarchy 1 have been gradually decreasing since 1961. Conversely, the number of settlements is increasing (column 1974) with population 500-1000, 1001-1500, 1501-2000, 2001-2500 and 2501-3000 and above, i.e., hierarchies 2,3,4,5 and 6.

In hierarchy 2,3,4 and 5 the number of settlements in 1981 have decreased, the probable reason behind it is the erosion of land by river Jamuna.

In the Table 2-20 the hierarchy of settlements within the Upazila are shown. It is found that Sariakandi mouza obtains the highest score 66 followed by Mouza Dhap which indicates that services are concentrated in the Upazila Headquarters at a higher level than other mouzas. The next important settlement is Chandanbaisa which is also an important rural market and education centre.

Map - 2 shows the location of important settlements in order of services provided by them i.e. their position in the hierarchy. It shows that these settlements are mainly located in the areas usually not affected by floods.

Table 2-19

Hierarchy of settlements by concentration of population

Hierarchy by popu- lation	1961 No.	1974 No.	Vari- ation %	1981 No.	Vari- ation %
Hierarchy-1 population 500	77	47	- 58.96	34	- 21.28
Hierarchy-2 Population 501-1000	32	43	25.58	15	- 65.12
Hierarchy-3 population 1001-1500	16	34	125.50	20	- 41.17
Hierarchy-4 Population 1501-2000	13	17	30.77	8	- 52.94
Hierarchy-5 Population 2001-2500	6	8	33.33	5	- 27.50
Hierarchy Population 2501-3000 and above	12	20	66.66	26	30.00
Total	156	169		108	

Source: Bangladesh Bureau of Statistics, Population Census, 1951, 1974 and 1981. Field Survey, September, 1986.

Note: Only the mouzas with population in different census years have been counted. It is notable that the number of settlements (mouzas) have been substantially decreased between 1961 and 1981. The erosion of river Jamuna is dominant in this area and it has taken away a number of mouzas.

Table 2-20

Hierarchy of Settlement in terms of service concentration.

Mouza	Population	Services with score										Total Score
		70	3	6	2	4	6	4	5	5	6	
Seriakandi	261010	6	2	4	6	4	5	5	4	2	2	31
Dhap	12511010						5	6	2	2	3	29
Banai para	150010						6		2	2	3	29
Kutubpur	425910						6		4	2	2	25
Dakshin-Joregacha	473810						6	4	4	2	2	20
Bulbari	1538420						2	4	4	4	2	40
Velabari	185710							4			2	15
Tanchumpur-pur	162510						4	4			2	25
Pakulla	356110						4	4			2	22
Nezobolali	362710						4	5	4	2	2	29
Donkandi	323710						6				2	18

Source : Field Survey, September 1956.

Note : a. Population above 10,000 carry 20 marks.

b. Population 5,000 to 10,000 carry 15 marks.

c. Population below 5,000 carry 10 marks.

Mouza	Population	Services with score										Total Score
		10	3	6	2	4	6	4	5	5	6	
Hat Sherput	3693	10										29
Narchi	9934	10										28
Kajla	2227	10										16
Aolakandi	7200	15										29
Bohalli	3920	10										14
Chondan- beisa	9693	10										36
Khordan- Kasulpur	7710	10										14
Hindukandi	1426	10										19
Huakua	2597	10										24

Source : Field Survey, September 1986.

Note : a. Population above 10,000 carry 20 marks.
 b. Population 5,000 to 10,000 carry 15 marks.
 c. Population below 5,000 carry 10 marks.

Chapter - III

THE UPAZILA HEADQUARTERS

For the landuse plan of the Seriakandi Upazila, information were collected on socio-economic and physical infrastructure and a detail landuse map was prepared. The survey was carried out tentatively for the Study Area. The information are presented in the following paragraphs.

3.1 Sphere of Influence / Attractiveness

Sphere of Influence is the immediate hinterland surrounding the Shahar Area within a distance of 2.5 to 3.0 miles. People from this area normally commute to take the advantages of various services of the Upazila Shahar. The Catchment Area of the Upazila Shahar is determined by the assessment of immediate hinterland which is likely to accord benefits from different services at the Upazila Shahar. The Sphere of Influence or the Catchment Area is shown in Map - 2. The Catchment Area of the Upazila Shahar is about 12450.51 acres (5040.69 hectares) and includes 15 Mousas. According to 1981 Census its population was 38903 which is 30.68 percent of total population of the Upazila.

3.2 Definition of Upazila Shahar Area

The Upazila Shahar includes the existing Shahar and its adjoining parts likely to come under urbanization in the near future. For demarcating the boundary of the said Upazila Shahar (Study Area) the following assumptions were considered :

- A maximum area is considered to include all areas experiencing urbanization in terms of location of urban and semi-urban activities;

Table 3-1 Area and population of Sphere of Influence of
Sarikandi Upazila Shahar.

Sl. No.	Jl. No.	Name of House	Total Area		Involved Area		Total Population		Involved population	
			Acre	Hectare	Acre	Hectare	1951	1974	1951	1974
1.	152	Mitipatal (Part)	250.89	106.11	292.50	115.42	965	1467	760	985
2.	155	Amortspara	278.06	112.57	270.06	112.57	383	522	1192	889
3.	156	Ramkrishnapur	152.21	61.56	152.31	61.66	325	436	1341	326
4.	157	Tajupara	220.03	89.10	220.08	89.10	262	481	252	437
5.	158	Borurbadi	361.95	145.54	83.00	33.60	333	392	667	833
6.	159	Narabi (Part)	2735.35	1107.43	2628.07	1063	5681	5341	5252	592
7.	160	Paritipurai	727.36	294.48	727.36	294.48	1725	2146	1725	4743
8.	163	Dakshair Goraria (Part)	474.48	190.88	235.74	95.44	471	375	471	2422
9.	174	Dokabin Dighokandi	928.05	375.75	928.05	375.75	1783	2742	1783	375
10.	175	Barni pors (Part)	280.07	113.39	83.00	33.60	675	1026	675	285
11.	176	Dukchin Gomlibari	155.33	62.89	155.33	62.89	317	401	317	3435
12.	177	Palkpara	304.38	123.25	304.38	123.23	662	837	662	837
13.	179	Phulbari	3781.65	1531.03	3781.65	1531.03	6558	12925	15384	15384
14.	161	Rindukendi (Part)	193.03	80.50	149.99	60.72	67	227	67	227
15.	167	Sariskeedi (Part)	360.59	121.70	52.63	21.31	1056	1719	2610	59
			16326.46	6603.91	12450.51	5040.69	23904	31744	22806	21847

Source: Village Population Statistics, 1951, 1974 and 1981

Note: On the east of the Upazila Shahar, the boundary of Study Area and Catchment Area is same because at present of the river Jamuna exist along it.

7360 38903

1192

436

1341

437

601

437

657

9258

4743

2422

375

285

3435

313

401

472

837

1019

837

42925

15384

227

23

1258

59

335

754

- Availability of flood free and buildable land;
- Future potential development in and around the Upazila Headquarters;
- Size required for future township.

The Study Area is shown in Map - 2 and Map - 3. The final boundary of the Upazila Shahar is determined on the basis of future urban land requirement. Table 3-2 shows the detail of Study Area. The area of the Study Area is about 375.63 hectares (927.85 acres) and includes 7 mouzes. Its population is 5661 which is 3.2 percent of the total population of Upazila. The total number of households in 1981 was 1061 and the average family size is 5.33.

3.3 Existing Landuse, Facilities and Utilization Characteristics

In the following paragraphs, information on existing Landuse pattern of the Upazila Shahar, facilities and their utilization characteristics are presented.

