

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

**LAND-USE PLAN & REPORT  
FOR  
UPAZILA SHAHAR**

**PHULBARI POURASHAVA**  
IN THE ZILA OF DINAJPUR  
IN THE DIVISION OF  
RAJSHAHI

JULY 1988



phulbari upazila.



# URBAN LAND-USE PLAN AND FINAL REPORT.

PHULBARI POURASHAVA



Submitted by:



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**URBAN LAND-USE PLAN  
AND FINAL REPORT.**

SEP 1988



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Letter of acceptance and comments of Upazila Parishad  
and phulhari pourashava.

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CHAPTER I



স্বপ্নপ্রজ্ঞা জীবনোপায় পরামর্শ  
উপদেশনা প্রতিবেদন কার্যালয়  
কুলবাড়ী, দিনাজপুর।

স্মারক নং:

তারিখ- ১০/৮/৮৮ ইং।

১৮/৮/৮৮ তারিখ

প্রেরক :- ডেপুটি ম্যাজিস্ট্রেট  
উপদেশনা প্রতিবেদন  
কুলবাড়ী, দিনাজপুর।

প্রাপক :- প্রতিবেদন  
নগর উন্নয়ন কমিটি, পূর্ব পাশবাগ  
জালা, বাগেরাঙ্গা।

বিষয় :- কুলবাড়ী উপজেলা নগর (কুলবাড়ী পৌরসভা) ভূমি ব্যবহারিক পরিকল্পনা  
প্রসঙ্গে।

নগর পরিষদের সভা ১০/৮/৮৮ ইং তারিখের প্রকৃতি/১০০৫১০১/৮০-৪০০  
নং প্রকৃতির বিধান ৩৩ বিধি অনুযায়ী উপজেলা কার্য বিধি ও কনসোলিডেশন এর প্রানি  
কর্তৃত্ব কুলবাড়ী উপজেলা নগর (কুলবাড়ী পৌরসভা) ভূমি ব্যবহারিক পরিকল্পনা  
নগর (কুলবাড়ী) কনসোলিডেশন জালা নগর উন্নয়ন কমিটির আঞ্চলিক অধিদপ্তর দ্বারা  
প্রানি, মানবিক জাতীয় নগর নগর, জালা, কুলবাড়ী কনসোলিডেশন এবং স্থানীয় গণমাধ্যম  
ব্যক্তিগত উদ্দেশ্যে বিধান প্রস্তুত করা হয় এবং ভূমি ব্যবহারিক পরিকল্পনাটি  
সিদ্ধান্তে মর্মে নগর সভা প্রণয়ন করেন।

নগর পরিষদ অনুমোদন করা যাচ্ছে যে প্রানি ভূমি ব্যবহারিক পরিকল্পনাটি  
কুলবাড়ী কনসোলিডেশন।

ডেপুটি ম্যাজিস্ট্রেট  
উপদেশনা প্রতিবেদন  
কুলবাড়ী, দিনাজপুর।

স্মারক নং:

৪৬৮/১(২)

তারিখ- ১০/৮/৮৮ ইং।

১৮/৮/৮৮ তারিখ

অনুমতি নগর পরিষদের সভা প্রকৃতি ২৫৮ :-

১৪ বিবিধ প্রানি, নগর উন্নয়ন কমিটি, আঞ্চলিক অধিদপ্তর, জালা।

২১ বি, জি, ও কনসোলিডেশন, ৩০ সিদ্ধান্ত জালা, পূর্ব পাশবাগ, জালা-১২০০।

ডেপুটি ম্যাজিস্ট্রেট  
উপদেশনা প্রতিবেদন  
কুলবাড়ী, দিনাজপুর।

কুলবাড়ী পৌরসভার কার্যালয়  
কুলবাড়ী, দিনাজপুর।

স্মারক নংঃ

তারিখ- ১০/৮/৮৮ ইং।

২৮/৮/৯০ বাং।

প্রেরক :- ডেপুটি ম্যায়  
কুলবাড়ী পৌরসভা  
কুলবাড়ী, দিনাজপুর।

প্রাপক :- ব্রিটিশ,   
নগর উন্নয়ন অধিদপ্তর পূর্ব অঞ্চালয়  
ঢাকা, বাংলাদেশ।

বিষয় :- কুলবাড়ী উপজেলা নগর (কুলবাড়ী পৌরসভার) ভূমি ব্যবহারিক নথিকলনায়  
প্রদর্শন।

নগরকার্য কার্যালয়ের পত্র ৩০/৩/৮৮ ইং তারিখের ডিউ/৩০০৫১০১/৮৬-০০০  
নং পত্রের বিপরীত পক্ষে নিম্নলিখিত উপসেফা কার্য বি.টি.এ. কনসোলিডেশন এর প্রাণিৎ  
অর্জনকর কুলবাড়ী উপজেলা নগর (কুলবাড়ী পৌরসভার) ভূমি ব্যবহারিক নথিকলনায় যে  
নথী প্রস্তুত করিয়াছেন তাহা নগর উন্নয়ন অধিদপ্তরের প্রাণিৎ অফিস প্রাণিৎ নিম্নলিখিত  
প্রাণিৎ, নগরীপুত্র ডেপুটি ম্যায়, উপজেলা ব্রিটিশ কুলবাড়ী, অথবা কুলবাড়ী কলেজ  
এবং স্থানীয় জনস্বাস্থ্য প্রতিষ্ঠানের উপস্থিতিতে বিবদ প্রদর্শন করা যত্ন এবং ভূমি  
ব্যবহারিক নথিকলনায় সঠিক হইয়াছে বর্নিত পক্ষে প্রকাশ করেন।

অতএব প্রস্তুত হইত ভূমি ব্যবহারিক নথিকলনায় প্রাণিৎ বসিয়া  
নগরীপুত্র নগর কার্যালয়ে বিলম্ব অনুপ্রাণ প্রদর্শন করা যাইবে।

২৮/৮/৮৮  
ডেপুটি ম্যায়  
কুলবাড়ী পৌরসভা  
কুলবাড়ী, দিনাজপুর।

স্মারক নংঃ

তারিখ- ১০/৮/৮৮ ইং

২৮/৮/৯০ বাং।

নথীনিম্ন নথি প্রদর্শিত হইত :-

১। নিম্নলিখিত প্রাণিৎ, নগর উন্নয়ন অধিদপ্তর, প্রাণিৎ অফিস, প্রাণিৎ।  
২। বি.টি.এ. কনসোলিডেশন, ৪০ মিটার রোড, পূর্ব অঞ্চালয়, ঢাকা-১২০০।

ডেপুটি ম্যায়  
কুলবাড়ী পৌরসভা  
কুলবাড়ী, দিনাজপুর।



# INTRODUCTION

The objectives of preparing land-use plans for Upazila Headquarters are to feed Government policy of administrative decentralization and devolution of development activities at local levels of local Governments, which will accelerate infrastructure developments at Upazila centre and promote development activities there. This will induce rapid growth of small scale industries mainly based on locally available resources and human settlements in and around the Upazila Headquarters. The main strategy of physical planning in this context will be to formulate the complete physical as well as land-use plans for the Upazila, and preparing the land-use plan for the Upazila shahar is the partial fulfilment of the objectives which will ensure national economic development.

An offer was given by the Urban Development Directorate under the Ministry of Works of the People's Republic of Bangladesh to PTA Consortium to study the present condition of the upazila shahar with the eventual aim of preparing a comprehensive "LAND USE PLAN/MASTER PLAN" of the Phulhari Upazila Shahar. This plan is also to ensure the development of the Shahar in an orderly and disciplined manner through the observation of future LAND-USE proposals (as detailed in the plan and Report) and development control by discouraging the unplanned and uncontrolled growth.

To make the plan pragmatic and appropriate for the existing socio-economic and physical condition and future development potential-

lities, two teams of Surveyors headed by a planner conducted the following survey works related to study :

- a) Physical Land-use survey of the present delineated area of the Upazila Shahar and its surroundings (study area)
- b) Socio-economic survey of the Upazila Shahar and Zila region through primary and secondary sources.
- c) An overview of the Upazila "Headquarters" Land and its vicinity by the experts of the team.
- d) Interview with the officers of the Urban Development Directorate for collection of maps, reference, TOR and other information and also the collection of mouza maps, thana maps and contour survey map from the D.C. Office (Dinajpur) D.L.R's Office (Dhaka) and B.W.D.B.(Dhaka)
- e) Interview with the local Upazila authorities like the Upazila Chairman, the Nirbahi Officer and the Upazila Engineer for collection of Data and informations.

The findings of the Surveys conducted during our study were presented in three different earlier REPORTS submitted to UDD and were accepted by them. This REPORT is the followup of earlier reports which included every part of the findings and results of our study as provided in the TOR. On the analysis of the sectoral studies and existing land-use, a concept plan was developed and evaluating the survey findings, land-use pattern, constraints and opportunities of the study area, a Land-use plan is prepared. Thorough discussions were made with the local administrative and representative authority and also with the officials of the UDD .

Here we want to mention that during the preparation of the LAND-USE PLAN from the beginning of this study, we maintained a close liaison with the local authority, especially the Upazila



Chairman, Upazila Nirbahi Officer and the Upazila Engineer. After the preparation of the Draft Land Use Plan, we discussed with them and after fruitful discussion they accepted the proposals made in the "LAND USE PLAN" (a copy of letter of authentication is appended in this report).

