

URBAN DEVELOPMENT DIRECTORATE

MINISTRY OF WORKS

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

REPORT -IV

FINAL REPORT AND PLAN

LAND USE PLAN

PIRGACHA UPAZILA SHAHAR
RANGPUR ZILA

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GANIBANGLA LIMITED

CONSULTING ENGINEERS

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ENGINEERING - PLANNING - RESEARCH - DEVELOPMENT

চেয়ারম্যান উপজেলা পরিষদ

পীরগাছা, রংপুর।

স্মারক নং-



তারিখ ২৬/৫/১৫

প্রতি,

পরিচালক,
নগর উন্নয়ন অধিদপ্তর,
৮২, সেগুন বাগিচা,
ঢাকা।

পীরগাছা উপজেলা শহর প্রাণি ও রিপোর্ট এর উপর ঘনুবা।

কনসালটেন্ট মেশার্স পাবলিক লিমিটেড কর্তৃক তৈরী পীরগাছা উপজেলা শহরের বসড়া প্রাণি ও রিপোর্ট আমরা উপজেলা পর্যায়ের পর্য্যালোচনা করিলাম।

বসড়া প্রাণি সম্পর্কে আমাদের বিশেষ কোন ঘনুবা নাই। আমরা ইচ্ছা করি
বাস্তুবাহনের জন্য পদক্ষেপ গ্রহণের অনুরোধ রাখিতেছি।

(মোঃ মোঃ বিজয়ুর রহমান)
চেয়ারম্যান
উপজেলা পরিষদ, পীরগাছা, রংপুর।

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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. This also reflects the national policy of bringing the development activities to the door step of vast majority of rural population. The administrative re-organization has delegated more power to the upazila authority for planning, programming, implementing and controlling development activities within the upazila region. It is expected that with geared up administrative, social and economic activities the upazila headquarters will gradually emerge as sprawling urban centres. It is evident that most of the urban centres of the country have already grown in an unplanned haphazard way leading to a jumbling civic problem. The newly created upazila headquarters can be relieved from the curse and ills of unplanned growth through the preparation and implementation of the land use plan.

The upazila headquarters is conceived as focal point of development of the upazila as a whole. The activities performed in the headquarters will act as propulsive factor for generating development trends in the upazila. The land use plan prepared for the headquarters will serve as a guideline for a planned and co-ordinated development of prospective headquarters' town upto the year 2001. When successfully materialised, the land use plan will cause orderly growth of the town and its land uses. It will provide efficient transport network, promote development of commerce and industries, extended marketing facilities resulting in generation of more employment opportunities and will indicate more rational use of scarce land resources. 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 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 of settlements 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 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. But before regulations are formally passed the land use plan itself will require to be given legislative validity in the form of act.

In the light of the above circumstances, it is felt that the upazila centre should grow up expeditiously and the preparation of land use 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 plan for some of the upazila shahars of Bangladesh.

2. METHODOLOGY

The objectives and scope of services for preparing the land use plan for upazila shahar have been stated in section-2 and section-3 of the terms of Reference (TOR) respectively. To fulfill the requirements of objectives and scope of services it was needed to go through the following methodology for preparation of land use plan.

2.1 Existing Land Use Survey :

Mouza maps in the scale of 1 inch equal to 330 feet were collected from the D.L.R. covering whole of the designated study area and traced out with plot boundaries. Thus the field survey sheets were prepared. A plot to plot survey of current uses of land were marked on the survey sheets. The survey for current uses of land was 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 colours. The land use map was examined and analysed and finally shahar area was delineated. From the survey sheets a base map of existing land uses was prepared in graphics.

2.3 Existing Land Use Analysis :

A table on existing land uses were prepared from the survey map. The area of different uses were measured in grid method, consequently there might have some errors. The percentage of different land uses were also calculated.

2.4 Socio-Economic Survey and Data Analysis :

A format of questionnaire containing four pages was prepared and administered to collect the data on socio-economic condition of the people of the study area. Five percent of the total households were interviewed

by field investigators on random basis. The data thus collected were tabulated and analysed to find out the socio-economic characteristics.

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 of upazila shahar (scale of R.F. 1:1000). Layout of man-made structures was plotted to the correct scale. The level of land and flooded area were demarcated through physical verification. Contour maps were collected from the BWAPDA and compared with the survey map and finally the contours were interpreted on the survey map in a correct scale.

2.6 Determination of Hierarchy of Settlements :

The hierarchy of settlements were determined on mouza 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. Data and information on selected indicators were collected during the field survey from the upazila headquarters. These data were tabulated and they were given assumed weightage to find out the importance of each mouza. According to the weights ranking of mouza have been made.

2.7 Determination of Catchment and Shahar Area :

To determine the sphere of influence or the catchment area, data on commuting distance and service area of the upazila shahar were collected during the field survey. The physical features in and around the upazila shahar study area were analysed. The catchment area was determined and delineated through studies on commuting distance, service area and physical features of the upazila headquarters and surroundings. The shahar area was determined on analysis of existing land use survey. Trend of development of

settlements, availability of buildable land and physical features of surroundings have been given due considerations.

2.8 Forecasts :

The projections of population and labour force were made for the years 1986, 1991, 1996 and 2001 A.D. The population and labour force of 1981 were used as base year data. The past trend of rate of growth of population and labour force, the rate of migration and the specially the induced population due to upgradation of the upazila were given due consideration. Thus the low, medium and high projections were made.

2.9 Planning the Landuse :

The requirements of land were calculated on the basis of guidelines on planning provision standards as specified in the pages 8 to 11 of TOR. As the guidelines do not have legal enforcement, enough good reasons were provided during allocation of lands for various urban functional uses. A new type of land use plan was developed which would be realistic and implementable in the present day circumstances. The methodology applied in forecasting the private land use involves forecasting in intensification of existing land use and extension of new lands.

2.10 The Final Plan :

A comprehensive and integrated land use plan were prepared for the development of the upazila shahar. Special attention was given in organizing the functional uses of lands.

3. THE UPAZILA IN ITS DISTRICT CONTEXT.

3.1 Physical Characteristics :

Historical background of the upazila :

The upazila is said to have been established in 1913. The local people are in the opinion that in the past the present place of the upazila was visited by many Peers (Saintly men) for which it was named Pirgacha. The upazila assumed the same name at the time of its creation.

Location of the upazila :

Pirgacha is one of the upazilas of Rangpur Zila. The distance between Pirgacha and the Zila Headquarters is 32.20 km. (20 miles) and located on the south-east of it. The Pirgacha Upazila lies between 25°-34' and 25°-42' north latitude and 89°-17' and 89°-20' east longitude. It is bounded from the north by Kaunia and Rajarhat Upazila, from the south by Mithapukur and Sundarganj Upazila, from the east by Sundarganj and Ulipur Upazilas and from the west by Rangpur and Mithapukur Upazilas. It comprises a total area of 267 sq.km. (103 sq. miles). It includes 9 unions and 170 mouzas.

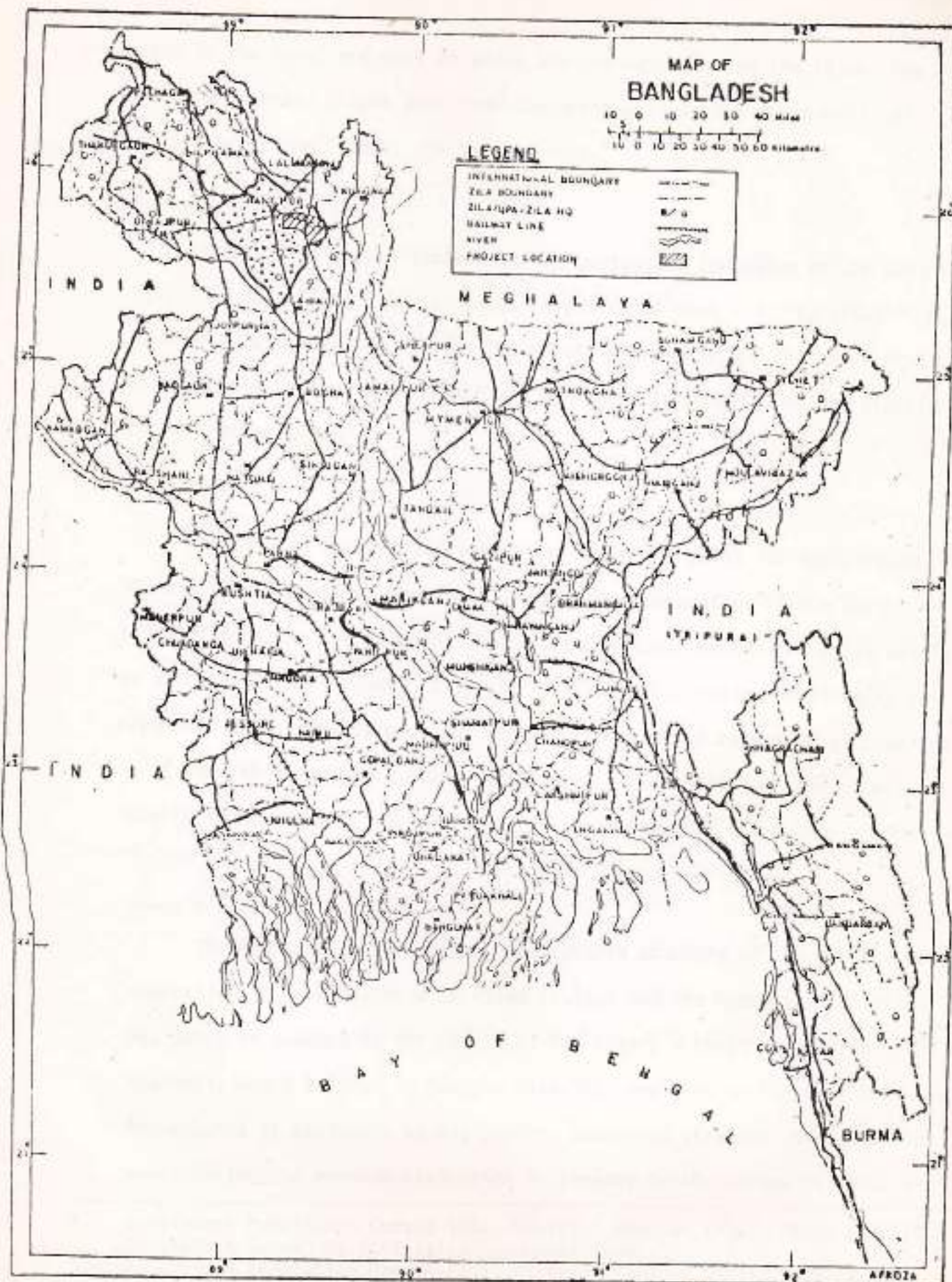
Location of the upazila shahar :

The upazila shahar of Pirgacha is located on 25°-38' north latitude and 89°-24' east longitude. The railway line from Gaibandha to Lalmonirhat passes just stirring the wester edge of the upazila shahar.¹

Topography :

The Zila of Rangpur (old) is a vast alluvial plain without any natural elevation. There are large extent of high sandy plains. A strip of high land is also found along the west. The rest of the district, specially towards the

1. Map of Police Station Pirgacha, Scale 1" = 1 mile, District Rangpur, Surveyed in Season 1933-34, Printed in 1976.



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east is low level and most of which are inundated during the rains. The surface gently slopes down from the north-west to the south-east as displayed by the flow of the great rivers.²

Geology :

There is no marked feature in the geological formation of the Zila (old). It is a large alluvial tract composed of sand and clay brought down by great Himalayan rivers. The tract in the west and the south-west boarding the (old) Zila of Bogra and Dinajpur, is composed of old alluvium locally known as pali.

Soils :

The Zila is generally divided into two major parts for the purpose of soil classification. The first part is a continuation of the Barind tract of Dinajpur and Rajshahi and is locally known as Khiyar. It is mainly an outcrop of stiff raddish clay. The soils in this region is strongly impregnated with iron and contains kankor or nodulos of carbonate of lime and is of raddish or greyish colour. The 2nd part is composed of new alluvium locally known as pali. The soils of this area consists of varying proportion of clay and sand.³

River system :

The Brahmaputra flows along the eastern boundary of the district (old) separating it from Goalpara in Assam (India) and the Mymensingh district, but owing to changes in the course of the river, a tract of alluvial land at Rowamari, which belongs to Rangpur district, now lies on the east bank. The Brahmaputra is navigable by big country boats and steamers throughout the year. During the monsoon navigation is impeded by the strong current; whilst

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2. Bangladesh Population Census-1981. District Rangpur (old), Pages XXV-XXVI, Bangladesh Bureau of Statistics, December 1984.
 3. Bangladesh Population Census-1981, District Rangpur (old), Page-XXVI, Bangladesh Bureau of Statistics, December 1984.

in the dry season a large number of shoals and sand banks obstruct the channel. The most noticeable features in this great river are the immense number of islands and sand banks formed by its current, and the constant changes its course. The principal tributaries of the Brahmaputra on its western bank, within Rangpur, are the Tista, Dharla, Samkas and Dudkumar.