Existing Landuse Pattern

The existing landuse pattern in the Upazila Shahar Sariekandi is an outcome of a long and constant process involving various natural, socio-economic and political factors. Map - 3 shows the existing landuse pattern, provision of facilities, and land-utilization characteristics in the Shahar. About 375.63 hectares (927.85 acres) of land is included in the Study Area. The Study Area is grown with mixed landuses of residences, administration and Govt. offices, educational institutions, health facilities, recreation facilities, utility services, commercial and industrial establishments, water bodies, roads, agriculture etc. These are scattered all over the area. Major parts of the Study Area is still under agricultural use representing 79.91% of the

Table 3-2
Area, and population in the Study Area

Sl. No.	Jl. No.	Name of House	Total Area		Involved Area		Total Population			Involved Population
			Acre	Hectare	Acre	Hectare	1961	1974	1981	
1.	166	Daghabari	282.66	114.44	54.26	21.97	651	740	950	270
2.	165	Betia	719.70	291.38	74.27	13.87	1251	1954	918	307
3.	175	Boraipara	280.07	113.39	197.07	79.79	675	1026	1300	138
4.	159	Korchi	2735.35	1107.42	107.23	43.43	5681	5341	904	825
5.	161	Hindurandi	198.85	80.50	48.84	19.77	57	227	1490	429
6.	162	Dimp	260.69	105.54	238.13	95.41	956	1163	1261	503
7.	167	Sardakandi	300.59	121.70	247.95	100.39	1056	1719	2610	420
Total			4772.89	1934.37	922.85	375.65	10477	12196	18321	367
							2571	4633	5661	

Source: Bangladesh Bureau of Statistics, Population Census 1961, 1974 and 1981.
Field Survey, September, 1986.

total land in the Study Area. The rest 20.09% of the land is under non-agricultural uses. Table 3-3 shows the major landuses in the Study Area and the details are shown separately for each major categories.

Facilities and Utilization Characteristics

The utilisation characteristics of different landuses in the Shahar are discussed below :

Residences are scatteredly distributed within the Study Area. Except south-eastern part of the Upazila Shahar, the settlements are comparatively denser. Residential areas are mostly developed linearly along the roads and comprises an areas of 40.63 hectares (100.48 acres). It is found in the survey that the dwelling houses are mostly temporary or semi-temporary in nature.

Administration and Government Departments comprise an area of 9.01 hectares (22.34 acres). The Government offices, autonomous bodies and private enterprises are included in this category. Table 3-4 shows the amount of land occupied by these uses. It is observed that the services of this category are gradually encroaching into agricultural land.

Educational Institutions comprising a college, two high schools (Boys and Girls), two primary schools and a madrasha are situated in different parts of the Upazila Shahar. These institutions covered an area of 3.84 hectares (9.47 acres). The detail landuses by Educational Institutions are shown in Table 3-5.

There is a health complex and veterinary hospital in the Shahar situated in Sariskandi mouza comprising an

Table 3-3
Existing Landuse in the Study Area, Sariakondi Grama

Sl. No.	Landuses	Area of houses and area in boxes					Total area acres	Percentage Hectare	Percentage
		Begber	Batin	Batai- para	Batul- kondi	Dhup			
1.	Residential	10.09	7.36	21.21	71.25	-	35.67	35.29	40.68
2.	Administrative/ Govt. Dept.	-	-	6.32	0.03	-	10.55	5.45	22.34
3.	Education	-	-	-	0.03	-	0.03	0.53	9.04
4.	Health	-	-	-	-	-	-	9.47	2.41
5.	Recreation	-	-	-	-	-	-	12.40	3.02
6.	Utility services	-	-	-	-	-	2.52	0.35	3.83
7.	Socio-culture	-	-	0.09	0.89	-	0.03	0.23	5.02
8.	Commerce	-	-	-	-	-	-	1.21	1.34
9.	Industry	0.71	-	-	-	-	-	1.18	1.06
10.	Water bodies	2.22	3.23	-	1.25	-	7.75	0.69	12.40
11.	Roads	1.58	0.97	2.74	0.72	1.12	3.13	4.18	7.50
12.	Agriculture	39.65	22.57	165.91	93.33	47.72	195.83	175.33	300.46
Total		50.25	34.27	197.07	107.21	43.84	236.13	207.96	927.85
									372.65
									100.00

Source : Field Survey September 1985.

Table 3-4
Administrative, Government and Autonomous Body

Sl. Landuse No.	Area		Percentage of the total
	Acre	Hectare	
1. Upazila Headquarters	10.53	4.26	47.14
2. Police Station	2.50	1.01	11.19
3. Revenue Office	0.03	0.01	0.13
4. Tahsil Office	0.93	0.29	3.17
5. Answer Office	2.93	1.19	13.12
6. WAPDA	0.89	0.36	3.98
7. Godown	3.14	1.27	14.06
8. REB	1.61	0.65	7.21
Total	22.34	9.04	100.00

Source: Field Survey, September, 1986.

Table 3-5
Educational land use

Sl. Land Use No.	Area		Percentage of on total
	Acre	Hectare	
1. Primary school	1.49	0.60	15.62
2. Madrasahs	0.83	0.34	8.85
3. Girls High School	1.07	0.43	11.20
4. Boys High School	2.65	1.09	28.39
5. College	3.40	1.38	35.94
Total	9.47	3.84	100.00

Source: Landuse Survey, September, 1986.

area of 5.02 hectares (12.40 acres). A tuberculosis hospital is also functioning alongwith the health complex. Table 3-6 shows that the health complex comprises 4.91 hectares (12.12 acres).

There is no recreational facilities in the existing Shahar except an open-space is adjacent to the high school. This space is used for playing football and also used as a bi-weekly market.

There are some religious and cultural activities in the Shahar. Mosque, Graveyard and library are included in this category. A small public library is run by some local youths. The location of this library is at Sariakandi mouza adjacent to the boys high school. The details are shown in Table 3-7.

There are several ponds and ditches scattered in the Shahar which comprises an area of about 5.91 hectares (Table 3-3). The proportion of these water bodies is 1.57 percent of the total land. The details are shown in Table 3-8.

There are four different categories of roads in the Study Area which is pucca, semi-pucca, katcha and embankment road. About 46.42 percent of the total road network in the Study Area is katcha. The average width of pucca and semi-pucca road has been found to be 5 to 6 meters and their approximate lengths are 0.61 and 1.94 kilometres respectively.

About 2.54 kilometres flood control embankment along the Jamuna river is also used as road. Details of landuses by road infrastructure are shown in Table 3-9.

As shown in Table 3-3, 1.08 hectares (2.67 acres) of land is covered by utility services. Post office and Telegraph office are included in this category. Only 0.29 percent of the total land in the Shahar is under this use. Table 3-10 shows the detail.

Table 3-6
Land use by Health Facilities

Sl. No.	Name of use	Area		Percentage of the total
		Acre	Hectare	
1.	Health Complex	12.14	4.91	97.90
2.	Veterinary hospital	0.26	0.11	2.10
Total		12.40	5.02	100.00

Source: Land use survey September, 1986

Table 3-7
Socio-cultural Centres

Sl. No.	Land use	Area		Percentage of the total
		Acre	Hectare	
1.	Mosque	0.70	0.28	54.26
2.	Graveyard	0.54	0.22	41.66
3.	Library	0.05	0.02	3.88
Total		1.29	0.52	100.00

Source: Field Survey, September, 1986.

Table 3-8
Water Bodies

Sl. No.	Types of water bodies	Occupied Land		Percentage of the total
		Acre	Hectare	
1.	Pond	7.08	2.87	46.53
2.	Ditch	7.51	3.04	51.47
Total		14.59	5.91	100.00

Source: Landuse survey, September, 1986

Table 5-9
Landuses by Roads

Sl. No.	Land use	Roads					Percent- age of the total
		Width in Meter	Length in KM	Ares	Hectare		
1.	Pucca	6.1	0.61	1.93	0.80	13.65	
2.	Semi-Pucca	4.94	1.94	2.23	0.90	13.36	
3.	Kutcha	2.44	11.67	6.73	2.72	46.42	
4.	Bankment	6.1	2.54	5.55	1.44	24.57	
			16.56	14.48	5.86	100.00	

Source: Land use survey, September, 1986

Table 5-10
Urban Services

Sl. No.	Land use	Ares		Percentage of the total
		Acre	Hectare	
1.	Post Office	0.35	0.14	12.96
2.	Telegraph Office	2.32	0.94	87.04
		2.67	1.08	100.00

Source: Landuse Survey September, 1986.