We must extend here our profound gratitude to the Upazila Chairman, Pourashava Chairman, Upazila Nirbahi Officer, Upazila Engineer for their co-operation. This would not have been possible without the active co-operation of the officials of the Urban Development Directorate including its Regional Office at Rajshahi. We record here our appreciation and acknowledgement to them.

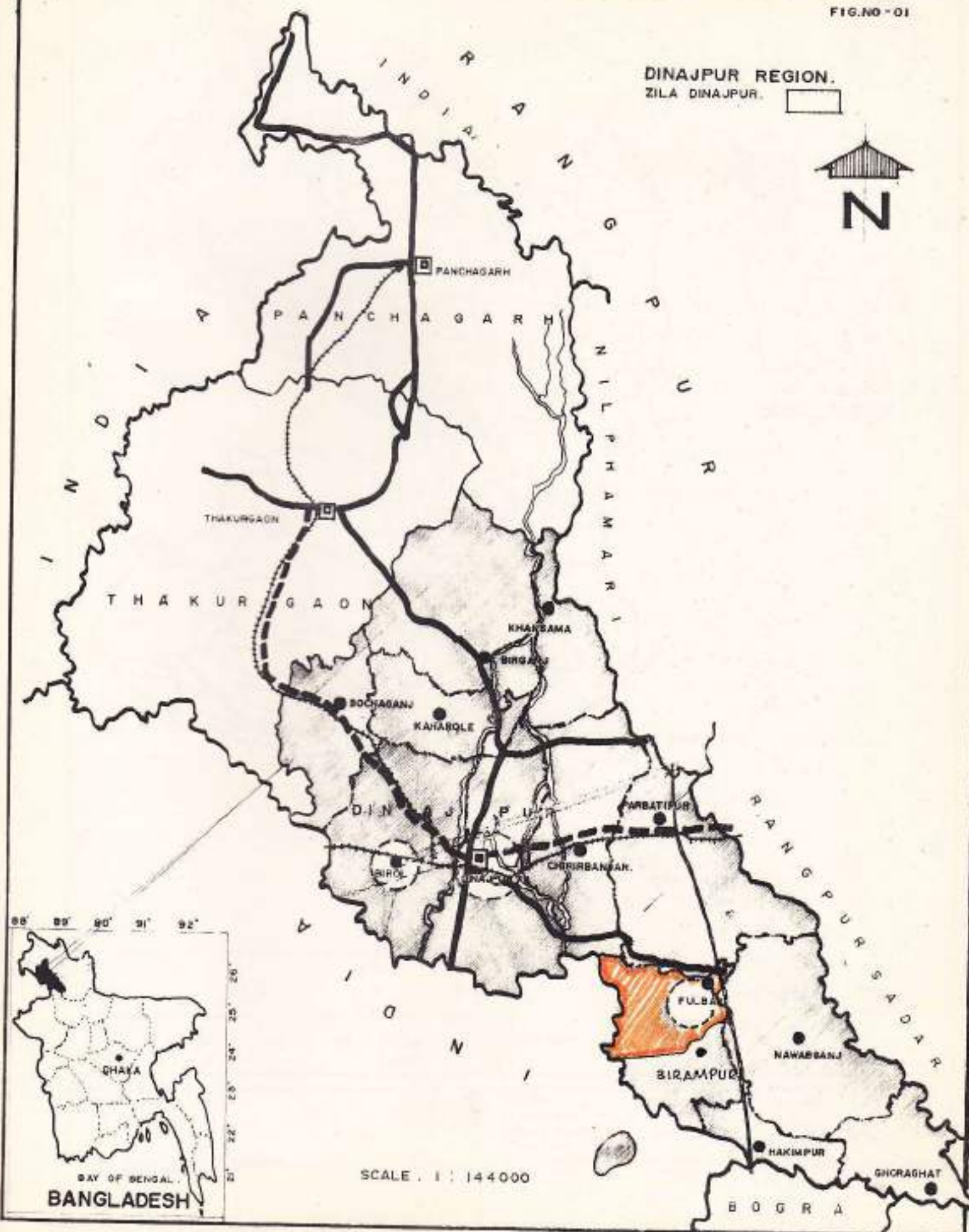
The Upazila Shahar will serve as "SERVICE CENTRE" for the surrounding rural areas or the hinterland particularly for its economic and social services. We desire that the local authority, for whom it is prepared will implement the plan by using the land use guidelines for the present and the future developments of their urban areas.

Finally we sincerely desire that the present Municipal Authority will take the responsibility to implement this land use plan and transform the Upazila Shahar into a functionally effective Urban Centre by taking the locational advantage of the Upazila Headquarters within the Municipality.

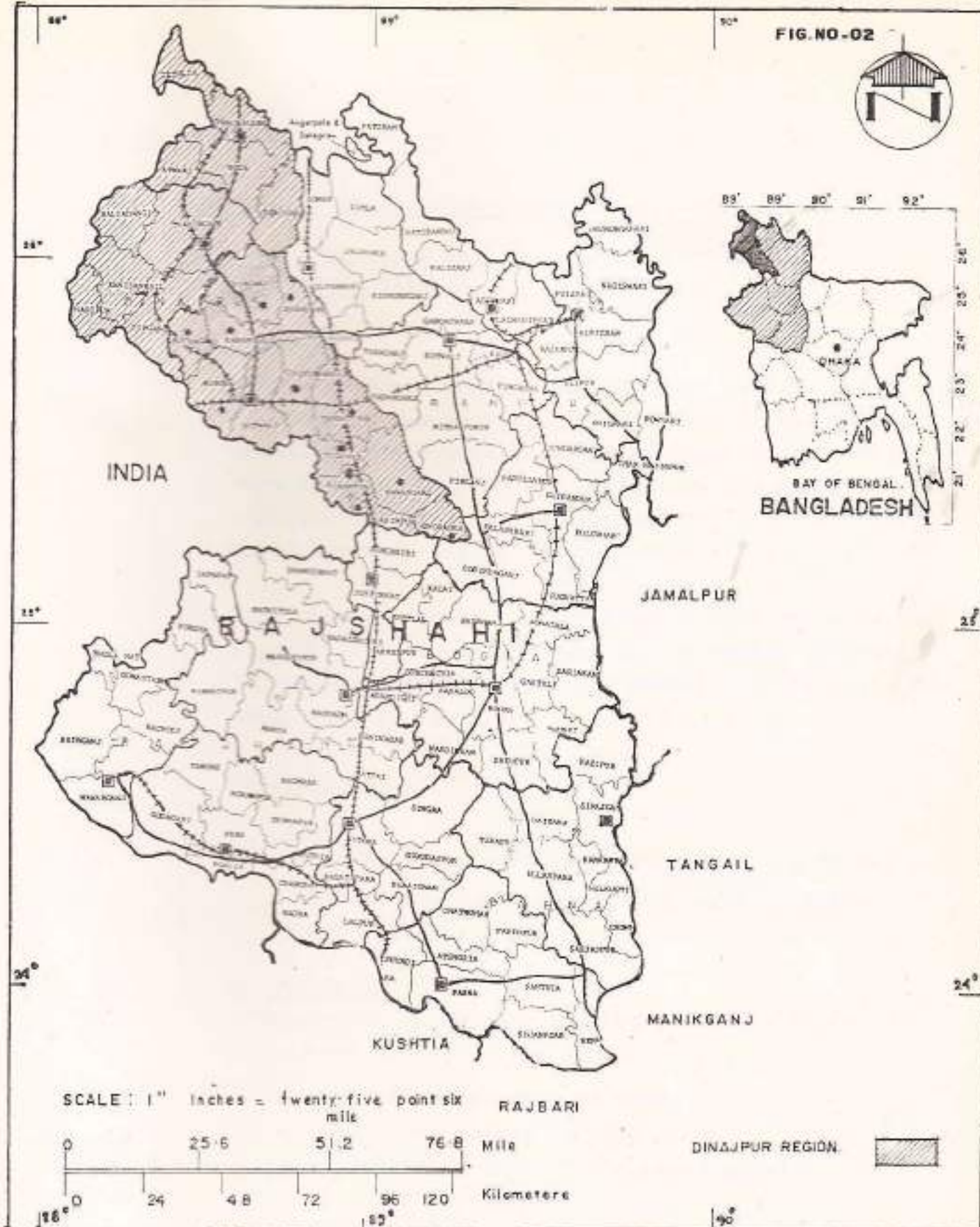
For P T A CONSORTIUM

  
Archd. YEAPESH OSMAN



DINAJPUR REGION.  
ZILA DINAJPUR.