Climate :

The climate of the Zila (old) is that of a sub-tropical country with special characteristics derived from its physical conformation, the proximity at the Himalayas and the Garo Hills. Thus climate is mild with equable temperature, high humidity and plenty of rainfall. The average maximum temperature in the Zila during summer becomes 31°C while the average minimum temperature in winter becomes 12°C. December, January and February are the cold months and dry. The monsoon usually sets in June and continues till September. The rainfall is generally observed during the months of July and August.⁴

Agricultural Land Use :

According to the Rangpur District Statistical report of 1983, the total arable land of Rangpur Zila is 566,282 acres and that of Pirgacha Upazila is 63,755 acres. The net cropped area of the zila is 409,321 acres or 72.28 percent of the total available land, and that of the upazila is 48,128 acres or 75.49 percent of the total area (1981-1982). The intensity of cropping of Pirgacha Upazila is 177.99 and that of the zila is 148.93. The triple cropped land of the zila is 58,971 acres or 10.41 percent and that of the upazila is 4,847 acres or 7.60 percent. (table No. may be seen)

4. Bangladesh Population Census-1981, District Rangpur (old), Page-XXVII, Bangladesh Bureau of Statistics, December, 1984.

TABLE NO. 1
Pirgacha Upazila
Rangpur Zila (new)
Land Utilization and Land Capability
1981 - 1982

	Total	Current fallow	Single cropped area	Double cropped area	Triple cropped area	Net cropped area	Total cropped area	Intensity of cropping
1981-1982	63755	1363	15442	27839	4847	48128	85661	177.99
Rangpur Zila 1981-1982	566282	9340	120660	229690	58971	409301	756952	148.93

Source : Rangpur District Statistics - 1983.
Table No. 3.02, 3.03, 3.04 and 3.05, Pages (20-23)
Bangladesh Bureau of Statistics.

Land Capability :

According to the Rangpur District Statistics of 1983, 87 percent of the soils of Pirgacha upazila is doash and only 10 and 3 percent of the soils are sandy and etel respectively. For agriculture the soils of Pirgacha Upazila is very fertile. It may be assumed that the land of Pirgacha Upazila may produce more crops through the use of fertilizer and irrigation more intensively.

3.2 Population and Settlement Distribution.

Rangpur Zila :

According to the district census report 1981, the total area of Rangpur Zila (new) is 2,313 sq.km. and that of urban is 92.4 sq.km. or 3.99 percent of the area of the zila. According to the same report the total population of the zila is 1,703,367 persons of which 206,937 persons or 12.15 percent are urban. The total number of households is 316,051 and that of urban is 23,847. The average density of population of the zila is 679 persons per sq.km. and that of urban area is 2240 persons per sq.km. The annual rate of growth of population in the zila and urban area are 3.00 and 6.09 percent respectively.

The Rangpur town is the only paurashava area in the zila. The area of Rangpur town is 38.60 sq.km. having urban population 153,174 persons. The density of population of the Rangpur paurashava area is 3,968 persons per sq.km.

Pirgacha Upazila :

The total area of Pirgacha upazila is 267 sq.km. out of which 8.6 or 3.22 percent are urban. The total number of households of the upazila is 39,514 and that of urban area is unknown. The total population of the upazila is 210,136 persons and that of the urban area is 10,530 persons or 5.31 percent of the upazila population. The average density of population of the upazila is 788 persons per sq.km. and that of the urban area is 1,224 persons. The annual rate of growth of population of the upazila is 2.59 persons and that of the urban area is unknown because the urban population has been declared recently.

Migration :

In the district census report of Rangpur-1981, the annual rate of growth of population inbetween the census years 1974-1981 has been recorded as 2.54 percent. The annual rate of growth of population of paurashava inbetween these census period was 10.62 percent. From this analysis we may assume that the annual rate of migration is $10.62 - 2.52 = 8.08$ percent. The cause of such high rate of migration may be ascribed to movement of people from rural areas to urban areas for socio-economic reasons and due to the inclusion of additional areas in the urban category.

According to the census report of Rangpur District-1981. The urban population of Pirgacha Upazila is recorded as 10,530 persons. The density of urban population of the upazila is higher than that of the surrounding rural areas. It is not possible to determine the rate of migration from rural areas towards the urban centre, because it is the first time that the all rural upazila

TABLE NO. 2
 Pirgacha Upazila
 Rangpur Zila (new)
 Distribution of Population and Settlements.

	Area in sq.km.		Households 1981		Population 1974		Population 1981		Density of Pop. 1981		Rate of Growth	
	Total	Urban	Total	Urban	Total	Urban	Total	Urban	Total	Urban	Total	Urban
Pirgacha Upazila	267	8.6	39514	N/A	175271	N/A	210136	10530	788	1224	2.59	N/A
Rangpur Zila	2313	92.4	316051	23874	1380623	72829	1703367	206937	679	2240	3.0	6.09

Source : 1. Rangpur District Statistics-1983
 Table No. 1.02 and 1.03, Pages (4-5)
 2. Upazila Statistics, Vol. 1, 1985,
 Table No. 2.03, Page No. 57.
 3. District Census Report, Rangpur - 1981
 Bangladesh Bureau of Statistics.

centres of Bangladesh have been treated as urban area irrespective of its area, population and level of urbanization.

Distribution of Settlements :

There is only one paurashava area in the new Zila of Rangpur. The new Zila is consisted of 8 upazilas. There are 82 Union Headquarters. It includes 1194 mouzas. For details table No. 3 may be seen.

TABLE NO. 3
Distribution of Settlements in
Rangpur Zila (New).

	Urban settlement		Rural Settlements	
	Upazila Shahar	Municipal Town	Mouzas	Union Headquarters
1. Sadar Upazila	1	1	149	12
2. Kaunia	1	-	80	6
3. Gangachara	1	-	73	8
4. Mithapukur	1	-	310	17
5. Pirganj	1	-	308	15
6. Pirgacha	1	-	170	9
7. Badarganj	1	-	64	10
8. Taraganj	1	-	40	5
Zila	8	1	1194	82

3.3 Economic Performance and Transport Linkages :

Employment and Underemployment :

The total population of Rangpur Zila (new) is 1,707,264 persons out of which 879,071 persons are male and 828,193 persons are female. The total number of population at the age group 10 years and over is 1,108,801 or 64.94 percent. The total number of employed is 491,554 persons or 44.33 percent,

and the rest 55.67 percent are house-wives, students and underemployed. In the total labour force the percentage of male are 92.36 and that of female are 8.64.

Amongst the employed 326,886 persons or 66.50 percent are engaged in agriculture. In nonagricultural sector 164,668 persons or 33.50 percent are engaged. For details Table No. 3 and 4 may be seen.

Upazila :

The total number of population of Pargacha Upazila is 210,323 persons out of which 106,153 persons are male and 104,170 persons are female. The total number of population at the age group 10 years and over is 133,411 persons or 63.43 percent of the total population. The total number of employed of the upazila is 58,614 persons or 43.93 percent and the rest 56.07 percent are house-wives, students and underemployed. The employment condition of upazila is lower by 0.4 percent than that of the zila. In the total employed, the participation of male are 89.52 percent and that of female is 10.48 percent.

The total number of persons employed are 58,614 persons out of which 42,623 persons or 72.72 percent are engaged in agriculture, directly or indirectly. In nonagricultural sector 15,991 persons or 27.28 percent are employed. For details Table No. 3 and 4 may be seen.

Income and Expenditure :

Data on income and expenditure of the zila and upazila are not available. The data on income and expenditure structures of the people of study area have been collected through the socio economic survey which are discussed in the section of socio-economic data analysis of this report.

TABLE NO. 4

Pirgacha Upazila

Rangpur Zila (New)

Population and Employment Structure-1981.

Locality	Population			Population 10 Years +			Labour Force		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Upazila	210333	106153	104170	133411	67353	66048	58614	52472	6142
Zila	1707264	879071	828193	1108801	577743	531554	491554	449072	42482

Source : 1. Upazila Statistics, Vol. 1, 1985.

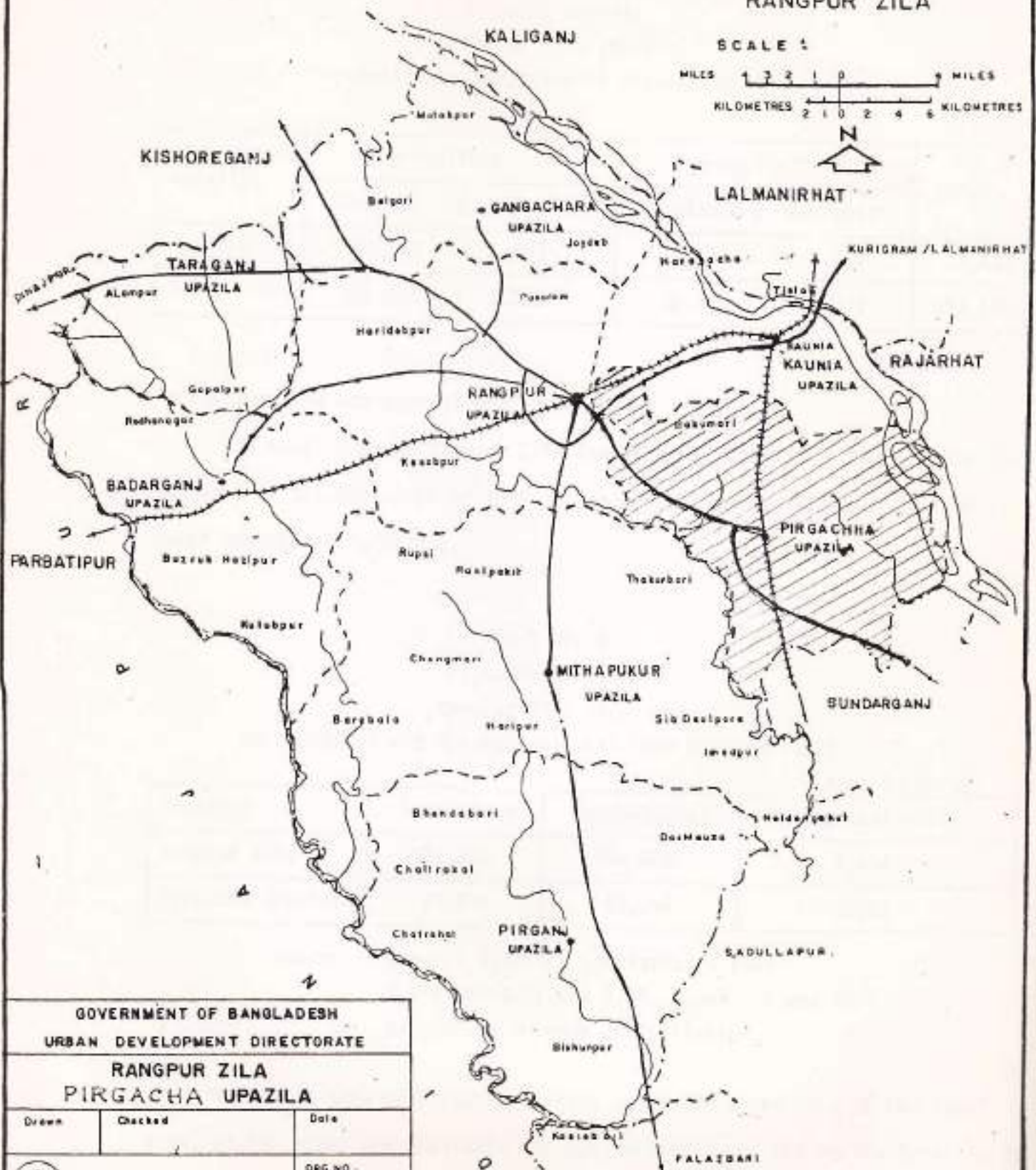
Table No. 2.02, Page No. 42

Bangladesh Bureau of Statistics.

RANGPUR ZILA

SCALE 1

MILES 1 2 3 4 5
KILOMETRES 2 1 0 2 4 6



GOVERNMENT OF BANGLADESH		
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RANGPUR ZILA		
PIRGACHA UPAZILA		
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TABLE NO. 5
Pirgacha Upazila
Rangpur Zila (New)
Professional Structure of Population-1981.