Rice mills, saw mills and a brick field in the Shabar are found to be the leading industrial uses. The location of these uses are scattered in different parts of the Shabar area as shown in the existing landuse Map-3 and Table 3-11.

The commercial area are found to be scattered and developed along the roads. The commercial area including shops, markets (daily bazar), weekly hats and banks comprises an area of 1.70 hectares (4.21 acres) representing 0.45 percent of the total Study Area as shown in Table 3-12.

Land Value

Land in the Study Area have been classified into five categories according to their prices prevailing in the land market. The land value was collected from Upazila Revenue Office. Table 3-13 shows the details of land value in the Study Area. Highest land values are found in the Core Area of the Upazila Shabar and the lands are buildable for residential, commercial and industrial purposes. Low land value exists in those areas that are not buildable or requires huge filling for reclamation. Usually the agricultural land and ditches that go under water during monsoon fall in this group. The highest land value is found to be Taka 150000.00 per acre at Upazila Core Area and bazar area. While the lowest land value is found to be Taka 50,000.00 . Ditches, low lands and ponds are of low value in the area. Figure-1 shows the approximate land value in the Upazila Shabar.

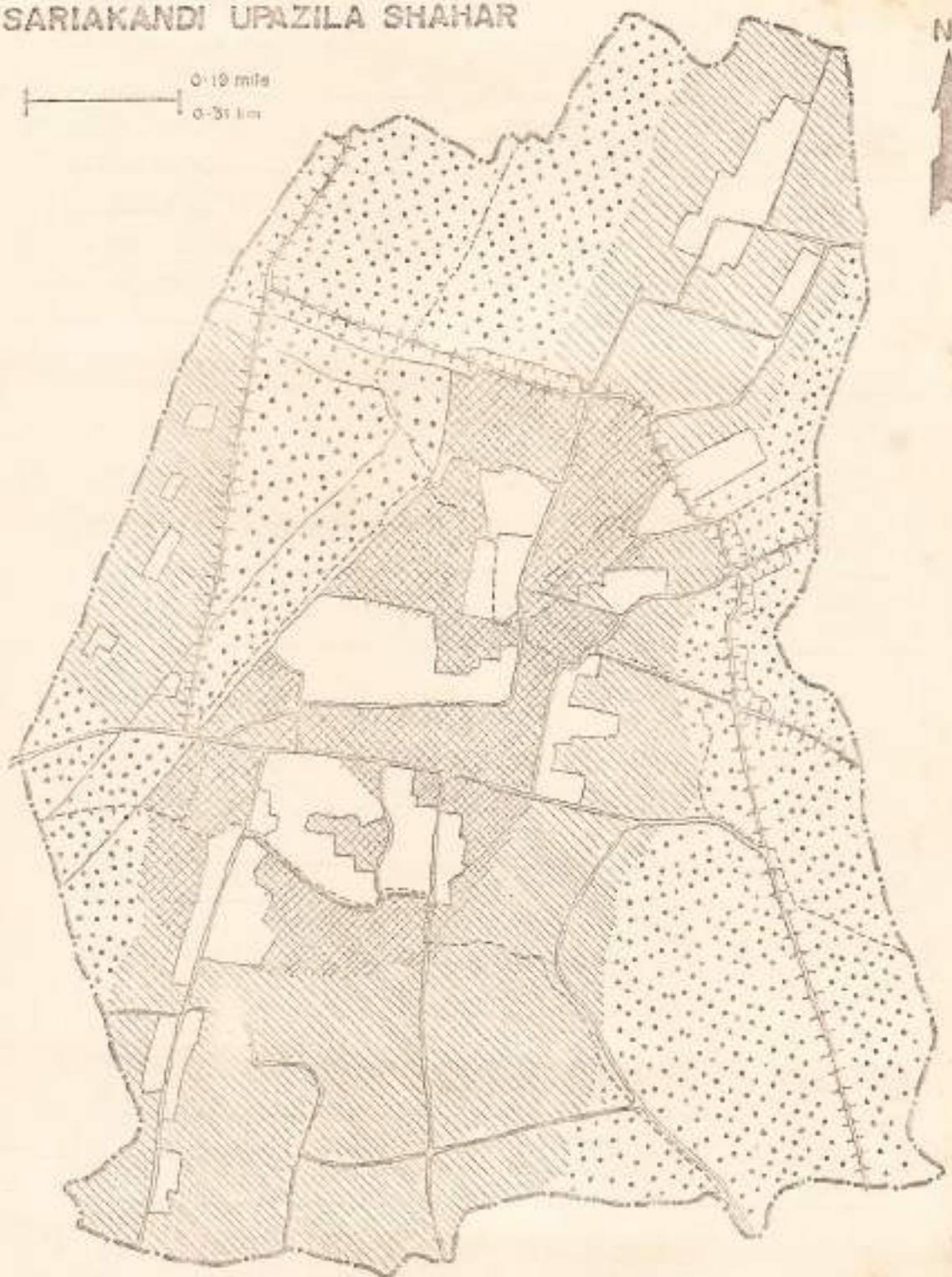
Town Service Centre

With reference to WAPDA contour map, land level of the Study Area has been ascertained. The area has interesting topographic features. A vast area is still lowlying and floodable. Settlements have developed on the buildable high lands which are now free from floods. With the increase of population and demand for lands new settlements are being

SARIAKANDI UPAZILA SHAHAR

0.10 miles
0.31 km

N

LEGEND

- Road ——
- Embankment -----
- Mouza boundary -----
- Study Area boundary -----
- Settlement & Services □
- Ditch (---)

- High land value
- Moderate land value
- Low land value

Fig. 1 Land value

Table 3-11
Industrial Land Uses

Land use	Area		Percentage of the total
	Acre	Hectare	
a. Rice mill	0.88	0.36	46.75
b. Saw mill	0.30	0.12	15.59
c. Brick field	0.71	0.29	37.66
	1.89	0.77	100

Source: Field Survey, September, 1987.

Table 3-12
Commercial land uses

Sl. No.	Landuse	Area	Percentage of the total	
		Acre	Hectare	
1.	Shop	1.27	0.51	29.30
2.	Market	2.75	1.11	65.29
3.	Bank	0.19	0.08	4.71
	Total	4.21	1.70	100.00

Source: Field Survey, September, 1986.

Table 3-13
Land Value in the Upazila Bhahar 1986

Sl. No.	Category	Average price per acres	Land level
1.	Surrounding Upazila Complex and bazar	Tk. 1,50000.00	High
2.	Residential	Tk. 80000.00	High
3.	Agricultural	Tk. 60000.00	High
4.	Agricultural	Tk. 40000.00	Low
5.	Pond/ditches	Tk. 30000.00	Very low

Source: Upazila Revenue Office, September, 1986.

built by raising low land through earth filling. Earth is collected by digging ponds, which also serve as source of water. During monsoon season low land surrounding the settlements goes under water. Existence of large number of ditches and low lands make it difficult to extend the settlements and construction of roads. The contour points in the Study Area have been found as low 50.8 & high 59.3. Details of landuses within about 200 acres and its level by contours are shown in Town Service Map-4.

3.4 Physical Opportunities and Constraints

During the field survey, physical opportunities and constraints of the existing Upazila Shahar were identified. These are discussed below. Also, in Figure 2,3 and 4, the opportunities and constraints are shown .