<p>Fig-1</p> <p>dinajpur Region.</p> <p><b>RAJSHAHI DIVISION</b></p>	<p><b>LEGEND.</b></p> <p>● ZILA SHAHAR</p> <p>— UPAZILA SHAHAR</p> <p>— RAILWAY LINE</p> <p>— METER GAUGE</p> <p>— BROAD GAUGE</p> <p>— PRINCIPAL ROADS</p> <p>— RURAL ROAD</p> <p>— KUTCHA ROAD</p> <p>— PRINCIPAL RIVERS</p> <p>— ZILA BOUNDARY</p> <p>— UPAZILA BOUNDARY</p>	<p>URBAN DEVELOPMENT ORIENTED</p> <p>QUALITY OF WORK</p> <p>GOVT OF THE PEOPLE REPUBLIC OF BANGLADESH</p> <p>Transport Routes &amp; Regional</p> <p>Setting Map</p> <p>LOCATION MAP.</p> <p>ZILA SHAHAR, DINAJPUR</p> <p>PTA CONSORTIUM</p> <p>BY APPROVAL OF DINAJPUR ZILA</p> <p>RAJSHahi DIVISION</p>
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FINAL REPORT ON STUDIES

2.0. THE UPAZILA IN THE ZILA CONTEXT

2.1. Location & Physical Characteristics of Phulbari Upazila.

a. LOCATION

In the regional Context the PHULBARI Upazila belongs to DINAJPUR Sub-region. The distance of the Phulbari Upazila Headquarters from the Dinajpur Zila Headquarters is about 42 Kms or 26 miles. By its Geographical location the Upazila lies between  $25^{\circ}-17'$  and  $25^{\circ}-32'$  North latitude and  $88^{\circ}-44'$  and  $89^{\circ}-01'$  east longitude.

It is hemmed around by such upazila regions as Parbatipur to the north, Birampur to the South, Nawabganj to the East and West Dinajpur (INDIA) to the west. The total area is about  $194.25 \text{ Km}^2 / 75 \text{ Sq.m.}$

b. PHYSICAL CHARACTERISTICS :

o Climate :

The upazila region stands within the transitory climatic zone where hot summer, with moderate rainfall prevails.

o Rainfall :

There are three main sources of rainfall. The sources are :

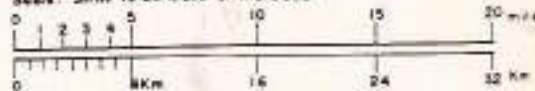
- a) Western depression of winds,
- b) The early summer thunder storm,
- c) The monsoon about 75" falling mainly between May-October.





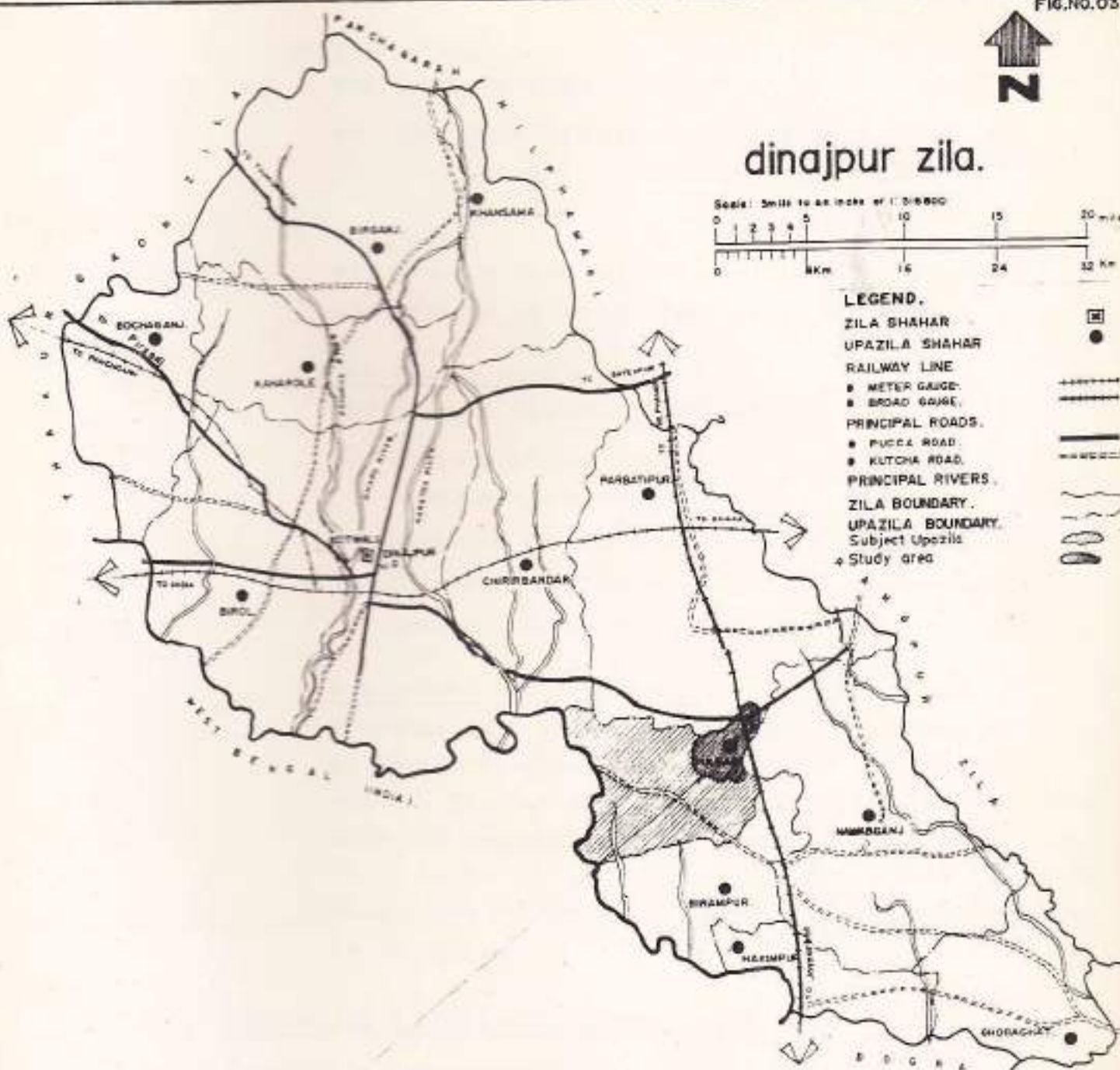
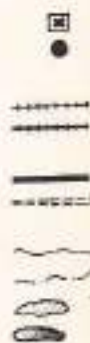
## dinajpur zila.

Scale: 1 mile to an inch or 1:31680



## LEGEND.

- ZILA SHAHAR
- UPAZILA SHAHAR
- RAILWAY LINE
- METER GAUGE
- BROAD GAUGE
- PRINCIPAL ROADS
- PUCEA ROAD
- KUTCHA ROAD
- PRINCIPAL RIVERS
- ZILA BOUNDARY
- UPAZILA BOUNDARY
- Subject Upazila
- Study area



URBAN DEVELOPMENT DIRECTORATE  
MINISTRY OF WORKS  
GOVT OF THE PEOPLES REPUBLIC OF BANGLADESH  
SHEKUNDARHAT, DHAKA.

Transport Routes & Regional  
Setting Map.

LOCATION MAP

UPAZILA: FULBARI.

PTA CONSORTIUM

43, MIRPUR ROAD, DHAKA-1100.

o Temperature :

The range of temperature is :

- a) Mean July temperature being  $49^{\circ}\text{F}$ .
- b) Mean January temperature being  $49^{\circ}\text{F}$ .

o Humidity :

- a) Maximum from July-October (93%) at 00.00 hours.
- b) Minimum in March (36%) at 12.00 hours.

o Prevailing wind :

The general direction of the wind :

- a) North-easterly during the period November-February.
- b) Westerly or south-westerly from March to May;
- c) From June to September being south-easterly;
- d) October winds are very variable;

o Topography and landforms :

Comparatively high level of the older flood plains of Barind tracts. The gradient is considerable, being 3 ft. per mile. Along the Little Jamuna river with its meandering flood plains are the pale brown silty loam. The Barind Tract soils mainly the brown clay loams of the Lauta Associations are prevailing in the west.

## 2.2. POPULATION & SETTLEMENT DISTRIBUTION

### 2.2.1 Population Characteristics

Within the Zila :

There were 18,04,015 population in the Dinajpur Zila sub-region in 1981 which is 2.07% of national population. Among these population 10.23% live in urban areas and remaining 89.77% in the rural areas. The percentage of male population in the Zila sub region is 51.60% and female population is



48.40% that is 9,30,200 and 8,73,815 respectively. There are 107 males for every 100 females. The overall density of population for the zila sub-region is 509.16 persons per Km<sup>2</sup>. The following tables provide detailed picture about the population in the sub-region, Dinajpur Zila and Phulbari Upazila.

TABLE 1 : POPULATION BY SEX HOUSE-HOLD STRUCTURE, SIZE AND DENSITY FOR ZILA AND UPAZILA - 1981.