Locality	Agriculture		Non-agriculture		Others
	Cropping	Non-cropping	Manufacture	Business	
Upazila	42,140	483	131	3,179	12,621
Zila	321,656	5,230	16,148	36,835	111,685

Agriculture and Non-agriculture :

The total area of Rangpur Zila (new) is 571,520 acres. The areable lands amounted to 566,826 acres or 99.00 percent. The rest 4,694 acres or 1.00 is under non-agricultural use.

TABLE NO. 6
Pirgacha Upazila
Rangpur Zila (New)
Agricultural and Non-Agricultural Land Use 1981-1982.

Locality	Total Area	(Area in Acres)	
		Agricultural	Non-Agricultural
Rangpur Zila	571,520	566,826	4,694
Pirgacha Upazila	65,928	63,755	2,165

Source : Rangpur District Statistics - 1983
Table No. 1.01 and 3.05, Pages - 3 and 23.
Bangladesh Bureau of Statistics.

The total area of Pirgacha upazila is 65,928 acres. Out of the total area, 63,755 acres are available for agricultural use. The agricultural lands occupy 96.70 percent of the total available lands. The non-agricultural land amounts to 2,165 acres or 3.30 percent.

Transport Linkages :

There are 5447.69 kilometres of road networks in Rangpur Zila (new) out of which 211 kilometres are metalled 46.69 kilometres are semi-metalled and rest 5,490 kilometres are non-metalled.

The total network of roads in the Pirgacha upazila is 784.04 kilometres, out of which 4.83 kilometres are metalled, 1.61 kilometres are semi-metalled and rest 777.60 kilometres are non-metalled.

There are 17 kilometres railway line within the upazila of Pirgacha having three railway stations. Water-ways do not play any dominant role in transportation.

TABLE NO. 7
Pirgacha Upazila
Rangpur Zila (New)
Road Kilometres by type, distance and modes
of Communication : 1981-1982.

	Road Kilometre by type			Distance from D.H.Q.	Modes
	Metalled	Semi-Metalled	Non-Metalled		
Upazila	4.83	1.61	777.60	32.20	Train, Buses
Zila	211.00	46.69	5190.00	-	Auto-Rickshaws Rickshaws

Source : Upazila Statistics, Vol. 1, 1985
Table No. 6.01, Pages : 201,
Bangladesh Bureau of Statistics.

The upazila headquarters of Pirgacha is well connected with the zila headquarters both by rail (via Kaunia) and roads. The distance between the zila headquarters and the upazila headquarters by road is 32.20 km.

The mode of transportation are train, buses, autorickshaws and rickshaws. In rainy season small country boats play a nominal role. The bullock carts play an important role in transportation of goods.

3.4 Social and Economic Infrastructures of Upazila Region :

Markets/Commerce :

Village markets play an important role in the rural economy of Bangladesh. There are 18 markets/centre of commerce in Pirgacha upazila. They meet once or twice in a week. Most of the markets have daily bazar facilities. There is one market for 11,674 persons. The marketing facilities in the upazila is inadequate.

Education :

There is one general college located in the upazila headquarters. There are also two high madrasas. There are 27 high schools including high madrasas, which means one high school for 7,783 persons. There are 83 primary schools. One primary school for 2,532 persons.

Health and Welfare :

There are 6 health and welfare centres in the Pirgacha upazila. In the Upazila Health Complex, there are 31 hospital beds, 7 qualified doctors and 37 staffs. The average number of daily out-door patient are 150 persons. There are one hospital bed for 6,778 persons.

Urban Services and Facilities :

There is only one police station in the upazila. There are 7 post offices. One post office serves 30,019 persons. The postal service in the upazila is quite good. Supply of electricity exists only in the upazila centre. Out of 199 villages of the upazila, 5 villages have so far been provided with electricity. There is a cinema hall in the upazila centre

having 600 seats. There are 11 bank branches in the upazila. One bank branch for 19,103 persons. There is only one telephone and telegraph office in the upazila.

3.5 Current Development Projects (1986 - 87) :

In Pirgacha Upazila, projects have been undertaken by Upazila Parishad and CARE. Information as to the cost and progress of these projects are given below.

Table : Projects of Upazila Parishad

Projects	Estimated Cost Tk.	Progress %	Remarks
1. Agriculture & Irrigation Sector	77,552	100%	
2. Transport and Communication	3,32,535	80%	
3. Cottage Industries	2,00,000	90%	
4. Housing and Settlement	5,00,000	80%	
5. Health and Welfare	55,000	100%	
6. Sports and Culture	1,50,000	100%	
7. Rural Works	1,30,000	100%	
8. Renovation	50,000	95%	
9. Miscellaneous	1,25,000	100%	

Source : Upazila Engineer, Local Govt. Bureau, Pirgacha

Table : Projects of CARE

Projects	Estimated Cost Tk.	Progress %	Remarks
1. RCC Culvert (40'-0") in Itakumari Union (CARE -05)	5,80,725	Nil	Fund Returned
2. RCC Culvert (18'-0") in Annada Union (CARE - 07)	2,34,850	100%	
3. Culvert (10'-0") in Kaikhari UP	1,26,000	100%	
4. Bridge Construction in Pirgacha	18,000	100%	
5. Bridge repair in Parul Union	20,000	100%	
6. Bridge repair in Kandi Union	41,000	100%	
7. Culvert reconstruction in Itakumari Union	18,000	100%	

Source : UPAZILA ENGINEER, Local Govt. Bureau, Pirgacha

Synthesis : Identification of Hierarchy of Settlements in the Upazila :

In the upazila region of Bangladesh, rural functions are found neither concentrated in one particular centre nor fully dispersed. They have unique characteristics of their own and differ from one region to another. Sometime commercial activities are found to be concentrated with social activities and sometime they are also found dispersed in different places. For this reason, it will be a wise policy to determine the hierarchy of settlements on mouza basis to find out their exact locations. The hierarchy of settlements are determined on mouza basis, depending on population, economic and social infrastructures provisions, transport linkages and related other characteristics.

To determine the hierarchy of settlements, 18 main socio-economic indicators have been selected (see table No. 8). Data on these selected indicators have been collected on mouza basis from the upazila headquarters during the field survey in the month of September-1986. The distribution of socio-economic indicators on mouza basis have been shown in table No. 9.

Selected socio-economic indicators have been given assumed weightage for each (see table No. 8). According to the given weight, the gravity of each function located in related mouza have been calculated (see table No.10). Finally, the total weight of each mouza have been found out.

According to the respective weights, the ranking of mouza have been made. (see table No. 10 and the upazila map.)

TABLE NO. 8
Pirgacha Upazila
Indicators of Hierarchy of Settlement

Sl. No.	Infrastructures	Abrivation	Weight
1.	Public Institution/(UNO complex)	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	Ec	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	2-5
11.	Electricity	Et	2-5
12.	Religious Institution	Ri	1-5
13.	Road Pucca	Rp	1-5
14.	Station (Rail, Water, Bus)	St	1-5
15.	Recreation (Park, Playing Field, Cinema)	Re	1-5
16.	Bank	Bk	1-5
17.	Area 500 Acres	Ar	1-6
18.	Population 500 persons	Pn	1-6
			30-100

TABLE NO. 9
Pirgacha Upazila
List of Indicators of Hierarchy of Settlement

JL No.	Name of Mouzas	Pi	Ch	In	Ps	Hw	Ec	Eh	Ep	Po	Tt	Et	Ri	Rp	St	Re	Bk	Ar	Pn
1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
11.	Sachash	-	1	1	-	-	-	1	1	-	-	-	1	-	-	1	-	682	2158
19.	Deuti	1	1	-	-	-	-	1	1	1	-	-	1	-	-	1	1	691	2408
24.	Saidpur	1	1	1	-	-	-	1	1	-	-	-	-	-	-	1	-	226	891
36.	Hasna	-	1	-	-	-	-	1	1	-	-	-	1	-	-	-	-	402	1473
43.	Itakumari	-	1	1	-	1	-	1	2	1	-	-	1	-	-	1	-	413	1519
46.	Annadanagar	1	1	1	-	1	-	1	2	1	1	1	1	1	1	1	2	269	1303
143.	W. Hagoria	-	1	-	-	-	-	1	1	-	-	-	1	-	-	-	-	134	740
154.	Tambaipur	-	1	1	-	1	-	1	1	1	-	-	-	-	-	-	-	1565	5587
75.	Chandipur	-	1	1	-	-	-	1	2	-	-	1	1	1	-	1	1	783	2749
116	Barapansia	1	1	1	1	1	-	1	1	1	1	1	1	1	-	1	1	314	983
115.	Anantaram (UNO)	1	1	1	-	1	-	1	2	-	-	1	1	1	-	1	-	2093	8352
81.	Guabaria	1	1	1	-	-	-	1	2	-	-	1	1	1	1	1	3	221	2178
91.	Chaudhurani	-	1	-	-	1	1	1	2	1	-	1	1	1	1	1	2	278	796
164.	Taluk Kandi	-	1	1	-	1	-	1	1	1	-	-	1	-	-	1	-	910	2663
23.	Parul	-	1	1	-	1	-	1	1	1	-	-	1	-	-	1	-	1113	3485

TABLE NO. 10

Pirgacha Upazila

Determination of Hierarchy of Settlements by Weightage Method.

JL No.	Name of Mouzas	Pi	Ch	In	Ps	Hw	Ec	Eh	Ep	Po	Tt	Et	Ri	Rp	St	Re	Bk	Ar	Pn	Total
1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
11.	Sachash	-	2	2	-	-	-	3	1	-	-	-	2	-	-	2	-	2	4	18
19.	Deuti	5	2	-	-	-	-	3	1	3	-	-	2	-	-	2	2	2	5	27
24.	Saidpur	5	2	2	-	-	-	3	1	-	-	-	-	-	-	2	-	1	2	18
36.	Hasna	-	2	2	-	-	-	-	1	-	-	-	2	-	-	-	-	2	3	12
43.	Itakumari	5	2	2	-	2	-	3	2	3	-	-	2	-	-	2	-	1	3	25
45.	Annadanagar	5	2	2	-	2	-	3	2	3	2	2	2	2	2	2	4	1	3	41
143.	W. Hagoria	-	2	2	-	-	-	3	1	-	-	-	2	-	-	-	-	1	2	13
154.	Tambalpur	-	2	2	-	2	-	3	1	3	-	-	-	-	-	-	-	3	5	21
75.	Chandipur	-	2	2	-	-	-	3	2	-	-	2	2	2	-	2	2	2	5	26
116.	Barapansia	7	2	2	5	3	-	3	1	3	3	3	2	2	-	2	2	1	2	44
115.	Anantaram (UNO)	10	2	2	-	5	-	3	2	-	-	3	3	3	-	2	-	5	5	45
81.	Guabaria	5	2	2	-	-	-	6	2	-	-	3	4	4	3	4	5	1	5	44
91.	Chaudurrani	-	2	-	-	2	5	3	2	3	-	3	2	2	2	2	4	1	2	35
164.	Taluk Kandi	-	2	2	-	2	-	3	1	2	-	-	2	-	-	2	-	2	5	23
23.	Purul	-	2	2	-	2	-	3	1	2	-	-	2	-	-	2	-	2	5	23

4. SOCIO-ECONOMIC CONDITION OF THE STUDY AREA.

According to the instruction given in the scope of work 4.3 of the TOR, the socio-economic survey for the study area of Pirgacha Upazila Shahar was completed. The main objective of socio-economic survey was to find out the socio-economic conditions. The results of analysis of socio-economic data may help to locate adequate functions of government's services and facilities of basic needs in the upazila shahar which will bring some significant improvements in the quality of life of rural people. The data thus collected are analysed in the following paragraphs.

4.1 Population Characteristics :

Population Growth :

Socio-economic survey for 72 households were completed. There are 348 persons in 72 households out of which 183 persons are male and 165 persons are female. There are 111 males for 100 females. From this analysis, it is possible to assume that due to upgradation of the upazila economic activities have already been started in the upazila centre which in turn generated employment opportunities. Male persons have come to the upazila centre leaving their families behind in villages.

Age and Sex Composition :

The age and sex composition of the people of the study area showed that the age group of 10 to 30 years accounts 50.00 percent of the total population. Above this age group the percentage of population falls sharply. It is evident from this analysis that only younger group of people concentrated in the upazila centre for jobs.

Literacy of Population :

According to the socio-economic survey, out of 308 (6 + age group) persons, 70 persons are literate. The rate of literacy is 22.50 persons. The rate

of literacy of the upazila as a whole is 16.50 percent only and that of the national is 23.80 percent. The rate of literacy of male and female are 30.50 and 14.00 percent respectively.

TABLE NO. 11
Pirgacha Upazila Shahar
(Study Area)
Age and Sex Composition of Population
September - 1986.