Physical Opportunities

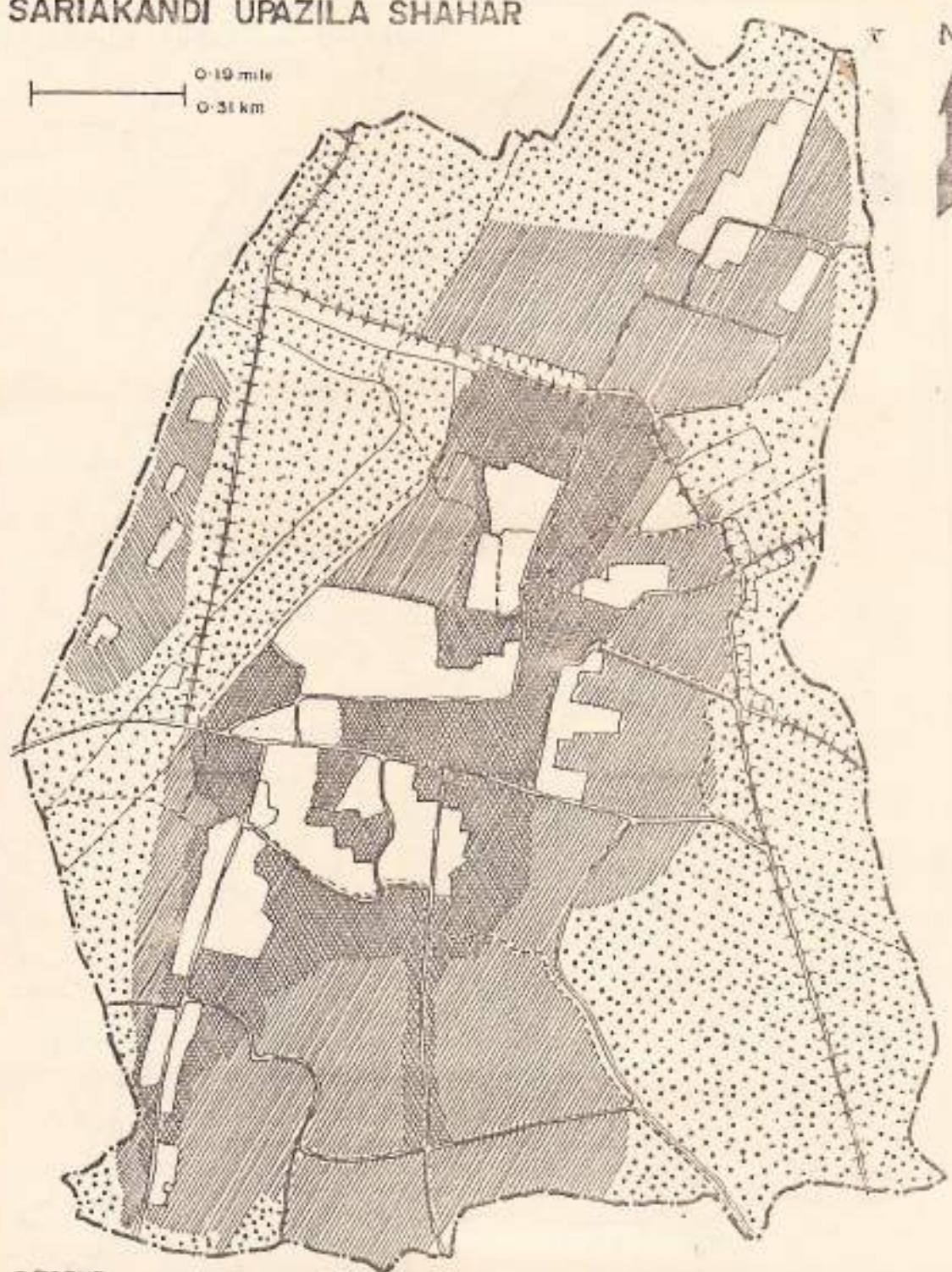
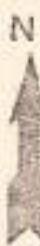
- The Upazila Shahar has sufficient vacant land for future provision of urban services.
- The rivers Jamuna and Bengali are advantages for water transport and fishing.
- The river and low land surrounding the Shahar will help the control of unusual expansion of the Shahar encroaching the agricultural land.

Physical Constraints

- The Upazila Shahar is almost surrounded by rivers and flood affected low lands.
- The Shahar has not taken any definite shape.
- On the north and east the Shahar is surrounded by embankment to protect the erosion by Jamuna river. However, according to information of the Upazila office, the Shahar is still under the threat of erosion by the Jamuna.
- The Shahar lacks in suitable high land for future expansion in all sides.

SARIAKANDI UPAZILA SHAHAR

0.19 mile
0.31 km

LEGEND

- Road —
- Embankment ⌂
- Mouza boundary -----
- Study Area boundary - - - -
- Settlement & Services □
- Ditch ⌂

- | | |
|------------------|------------------|
| High land | [Dotted Pattern] |
| Medium high land | [Diagonal Lines] |
| Low land | [Cross-hatch] |