Locality	Area		Population		Total	No. of House Hold Stru.	House Hold size	Density of population per Km <sup>2</sup>
	Km <sup>2</sup>	Sq.m.	Male	Female				
Zila	3543	1368	930200	873815	1804015	327236	5.51	509
Upazila	194.25	75	47982	44849	92831	16522	5.62	478

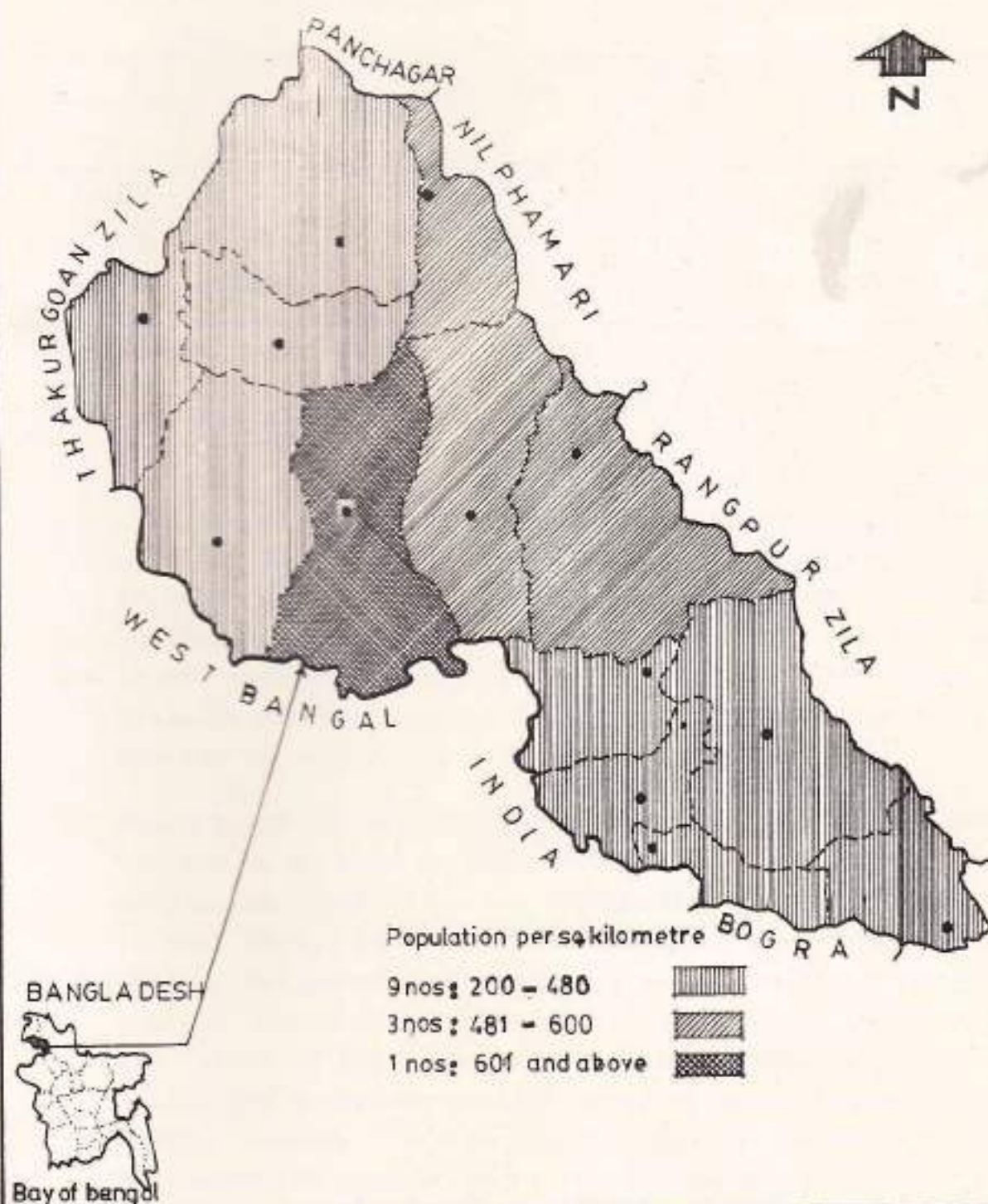
SOURCE : BBS Population census 1981 (all upazila/thana) Dinajpur zila.

TABLE 2 : URBAN & RURAL POPULATION BY AGE-SEX OF DINAJPUR ZILA - 1981

Age Group	P O P U L A T I O N				
	Male	Female	Total	Urban	Rural
Upto 9 Years	3,14,146	2,95,247	6,09,393	62,353	5,47,040
10 - 17 "	1,68,011	1,57,592	3,25,603	33,342	2,92,261
18 - 64 "	4,23,043	3,96,846	8,19,889	83,957	7,35,932
65 Years & above	25,000	24,130	49,130	5,031	44,099
TOTAL	9,30,200	8,73,815	18,04,015	1,84,683	16,19,332

SOURCE : BBS Population census 1981 (all upazila/Thana, Dinajpur Zila.





**dinajpur zila**

PTA CONSORTIUM  
43, NURPUR ROAD, DHAKKA, CHAKA,  
PHONE: 88 88 44 20 87 13

URBAN DEVELOPMENT DIRECTORATE  
MINISTRY OF WORKS  
GOVT OF THE PEOPLES REPUBLIC OF BANGLADESH  
DHAKKA

Density of Population for  
Dinajpur zila

Subject: Zila Sadar & Upazila Sadar

TABLE : 3 POPULATION CHANGES IN DINAJPUR ZILA (1961-81)

Y E A R	A R E A		POPULATION	DENSITY PER Km <sup>2</sup>	VARIATION	GROWTH RATE PER YEAR
	Km <sup>2</sup>	Sq.m.				
1961	3,543	1,368	10,10,035	285	44.27	2.85
1974	3,543	1,368	14,57,175	411	23.80	3.09
1981	3,543	1,368	18,04,015	509	78.60	2.94

SOURCE : BBS Dist. Statistics 1983

#### 2.2.2. WITHIN UPAZILA:

The total population of the Phulbari Upazila is 92,831 as per census report of 1981. Out of the total population 51.70% is male and 48.30% is female, that is, 47,982 & 44,849 respectively. 18,965 population lives in different urban areas including the Phulbari Pourashava of the Phulbari Upazila and the remaining 73,866 population live in the rural areas within the different villages of the Upazila. There are 107 males for every 100 females as against 107 for the Zila region.

About 5.15% of the Dinajpur Zila population live in this Upazila in an area of about 5.48% of the Zila acreage. The population density of the "PHULBARI" Upazila as calculated in 1981 census shows that there are 478 persons per Km<sup>2</sup> as against 509 persons for the Zila and 605 persons for the nation. About 50.86% of the total population belong to the age group of 0-17 years whereas 18-64 years age group are 46.32% and remaining population of 65 years and above are 2.82%. Dependency ratio for this Upazila is found to be 94 for every 100 population of the Age group 15-64 years of age. The Upazila has 16,910 married women in the fertile age group of 15-44 years of age.



The following table reflects the picture of age-sex composition and urban-rural distribution of population for "PHULBARI" Upazila.

TABLE 4 : URBAN & RURAL POPULATION, AGE-SEX  
IN PHULBARI UPAZILA - 1981.

Age Group	Population by sex		T o t a l	Population by location	
	Male	Female		Urban	Rural
Upto 9 Yrs.	15,652	14,630	30,282	6,187	24,095
10 - 17	8,755	8,179	16,934	3,460	13,474
18 - 64	22,221	20,775	42,996	8,784	34,212
65 years & above.	1,354	1,265	2,619	534	2,085
TOTAL	47,982	44,849	92,831	18,965	73,866

SOURCE : BBS Population census - 1981.

TABLE 5 : POPULATION CHANGES IN PHULBARI UPAZILA (1961-1981)

Y E A R	A R E A		POPULATION	DENSITY PER Km <sup>2</sup>	VARIATION	GROWTH RATE PER YEAR
	Km <sup>2</sup>	Sq.M.				
1961	194.25	75	75,514	389	38.82	2.80
1974	194.25	75	1,04,830	540	88.55	3.64
1981	194.25	75	92,831	478	22.93	3.54

SOURCE : BBS Population census - 1981



TABLE 6 : POPULATION AND GROWTH RATE FOR PHULBARI  
UPAZILA FROM 1961 TO 1981 BY UNION

U N I O N	P O P U L A T I O N			G R O W T H   R A T E   %		
	1961	1974	1981	1961-74	1974-81	1961-81
Sujapur	11,012	13,834	18,965	1.98	5.95	3.90
Aladipur	7,442	10,110	12,532	2.76	3.42	3.41
Betdighi	8,568	12,142	15,113	3.21	3.49	3.82
Daulatpur	5,879	8,096	9,669	2.90	2.77	3.22
Eluri	8,593	12,140	15,258	3.17	3.67	3.87
Kazihal	7,580	11,058	13,457	3.53	3.10	3.87
Khayerbari	4,668	5,911	7,189	2.05	3.08	2.70
PHULBARI UPAZILA	53,742	73,291	92,183	2.80	3.64	3.54

SOURCE : District Census, Village Statistics and BBS Population Census (1981).

In the above tables, population changes in "PHULBARI" Upazila from 1961-1981 has been identified with variation, Density and growth rate. There is a considerable change in the Density of population from 1961-1974 which reads 389 persons per Km<sup>2</sup> and 540 persons per Km<sup>2</sup> respectively. But the density of population in the year 1981 is 478 persons per Km<sup>2</sup>. The growth rates identified in the years 1961, 1974 and 1981 were 2.80%, 3.64% and 3.54% respectively per year.