Age Group	Population			Percentage
	Total	Male	Female	Total
0 - 5 years	40	18	22	11.50
6 - 10 "	53	22	31	13.23
11 - 15 "	46	19	27	13.22
16 - 20 "	45	23	22	12.93
21 - 25 "	33	22	11	09.48
26 - 30 "	37	21	16	10.63
31 - 35 "	24	11	13	06.90
36 - 40 "	19	16	03	05.46
41 - 45 "	17	05	08	04.88
46 - 50 "	15	10	05	04.31
51-55 "	07	04	03	02.02
55 - 60 "	06	04	02	01.72
61 - above	06	04	02	01.72
All age group	348	183	165	100.00

Household Structures :

In the study area there are 7 pucca and 7 semi-pucca households. Most of the households are kutcha. We may say that the structures of households of the study area is poor. The classification according to the household structures are shown in Table No. 11.

TABLE NO. 12
Pirgacha Upazila Shahar
Household Structure of Study Area.
September - 1986.

Type of Structures	No. of households	Percentage
Pucca	7	9.72
Semi-pucca	7	9.72
Tin-Shade	26	36.12
Tin-Bamboo	23	31.94
Thatched	9	12.50
All Category	72	100.00

4.3 Economic Performance :

Employment and Underemployment :

The total number of population of age group 10 years and above is 265 persons, out of which 112 persons or 42.50 percent are employed in different sectors of economic activities. The number of persons unemployed are 147 or 55.24 percent which includes housewives, students and underemployed persons. Six persons are invalid.

TABLE NO. 13
Pirgacha Upazila Shahar
Employment Structure of Study Area
September - 1986.

Sl.No.	Employment Structure	Persons	Percentage
1.	Employed	112	42.50
2.	Unemployed	147	55.24
3.	Invalid	6	2.26
	10 + Population	265	100.00

Professional Structures :

The total of employed persons are 112 only out of which 48 persons or 42.86 percent are agricultural labour force. The number professional and technical labour force are 54 persons or 48.21 percent. Employment in other sectors of economy amounts to 10 persons. For details Table No. 13 may be seen.

TABLE NO. 14
Pirgacha Upazila Shahar
Professional Structures of Study Area
September - 1986.

Sl.No.	Profession	No. of Households Survey = 60 Percentage....	Total No. of Households = Percentage....
1	Agriculture	48	42.86
2.	Professional and Technical	54	48.21
3.	Administrative and Management	6	5.36
4.	Clarical	1	0.89
5.	Sales	-	-
6.	Production & Transport	3	2.68
		259	100.00

4.4.3 Income and Expenditure :

The annual income of 16 households or 22.22 percent of the total households are between taka 18,000 to 25,000 only. The income of highest income group lies between taka 26,000 to 50,000 and number of households in this income group are 41 or 56.95 percent. The income of one household is between Tk. 101,000 to 125,000 only.

The annual expenditure of 16 households or 22.22 percent of the households are between 18,000 to 25,000 only. The expenditure of 41 households or 56.95 percent of households are between taka 26,000 to 50,000 only. The expenditure of 1.40 percent of households are inbetween taka 101,000 to 125,000 only.

The lowest income of households is taka 18,000/- and that of highest is taka 105,000/- only. The average income and expenditure of the households are taka 39,555/- and 39,555/- respectively. The average annual savings of households is zero. For details Table No. 14 may be seen.

TABLE NO. 15
Pirgacha Upazila Shahar
(Study Area)
Average Annual Income and Expenditure in Thousand Taka

Rank in Thousand TK.	Income		Expenditure	
	Households	Percentage	Households	Percentage
0 + 25	16	22.22	16	22.22
26 - 50	41	56.95	41	56.95
51 - 75	12	16.66	12	16.66
76 - 100	2	2.77	2	2.77
101 - 125	1	1.40	1	1.40
	72	100.00	72	100.00

According to the survey the main sources of income of households are agriculture and business or both. The mentionable fields of expenditure are food and dress. Only a small amount of money is spent for education.

4.4 Small Scale and Cottage Industries :

There are 11 small scale and cottage industries in the study area of Pirgacha. Most of them are rice husking and flour mills. There is one Ice-cream factory, one saw mill and one printing press.

The average number of workers in a mill is 10 persons. The highest number of workers in a rice mill is 25 persons. Even a single person works in a rice husking mill.

The average of the workers distance is 6 km. Highest distance of a worker is 10 km. Most of workers comes from 3 to 8 km. distant.

4.5 Educational Institutions :

Primary Schools :

There are 3 primary schools in the study area having 1086 children. The average of enrolment capacity of a primary school is 362 children. The average of teachers in a school is 6 persons approximately. There is one teacher for 57 children. Most of the primary schools have drinking water and toilet facilities. Out of 3 primary schools none of the school buildings are pucca.

4.5.2 Secondary Schools :

There is one secondary school for boys and one secondary school for girls. The boy's. The boy's secondary chrolls 575 students. The total number of teachers are 12 persons. The ratio of teacher and student is 1:47. There is a secondary school for girls. There are 373 girls and 12 teachers in this school. The ratio of teacher and student is 1:31.

4.5.3 College :

There is a college in the study area named the Pirgacha Degree College. The college enrolls 1746 male and 226 female students. There are 36 teachers in the college. The ratio of teacher and student is 1:55 only.

4.6 Administrative Institutions :

Administrative institutions includes both the public institutions and semi-government institutions. Besides the upazila complex, there are four other offices. The total number of officers are 7 and that of staff are 30 only. The commuting distance of officers and staff ranges 4-12 km. The analysis of upazila complex will be delt later on.

4.7 Financial Institutions :

There are 4 financial institutions in the study area namely the Agrani Bank, the Grameen Bank, the Sonali Bank and the Bangladesh Krishi Bank. There are 13 officers and 68 staff working in these banks.

4.8 Health and Welfare :

There is only one health centre in the study area called the Pirgacha Upazila Health Complex. There are 31 beds in this hospital. The number of doctors and employees are 7 and 31 respectively. The average of outdoor patients per day is 150 only. There is veterinary hospital.

4.9 Recreational Facilities :

There are playing fields attached to the college and the boys secondary school. There is no stadium for general sports and games. There are club which is not notable. In Pirgacha Upazila study area there is a cinema hall named Lucky Cinema Hall. It having 600 seat. The total number of employees are 12 persons.

TABLE NO. 16
 Pirgacha Upazila Shahar
 (Study Area)
 Information of Educational Institutions
 September - 1986.

Name of Institution	Location	Area in Acres	No. of Students			No. of Teachers	Facilities				
			Total	Male	Female		Structure	playing Field	Drinking water	Toilet	Others
Pirgacha D. College	Chandipur	4.07	1972	1746	226	36	Pucca Semi-pucca	Yes	Yes	Yes	
Pirgacha J.N. High School	Guabari	6.98	631	631	-	11	-	Yes	Yes	Yes	
Pirgacha Girls' High School	Guabari	1.39	373	-	373	12	-	Yes	Yes	Yes	
Pirgacha G.P. School	Anantaram	1.70	386	192	194	7	Semi-pucca	Yes	Yes	No	
Nasu Md. G.P. School	Guabari	2880 Sft.	600	225	375	8	Pucca	No	No	Yes	

4.10 Distance of Important Places from Home :

The distance of main roads, working places and other service centres from residences of the people is needed to analyse the adequacy of services in any urban area. The following analysis shows the distances of service facilities from the residences.

Main Road :

The distance of 40 households or approximately 55.55 households is 0.5 km. Almost all of the households are located within 1.5 kilometre distance from the main road. We may say the road service is quite good in the study area.

Working Place :

The place of working is very nearer for most of the people of the study area. The distance 17 households or 23.61 percent of the households are within 0.5 km. only. The maximum distance of working place from the households is 2.5 km. only.

Primary School :

The distance of 25 households or 34.72 percent of households is within 0.5 km. from the primary school. This distance is desirable walking distance of primary school children. The distance between 20 households and primary school is more than the walking distance of the that age children. It is necessary to locate more primary schools in the study area.

High School :

The distance of 26 households or 36.11 percent of the households from the high school is 1 km. One kilometre distance may be considered as desirable walking distance of high school going boys or girls. Rest of the households lie at a distance more than 1 km.

Hospital :

Only 26 households lie within a radius of 1 km. from the hospital. Rest 46 households lie within 2.5 km. from the hospital.

Post Office :

The postal service of the study area is not quite good. About 32 households or 44.44 percent of households live within 1 km. radius from the post office.

Rail/Bus Stations :

The distance of 36 households or 50 percent of the households lie within 1 km. distance from the Bus/Rail Station of the study area.

4.11 Available Facilities :

According to our socio-economic survey, the employment facilities in the study area is very poor. Even trade and commerce are yet to be flourished. The linkage facilities for all is available. There are education facility, health facility and sports facilities in the study area. Electricity is available in the study area. The main source of drinking water is tube-well. Tube-well water is available for most of the households. The telephone service in the study area is very inadequate.

5. THE UPAZILA HEADQUARTERS.

5.1 Definition of Sphere of Influences/Attractiveness :

Functions located in space have dynamic influences on surroundings. 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 specialized functions may have greater zone of influences.

In an upazila headquarters, located government services have their zone of influences over whole of the upazila region. The social functions like Hospital, College, Sports stadium etc. may have greater zone of influences spreading even beyond the territorial boundaries of the upazila region.

The zone within the commuting distance of an upazila shahar may be called the catchment area. The information and data collected during the socio-economic survey have been analysed and described in the preceeding chapter on socio-economic condition of the study area. Here a little light is thrown on it.

The Pirgacha upazila headquarters lies on Gaibandha - Lalmonirhat railway track. A semi-metalled road also joins the headquarters with Rangpur town connected with Rangpur town via Kaunia. It is also therefore, officials both government and non-government, workers in industries and customers pirgacha Bazar can commute form distant places. Studies on commuting distances of govt. officials showed that it ranges from 4-16 km. The industrial workers come from 3 km. to 10 km. distances. The buyers and sellers of Pirgacha Bazar comes from 4 to 10 km. distances.

TABLE NO. 17
Pirgacha Upazila Shahar
Area, Households, Population and Labour Force of the
Catchment Area-1981.

SL. NO.	Name of Mouza	Area in Acres	House-holds	Population	Labour Force
1.	Kamdeb	201	283	1,313	880
2.	Chatta Hayat Khan	161	103	516	320
3.	Uttar Anantaram	279	174	885	577
4.	Araji Pratapbishu	186	63	316	202
5.	Arazi Jhinia	159	56	270	187
6.	Chatta Jhinia	260	206	1,047	688
7.	Haricharan	205	172	1,001	629
8.	Rajballabh	155	76	376	227
9.	Paschim Debu	661	329	2,026	1,269
10.	Arazi Debu	118	67	364	241
11.	Birbiria	236	97	579	371
12.	Pabitrajhar	730	463	2,494	1,496
13.	Sukhan Pukur	318	216	1,140	731
14.	Chandipur	784	492	2,749	1,685
15.	Taluk Isas	1,970	1,052	5,375	3,405
16.	Kismat Sukhan Pukur	258	117	565	372
17.	Kismat Jhinia	598	323	1,654	1,051
18.	Bara Pansia	314	185	983	640
19.	Guabari	212	399	2,178	1,478
20.	Anantaram	2,093	1,579	8,352	5,314
21.	Araji Gopal	262	77	432	276

SL. NO.	Name of Mouza	Area in Acres	House-holds	Population	Labour Force
22.	Chalnia	181	72	380	259
23.	Dilalpara	210	164	872	565
24.	Nazar Mohammad	260	384	2,206	1,346
25.	Chaudhurani	278	163	796	502
26.	Jamirjan	298	155	773	488
27.	Ramchandra Para	449	390	841	1,249
28.	Harideb	281	209	1,099	688
29.	Balihar	209	140	701	439
	Catchment Area	12,326	8,265	50,734	27,575

Source : Bangladesh Population Census-1981.
 Thana Series. Table No. Col and Co4.
 Pages 85-91 and 420-427
 Bangladesh Bureau of Statistics, 1985.

TABLE NO. 18
Pirgacha Upazila Shehar
Area, Population and Rate of Growth of the Catchment Area
1961, 1974 and 1981.