Fig. 2 Land level

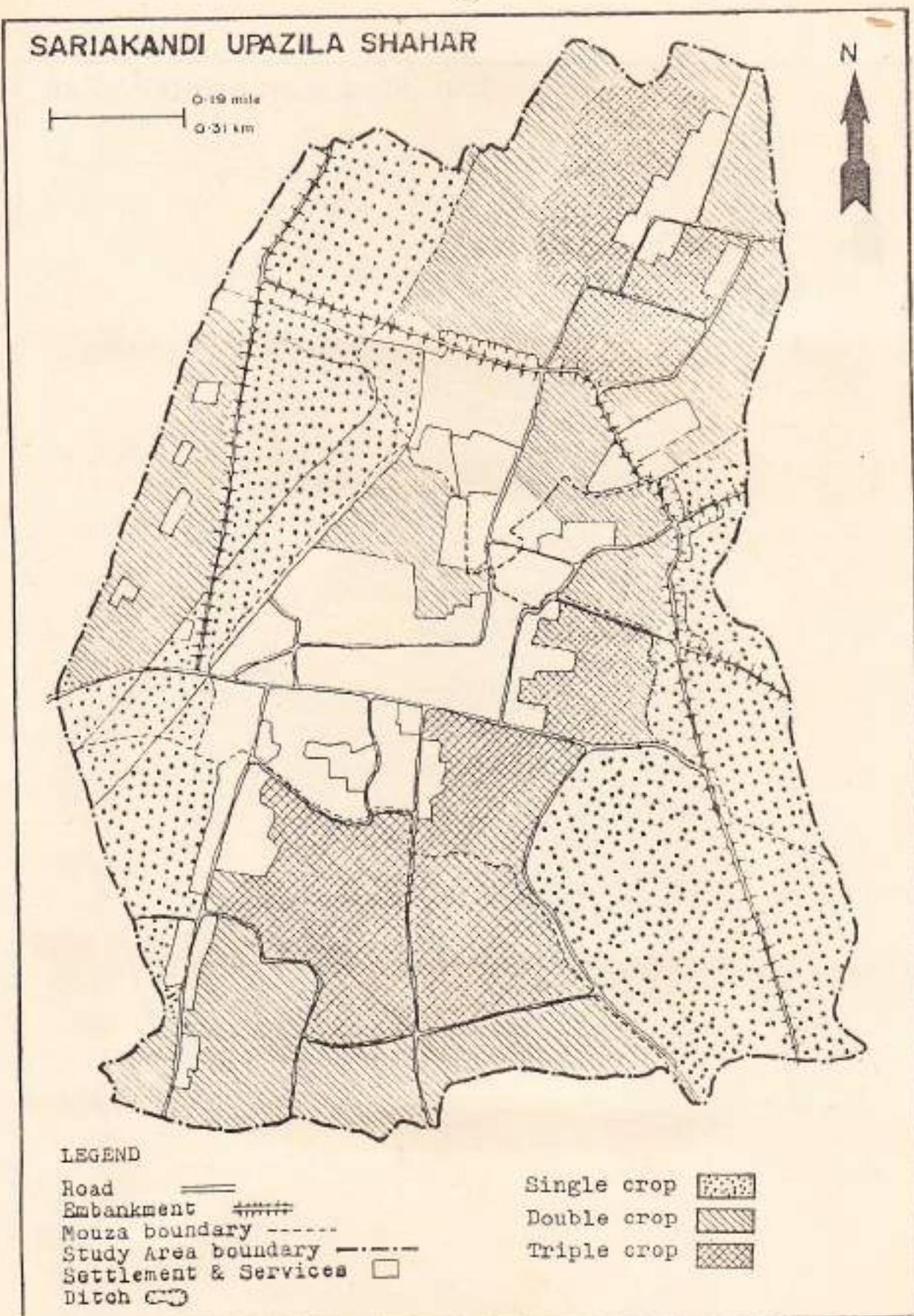


Fig. 3 Agriculture potentiality

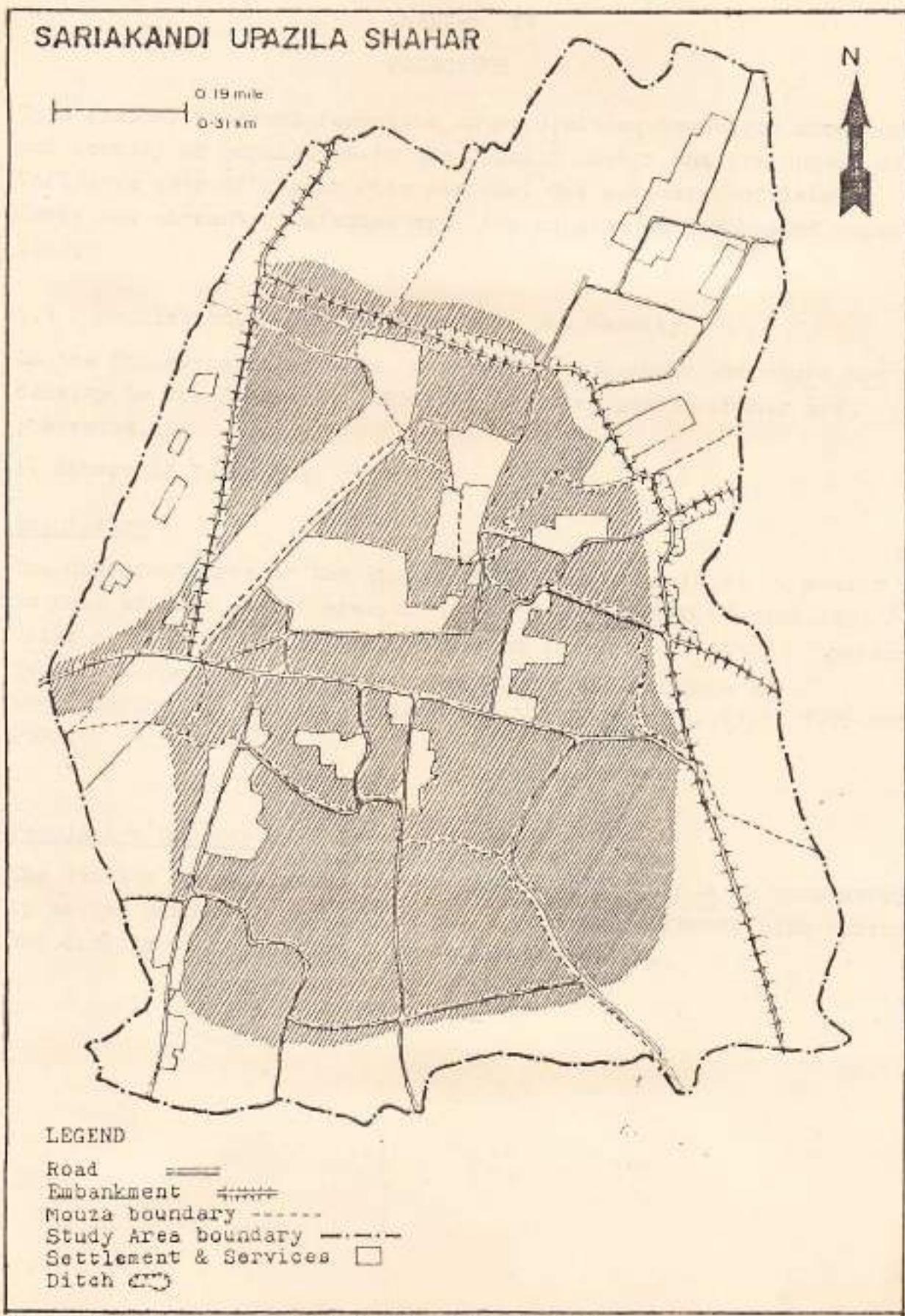


Fig. 4 Potential area for future urbanization

Chapter IV

FORECASTS

This chapter presents forecasts on population, household structure and density of population in the Upazila Shahar and its Sphere of Influence over different Plan periods. The estimates of labour force and migrant population are also considered for Design population.

4.1 Population, Household Structure and Density

In the following paragraphs, population, household structure and density in the Sphere of Influence and the Upazila Shehar are presented.

A. Sphere of Influence

Population

The Catchment Area or the Sphere of Influence includes 15 mouzas in full or part and an area of 12450.51 acres(5040.69 hectares). Total population of the Catchment Area in 1981 was 38903 persons. Table 4-1 shows population of the Sphere of Influence on high, medium and low projections for the year 1985, 1990, 1995 and 2000.

Population Density

The density of population in the Sphere of Influence is considered to be the number of population per acre over different plan periods. The density of population is shown in Table 4-2.

Table 4-1 High, Medium and Low projections in the Sphere of Influence of the Upazila Shahar Sariakandi, 1985 - 2000.

Year	High		Medium		Low
	pop. 1974 28400	pop. 1981 38903	pop. 1981 21847	pop. 1981 38903	Assumed growth rate (base year 1981) = 2.00%
	Growth rate = 4.59%		Growth rate = 2.93%		
1985	46553		43667		42107
1990	58264		50450		46492
1995	72920		58287		51331
2000	91254		67342		56673

Note : Growth rate for low projection are assumptions lower than the medium projections and in this case the base population is that of 1981.

Table 4-2 Density of population against medium range projection in the Sphere of Influence, Upazila Shahar Sariakandi.

	1985	1990	1995	2000
Area(Hectare)	375.65	375.65	375.65	375.65
Population	43667	50450	58287	67342
Density/Hectare	116	134	155	179

Household Structure

Household Structure in the Sphere of Influence is shown in Table 4-3 in terms of household size and resultant number of households during 1985-2000 A.D.

B. Upazila ShaharPopulation

The Study Area identified during the survey is tentatively defined to be Upazila Shahar. The area and boundary are presented in Chapter-V of this Report. In Table 4-4, population of the Upazila Shahar on high, medium and low projections over different plan periods are presented.

Household Structure

The household structure in the Upazila Shahar is determined in terms of household size and the resultant number of households during the 1985-2000 A.D. in Table 4-5.

Population Density

The density of population in the Upazila Shahar is presented in Table 4-6 in terms of number of population per acre.

4.2 Labour Force and EmploymentLabour Force

There is no any dependable data to estimate the labour force and employment in urban and rural areas of Bangladesh. However, in the present planning exercise, potential labour force has been estimated

Table 4-3 Household size on medium population projection in the Sphere of Influence, Upazila Shahar Sariakandi.

	1985	1990	1995	2000
Population	43667	50450	58287	67342
Household size	5.2	5.0	4.5	4.0
No. of household	8398	10090	12953	16836

Note : Household size is expected to decline with urbanisation.

Table 4-4 High, Medium and Low projection of resident population of the Upazila Shahar(Study Area) Sariakandi, 1985-2000.

Year	Level of projection				Assumed growth rate(base year 1981) 2.0%	
	High		Medium			
	Pop. 1961 2871	Pop. 1981 5661	Pop. 1974 4699	Pop. 1981 5661		
	Growth rate=3.45%		Growth rate=2.69%			
1985	6484		6295		6128	
1990	7682		7188		6766	
1995	9102		8209		7470	
2000	10785		9373		8247	

Note : Population of 1981 is considered as base population.

Table 4-5 Household size on medium population projection in the Upazila Shahar Sariakandi.