TABLE 7 : LITERATE PERSONS ( 5 YEARS )

LOCALITY	TOTAL	MALE	FEMALE	PERCENT
Phulbari Upazila	19,340	13,545	5,795	25.1
Dinajpur Zila	3,44,217	2,47,810	96,407	23.2

SOURCE : BBS

TABLE 8 : LITERACY RATE ( 5 YEARS & OTHER )

POPULATION	PHULBARI UPAZILA	DINAJPUR ZILA
Total : Both Sex	25.1	22.32
Male	33.9	30.92
Female	15.7	12.68
Urban : Both Sex	34.4	34.54
Male	43.1	42.90
Female	24.5	24.60
Rural : Both Sex	22.7	21.00
Male	31.4	30.00
Female	13.4	11.45

SOURCE : BBS

TABLE 9 : MARRIED WOMEN BETWEEN 15-40 YEAR AGE GROUP

Locality	Total population	% over zila population	Married women (15-40) year age group	Percent
Phulbari Upazila	92,831	5.15	17,315	18.65
Dinajpur Zila	18,04,050	100.00	3,12,063	17.30

SOURCE : BBS



### 2.2.3 SETTLEMENT DISTRIBUTION OF ZILA AND SUBJECT UPAZILA

#### DINAJPUR ZILA

Distribution of human settlement all over the Dinajpur zila shows that there are 2,689 villages for a total population of 18,04,015 with an average Density per village is 671 persons and administrative units of 102 unions and 1977 Mouzas. There are 3,27,236 house-holds in the Dinajpur Sub-region with average house-hold size 5.51 and 3,24,986 (about 99.31%) are dwelling units, the rest are Institutional and business units.

#### PHULBARI UPAZILA

In Phulbari Upazila it is found that there are 16,522 house-holds within 173 villages of which 16,376 (about 99.1%) are dwelling units and the rest 146 are Institutional and business units. The average house-hold size in dwelling units is found to be 5.6 as against 5.4 for the Zila. This Upazila has an average density of 537 persons per village. Out of the total 173 villages, there are 108 small villages (62.4%), 63 (36.4%) are medium villages and the rest 2 are big villages. There are 68 mouzas having a population upto 500 and only one mouza with a population of over 4000 within the Upazila Phulbari.

There are 7 unions and 138 mouzas to serve the Upazila by Administrative units for a total of 173 villages. In Phulbari Upazila it is distinctly found that services facilities vary with the hierarchy of settlements and that the number of settlements (mouza wise) decreases with the increased size (as shown in chart) in the hierarchy. Here about 49% of the total villages have less than 500 population of the total 138 Mouzas within the Upazila that accommodate 173 villages. A chart showing Hierarchy of settlement by mouza and population reflects the picture of settlement distribution.

The following Table reflects the Settlement distribution of the Zila and subject Upazila and the remaining Upazila.



TABLE 10 : SETTLEMENT DISTRIBUTION FOR DINAJPUR ZILA, OTHER  
UPAZILA AND SUBJECT UPAZILA "PHULBARI" - 1981

Upazila	No. of villages	No. of Mouzas	No. of Unions	Population	Average Density per village
Phulbari	173	138	7	92,831	537
Others	2,516	1,839	95	17,11,184	680
TOTAL ZILA	2,689	1,977	102	18,04,015	671

SOURCE : Bangladesh Population Census - 1981 (Thana Series)

TABLE 11 : CHANGES OF HUMAN SETTLEMENT HIERARCHY  
BY POPULATION SIZE ( 1961-1981 )

CLASSIFIED HIERARCHY	NOS. OF SETTLEMENTS					
	1961	Percent	1974	Percent	1981	Percent
Upto - 500	101	75.38	126	58.87	68	49.28
501 - 1000	26	19.40	70	32.71	47	34.05
1001 - 1500	2	1.49	9	4.21	12	8.69
1501 - 2000	4	2.98	4	1.87	4	2.90
2001 - 2500	1	0.75	2	0.93	2	1.46
2501 - 3000	-	-	1	0.47	-	-
3001 - 3500	-	-	2	0.94	1	0.72
3501 - 4000	-	-	-	-	3	2.18
4001 and above	-	-	-	-	1	0.72
TOTAL	134	100.00	214	100.00	138	100.00

SOURCE : BBS. Bangladesh Population Census-1981 (Thana Series) and  
village population Statistics.



## 2.3. ECONOMIC PERFORMANCE AND TRANSPORT LINKAGE

### a. EMPLOYMENT

Population over 10 years age-group enter labour force according to Bangladesh Standard. The age-group shares a little over 69 percent of the total Upazila population of which about 38.44 percent is active labour force. Population and labour force of Phulbari Upazila and Dinajpur Zila (base year 1981) are shown as under :

TABLE 12 : POPULATION & LABOUR FORCE PATTERN

Locality	TOTAL POPULATION		ACTIVE POPULATION		LABOUR FORCE	
	Nos.	% over zila population	Nos.	% over total population.	Nos.	% over active population.
Phulbari Upazila	92,831	5.15	64,334	69.31	24,731	38.44
Dinajpur	18,04,015	100.00	10,82,454	60.00	5,14,086	47.58

SOURCE : BBS

Distribution pattern of labour force by sex reveals that about 92.37% of the active labour force in Phulbari Upazila is male. Same is the case with the zila level as shown thus :

TABLE 13 : POPULATION & LABOUR FORCE BY SEX

LOCALITY	LABOUR FORCE (10 YEARS + )					
	TOTAL		MALE		FEMALE	
	NOS.	%	NOS.	%	NOS.	%
Phulbari Upazila	24,731	100.00	22,844	92.37	1,887	7.63
Dinajpur Zila.	5,14,986	100.00	4,81,482	93.49	33,504	6.51

SOURCE : BBS

Distribution of labour force by occupation has been shown thus.

TABLE 14 : LABOUR FORCE BY OCCUPATION

Locality		Total	Cultiva- tion	Agricul- Non.Crop	Manufac- turing	Busi- ness	Others
Phulbari Upazila.	Nos.:	24,731	16,498	115	95	2,698	5,325
	% :	100.00	66.71	0.47	0.38	10.91	21.53
Zila.	Nos.:	5,14,986	3,49,684	3,446	7,280	38,720	1,15,856
	% :	100.00	67.90	0.67	1.41	7.52	22.50

SOURCE : BBS.

b. INCOME AND EXPENDITURE PATTERN

It is very difficult to ascertain income and expenditure pattern of the Upazila population. However, the survey team, on observation, has derived a generalised but consensus assumption which expresses that the income and expenditure pattern of non-agricultural community is distinctively higher than that of the agricultural community. Food is still the higher items of expenditure in either of the communities. Average income of the agricultural community, with the exception of a few on the upper stratum, is around Tk.6,000 per annum. Average daily wages rate of agriculture labour is reported as Tk.10.50 (Base year 1982).

Average daily wages rate of non-agricultural labour force (base year 1982) has been shown thus :



### C. AGRICULTURE

At present 57% of the agricultural land is used for single cropped, followed by about 16% used for double cropped and only 5% of the agricultural land is used for tripple cropped. Near about 10% of single cropped land of the Dinajpur zila belongs to Phulbari Upazila and in the case of double and tripple cropped it is 6.61% and 6% respectively. In case of total cropped area 8% of the Dinajpur Zila has been utilised by Phulbari Upazila.

TABLE 15 : AGRICULTURAL LAND-USE IN DINAJPUR ZILA & PHULBARI UPAZILA 1981 - 82.

Locality	Area in Hectares					
	Net cropped area	Current flow	Single cropped area	Double cropped area	Tripple cropped area	Total cropped area
Phulbari Upazila	24,228.98	2,172.42	18,069.94	5,023.94	1,135.99	31,524.
Dinajpur Zila.	27,598.59	12,512.10	1,81,073.70	75,990.11	18,923.77	3,89,825.

SOURCE : BBS District Statistics - 1983.

Aman is the main production in the area followed by Aus and Boro. 10% of the Aman paddy production of the Zila is in Phulbari Upazila. In case of wheat production 7.5% was produced in the year 1981-82, in Phulbari Upazila compared to Dinajpur Zila. In case of Jute production only 1.00% of the total jute of Dinajpur Zila was produced in Phulbari. The Table below provides a comparative picture of different agricultural productions of Dinajpur Zila & Phulbari Upazila.

TABLE 16 : MAJOR AGRICULTURAL PRODUCTION 1981-82 AND AREA OF PRODUCTION FOR DINAJPUR ZILA AND PHULBARI UPAZILA

I T E M	Production in Tons Area in Hectares			
	Z I L A		U P A Z I L A	
	AREA	PRODUCTION	AREA	PRODUCTION
Aus	84,379	80,702	5,558	5,310
Aman	2,12,417	2,65,436	22,938	28,103
Boro	7,558	17,457	563	1,538
Wheat	28,095	48,672	2,160	3,671
Jute	8,881	76,807	143	1,235
Sugar Cane	5,780	1,89,820	384	12,628
Potatoes	6,362	46,492	741	4,802
Sweet Potatoes	637	5,164	93	754
Mung	324	230	40	28
Masur	597	327	44	25
Khesari	494	360	142	106
Matar	97	60	6	6
Mashkalai	1,348	941	121	86
Chillia	1,078	676	95	62
Onion	1,582	6,166	129	517

SOURCE : BBS District Statistics - 1983.