Sl. No.	Name of Mouza	Total Area Acres Hectors		Total Population		Area Involved Acres Hectors	Population Involved		Growth Rate	
		1961	1974	1961	1974		1961	1974	1961-'74	1974-'81
1.	Kamdeb	201	81	760	1,121	1,312	201	81	2.99	2.24
2.	Chatta Hayat Khan	161	65	302	483	516	161	65	3.61	0.98
3.	Uttar Anantaram	279	113	543	740	885	279	113	2.38	2.55
4.	Araji Pratap-bishu	186	75	101	283	316	186	75	7.92	1.57
5.	Arazi Jhinia	159	64	99	230	270	157	64	6.48	2.29
6.	Chatta Jhinia	260	105	728	973	1,047	160	705	2.23	1.04
7.	Haricharan	205	83	533	769	1,001	205	83	2.82	3.76
8.	Rajballabh	155	63	248	347	376	155	63	2.58	1.14
9.	Paschim Debu	661	267	1,324	1,878	2,026	661	267	2.69	1.06
10.	Arazi Debu	118	48	165	268	364	118	48	3.73	4.37
11.	Birbiria	236	95	319	474	575	236	95	3.04	2.85
12.	Pabitrajhar	730	295	1,137	2,000	2,494	730	295	4.34	3.15
13.	Shukhan Pukur	318	129	633	896	1,240	318	129	2.67	3.44
14.	Chandipur	784	317	1,377	2,038	2,749	784	317	3.01	4.27
15.	Taluk Isad	1,970	797	3,160	4,608	5,375	1,970	797	2.90	2.20
16.	Sukan Pukur	258	104	284	1,469	565	258	104	3.85	2.66
17.	Kismat Jhinia	598	242	906	1,495	1,654	598	242	3.85	1.43
18.	Bara Pansia	314	127	535	798	983	314	127	3.07	2.98
19.	Guabari	212	86	750	1,449	2,178	212	86	5.06	5.82
20.	Anantaram	2,093	847	4,713	6,604	8,352	2,093	847	2.59	3.35

The analysis above showed a special cases of commuting distances due to its location on railway line. But walking distances must be considered here to define the zone of influences. From analysis and assumptions it may be said that the zone of influence very 5-10 km. (See the hierarchy of settlement map). The area included in the zone of influence amounts to 12,326 acres containing 8265 households and 50,734 population.

Details of area, population, households and labour force of the catchment area are shown in table No. 17 and 18.

5.2 Definition of Shahar Area :

To prepare the land use plan for Pirgacha Upazila Shahar in order to serve as locational guidelines indicating places of work, residence and recreation and to facilitate public and private developments at the upazila shahar through physical planning approach, a detailed plot to plot survey of current uses of land was completed for 2050 acres of lands. The survey map was analysed very carefully and found that most of the non-agricultural functions including the residential areas have been concentrated around the upazila centre. The land of pheripheral areas are mainly under the use of agriculture, which should not be brought under any non-agricultural use. Finally, 1242 acres of land containing 1,081 households and 5,710 population have been included in the shahar area of Pirgacha. The shahar area includes the mouzas of Guabari and part of Bara Pansia, Chandipur, Anantaram, Sukhan Pukur and Kismat Jhinia. For details, the existing land use map of Pirgacha Upazila Shahar may be seen.

5.3 Existing Land Use, Facilities and Utilization Characteristics :

The area of Pirgacha Upazila Shahar includes 1242 acres of lands. The current uses of land of Pirgacha Upazila Shahar have been classified Mouza-

TABLE NO. 19
Pirgacha Upazila Shahar
Area, Households, Population and Labour Force of
the Planning Area-1981.

Sl. No.	Name of Mouza	Area in Acres	Households	Population	Labour Force
1.	Guabari	212	399	2,178	1,478
2.	Bara Pansia	314	185	983	640
3.	Sukhan Pukur	120	81	427	274
4.	Chandipur	140	87	489	300
5.	Anantaram	402	300	1,486	946
6.	Kismat Jhinia	54	29	147	95
	Planning Area	1,242	1,081	5,710	3,733

TABLE NO. 20

Area, Population and Rate of Growth of the Shahar Area
1961, 1974 and 1981.

Sl. No.	Name of Mouza	Total Area		Total Population			Area Involved		Population Involved			Growth Rate	
		Acres	Hectors	1961	1974	1981	Acres	Hectors	1961	1974	1981	1961-'74	1974-'81
1.	Guabari	212	86	750	1,449	2,178	212	86	750	1,449	2,178	5.06	5.82
2.	Bara Pansia	314	127	535	798	983	314	127	535	798	983	3.07	2.98
3.	Sukhan Pukar	318	129	284	1,469	565	120	49	239	338	427	2.66	3.34
4.	Chandipur	784	317	1,377	2,038	2,749	140	57	246	362	489	3.01	4.21
5.	Anantaram	2,093	847	4,713	6,604	8,352	402	163	907	1,268	1,486	2.57	2.26
6.	Kismat Jhinia	598	242	906	1,495	1,654	54	22	82	135	147	3.83	1.21
	Shahar Area	4,319	1,748	8,565	13,853	16,481	1,242	504	2,759	4,352	5,710	3.50	3.88

Source : As given in Table No. 18

wise and function-wise as shown in Table No. 21. The facilities and utilization characteristics have been discussed in the following paragraphs.

Agriculture and Forestry :

Land covered by agriculture and forestry are amounted to 887.00 acres or 71.11 percent of the shahar area of which 12.00 acres of land are covered by forest located in Anantaram mouza. In the designated shahar area non-agricultural uses of lands are concentrated around the upazila headquarters and railway station. The agricultural lands with scattered settlements are found throughout the shahar area. The urban functions are found mainly in mouzas of Guabari, Barapansia and Anantaram along the Pirgacha-Rangpur metalled road and also around the railway station.

Commerce and Industry :

Commerce and Industry together cover 6.75 acres or 0.54 percent of the shahar area. Commerce alone cover 6.00 acres of land located in mouza Guabari on the west of railway station. Only 0.75 acre of land is used for industrial purpose and located in mouza Chandipur for rice mills.

Administrative :

Lands used for administrative purposes are amounted to 22.00 acres or 1.77 percent of the available land. For UNO complex 11.75 acres of land are used are located in mouza Anantaram and Barapansia. UNO complex also includes 0.75 acre from Barapansia. The UNO complex is located on the south of Pirgacha - Rangpur metalled roads and lies on the east of railway line. For semi-govt. and autonomous bodies 10.25 acres of land are used. Most of them are located in mouza Anantaram. Only 2.25 acres are located in mouza Guabari.

Socio-Cultural :

Land used for socio-cultural use amounts to 28.75 acres or 2.31 percent of the shahar area. For education 15.20 acres of lands are used. The pirgacha College is located in the junction of Sukuanpukur, Chandipur and Guabari mouza's. The boys high school is located in mouza Guabari on Pirgacha-Rangpur metalled road and on the east of railway station. The girls high school is located on the west of the railway station. The high madrasha is located on mouza Anantaram. For health and welfare 7.50 acres of land are used. The Upazila Health Complex is located in mouza Anantaram on the west of UNO complex covering 6.50 acres of land. Another health centre located in Guabari mouza covers one acre land. For religious purpose 0.50 acre of land is used. There is a graveguard in mouza Chandipur covering 5.50 acres of land and lies on the north of Pirgacha-Rangpur road in the most of the centre of the shahar.

Urban Services :

For urban services 33.75 acres or 2.77 percent of the available Lands are used. The post office located in mouza Guabari near the boys high school cover 0.50 acre. The telephone exchange located just opposite the UNO complex cover 1.00 acre. The police station cover 4.50 acres of land in mouza Barapan-sia. The railway station cover 28.00 acres of land of Guabari mouza.

Recreational :

There are two Cinema Halls located in mouza Guabari covering together 1.00 acre of land. There is no organised planning field.

Roads :

Roads including the railway line cover 76.25 acres or 6.14 percent of the shahar area. The rail track covers 19.75 acres and the metalled road cover 19.00 acres.

Residential :

Existing residences cover 154.25 acres or 12.41 percent of the shahar area. They are scattered throughout the shahar area. There is no planned housing estate.

Water Bodies :

Ponds and Cannals cover 33.25 acres or 2.71 percent of land. They are found scattered throughout the shahar are specially they are found attached to the residences.

5.4 Physical Opportunities and Constraints :

Land tenure :

The land tenure system in Rangpur is similar to that of almost whole of Bangladesh. The land revenue system introduced by the British Ruler was inevitable after Independence in 1947. By a legislation known as the East Bengal Estate Acquisition and Tenancy Act 1950 all proprietary rights of the middle men that is the Zamindars and other sublessees 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 majority of the governed and the tillers of the soil became also its real proprietors.

But the local system of land tenure is little deviated and according to the District Statistics of Rangpur-1983, the number and area of farm holdings by tenure in 1977 are discussed here for the Pirgacha Upazila. The reliable data on land tenure system were not available for the shahar area.

The total number of farm holdings are 27,287 which include 79,078 acres of land. The number of owners holdings are 15,207 which amounts to 41,503 acres or 52.48 percent of the total arable land. The number of tenant holdings are 339 which includes 453 acres or 0.57 percent of the cultivated land. The number of owner-cum-tenant holdings are 11,739 which contains 37,122 acres or 46.94 percent of agricultural lands.

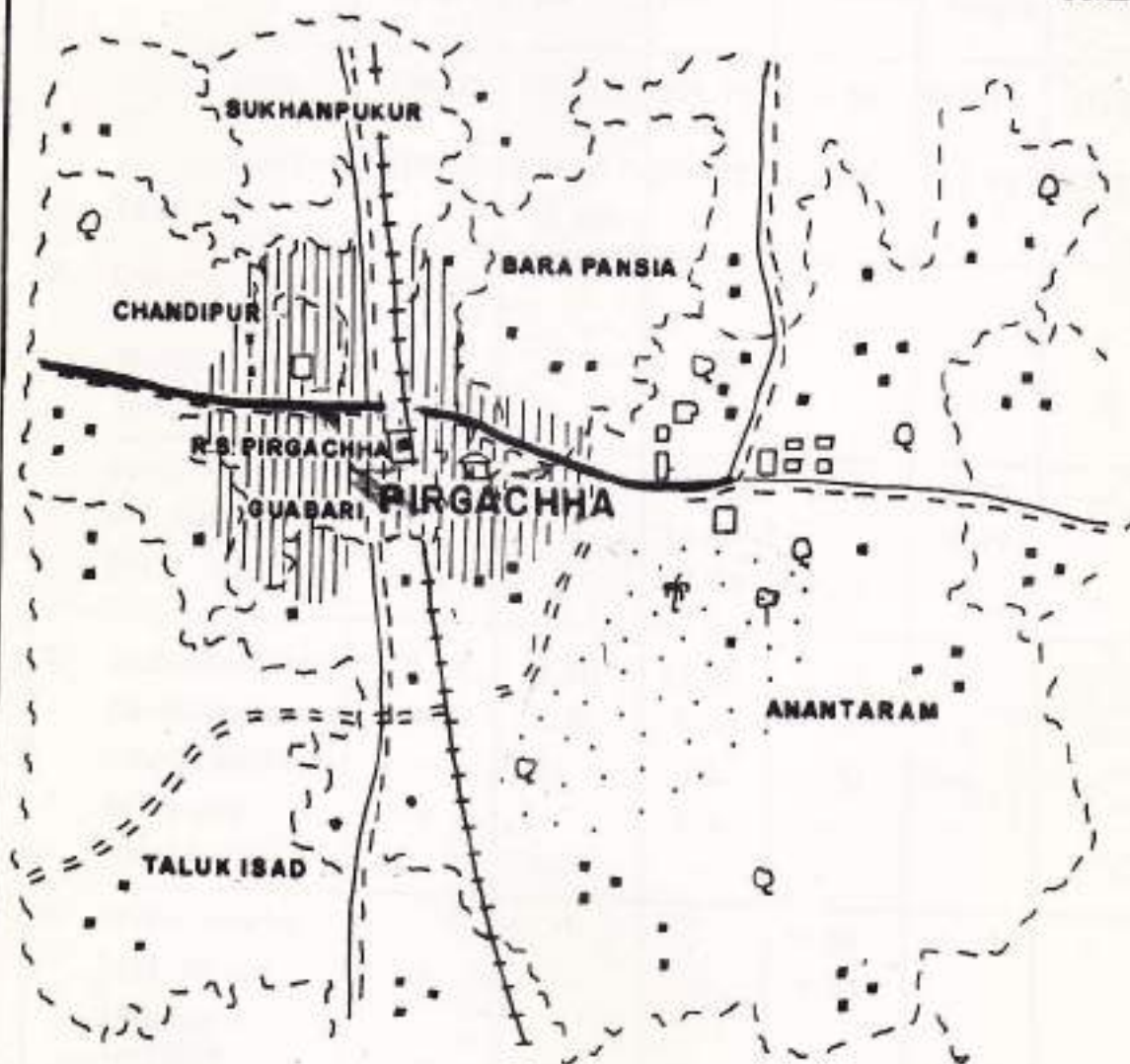
Land Value :