	1985	1990	1995	2000
Population	6295	7188	8209	9373
Household size	5.33	5.33	5.33	5.33
No. of household	1181	1349	1540	1759

Note : Household size have been quoted from Socio-economic Household Survey, September, 1986.

Table 4-6 Density of population against medium range projection in the Sariakandi Upazila Shahar.

	1985	1990	1995	2000
Area (Hectare)	375.65	375.65	375.65	375.65
Population	6295	7188	8209	9373
Density/Hectare	16	19	21	25

on the basis of working age population i.e. 10 years and above as generally adopted by the authorities like the Bangladesh Bureau of Statistics.

It is also difficult to determine employment structure at Upazila level because a correct picture is not available in the published data of the Bangladesh Bureau of Statistics. In this study, therefore, the potential labour force has been considered as the population employed and seeking employment. Table 4-7 shows the estimated labour force on the basis of the forecasted population of the Upazila.

4.3 Estimates on Migration

Migration has been considered here in terms of the growth of population in the Zila and a redistribution pattern of the incremental population and labour force within the Zila Bogra and its Upazilas and out-migration to other Zilas. The net migration estimated by the Bangladesh Bureau of Statistics has been quoted in Chapter - II of this Report. Table 4-8 and 4-9 present the estimates on migration.

4.4 Design Population

Table 4-10 and 4-11 present information on forecasted population for residential and services requirements of the Upazila Shahar. The population which will be residing at the Upazila Shahar is considered for residential land requirements and primary education facilities. For other uses, mostly the population of the Sphere of Influence of the Shahar is considered.

4.5 Provision Standards and Land Requirements

The guidelines provided in the Terms of Reference (TOR) of the Urban Development Directorate in respect of Landuse Plan of the Upazila Shahar are mostly followed to assume the provision standards for different landuses.

Table 4-7 Forecasting of labour force of Zila, 1985-2000
 (medium range projection 1961-81, growth rate
 2.46% of active population).

	1961	1981	1985	1990	1995	2000
1. Total population 10 yrs. and above in Greater Bogra Zila	466000	758000	835385	943319	1065198	1202824
2. Male labour						
- assumed % of item (1)			50%	50%	50%	50%
- labour	-	-	417693	471659	532599	601412
3. Female labour participation						
- assumed % of item (1)	-	6.68%	6.75%	6.85%	6.95%	7.10%
- labour	-	-	55804	63674	74031	85401
4. Total male and female labour	-	-	473497	535333	606630	686813
5. Migrant population (urban labour)						
- assumed % of item (4)	-	-	30%	30%	30%	30%
- labour	-	-	142049	160599	181989	206044
6. Share of new zile						
- assumed % of item (5)	-	-	77%	77%	77%	77%
- labour(Urban migrant)	-	-	109377	123661	140132	158654

Note : 1. The labour force in 1961 & 1981 have been quoted from Bangladesh Statistical Year Book 1982, Table 4-2, page 144.

2. % of female participation taken from Statistical Year Book, 1982.

Table 4-8

Distribution of migrant labour in the Zila
Bogra, Upazila Sariakandi and other Upazilas,
1985 - 2000.

	1985	1990	1995	2000
1. Total labour in Bogra Zila	109377	123661	140132	158654
- %	100%	100%	100%	100%
2. Upazila Sariakandi				
- assumed % of item (1)	8%	8%	8%	8%
- Labour	8750	9892	11210	12692
3. Other Upazilas in Bogra Zila				
- assumed % of item (1)	92%	92%	92%	92%
- Labour	100627	113769	128922	145962

Table 4-9

Distribution of migrant labour in the Sariakandi
Upazila, 1985 - 2000.

	1985	1990	1995	2000
1. Total migrant labour in the Upazila				
- %	100%	100%	100%	100%
- Labour	8750	9892	11210	12692
2. Upazila Shahar				
- assumed % of item (1)	40%	40%	40%	40%
- Labour	3500	3957	4484	5077
3. Other places in Upazila				
- assumed % of item (1)	60%	60%	60%	60%
- Labour	5250	5935	6726	7615

Table 4-10 Total projected population of Upazila Shahar Sariakandi, 1985 - 2000.

	1985	1990	1995	2000
1. Upazila Shahar resident population	6295	7188	8209	9373
2. Assumed migrant labour	3500	3957	4484	5077
3. 40% commuting population of item (2) not likes to live in Shahar	1400	1583	1794	2031
4. Actual migrant labour in Shahar (2 - 3)	2100	2374	2690	3046
5. Total population of the Shahar (1 + 4)	8395	9562	10899	12419

Table 4-11 Design population for housing and services of Sariakandi Upazila Shahar, 1985 - 2000.

	1985	1990	1995	2000
1. Design population for housing (Upazila Shahar population + migrants)	8395	9562	10899	12419
2. Design population for other services(Shahar population + population of Sphere of Influence)	52062	60012	69156	79751

Land requirements for different uses of the Upazila Shahar are determined specifically on the basis of the following .

- a. Forecasted population size of the Upazila Shahar over different plan periods.
- b. Provision of existing services and future requirements.
- c. Physical environmental condition, e.g. , land level, water bodies etc.
- d. Circulation system of the Upazila Shahar and its transportation linkage.
- e. The planning standards provided in the TOR.

The land requirements for different identified projects are shown in Table 4-12.

Chapter - V

LANDUSE PLAN

This Chapter presents a description on approach, concept and planning principles for the Landuse Plan of the Upazila Shahar. A description of the Plan is also included.

5.1 Approach, Concept, Planning Principles

Planning Concept and Principles

The principal objective of the Landuse Plan is to accelerate and control the development through an appropriate locational and functional arrangement of urban services and facilities in the Upazila Shahar. The planning concept in this respect is related to the Government's policy of administrative decentralization. In the decentralization policy, there is also a commitment to carryout economic development and employment generating activities by the Governmental Agencies.

In the light of above discussion, two basic principles of preparing the Landuse Plan are as follows :

- i. First, functions to be located at the Upazila Shahar will be consistent with social, economic and physical infrastructural requirements of the Shahar's projected population upto the year 2000 A.D. The functions related to socio-economic and employment generating activities are to be shared by the Upazila Shahar and other growth centres.
- ii. Second, the land requirements for housing are catered to the needs of the population of the Upazila Shahar. The population of the Sphere of Influence is included alongwith the population of the Shahar to determine the total land requirements for urban services and facilities.

On these basic principles and general guidelines for development, individual schemes for implementation may be taken up for detailed works according to a phase-wise development programme. The propo-

sals in the Plan are evolved on the basis of existing conditions and expected trend in the growth of future population and services.

Planning Approach

Based on planning concept and principles as well as practical limitations in the organization of landuses, proposal for different uses and guideline for implementation of these are prepared.

A general approach to the preparation of Landuse Plan is to consider the natural-physical forces at work, such as, the natural drainage pattern, flood affected areas, existing pattern of development, etc. For allocating land, a conventional method is adopted for distributing different uses, e.g., administrative, commercial, industrial, residential and other urban services and facilities. As far as practicable, existing landuses and current scheme of any project are incorporated in the Plan. However, the landuses are proposed in such a way so that urban facilities are well distributed.

The road network in the proposed Landuse Plan of the Shahar is set in a way to obtain an efficient system of intercommunication between all parts of the Shahar and its surroundings. Blocks of landuses are created within a network of road system. A ring road is proposed along the peripheral part of the Shahar to control development and to have easy entry to the central part of the Shahar from any directions and also for exit from the central part to any directions. An area beyond this ring road is included to control development along it.

Finally, in the preparation of Landuse Plan, attempts were made so that adequate services and facilities may be achieved. Also, care is taken not to misuse the scarce land.

5.2 Plan Description

The Landuse Plan of Upazila Shahar includes a total area of 608.02 acres (246.16 hectares). The estimated total population of Upazila Shahar in the year 2000 A.D. is 12419. The plan is prepared to provide

residential facilities for the Shahar's population and necessary services and facilities for the Shahar's population and also the Catchment Area population.