In Phulbari Upazila 2,190 Hectares of agricultural land was covered by different means of irrigation. It reflects from the table below that power pumps are the main sources of irrigation in Phulbari by which 1,331 hectares of land was irrigated, followed by Doons and Shallow Tubewells and other means of irrigation respectively. Near about 7% of total irrigated agricultural land of Dinajpur zila by different means belongs to Phulbari Upazila.



TABLE 17 : AGRICULTURAL LAND COVERED BY DIFFERENT IRRIGATION MEANS 1981-82 FOR DINAJPUR ZILA & PHULBARI UPAZILA.

(Area in Hectares)

Locality	Power Pump	Tube well	Doons	Swing Basket	Cannals	Others	Total
Phulbari Upazila	1,331	157	307	132	48	214	2,190
Dinajpur Zila	11,371	8,268	4,199	2,509	1,336	4,480	32,164

SOURCE : BBS District Statistics - 1983.

d. Non-Agricultural Labour

Daily wages rate in Tk.

Cotton Textile	Skilled	Tk. 22.45
	Unskilled	Tk. 19.77
Bakery	Skilled	Tk. 19.50
	Unskilled	Tk. 9.50
Oil Mills	Skilled	Tk. 14.30
	Unskilled	Tk. 10.55
Book Binder	Skilled	Tk. 28.75
	Unskilled	Tk. 18.00
Compositor (Printing Press)	Skilled	Tk. 15.75
	Unskilled	Tk. 12.50
Construction Labour	Mason	Tk. 52.50
	Carpenter	Tk. 32.50
	Helper	Tk. 30.00

Source : Field Survey.

e. Transportation, Storage, Movement and Communication facilities.

The Upazila is well connected with national grid of rail and road transport. It is about 28 miles (45 Km) from the

zila Shahar. Time distance being 1 hour by road and 2 hours by rail.

The Upazila has 24.14 Km (15 miles) Pucca road and 328.30 Km (204 miles) Kutchra road.

Phulbari Upazila has a number of about 2178 bullock carts (4.55% of the zila total). Rickshaw totals to about 349 followed by Auto Rickshaw (6) and Bus (1).

Phulbari Upazila has a total of about 7 food godowns (capacity 4750 tons) and one fertilizer godown (400 tons). There are 9 Post Offices, one Telegraph Office, 3 Dak Bangalows and 20 Govt. Offices.

#### 2.4. SOCIAL INFRASTRUCTURE

##### A. MARKET

There are 310 Hats/Bazars (market), that is commercial establishments within the Dinajpur Zila Sub-region. The subject Upazila Phulbari has 10 marketing centres spread over 7 unions, whereas main marketing centre with a Character of a central market is located within Sujapur union which is at present a Upazila Headquarters (Pourashava). The Table shows a comparative picture about markets.

TABLE 18 : NUMBER OF MARKET IN DINAJPUR ZILA  
& PHULBARI UPAZILA (1981)

Market	Phulbari Upazila	Dinajpur Zila	Phulbari Upazila over Dinajpur Zila in %
Hat/Bazar	10	310	3.23

SOURCE : BBS & Field Study.



### B. Education

In the Dinajpur Zila there are 15 Colleges, whereas there is one College in Phulbari, 9.60% of the Secondary Schools of Dinajpur Zila are located in the Phulbari Upazila and in case of Primary Schools out of 917 P.S. of Dinajpur Zila 55 area within Phulbari. In case of Madrashes 5.38% Madrasha of the Dinajpur Zila sub-region is located in this Upazila. The table shows more details.

TABLE 19 : EDUCATIONAL INSTITUTIONS IN DINAJPUR ZILA & PHULBARI UPAZILA (1981)

INSTITUTIONS	PHULBARI UPAZILA NO.	DINAJPUR ZILA NO.	PHULBARI UPAZILA OVER DINAJPUR ZILA
College	1	15	6.67
Secondary School	23	238	9.60
Primary School	55	917	5.98
Madrasha	7	130	5.38

SOURCE : BBS & Field survey.

### C. HEALTH

TABLE 20 : HEALTH SERVICES IN DINAJPUR ZILA AND PHULBARI UPAZILA.

Health Services	Phulbari Upazila No.	Dinajpur Zila No.	Phulbari Upazila over Dinajpur Zila in %
Hospital	2	12	16.67
Hospital bed	20	24	4.74
Dispensary	3	34	8.82
Doctor	26	132	19.70

SOURCE : BBS & Field Survey.

The above table reflects the health sector information within the Zila and subject Upazila Phulbari.

D. OTHER URBAN SERVICES & UTILITIES

There are 145 Post Offices in Dinajpur Sub-region out of which 9 only are in Phulbari Upazila. In respect of telegraph Offices only one out of 7 of the Zila sub-region is located in Phulbari. There are 3 Dak Bungalows in Phulbari Upazila and 23 Dak Bungalows in the Zila. There are 216 Mosques, 8 temples and one Church in this Upazila.

2.5. SYNTHESIS; IDENTIFICATION OF HIERARCHY OF SETTLEMENTS IN THE UPAZILA.

In the context of Upazila human settlement hierarchy has been studied mainly focusing on identification of potential settlements within the Upazila in a hierarchical order. Population concentration, growth of physical and social services facilities are the principal object of study for identifying hierarchy of settlement within Upazila. In view of classifying the settlement in an order of importance, available socio-economic services facilities and population have been graded and on the basis of total grade achieved by a settlement, their ranking was made. In case of our concerned Upazila we have made four levels of settlement with an weight of more than 100 = A; 50-100 = B; 10-50 = C and 10 = D respectively and less than 10 has not been considered to identify because they are not important in term of their weight. The top two hierarchy of this Upazila are located within the study area. Important settlements with their levels of hierarchy have been given in the following table and more information about identification of hierarchy has been given in ANNEXURE. The hierarchy Map by mouza has been prepared and Annexed. (Fig. No. 06).



TABLE 21 : HIERARCHY OF SETTLEMENT WEIGHT OF POPULATION  
& SERVICE FACILITY AVAILABLE

WEIGHT	LEVEL	NO. OF MOUZA
100 +	A	1
50 - 100	B	1
10 - 50	C	34
10	D	29

3.0. THE UPAZILA HEADQUARTERS

3.1. DEFINITION OF SPHERE OF INFLUENCE/ATTRACTIVENESS

Sphere of influence, influence zone or the Attractiveness of an urban Centre varies or likely to vary for different functions or for different services such as administrative, economic, social and cultural.

In the case of the subject Upazila Shahar "Phulbari" is in fact, the seat of Upazila administration & local pourashava administration. The sphere of influence or the attractiveness of Upazila Shahar for the administrative reason spread over the whole Upazila. But for socio-cultural and day to day activities some people of adjoining Parbatipur & Nawabganj will also be attracted by the Upazila Centre because of its geographical location, but for administrative reason those people can not be taken into consideration in delimiting the area of influence.

The area of each influence zone depends upon the mode of transportation available and the capability of the people to travel to and return within a day and also on the type of shops, service facility available. We can define the "Sphere of influence" as the zone spread over surrounding region of

the centre from where the people travel for specific purpose daily for day to day need or for a longer period for specific needs. It may be mentioned here that in our case we have indicated the zone surrounding the Upazila Urban Centre from where people generally travel to meet their normal social and economic needs as a sphere of influence and in this case we consider the other small influence zones within the Upazila by identifying the hierarchy of settlement on the basis of same facility available.

The catchment area covers Sujapur, Aladipur & Khayerbari union with an area of 62.83 Km<sup>2</sup> with a total population of 39,334 in the year 1981 (Census year). Table No.22 reflects more information about the catchment area (Refer Map No.-06)

TABLE 22 : AREA AND POPULATION OF CATCHMENT AREA WITH GROWTH RATE.

Catchment area	Area in Km <sup>2</sup>	1961		1974		1981	
		Popu-lation	G.R.	Popu-lation	G.R.	Popu-lation	G.R.
Sujapur	16.66	11012	1.98	13834	5.95	18965	3.90
Aladipur	32.06	7443	2.76	10110	3.42	12532	3.41
Khayerbari	14.11	4668	2.05	5911	3.08	7189	2.70
TOTAL	62.83	23122	2.26	29855	4.15	39334	3.34

SOURCE : BBS.



TABLE 23: INVOLVED AREA AND POPULATION OF THE CATCHMENT  
AREA OF PHULBARI UPAZILA SHAHAR 1961-1981

Locality	Total involved area		Total involved population		
	Km <sup>2</sup>	Sq.Mile	1961	1974	1981
Sujapur Union	16.66	6.43	11,012	13,834	18,965
Khayerbari Union	14.11	5.43	4,668	5,911	7,189
Aladipur Union	32.06	12.38	7,442	10,110	12,532
Total	62.83	24.24	23,122	29,855	39,334

SOURCE : BBS

### 3.2. DEFINITION OF SHAHAR AREA

Shahar area for an Upazila Headquarters can be defined as the area where :

- o Administrative offices of upazila level are located.
- o Other necessary establishments such as
  - Educational Institutions
  - Cultural & Religions Institution
  - Entertainment, Recreational facilities, Structures of Central Shopping & Commercial Establishment.
- o Official residences of the officers and employees
- o Inhabitants of the shahar
- o Utility installations and net work of services.