According to the information collected during the field survey, the value of land in and around the upazila headquarters has greatly been increased due to the upgradation of upazila. At present the value of one acre of residential land ranges from Tk. 45,000/- to 4,00,000/-. The value of fertile agricultural land ranges from taka 40,000/- to 3,50,000/-. The value of medium agricultural land which produces two crop in a year lies between taka 35,000/-

MAP OF PHYSICAL OPPORTUNITIES AND CONSTRAINTS PIRGACHHA UPAZILA SHAHAR



SCALE: 1" = 1 MILE



LEGEND

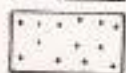
1 BUILDABLE LANDS



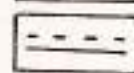
4 PUCCA ROAD



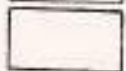
2 LOW LANDS



5 SEMI PUCCA ROAD



3 LANDS OF HIGH
AGRICULTURAL VALUE



6 MOUZA BOUNDARY

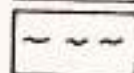


TABLE NO. 21
Pirgacha Upazila Shahar
Existing Land Use Analysis (September-1986)
(Area in Acres)

Function/Mouza	Sukhan Pukur	Chandi-pur	Anante-ram	Guabaria	Bara Pansia	Kismat Jhinia	Total	Per-centage
1. Agriculture and Forestry	108.00	106.50	254.75	126.25	247.75	44.00	887.00	71.41
Agricultural-Forest	108.00	106.50 12.00	244.75 -	126.25 -	247.75 -	44.00 -	875.00 12.00	
2. Commerce and Industry	0.75		6.00				6.75	0.54
Market			6.00				6.00	
Industry	0.75						0.75	
3. Administrative			19.00	2.25	0.75	-	22.00	1.77
UNO Complex			11.00	-	0.75	-	11.75	
Govt. Dept.			8.00	2.25	-	-	10.25	
4. Socio-Cultural	0.25	8.50	12.00	8.00	-	-	28.75	2.31
Education	0.25	3.00	5.00	7.00	-	-	15.25	
Health Welfare	-	-	6.50	1.00	-	-	7.50	
Religious	-	-	0.50	-	-	-	0.50	
Cemetary		5.50	-	-	-	-	5.50	
5. Urban Service	-	-	-	28.50	5.25	-	33.75	2.77
Post Office	-	-	-	0.50	-	-	0.50	
Telephone Exchange	-	-	-	-	1.00	-	1.00	
Police Station	-	-	-	-	4.25	-	4.25	
Bus/Rail Station	-	-	-	28.00	-	-	28.00	
6. Recreational	-	-	-	1.00	-	-	1.00	0.00
Cinama hall	-	-	-	1.00	-	-	1.00	

Function/Mouza	Sukhan Pukur	Chandi-pur	Anante-ram	Guabaria	Bara Pansia	Kismat Jhinia	Total	Per-centage
7. Roads	10.50	5.00	31.25	14.00	10.25	5.00	76.25	6.14
Rail Track	8.25	-	9.25	-	2.25	-	19.75	
Primary Road	-	-	3.00	8.00	8.00	-	19.00	
Local Road	2.25	5.00	19.00	6.00	-	5.00	37.50	
8. Water Bodies (Ponds & Canals)	1.00	6.00	20.00	6.00	-	-	33.25	2.71
9. Residential	1.25	13.50	65.00	20.00	50.00	5.00	154.25	12.41
Total -	120.00	140.00	402.00	212.00	314.00	54.00	1242.00	100.00

to 3,00,000/-. The value of poor agricultural land which produces one crop or no crop in a year ranges from Taka 20,000/- to 1,00,000/- per acre. The poor agricultural land includes low lands and high lands of the upazila. High lands can be brought under agriculture with intensive irrigation. The high land is suitable for urban development. The mouza-wise land value in details has been shown in Table No. 22.

Land Suitable for Building :

In the upazila shahar and surroundings buildable high lands are available. The high lands in the upazila shahar are much not suitable for agriculture. They can not be brought under agriculture without intensive irrigation which may be costly. On the other hand the agricultural land around the shahar is fertile. It may therefore be assumed that the high lands in and around the shahar are suitable for building. As the value of land is very high they should be used economically for urban functions. Compact land use development plan should be prepared for Pirgacha Upazila Shahar.

TABLE NO. 22
Pirgacha Upazila Shahar
Land value in per acre in Taka
September-1986.

J.L.NO.	Name of Mouza	Category of Lands			
		Residential Land	Fertile Ag. Land	Medium Ag. Land	Poor Ag. Land
75	Chandipur	65,000	60,000	50,000	40,000
81	Guabari	4,00,000	3,50,000	300,000	100,000
82	Taluk Isad	60,000	50,000	40,000	20,000
115	Anantaram	2,00,000	1,50,000	100,000	70,000
116	Barapansia	45,000	40,000	35,000	20,000
117	Kismat Jhinia	80,000	75,000	65,000	45,000
80	Sukanpukur	80,000	75,000	65,000	45,000
	Average	1,33,000*	1,15,000	94,000	49,000

Source : Chairman, Pirgacha Upazila.
3.9.1986.

Land to be Reserved for Agriculture and Other Specific Uses :

The agricultural lands on the east, south, west and the north-west should be brought under any non-agricultural use very carefully, because they are very fertile. The land on the south-east of the upazila shahar in mouza Anantaram is low where urban development can not be taken place. Only high lands which are not suitable for agriculture should be brought under urban use.

Land Liable for Flooding and Similar Disadvantages :

It has already been stated that the land on the south-east of the upazila centre is low and easily flooded. Urban development can not be taken place on these low lands. The lands on other sides of the upazila shahar are very fertile and they should be kept reserved.

6. FORECASTS :

6.1 Population Projection :

In order to estimate the amount of land may be required for various functional uses, it is necessary to estimate the growth of population of the shahar area as well as the Catchment area. To achieve the above objectives the population projections for the years upto 2001 A.D. were prepared with five year intervals. The population projections were estimated based on the data of 1981.

One of the main objectives of Governments administrative decentralization policy is to provide employment opportunity locally, so that people from communiting distances can come to work in the upazila shahar and go back to their own residences. We may also assume that in most of the cases the upazila shahar will be a small service centre for the catchment area as well as for the upazila region.

Under above circumstances, instead of taking into account the rate of normal migration the amount of induced population has been taken under the consideration of population projections. The following are the major assumption for base population and for fertility as well as mortality.

1. Assumption for base Population are :

- (a) the population of the shahar and catchment area are 5,710 and 50,734 persons in 1981 respectively.
- (b) due to the establishment of new administrative headquarters at upazila shahar, population will increase in public, private and Service Sectors by 1:0.5 : 0.5
- (c) the projections of catchment area includes the population of shahar area. The rate of growth of population of shahar and catchment areas have been avoided because one does not conform with other.

2. The assumption for fertility are :

- (a) high fertility but showing decline over the period from 6.3 in 1981-85 to 5.7 in 1996-2000 A.D.
- (b) medium fertility, assuming a considerable fertility decline from 6.0 in the first period to 4.8 in the last period figure of 6.0 refers to 1980-85 and assumed that a decline has already taken place from 6.3 in 1981.
- (c) low fertility, assuming an even larger decline since 1981 to 5.6 averaged over 81-85, continuing to 3.8 for the period 1995-2000 A.D.

- (c) low fertility, assuming an even larger decline since 1981 to 5.6 averaged over 81-85, continuing to 3.8 for the period 1995-2000 A.D.
3. The mortality rate assumptions are :
- (a) assumed high mortality with a slight increase from 48 in 1981 to 49 for the 81-85 period rising to 52 from 1995-2000 A.D.
 - (b) assumes medium mortality, that average of 50 for the 1981-85 period and risen to 56 by the 1996-2000 period.
 - (c) assumes low mortality rate, with an even greater improvement in life expectancy from an assumed 5 average for the 81-85 period to 60 for the 1996-2000 period.

According to the organization chart, the total member of government officials will be 225 persons, It may be assumed that the total number of induced population in the upazila shahar will be $225 \times 2 \times 6 = 2700$ persons. (6 persons per family).

On these above assumption the high, medium and low projections of population for both the shahar area and catchment area estimated separately. According to the High Medium and Low projections the population of the shahar are will be 14,318, 13,787 and 11,259 in 2001 A.D. and that of the Catchment Area (including Shahar Area) will be 95,831 ; 88,343 and 74,383 respectively. For details table No, 23 and 24 may be seen.

Aspects of Migration :

The cause and affect of administrative decentralization on concentration of functions in the upazila shahar have been stated in introductory chapter of this report.

From the analysis of socio-economic data of the upazila region and upazila shahar, the main aspects of migration of population may be summerised as follows :

- (a) the induced population to the upazila shahar due to upgradation.
- (b) concentration of population in private and service sectors for per-cepted employment and income.

TABLE NO. 23

Pirgacha Upazila

Population Projections of the Shahar Area
(1981-2000 A.D.)

Projections	1981	1986	1990	1996	2000
High projections	5,710	7,883	10,475	12,238	14,318
Medium Projections	5,710	7,813	10,337	11,792	13,787
Low Projections	5,710	7,657	9,750	10,581	11,259

Total of assumed induced population = 2,700 persons.

50% " " " " = 1,350 "

which are added to the projected population of 1985 and
1990 in High, Medium and Low projections.

RATE OF GROWTH OF POPULATION

Fertility	Mortality	1981-1985	1985-1990	1990-1995	1995-2000
High	Low	2.73	2.97	3.16	3.19
Medium	Medium	2.51	2.61	2.67	2.57
Low	High	2.61	1.87	1.65	1.25

Source : Working Paper Two-1984, Page
National Physical Planning Project
Urban Development Directorate

TABLE NO. 24
Pirgacha Upazila
Population Projections of the Catchment Area

Projections	1981	1986	1990	1996	2000
High Projections	50,734	59,398	70,108	81,907	95,831
Medium Projections	50,734	58,779	68,211	77,816	88,343
Low Projections	50,734	57,392	64,412	69,904	74,383

Note : Induced population assumed as a 700 persons of which 50 percent or 350 persons are added to the projected population of 1986 and rest 50 percent or 1,350 persons are added to the projected population of 1991.

RATE OF GROWTH OF POPULATION

Fertility	Mortality	1981-1985	1985-1990	1990-1995	1995-2000
High	Low	2.73	2.97	3.10	3.19
Medium	Medium	2.51	2.61	2.67	2.57
Low	High	3.01	1.87	1.65	1.25

Source : Working Paper Two-1984, Page
National Physical Planning Project
Urban Development Directorate

Projections of Labour Force and Employment :

To findout the requirements of lands for various urban functions it is necessary to estimate the amount of labour force. For the estimated labour force necessary provisions of jobs may be created and they will be located in space. For labour force projections, the rates of growth of labour force are determined based on the estimate of World Bank. The World Bank estimates that the national rate of growth of labour force per annum in Bangladesh in 1977-2001 A.D. is 2.7 percent as compared with respective rate of population growth 2.6 percent (see World Bank Development Report-1979. P-162).

The rate of growth of labour force may be assumed to be 2.8, 2.7 and 2.6 percent for high, medium and low projections respectively.

According to the socio-economic survey, 46.45 percent of the labour force are employed in different sectors of economy. The analysis of professional structure also shows that only 10.77 percent are employed in agriculture. It is felt that the employment in non-agricultural sectors are increasing. To provide these labour force in non-agricultural sectors, provisions of jobs should be created locally and they should be located in space in the upazila shahar.

According to the high, medium and low projections, the labour force of the Catchment area are 49,983; 49,032 and 48,100 persons in 2001 A.D. For details Table No. 25 May be seen.

Projections of Households (Shahar Area)

To estimate the requirements of land for the residential purpose, it is necessary to forecast the member of households may be required for the shahar area upto the year 2001 A.D. The average size of households in dwelling units are found 5.6 for the upazila, 5.4 for the Zila and 5.8 for the nation. In estimating the number of households may be required for the shahar area, the size of households are used 5.4 for high, 5.6 for medium and 5.8 for low projections. Estimation of households are calculated simply dividing the number of estimated population of the shahar area by the size of households. For details Table No. 26 may be seen.

TABLE NO. 25
 Pirgacha Upazila
 Projections of Labour Force
 (Catchment Area)

Projections	1981	1986	1990	1996	2000
High Projections	27,575	32,392	37,922	43,537	49,983
Medium Projections	27,575	32,238	37,565	42,917	49,032
Low Projections	27,575	32,085	37,212	42,307	48,100

Note : World Bank estimates that the National rate of growth of labour force/annum in Bangladesh in 1977-2000 is 2.7% as commercial with the respective rate of population growth of 2.6% (See World Bank Development Report-1979, P. 162).

Assumed induced population are 2,700 person which containing Labour Force 1468 person. Fifty percent or 734 labour force are added to the projected labour force of 1986 and rest to that of 1991.