The structure of the Shahar is more or less of a semi-circular shape. The shape of the Shahar is mainly formed by a 60' wide ring road. The Landuse Zones are conveniently located within this ring road and in areas included beyond this ring road. The distribution of land in the Landuse Plan for different uses is shown in Table 5-1 and a short description of major uses are presented in the following paragraphs.

Road Network

In the road system of the Sariakandi Upazila Shahar, 60' width for ring road or major roads and 40' width for secondary roads are considered. It is assumed that 24' width road will be used in the detailed plan of each Landuse Zone.

Commerce

Commercial uses are distributed in different parts of the Shahar. Market and major shopping areas are provided in the central parts along major roads. Small shopping centres are distributed in different parts especially within residential uses.

Industry

It is considered that there will be small scale industries, light service industries and agro-based industries including agro-service facilities in the Upazila Shahar. The areas for industrial uses are provided along the major transport route in the peripheral parts .

Administrative Uses

Existing administrative landuses are least disturbed in the plan and additional land is provided along it as per requirement. The

major administrative area is located in the Central Part. However changes or extension of areas for this use will be possible since urban deferred areas are provided in different parts of the Shahar.

Education

The location of each primary school is selected for approximately a population of 5000. The secondary schools and colleges are provided for both Shahar population and Catchment population . A Women's College and a girls high school are also provided in the Plan.

Health

The Health Services in the Plan mainly include a Hospital and a Maternity or Child Care Centre. The existing location of the Hospital is not disturbed but an additional area is included as per Planning standard. The Maternity Centre is located in Central to minimize travel distance for the dwellers.

Urban Services

The major urban services proposed in Plan are Post office, Telephone Exchange, Water Supply, Power Supply and Fire Service. These are located in a suitable central area of the Shahar. The existing location of Police Station is not disturbed. A Bus Terminal is provided along the Highway to maintain services in all direction.

Socio-cultural uses

The important socio-cultural uses proposed in the Plan are Community Centre, Town Hall, Public Library and Central Eidgah. The location for these facilities are selected in the Central Part of the Shahar. Mosques and Temples are mainly distributed in their existing locations. A Graveyard is also provided in the outskirts of the Shahar.

Recreation

The recreational uses in the Landuse Plan included Parks, Stadium, Play Field and Cinema Hall. The Stadium is located in a suitable central area accessible from all directions.

Residential uses

The existing residential uses are least disturbed in the Landuse Plan. The additional areas are included as per requirement in terms of the standards set in the Terms of Reference(TOR).

Urban Deferred and Reserves

The Urban Deferred Land is distributed in the Landuse Plan keeping scope for future extension of Urban Services and facilities and Governmental uses in different parts of the Shahar. The existing low land and waterbodies are mainly kept as Reserves.

Table : 5-1 Proposed Landuse 1985-2000

Sl. No.	Name of landuse	Provision standard	Existing land (acre)	Land requi- rement upto 2000(includ- ing exist- ing)acre	Proposed Land		% of the total
					Acre	Hectare	
1a.	Commerce	1.5 acre per 1000 pop.	4.21	50.00	9.41	3.81	1.02
1b.	Industry		1.89	70.00	13.00	5.26	1.40
2.	Education						
	- Primary school (Shahar Pop.)	2 acre per 5000 pop.	9.47	45.00	11.68	4.73	1.26
	- High school	5 acre per 20000 pop.	1.49	5.00	2.10	0.85	
	- College	5 acre per 20000 pop.	4.58	20.00	4.58	1.85	
			3.40	20.00	5.00	2.02	
3.	Health						
	- Health Complex	5 acre per 20000 pop.	14.40	20.00	14.40	5.83	1.55
	- Veterinary Hospital		12.14	20.00	12.14	4.91	
			0.26	-	0.26	0.11	
4.	Administration/ Judiciary						
	- Upazila Complex	12 acre per Upazila	22.34	58.50	22.34	9.04	2.41
	- Police Station	2 acre per 20000 pop.	10.53	12.00	10.53	4.26	
	- Ansar/VDP		2.50	46.50	2.50	1.01	
	- Others		2.93	-	2.93	1.17	
			6.38	-	6.38	2.58	
5.	Recreation						
	- Park	1 acre per 1000 pop.	2.61	93.00	26.01	10.53	2.80
	- Cinema hall	.5 acre per 20000 pop.	-	9.00	12.30	4.98	
	- Stadium	3 acre per 20000 pop.	-	.00	0.50	0.20	
	- Shishu Park			12.00	5.30	2.15	
	- Play Field		2.61	-	2.61	1.06	
6.	Socio-cultural						
	- Community Centre	1 acre per 20000 pop.	1.30	24.00	8.40	3.40	0.91
	- Religious Institutes	.5 acre per 5000 pop.	-	2.00	0.70	0.28	
			0.70	2.00	0.70	0.28	

Sl. No.	Name of Landuse	Provision Standard	Existing land (acre)	Land requirement upto 2000(including existing) acre	Proposed land		% of the total
					Acre	Hectare	
-	Cemetery	5 acre per 20000 pop.	0.54	20.00	6.00	2.43	
-	Town Hall	-	-	-	0.50	0.20	
-	Public Library	-	-	-	0.50	0.20	
7.	Urban Services						
-	Post Office	.5 acre per 20000 pop.	<u>2.67</u>	<u>12.00</u>	<u>7.22</u>	<u>2.92</u>	<u>0.78</u>
-	Telephone Exchange	.5 acre per 20000 pop.	0.35	2.00	0.35	0.14	
-	Transport Terminal	1 acre per 20000 pop.	2.32	2.00	2.32	0.94	
-	Others	1 acre per 20000 pop.	-	4.00	1.65	0.66	
	Power Supply		-	-	1.00	0.40	
	Water Supply		-	-	0.90	0.36	
	Fire Service		-	-	1.00	0.40	
	Petrol Pump		-	-	-	-	
8.	Housing (Shahar Pop.)	100 persons per acre	<u>100.48</u>	<u>207.00</u>	<u>169.78</u>	<u>68.74</u>	<u>18.30</u>
-	Housing Estate	-	-	-	23.20	9.39	
-	Private Housing	-	100.48	-	146.58	59.34	
9.	Urban Deffered	10% of the Shahar Area	-	<u>92.78</u>	<u>25.20</u>	<u>10.20</u>	<u>2.72</u>
10.	Road	5-10% of the Shahar Area	<u>14.50</u>	-	<u>45.30</u>	<u>18.34</u>	<u>4.88</u>
11.	Reserve (pond,ditch,river)	5% of the Shahar Area	<u>14.60</u>	<u>46.39</u>	<u>54.60</u>	<u>22.11</u>	<u>5.88</u>
12.	Agriculture		<u>741.32</u>		<u>520.51</u>	<u>210.73</u>	<u>56.09</u>
	Total		927.85		927.85	375.65	100.00

Chapter VI

PROGRAMMING AND IMPLEMENTATION

This chapter presents a discussion on programming and implementation of the Landuse Plan of the Upazila Shahar. The major aspects are phasing and priority action of projects, provision of Urban Deferred lands for future Governmental uses and development control, monitoring and review of the Upazila Shahar's Landuse Plan.

6.1 Priority Action, Cost Implication

The Landuse Plan of the Upazila Shahar enunciates a Landuse Zoning of different urban uses. The Landuse Zones are to be elaborated in future with detailed plans before laying out internal road and services network.

Some important services like, administration, health, education, market, commerce, community centre, stadium, park, telephone and postal service, power and water supply, and fire service are also to be developed on priority basis. The idea behind this priority action is that all possible sectors of urban services and revenue income are to be harnessed alongwith expansion of residential facilities.

The standards and provision of services followed in the Landuse Plan of the Upazila Shahar is in line with the present economic situation of the country. In most cases, a moderate approach is adopted in the provision of standards for each services and facilities.

It is considered that for any development of new services and facilities, land filling upto certain level may be required. As a result, cost of any project in the Upazila Shahar may include the cost of land filling.