The present location of the upazila headquarters is within the Sujapur Union which is also the present pourashava delineated area of Phulbari Upazila. Entire pourashava area of the Upazila centre has been defined as the designated Upazila Shahar.

The Upazila shahar stands eccentrically, on the north east corner of the Upazila region with the influence of three

Upazila regions, Phulbari, Parbatipur and Nawabganj. It is well connected with the Zila Shahar and Parbatipur Upazila by Roads and Railway. It occupies an area of about 16.66 Km<sup>2</sup> (about 6.43 sq.miles) having a population of 18,965 (1981) resulting a gross density of about 1138 persons per Km<sup>2</sup> (about 2949 person per Sq.miles).

A table is given below which will provide the population picture by mouza within the study area (Pourashava) from 1961-1981.

TABLE 24 : INVOLVED AREA AND POPULATION OF THE STUDY AREA OF PHULBARI POURASHAVA (UPAZILA SHAHAR) (1961-1981)

Total area = 6.43 Sq.miles or 16.66 Km<sup>2</sup>

Mouza	Total involved area		Total involved population		
	Hectares	Acres	1961	1974	1981
Chakshahabajpur.	94.30	233.00	311	500	612
Chakchaka	146.90	363.00	932	1290	808
Gouripara	148.52	367.00	1951	3098	4976
Kanahar	99.15	245.00	410	368	791
Krishnapur	155.00	383.00	1108	1605	2070
Mollapara	46.00	115.00	30	27	33
Purba Ramchandrapur	99.96	247.00	280	335	533
Shajahanpur	71.22	176.00	511	564	797
Sujapur	343.99	850.00	1958	2700	3531
Tentulia	237.00	588.00	469	657	909
Barakona	138.00	341.00	415	539	636
Katabari	85.39	211.00	1637	2160	3269
Total	1668.39	4119.00	10012	13843	18965

SOURCE : B.B.S. & Village Population Statistics - 1974

### 3.3. EXISTING LAND-USE FACILITIES AND UTILIZATION CHARACTERISTICS :

Phulbari Upazila Shahar, covers an area of 1,666.96 hectares 4,119 acres or 6.43 Sq.miles. Entire Sujapur union is at present defined as Municipal Area, the seat of Upazila Administration.



is infact the lunching pad for development activities at Upazila level.

Existing land-use survey, in the study area (Pourashava) information reflects that Present Administrative centre, with other Govt. establishment are located in Soth-eastern side of the little Jamuna River. A trunk Road connects this Upazila Shahar from Dinajpur Zila shahar and also connects this Shahar by rail from Dinajpur Zila shahar and other part of the Upazila region.

The land-use survey information has been mapped along with contour information (10' ft interval) indicating names of principal features (natural & constructed) areas of residential, roads, commerce and other infrastructural facilities has been shown in the existing land-use map in the scale mentioned in TOR. Land-use Analysis has been shown in a tabular form and annexed below . (Table No. 25).

The survey information reflects that about 77% percent of the total Municipal area (Upazila Shahar) acreage is agriculture (non builtup). River, canal, Tanks and other water bodies occupy about 2.35% percent. The net builtup acreage is, therefore account for little over 23% percent and the present residential area, mostly unplanned in nature, occupies about 15.07% percent (i.e. 251.23 hectares or 620.75 acres) of the total area of the Upazila Shahar (Pourashava).

The net urban buildable acreage, excluding the agricultural land has been identified as 389.94 hectares or 963.53 acres which is 23% percent out of the total land under the jurisdiction of Pourashava area. Residential area occupies about 64.43% followed by Roads & Railway (14.22%) Tanks, River, Canal and other water bodies (10.06%) percent Administrative establishment, commerce, Industries, occupies about 1.99%, 1.82% and 0.08% respectively. Education Facilities available

in the present Upazila Shahar occupies an area of about 14.26 hectares or 35.25 acres i.e. 3.67% of the total acreage. Areas identified as such uses as urban Service, health and recreation occupy relatively low percent of the total urban acreage.

The land-use Survey is also identified the present urban facilities available within the Pourashava, and sector-wise description of different land-use is described below :

#### RESIDENTIAL

The present Residential areas are located within the Pourashava Boundary and spread over along the river little Jamuna and both sides of the Dinajpur - Phulbari Trunk road. These residential areas are predominantly village oriented. The present Pourashava is incapable of providing urban facilities to these residential areas because the residential areas are dispersely located in different halmets within the present Pourashava.

#### ROAD INFRASTRUCTURE

A trunk road connects Phulbari Upazila Shahar with Dinajpur Zila Shahar and this Upazila Shahar is also connected with the other surrounding upazilas by semi pucca roads. A new road is under construction which will connect the Upazila Shahar with Birampur, Hakimpur and Ghoraghat Upazila Shshars in near future. The trunk road has been connected by a number of criss-cross roads. This results spider-web pattern. This is the result of natural growth and unconscious design.

#### COMMERCE & INDUSTRY

Commercial Centre is located on the Southern part of the Trunk road along the river bank, adjacent North of the present Upazila Complex. Main shopping and commercial activities, Municipal office and other main educational Institutions are located on both sides of the trunk road. There is no Industrial activities within the Municipal area except one or two establishment like Husking Mills.



### HEALTH

There is a health Complex located on the north of the Trunk road, just at the entry point of the Upazila Shahar from Dinajpur. There is also a medical Centre which is also located on the north of the trunk road by the side of the Municipal office on the eastern side of the river little Jamuna.

### EDUCATION

There is one College and three High Schools and a number of Primary Schools within the Phulbari Municipal area, quite a few Madrashes are also located within the municipal boundary.

### URBAN FACILITIES

There are a few urban facilities available within the Municipal area. These are Telegraph office, Post office and a few govt. food godowns located in and around railway station and by the side of Trunk road but no water supply and Sewerage system are available within the present Municipal area. No fire station has been identified.

### SOCIO-CULTURAL

There are Social Clubs and Cinema Halls located in different areas within the Municipal area but all the Cinema Halls are located by the side of the trunk road. Mosques, graveyard are located in different parts of the neighbourhood area.

### ADMINISTRATIVE ESTABLISHMENT

The present Administrative Complex is located in the South of Main Market by the side of Semi pucca road. At present Upazila Chairman's office, Court Building, BADC office, Fishery office and some staff quarters are located within this Complex but a few govt. establishments are located outside this Complex but within the Municipality. There is a possibility to extend this complex further east to accommodate a few more govt. office which may be required for this Upazila Shahar in the near future.

Major active areas of Phulbari Upazila Shahar have been found to be concentrated in an area of about 350 acres or 141.64 Hectares of land where a mixed development of central area functions have been located in distinct blocks/groups of use classes at strategic location. A town centre Map has also been prepared in a scale of  $82\frac{1}{2}'-0'' - 1''$  on enlarged mouza map showing the main land-use function centering the Upazila Administrative complex and the present infrastructural facilities on both sides of the trunk road, which can be identified as the central business district of the Upazila Shahar.



TABLE 25 : EXISTING LAND-USE ANALYSIS FOR DIFFERENT FACILITIES  
FOR PHULBARI UPAZILA SHAHAR, DINAJPUR ZILA - 1987

TOTAL LAND : 1666.96 HECTARES

NET LAND EXCLUDING AGRICULTURAL LAND  
963.53 ACRES.

Land-use Sector	Area in Hect/Acres		P E R C E N T	
	Hectares	Acres	Gross	Net: Excluding Agricultural Land = 963.53 acres
Agriculture	1,277.01	3,155.47	76.61	
Commerce	7.10	17.55	0.43	1.82
Industries	0.33	0.80	0.02	0.08
Education	14.26	35.25	0.85	3.67
Health	2.63	6.50	0.16	0.67
Administration	7.79	19.25	0.47	1.99
Recreation	3.44	8.55	0.21	0.89
Socio-Cultural	3.86	9.55	0.23	0.98
Residential	251.23	620.75	15.07	64.43
Urban Services	4.65	11.50	0.28	1.19
Roads & Railways	55.41	136.91	3.32	14.22
River, Tanks, Canal & other water Bodies.	39.25	96.97	2.35	10.06
TOTAL POURASHAVA	1,666.96	4,119.00	100.00	100.00

3.4. PHYSICAL OPPORTUNITIES AND CONSTRAINTS :

a. OPPORTUNITIES :

Present builtup area of the Upazila Shahar within the Pourashava is high land of a R.L. read 100-104 where most of the existing infrastructural facilities are available and even the present Upazila administrative complex, other socio-economic activities, and residential concentration are mostly located. The main functional roads connecting this Upazila Headquarters with the Zila Headquarters and other Upazila Headquarters are located within the above mentioned R.L.

Potential area which is presently used for agricultural purpose with a R.L. 98-100 in and around the builtup area can be utilized for future urban development with minimum land filling and extension of the present infrastructure, integrating the present builtup area with future urban development requirement.

High agricultural land (R.L. 98-100) within the Pourashava area but adjacent to present builtup area can be used for future urban development upto 2001 A.D. with a minimum area of development control can be delineated from the present area boundary of the phulbari Pourashava.

b. CONSTRAINTS :

The river little Jamuna passes through the Phulbari Pourashava area in a north-south direction which, for most of the seasons in the year, remains as a water channel of this sub-region. There are some important tanks within the Pourashava which act as a part of constraint for planning purpose.