TABLE NO. 26
Pirgacha Upazila
Rangpur Zila
Projections of Households Shahar Area

Projections	Size H.H. 1981	No. H.H. 1984	No. H.H. 1985	No. H.H. 1991	No. H.H. 1996	No. H.H. 2001
High Projections	5.4	1057	1447	1914	2184	2553
Medium Projections	5.5	1020	1395	1846	2106	2462
Low Projections	5.8	985	1347	1782	2033	2377

H.H. = HOUSEHOLDS.

Note : Number of households as found in the census report of 1981. In estimating the number of households population of medium projections are used.

Projections of Density of Populations :

To accommodate the estimated population with residential facilities, it is needed to determine the density of population of the shahar area. According to the census report of 1981, the population of the shahar area 5710 persons the land use survey of the shahar area is completed at the end of 1986. According to the survey the residential areas cover 154.25 acres of land. According to the medium projections the population of the shahar area are 7013 persons in 1986. Therefore, the average net density of population is $7013/154.25 = 51$ persons per acre.

According to the TOR, the average net density of population in the shahar area will be 100 persons per acre. The statement is not rational and will not hold good in this particular case, because, at present no legislation exists to control the private use of land. It may be assumed that the density of population will increase in the existing residential areas and to accommodate the estimated population, extension and creation of new residential areas will be needed.

According to the medium projection, the population of the shahar area will be 13,787 persons 2001 A.D. and let it be assumed that the density of population will be 70 persons per acre in the existing residential areas in 2001 A.D. Therefore, $154 \times 70 = 10,780$ persons will be accommodated in the existing residential areas through the method of intensification of population and $13,787 - 10,780 = 3007$ persons will be required to distribute through extension of residential areas. A housing estate of 10 acres with density of 100 persons per acre is proposed and will accommodate $10 \times 100 = 1000$ persons. Remaining $3007 - 1000 = 2007$ persons are needed to distribute through method of extension of areas around the existing ones. It is possible to assume that the density of new areas will be 50 persons per acre. Therefore $2000/50 = 40$ acres of new land for residential purposes will be needed.

Land Requirements According to the Provisional Standards (upto 2001 A.D.) :

Land allocations are provided in multiples of the unit provisions quoted in pages 7 and 8 of the TOR. It may be noted that land use standards, except residential, relate to the whole of catchment area of the upazila shahar. Residential land allocations are made for the shahar population only. Whenever amount of land use allocations are found deviated from the provisional standards, necessary strong reasons are provided in support. It is

very important to note here that the medium population projections of catchment area and shahar area have been used in estimating the requirements of land for different urban functional uses. According to the medium projection of the population of shahar area and that of the catchment area 13,707 and 88,343 persons respectively. Details of land requirements according to the provisional standards are shown in Table No. 27

Table No. 27
Pirgacha Upazila Shahar
Land Requirements According to the Provisional Standards
Upto 2001 AD in Acres

Functions	Catchment/ Shahar Area	Standards as per TOR	Land Req- uirements asper TOR	Existing	Proposed
a) <u>Commerce and Industry</u> Shops, Commercial Office, Small Scale Industry	Catchment	1.50 ac per 1000	132.50	6.75	50.00
b) <u>Social, Administrative Cultural and Urban Services</u>					
Education :					
Nursery / Primari School	Shahar	2.00 ac per 5000	5.52		
Secondary School	Catchment	5.00 ac per 20000	22.08	15.25	28.00
College	-do-	-do-	22.08		
Health :					
Dispensary/ Maternity / Child Care	-do-	1.00 ac per 5000	17.67	7.50	11.50
Health Centre/ Hospital	-do-	5.00 ac per 20000	22.08		
Administrative and Judiciary (including Officers' Residences)	Upazila	12.00 ac/ Upazila	12.00	22.00	25.00
Recreation :					
Parks, Open Space	Shahar	1.00 ac per 1000	13.80	Nil	12.00
Cinema, Closed Space	Catchment	0.50 ac per 20000	2.08	1.00	1.00

Table No. 27 ... contd.

Functions	Catchment/ Shahar Area	Standards as per TOR	Land Req- uirements asper TOR	Existing	Proposed
Sports Stadium	Catchment	3.00 ac per 20000	13.25	Nil	7.00
Social, Cultural : Community Centre	Shahar	1.00 ac per 20000	0.69	Nil	0.50
Religious facilities	-do-	0.50 ac per 5000	1.38	0.50	4.00
Cemetary	-do-	5.00 ac per 20000	3.45	5.50	5.50
Urban Services : Post Office	Catchment	0.50 ac per 20000	2.21	0.50	0.50
Telephone Exchange	-do-	-do-	2.21	1.00	1.00
Police Station	-do-	2.00 ac per 20000	8.83	4.25	4.25
Bus / Ghat / Rail Stations	-do-	1.00 ac per 20000	4.42	28.00	29.00
Others	-do-	-do-	4.42	Nil	3.00
c) <u>Roads</u> :					
Major	Shahar	5 to 10 per cent	62.10 to 142.20	76.25	86.61
Secondary					
Local					
d) <u>Residential</u> :	Shahar	1.00 ac per 100	171.81	154.25	204.00
e) <u>Urban Deferred</u> :	-do-	10%	38.70	Nil	38.70
f) <u>Reserve</u> :					
Pond, Canals and Others	-do-	Nil	33.25	33.25	33.25

7. THE LAND USE PLAN

7.1 Approach :

Since there was no effective legislative basis to control the use of private urban land nor the means to enforce such a control, it was decided that the plan should not be a land use plan which would regulate the type and intensity of private residential and commercial development in the traditional zones of development control. Instead the plan could realistically aim at achieving only planned and controlled development of public sector projects for which purpose legislative provisions and institutional framework exists.

However, it was felt that private residential and commercial development can be forecast in terms of location and intensity of development. It was realized that forecasting of private land use development together with planned public sector development projects mainly roads, industrial estates, public, housing and community facilities can produce a minimum land use plan. This plan may not create an optimal urban land use development, but will be much more rational than the present uncontrolled and uncoordinated development. The main features of the adopted land use planning approach are then ;

- 1) Forecasting of land use development and,
- 2) Identification and locational planning of public sector projects on the basis of the present and future needs.

7.2 Concept :

The lands planning of upazila headquarters means the land use plan of the upazila shahar. In the Government's policy of administrative re-organization, the upazila has been recognised the most significant tier of the administration.

According to the Government's policy, is needed to determine the hierarchy of settlements within the upazila as a whole based on population economic activities, social infrastructure provisions, transport linkages and related other characteristics.

Emphasis on sectoral development of economy such as agriculture, industries, transportation, education, health and rural electrification etc. in the upazila region will result in diversification of activities and

also urban and regional development at this level. This requires identification and development of probable activities and services not only for the shahar itself but also for the upazila region. The upazila shahar will be the nodal point in a well articulated system for linking urban and rural functions providing facilities for administrative and socio-economic infrastructural services.

7.3 Planning Principles :

The planning of upazila includes the land use zoning plan of the upazila shahar in the context of regional planning. Practically it encompasses the entire field of urban and regional planning. To start with it was, therefore, necessary to analyse traditional land use and then rationalise the future use of land through physical planning approach.

The site for upazila headquarters has been selected before the preparation and formal approval of the land use plan. It is now needed to prepare an integrated urban land use plan for the upazila shahar. Due to the pre-selection of the site for upazila administrative zone, it has been become difficult to organise the rational urban land use in the upazila shahar because some of the functions has already been developed in a scattered way.

In land requirements estimation, the approved terms of reference of Urban Development Directorate has been followed. Based on the population projections, land requirements for functional uses have been calculated.

7.4 Plan Description :

Commerce and Industries :

According to the existing land use survey Commerce cover 6.00 acres of land in the Upazila Shahar of Pingacha and for industrial purposes only 0.75 acre of land is used. According to the provisional standards 132.50 acres of land are needed for commerce and industries to serve the catchment area people upto the year 2001 A.D. Considering the existing land use for this group, it may be assumed that 50.00 acres of land will serve the purpose. For commerce 30.00 acres and for industry 20.00 acres may be needed. Table No.28 shows the details.

TABLE NO. 28
Pirgacha Upazila Shahar
Distribution of Commerce and Industries
(Area in Acres)

Functions	Existing	Extension	Proposed	Location	Total
Market	6.00	7.00	-	Guabari	13.00
Shoping	-	-	7.00	Barapansia	7.00
Shoping	-	-	10.00	Anantaram	10.00
Industry	0.50	1.50	-	Chandipur	2.00
Industry	0.25	0.75	-	Guabari	1.00
Industry	-	-	17.00	Anantaram	17.00
All	6.75	9.25	34.00	Shahar	50.00

Administrative :

At present 22.00 acres of land are used for administrative purposes. The Upazila Complex covers 11.75 acres and Govt. and semi-govt. departments cover 10.25 acres. The upazila complex is located on the south of Pirgacha-Rangpur road in mouza Anantaram. Requirements of lands for the administrative purposes are shown in the Table No. 29

TABLE NO. 29
Pirgacha Upazila Shahar
Distribution of Administrative Lands
(Area in Acres)

Functions	Existing	Extension	Proposed	Location	Total Area
UNO Complex	11.75	-	-	Anantaram Barapansia	11.75
R.C.O Office	1.50	-	-	Anantaram	1.50
Forest Office	1.50	-	-	Anantaram	1.50
F.F. Office	1.00	-	-	Anantaram	1.50
U.C. Office	0.75	0.20	-	Guabari	1.00
Dak Banglow	1.50	-	-	Barapansia	1.50
Taushil Office	1.00	-	-	Guabari	1.00
WAPDA	1.00	-	-	Guabari	1.00
Govt. Godown	0.75	0.25	-	Guabari	1.00
Agrani Bank	0.25	-	-	Barapansia	0.25
Sonali Bank	1.00	-	-	Chandipur	1.00
Fisheries	-	-	1.00	Guabari Anantaram	1.00
Women Training Centre	-	-	1.50	Barapansia Anantaram	1.50
	22.00	0.50	2.50	Shahar	25.00

Socio-Cultural :

There are two primary Schools and one Primary level Madrasha in the shahar area. It may be assumed that 4 Primary/Nursery Schools of 1.5 acres each will be needed for the year upto, 2001 A.D. That is the requirement of land for Primary/Nursery Schools are amounted to 6.00 acres.

According to the provisional standards 22.00 acres of lands are needed for Secondary Schools. At present the Girls' Secondary School is located on 1.40 acres of lands near the bazar. No land is available for its expansion. It may be relocated in a new site of 3.00 acres as shown on Pirgacha-Rangpur metalled road in mouza Barapansia. The Boys' Secondary school is located on approximately 7.00 acres of land in mouza Guabari. No more land is needed for this school. There is a high Madrasha located on 3.50 acres of lands. No more land is needed for it. The total requirement of land for secondary schools are amounted to 13.50 acres.

The college is located on 5.00 acres of land. For its extention more 2.00 acres of land have been earmarked.

TABLE NO. 30
Pirgacha Upazila Shahar
Area and Distribution of Educational Institutuons
(Area in Acres)

Institutions	Existing	Extension	Proposed	Location	Total Area
Primary School	1.05	-	-	Anantaram	1.50
-do-	1.00	0.50	-	Guabari	1.50
-do-	0.50	1.00	-	-do-	1.50
-do-	-	-	1.50	Anantaram	1.50
Girls' School(s)	1.50	-	3.00	Barapansia	4.50
Boys' School	7.00	-	-	Guabari	7.00
High Madrasha	3.50	-	-	Anantaram	3.50
College	5.00	2.00	-	Guabari Chandipur Sukhanpukur	7.00
	20.00	3.50	4.50	Shahar	28.00

Health and Welfare :

According to the provisional standards approximately 40 acres of land are needed for health and welfare. The Upazila Health Complex is located on 7.00 acres of land. No more land is needed for it. The Veterinary Hospital is located on 0.50 acres of land and there is no space for its expansion. For this upazila centre there should have two maternity centres of 2.00 acres each. For distribution of health and welfare the Table No. 31 may be seen.

TABLE NO. 31
Pirgacha Upazila Shahar
Distribution of Health and Welfare Centre
(Area in Acres)

Functions	Existing	Extension	Proposed	Location	Total Area
Upazila Health Complex	7.00	-	-	Anantaram	7.00
Veterinary Hospital	0.50	-	-	Barapansia	0.50
Maternity and Child Centre	-	-	2.00	Anantaram	2.00
-do-	-	-	2.00	-do-	2.00
All	7.50	-	4.00	Shahar	11.50

Community Centre :

At present there is no community centre in Pirgacha Upazila Shahar. According to the provisional standard 0.69 acre of land is needed for it. One acre of land may be earmarked for community centre.