6.2 Phasing, Urban Deferred

The present Plan is prepared keeping in view the requirements for the development of services and facilities consistent with the incremental changes of population. Usually, a 5000 population qualify to be a primary urban neighbourhood. In most cases, each neighbourhood and major Landuse Zones are bounded by service roads. As the plan period is divided into 5-yearly phases, concerned authorities are advised to follow the 5-year development targets as per population size of the periods.

The phase-wise development proposal should however differ in some priority areas such as, expansion of the principal road network for which land should be acquired on priority basis.

Table 6-1 presents a proposal of 5-yearly development programmes of landuses in the Upazila Shahar. The amount of land against each major landuse categories and over different plan periods is determined on the basis of population size and project priorities.

The present Landuse Plan is prepared on the basis of medium population projection. As a result, in future, additional land may be required to accomodate changes in population size and urban services and facilities vis-a-vis for any decision regarding new projects in the Upazila Shahar. Considering the above situation, the urban deferred land is distributed over different areas within the Shahar so that a balance may be maintained in the Landuse Plan. The total urban deferred area is 69.0 acres (27.94 hectares) which is 10.00 percent of the total land under the Upazila Shahar.

Table 6-1 Phases of development, 1985-2000.

Aspects/ Landuses	1st Phase 1985-1990 (%)	2nd Phase 1991-1995 (%)	3rd Phase 1996-2000 AD (%)	Total %
1. Administration	50	40	10	100
2. Commerce	40	40	20	100
3. Industry	30	40	30	100
4. Road	50	40	10	100
5. Health	40	40	20	100
6. Education	50	40	10	100
7. Recreation	40	40	20	100
8. Socio-culture	40	40	20	100
9. Urban services	50	40	10	100
10. Residential	30	40	30	100

6.3 Development Control

All types of development work including changes of any Landuse should be subject to planning control. It is necessary to specify the uses which will be normally permitted in various Zones. Uses which create siting problems, such as filling stations, cinemas, hotels, stadium, etc. will necessitate special consideration. Regulations regarding building heights, density, plot coverage, preservation of flora and fauna, preservation of historic sites and various taxes should be incorporated in the planning process.

At present, there are no planning rules or regulations to control growth in the Upazila Shahar. The provisions of the Municipal Ordinance is applicable only for the declared Municipalities. Hence, an appropriate Planning Regulation for all Upazila Shahars and potential Urban centres should be framed urgently. For the time being Pourashava Ordinance or the Building Construction Act of RAJUK (Rajdhani Unnayan Kartipakha) can be adopted for the Upazila Shahars unless other suitable measures are taken by the Government. In any case, the Upazila Parishad should be the custodian of the Landuse Plan.

6.4 Monitoring and Reviewing

Monitoring

The Upazila Parishad will act as the key Agency in the Government for monitoring the development work and exercising the development controls within the Upazila Shahar as stipulated in the Landuse Plan. Five Year Plans and Annual Development Plans should be prepared by the Upazila Parishad and approved by the Government on project basis. The Upazila Nirbahi Officer on behalf of the Upazila Parishad may seek advice from Urban Development Directorate in case of any difficulty in the implementation of the Plan.

Since all Development Agencies at Upazila level are integrated for the purpose of carrying out development work, the Upazila Parishad will also monitor the progress with the Sectoral Agencies at Regional and National levels.

Review of the Plan

The Landuse Plan of the Upazila Shahar is a broad guideline for development work. The proposals of the Plan are evolved on the basis of existing conditions and the trend of future growth. Therefore, for any significant change in the proposal of Landuses, revision on some of the proposals may be required. Hence, the Landuse Plan should be reviewed periodically. The Urban Development Directorate may undertake a Five Yearly Programme to review the Plan.

Appendix I : English Version of Questionnaire for Socio-economic Survey (Household level)

Socio-economic Survey
(Household level)

B. Consultants and Planners

1. General Information

- 1.1 Interviewer :
- 1.2 Date :
- 1.3 Respondent :
- 1.4 Upazila :
- 1.5 Mouza :
- 1.6 Plot/ holding No. :
- 1.7 Distance from the
Upazila Administra-
tive Complex :

2. Use of Transport

What Transport mode(s) you usually use to travel in
and around the Shahar (Any two by 1 (1st mode) and
2 (2nd mode))

On foot

Bicycle

Rickshaw

Bus

Other
(mention name)

3. Family Information

3.1 Name of household head;

3.2 Relationship of the Respondent with head of household;

3.3 Information on household members

Sl. No.	Relation with head of house- hold	Age	Sex	Education	Principal occupa- tion	Subsidi- ary occu- pation	Distance of work place	Remarks

N.B. Head of household and Respondent will be in serial number 1 and 2 respectively.

3.4 Has any member of the household settled here from other place ?

Yes

No.

If yes,

3.4.1 Which year ;

3.4.2 From where ;

From within the Upazila

From other Upazila

From other Zila

From other country

3.4.3 For what reason(s):

3.5 Has any member of the household migrated to other place ?

Yes

No.

If yes

- 3.5.1 Why has he/she migrated:
 3.5.2 Where has he/she settled:

- Within the Upazila
 Other Upazila
 Other Zila
 Other country

- 3.5.3 Year of migration:

4. Information on land

- 4.1 Total land of the household:
 4.2 Homestead area :
 4.3 land under agricultural use:

5. Information on Dwelling Houses

- 5.1

Materials	Thatch	Tin (C.I.Sheet)	Tali	Bamboo	Wood	Dud	Concrete Bricks
Components							
Roof							
Wall							
Floor							
Door/Window							

- 5.2 Number of floor in dwelling house

- One-storied
 Two-storied
 Three-storied
 Four-storied
 Multi-storied

5.3 Toilet Facilities

- None
 Katcha
 Lucca

5.4 Sources of water

- Urban supply
 Tube-well
 Well
 Pond/Tank
 Khali/river
 Other (specify)

5.5 Amount of water used per year.
 (If Meter exists)

5.6 Sources of light

- Electricity
 Hurricane
 Kupi/lamp
 Other (specify)

5.7 Quantity of electricity used per year.
 (if meter exists)6. Change of use in Land/Property

6.1 Was the use of land within the existing homestead compound same 10 years back?

- Yes No.

6.2 If no, what was the previous use?

7. Income and Expenditure

7.1 Income

Source	Yearly income (Taka)
Agriculture	
Fisheries	
Livestock	
service	
day labour	
Business/industry	
Other	
TOTAL:	

7.2 Expenditure

Item	Yearly expenditure (Taka)
Food	
Shelter	
Cloth	
Health	
Education	
Other	
TOTAL	

7.3 Last year's

Liability :

Credit :

Deposit :

Appendix II

Score	Census Population, 1988	Ranking
19881		
10	UPazilla Administration	1
9	Five Complexes	2
8	Other Govt. Offices	3
7	Health Complex	4
6	Rampally Planning	5
5	Market (Weekly/bi-weekly)	6
4	Post Office	7
3	Telephone Exchange	8
2	Police Station	9
1	College	10
0	High School	11
-1	Private School	12
-2	High Madrasah	13
-3	Jr. Madrasah/Maktab	14
-4	Motalled Road	15
-5	Unmetalled Road	16
-6	Railway Station	17
-7	Launch/Boat Ghat	18
-8	Bank	19
-9	Shops	20
-10	Mosque	21
-11	Temple/Church/Pagoda	22
-12	Bstadum	23
-13	Play Ground	24
-14	Community Centre	25
-15	Chhema Hall	26
-16	Godown	27
-17	Total Score	28

Appendix III: English Version of Questionnaire for Socio-economic Survey (Catchment area)

Socio-economic Survey
(Catchment Area)

B. Consultants and Planners

1. Name of Interviewer :
2. Date :
3. Place of Survey :
4. From which month have you come :
5. What is the distance from here :

Miles :

Kilometre:

6. How have you come ?

On foot

Bus

Bicycle

Train

Rickshaw

Other (specify) _____

Boat

7. How frequently do you come to the Shahr? :

At least once daily

At least once in every week

At least once in every month.