Religious :

At present 0.50 acres of land is used for religious purposes. For a central Mosque and Edgha 3.00 acres of land may be needed. It is earmarked on Pirgacha-Rangpur metalled road in Mouza Barapansia.

Cemetery :

At present 5.50 acres of land are used for a graveyard in mouza Sukhanpukur. No more land is needed for this purpose.

TABLE NO. 32
Pirgacha Upazila Shahar
Distribution of Socio-Cultural Functions

Functions	Existing	Extension	Proposed	Location	Total Area
Community Centre	-	-	1.00	Anantaram	1.00
Central Mosque and Edgha	-	-	3.00	Barapansia	3.00
Mosque	0.50	-	-	Guabari	0.50
Graveyard	5.50	-	-	Chandipur	5.50
All	6.00	-	4.00	Shahar	10.00

Urban Services :

At present 33.75 acres of land are used for urban services. For a post office 2.21 acres of land are required. The present post office is located on 5.50 acre of land. More land is needed for this post office. But there is no scope for its extension. According to the provisional standard for a telephone exchange centre 2.21 acres of land are needed. The telephone exchange centre is located on 1.00 acre of land. No more land is needed. The present police station is located on 4.25 acres of land. No more land is needed for this purpose. The railway station covers 28.00 acres of land. There is no organized bus station and 1.00 acre of land is earmarked for a bus station. There is no place for garbage disposal. For garbage disposal 3.00 acres has been earmarked. For distribution of urban services Table No. 33 may be seen.

TABLE NO. 33
Pirgacha Upazila Shahar
Distribution of Urban Services
(Area in Acres)

Function	Existing	Extension	Proposed	Population	Total Area
Post Office	0.50	-	-	Guabari	0.50
Tele-exchange	1.00	-	-	Barapansia Anantaram	1.00
Police Station	4.25	-	-	Barapansia Guabari	4.25
Bus Terminal	-	-	1.00	Anantaram	1.00
Rail Station	28.00	-	-	Guabari	28.00
Garbage disposal	-	-	3.00	Barapansia	3.00
Grand Total	33.75	-	4.00	Shahar	37.75

Recreational :

At present only 1.00 acre of land is used for a Cinema hall. For a Cinema hall 1.00 acre is required. No organized planning field exists. According to the provisional standards a sports stadium is ment for catchment area population and requirement of lands are amounted to 13.25 acres. It may be assumed that a sports stadium of 7.00 acres will fulfil the requirements.

Park is meant for shahar population. This upazila shahar requires 13.50 acres of land for park. It may be assumed that 12.00 acres of land will be sufficient for parks. The Table No.34 shows the detailed distributuion of recreational facilities.

TABLE NO. 34
Distribution of Recreational Facilities
(Area in Acres)

Functions	Existing	Extension	Proposed	Location	Total Area
Stadium	-	-	7.00	Anantaram	7.00
Park	-	-	8.00	Anantaram	8.00
Park	-	-	4.00	Anantaram	4.00
Cinema Hall	1.00	-	-	Chandipur Guabari	1.00
Grand Total	1.00		19.00	Shahar	20.00

Roads :

At present roads of all category including the railway track cover 76.25 acres of land. The planned roads including the existing rail track and highway cover 86.61 acres. For details Table No.35 may be seen.

TABLE NO. 35
Pirgacha Upazila Shahar
Land Use of Roads (Area in Acres)

Roads	Existing Length	Proposed Length	Existing Area	Proposed Area	Total Length	Total Area
Rail Track	4,125'	-	14.20	-	4,125	14.20
Road width-60'	-	13,365'	-	18.41	13,365	18.41
Road width-40'	-	37,785'	-	36.69	37,785	36.69
Local-24'	-	18,810'	-	10.36	18,810	10.36
Existing Foot Path - 12'	25,245'	-	6.95	-	25,245	6.95
Total	29,370'	69,960'	21.15	55.46	99,330	86.61

Residential :

At present residence cover 154.25 acres of land. According to medium Projection the population of 1986 are 78.13 persons. The present residential density $7813/154.25 = 51$ persons per acre. According to the medium projection the population of the shahar area will be 13,787 person in 2001 A.D. For the existing residential areas, the density may be raised to 70 persons per acre. If so the existing residential areas will accommodate $154 \times 70 = 10,780$ persons. A housing estate of 10 acres may be erected with density of 100 persons per acre. Then the housing estate will accommodate $10 \times 100 = 1000$ persons. Remaining $13,787 - (10,780 + 1000) = 2007$ persons will be accommodated extending the areas adjacent to the existing residences. For the extended area, the density may be assumed as 50 persons per acre. Therefore $2000/50 = 40$ acres of new land will be needed. The total requirements of land for residential purpose is amounted to $154 + 10 + 40 = 204$ acres. (Details have been discussed in density projections)

Urban Deferred :

Approximately 387 acres of land are proposed for urban functional uses, 10 percent of planned land are kept as urban deferred which is amounted to 38.70 acres of land. They are shown in two different sectors in mouza Anantaram.

Urban Reserve :

According to the existing land use survey, water bodies cover 33.25 acres of land. No land is used for historical purposes. Some of the water logged areas have brought under urban use and about 22 acres water bodies are kept as reserve.

Agriculture and Foresty :

After land use proposal for urban functional uses, 887 acres are left for agricultural use out of which 12 acres are under existing forest use. Out of the agricultural lands 20 acres may be used for agricultural firms which has been earmarked in mouza Anantaram.

TABLE NO. 36
Planned Landuse Analysis
Pirgacha Upazila Shahar

Function Mouza	Sukhan- pukur	Chandi- pur	Ananta- ram	Guabari	Bara- pansia	Kismat- Jhinia	Total	Perce- tage
1. AGRICULTURE & FORESTRY	101.25	87.60	245.50	91.80	205.75	45.00	676.90	54.50
Agricultural	101.25	87.60	225.50	91.80	205.75	45.00	656.90	
Ag. Firms	-	-	20.00	-	-	-	20.00	
2A. COMMERCE	-	-	<u>10.00</u>	<u>13.00</u>	<u>7.00</u>	-	<u>30.00</u>	<u>2.42</u>
Market	-	-	-	13.00	-	-	13.00	
Shope	-	-	10.00	-	7.00	-	17.00	
Commercial Office	-	-	-	-	-	-	-	
2B. Industry	-	<u>2.00</u>	<u>17.00</u>	<u>1.00</u>	-	-	<u>20.00</u>	<u>1.61</u>
3. ADMINISTRATIVE	1.00	1.00	16.50	4.50	2.00	-	25.00	2.02
UNO Complex	-	-	11.00	-	0.75	-	11.75	
Govt. Deptt.	-	-	5.50	3.50	1.25	-	10.25	
Semi-Govt.	1.00	1.00	-	1.00	-	-	3.00	
4. SOCIO-CULTURAL	1.50	9.00	18.50	12.50	9.00	-	50.00	4.03
Education	1.50	3.50	6.50	12.00	4.50	-	28.00	
Health/Welfare	-	-	11.00	-	0.50	-	11.50	
Community	-	-	1.00	-	3.00	-	4.00	
Religious	-	-	-	0.50	-	-	0.50	
Cometary	-	5.50	-	-	-	-	5.50	
5. URBAN SERVICES	-	-	1.50	29.00	7.75	-	37.75	3.04
Post Office	-	-	-	0.50	-	-	0.50	
Tele-exchange	-	-	0.50	-	0.50	-	1.00	
Police Station	-	-	-	0.50	3.75	-	4.25	
Bus/Rail Station	-	-	1.00	28.00	-	-	29.00	
Garbage dis- posal	-	-	-	-	3.00	-	3.00	

Function Mouza	Sukhan- pukur	Chandi- pur	Ananta- ram	Guabari	Bara- pansia	Kismat- jhinia	Total	Perce- tage
6. RECREATIONAL		0.50	19.00	0.50	-	-	20.00	1.61
Sports	-	-	7.00	-	-	-	7.00	
Parks	-	-	12.00	-	-	-	12.00	
Cinema	-	0.50	-	0.50	-	-	1.00	
Others								
7. ROADS	12.00	10.40	28.00	21.00	11.00	2.00	86.61	6.97
Major 60'	2.00	2.40	21.00	15.00	-	-	32.61	
Secondary 40'	8.00	4.00	12.00	6.00	6.00	0.69	36.69	
Local 24'	2.00	4.00	5.00	-	5.00	1.31	17.31	
8. RESIDENTIAL	3.35	14.50	91.00	30.00	69.00	7.00	204.00	16.42
Rail Track								
Existing	1.25	13.50	65.00	20.00	50.00	5.00	154.00	
H. Estate	-	-	10.00	-	-	-	10.00	
H. for others	2.00	1.00	16.00	10.00	9.00	2.00	40.00	
9. URBAN DEFERRED	-	9.00	24.00	2.70	3.00	-	38.70	3.12
10. URBAN RESERVE	1.00	6.00	20.00	6.00	-	-	33.25	2.68
Ponds & Canals								
	120.00	140.00	402.00	212.00	314.00	54.00	1242.00	100.00

8. PROGRAMME AND IMPLEMENTATION :

8.1 Priority Actions and Cost Implications :

Priority have been given to the construction of UNO Complex and health complex. Some socio-cultural functions like the central mosque, community centre etc. are inadequate. Recreational facilities like stadium, park etc. are totally absents in the upazila shahar of Pirgacha. To create living environment in an urban area, socio-cultural and recreational facilities are needed. An integrated land use plan needs the development of internal roads on priority basis.

Determination cots to implement all the proposed projects are out of scope of this report. Only the preparation of the land use plan is the objectives of the report. At present 173.25 acres of lands are used for urban functions (enclusing private residentiallands and water bodies). For planned development 305.97 acres of land will be needed. The requirements of new lands excluding the private residential areas are $305.97 - 173.25 = 132.72$ acres. Studies of land values showed that the average value of an area of buildable land is Tk. 1,20,000/- only. Therefore, to acquire the lands required for planned development will cost Tk. $1,20,00 \times 132.72 = \text{Tk. } 1,59,26,400/-$ only.

8.2 Phasing and Urban Deferred :

Development projects earmarked on the plan may be divided into two main phases. Phase-I upto the year 1995 and Phase-II 1991-2001 A.D.

Phase-I

Internal roads should be developed on periority basis which will help to integrate the existing and proposed functions resulting in accelating the rate of growth and development. It was already been mantioned that the upazila shahar of Pirgacha is lacking of social and recreational facilities. They showed be developed on priority basis to create living environment in the upazala shahar.

Phase-II

In the phase-II, remaining other functions like the housing estate, industrial developments, agricultural firms etc. will be developed in this phase. All other functions as proposed should be developed to create a healthy pleasent and functionally efficient living enviroment in the upazila shahar. Details of phasing are shown in Table No. 36 depending on growth of population and priority of projects.

TABLE NO. 37
Phasing of Development Projects
Pirgacha Upazila Shahar

Phase - I upto 1995		Phase - II 1995 - 2001	
Functions	Location	Function	Location
Shopping Centre	Barapansia and Anantaram	Industry	Anantaram
Fishery Office	Guabari and Anantaram	Primary School	Anantaram
Women Training Centre	Barapansia and Anantaram	Maternity and Child Welfare	Anantaram
Maternity and Child Welfare	Anantaram	Central Mosque and Edgha	Barapansia
Community Centre	Anantaram	Garbade disposal	Barapansia
Bus Terminal	Anantaram	Park	Anantaram
Stadium	Anantaram	Housing Estate	Anantaram
Agricultural Firm	Anantaram		
Roads and all catefories	Shahar Area		

For urban deferred 38.75 acres of lands have been earmarked in there different sectors. They will be developed if the allocated lands do not fulfil the requirements. They may kept as deferred for next plan period. It may be noted here that the urban deferred lands will continue thir present use until they are required to be developed for any urban use.

8.3 Development Control :

The implementation of the land use plan will spread over many years and planning is a continuous process. It is essential that all planning matters should be administered by a single authority and should be a subject to control. It is an essential part of the upazila administration. The land use plan must be kept under continuous reviews, but in itself only constitutes a small part of the planning work. Urban planning is a profession in its own right and is recommended that an experienced planner should take its charge.

8.4 Monitoring and Review :

The monitoring of all activities regarding the implementation of the upazila shahar should remain under the charges of the UNO who is well aware of the subject and at whole of activities of the upazila region. If possible an officer of Urban Development Directorate may be placed in every Division to look after the proper implementation of land use plan of upazila shahars of that division.

The land use plan prepared will fulfil the stated objectives of the TOR. The land use plan may be reviewed here in the light of land use organizations and distribution of lands for different functional uses.

It is very important to note here that the present use of land should not be disturbed and will continue until the lands are required to be developed for urban use as proposed in the plan.