Low agricultural land has been identified with high yielding agricultural production (R.L. 92-96) where most of the season in a year remains above normal flood level



but unprecedented flood like the flood of year 1987 effect those areas severely.

Present Broadgauge Railway line connecting Parbatipur on the north and Khulna on south has been identified as a physical constraint within the Pourashava area because the development activity are mostly located on the western side of the rail line but limited to the border of this Upazila Headquarter on the north west. In preparing land-use proposal we felt it necessary not to cross the railway line by proposing future land use facilities on the western side of the railway line and thus avoiding traffic hazards and harmonious development. Though these areas are within the Municipality.

An opportunity and constraint map has been drawn on BWDB map in the scale of 1:15840 which is annexed with the report, (Fig. No. 08).

## CHAPTER - II

1. The first part of the chapter is devoted to a discussion of the various methods of determining the rate of reaction.	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.21	1.22	1.23	1.24	1.25	1.26	1.27	1.28	1.29	1.30	1.31	1.32	1.33	1.34	1.35	1.36	1.37	1.38	1.39	1.40	1.41	1.42	1.43	1.44	1.45	1.46	1.47	1.48	1.49	1.50	1.51	1.52	1.53	1.54	1.55	1.56	1.57	1.58	1.59	1.60	1.61	1.62	1.63	1.64	1.65	1.66	1.67	1.68	1.69	1.70	1.71	1.72	1.73	1.74	1.75	1.76	1.77	1.78	1.79	1.80	1.81	1.82	1.83	1.84	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.92	1.93	1.94	1.95	1.96	1.97	1.98	1.99	2.00	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09	2.10	2.11	2.12	2.13	2.14	2.15	2.16	2.17	2.18	2.19	2.20	2.21	2.22	2.23	2.24	2.25	2.26	2.27	2.28	2.29	2.30	2.31	2.32	2.33	2.34	2.35	2.36	2.37	2.38	2.39	2.40	2.41	2.42	2.43	2.44	2.45	2.46	2.47	2.48	2.49	2.50	2.51	2.52	2.53	2.54	2.55	2.56	2.57	2.58	2.59	2.60	2.61	2.62	2.63	2.64	2.65	2.66	2.67	2.68	2.69	2.70	2.71	2.72	2.73	2.74	2.75	2.76	2.77	2.78	2.79	2.80	2.81	2.82	2.83	2.84	2.85	2.86	2.87	2.88	2.89	2.90	2.91	2.92	2.93	2.94	2.95	2.96	2.97	2.98	2.99	3.00	3.01	3.02	3.03	3.04	3.05	3.06	3.07	3.08	3.09	3.10	3.11	3.12	3.13	3.14	3.15	3.16	3.17	3.18	3.19	3.20	3.21	3.22	3.23	3.24	3.25	3.26	3.27	3.28	3.29	3.30	3.31	3.32	3.33	3.34	3.35	3.36	3.37	3.38	3.39	3.40	3.41	3.42	3.43	3.44	3.45	3.46	3.47	3.48	3.49	3.50	3.51	3.52	3.53	3.54	3.55	3.56	3.57	3.58	3.59	3.60	3.61	3.62	3.63	3.64	3.65	3.66	3.67	3.68	3.69	3.70	3.71	3.72	3.73	3.74	3.75	3.76	3.77	3.78	3.79	3.80	3.81	3.82	3.83	3.84	3.85	3.86	3.87	3.88	3.89	3.90	3.91	3.92	3.93	3.94	3.95	3.96	3.97	3.98	3.99	4.00	4.01	4.02	4.03	4.04	4.05	4.06	4.07	4.08	4.09	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19	4.20	4.21	4.22	4.23	4.24	4.25	4.26	4.27	4.28	4.29	4.30	4.31	4.32	4.33	4.34	4.35	4.36	4.37	4.38	4.39	4.40	4.41	4.42	4.43	4.44	4.45	4.46	4.47	4.48	4.49	4.50	4.51	4.52	4.53	4.54	4.55	4.56	4.57	4.58	4.59	4.60	4.61	4.62	4.63	4.64	4.65	4.66	4.67	4.68	4.69	4.70	4.71	4.72	4.73	4.74	4.75	4.76	4.77	4.78	4.79	4.80	4.81	4.82	4.83	4.84	4.85	4.86	4.87	4.88	4.89	4.90	4.91	4.92	4.93	4.94	4.95	4.96	4.97	4.98	4.99	5.00	5.01	5.02	5.03	5.04	5.05	5.06	5.07	5.08	5.09	5.10	5.11	5.12	5.13	5.14	5.15	5.16	5.17	5.18	5.19	5.20	5.21	5.22	5.23	5.24	5.25	5.26	5.27	5.28	5.29	5.30	5.31	5.32	5.33	5.34	5.35	5.36	5.37	5.38	5.39	5.40	5.41	5.42	5.43	5.44	5.45	5.46	5.47	5.48	5.49	5.50	5.51	5.52	5.53	5.54	5.55	5.56	5.57	5.58	5.59	5.60	5.61	5.62	5.63	5.64	5.65	5.66	5.67	5.68	5.69	5.70	5.71	5.72	5.73	5.74	5.75	5.76	5.77	5.78	5.79	5.80	5.81	5.82	5.83	5.84	5.85	5.86	5.87	5.88	5.89	5.90	5.91	5.92	5.93	5.94	5.95	5.96	5.97	5.98	5.99	6.00	6.01	6.02	6.03	6.04	6.05	6.06	6.07	6.08	6.09	6.10	6.11	6.12	6.13	6.14	6.15	6.16	6.17	6.18	6.19	6.20	6.21	6.22	6.23	6.24	6.25	6.26	6.27	6.28	6.29	6.30	6.31	6.32	6.33	6.34	6.35	6.36	6.37	6.38	6.39	6.40	6.41	6.42	6.43	6.44	6.45	6.46	6.47	6.48	6.49	6.50	6.51	6.52	6.53	6.54	6.55	6.56	6.57	6.58	6.59	6.60	6.61	6.62	6.63	6.64	6.65	6.66	6.67	6.68	6.69	6.70	6.71	6.72	6.73	6.74	6.75	6.76	6.77	6.78	6.79	6.80	6.81	6.82	6.83	6.84	6.85	6.86	6.87	6.88	6.89	6.90	6.91	6.92	6.93	6.94	6.95	6.96	6.97	6.98	6.99	7.00	7.01	7.02	7.03	7.04	7.05	7.06	7.07	7.08	7.09	7.10	7.11	7.12	7.13	7.14	7.15	7.16	7.17	7.18	7.19	7.20	7.21	7.22	7.23	7.24	7.25	7.26	7.27	7.28	7.29	7.30	7.31	7.32	7.33	7.34	7.35	7.36	7.37	7.38	7.39	7.40	7.41	7.42	7.43	7.44	7.45	7.46	7.47	7.48	7.49	7.50	7.51	7.52	7.53	7.54	7.55	7.56	7.57	7.58	7.59	7.60	7.61	7.62	7.63	7.64	7.65	7.66	7.67	7.68	7.69	7.70	7.71	7.72	7.73	7.74	7.75	7.76	7.77	7.78	7.79	7.80	7.81	7.82	7.83	7.84	7.85	7.86	7.87	7.88	7.89	7.90	7.91	7.92	7.93	7.94	7.95	7.96	7.97	7.98	7.99	8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	8.08	8.09	8.10	8.11	8.12	8.13	8.14	8.15	8.16	8.17	8.18	8.19	8.20	8.21	8.22	8.23	8.24	8.25	8.26	8.27	8.28	8.29	8.30	8.31	8.32	8.33	8.34	8.35	8.36	8.37	8.38	8.39	8.40	8.41	8.42	8.43	8.44	8.45	8.46	8.47	8.48	8.49	8.50	8.51	8.52	8.53	8.54	8.55	8.56	8.57	8.58	8.59	8.60	8.61	8.62	8.63	8.64	8.65	8.66	8.67	8.68	8.69	8.70	8.71	8.72	8.73	8.74	8.75	8.76	8.77	8.78	8.79	8.80	8.81	8.82	8.83	8.84	8.85	8.86	8.87	8.88	8.89	8.90	8.91	8.92	8.93	8.94	8.95	8.96	8.97	8.98	8.99	9.00	9.01	9.02	9.03	9.04	9.05	9.06	9.07	9.08	9.09	9.10	9.11	9.12	9.13	9.14	9.15	9.16	9.17	9.18	9.19	9.20	9.21	9.22	9.23	9.24	9.25	9.26	9.27	9.28	9.29	9.30	9.31	9.32	9.33	9.34	9.35	9.36	9.37	9.38	9.39	9.40	9.41	9.42	9.43	9.44	9.45	9.46	9.47	9.48	9.49	9.50	9.51	9.52	9.53	9.54	9.55	9.56	9.57	9.58	9.59	9.60	9.61	9.62	9.63	9.64	9.65	9.66	9.67	9.68	9.69	9.70	9.71	9.72	9.73	9.74	9.75	9.76	9.77	9.78	9.79	9.80	9.81	9.82	9.83	9.84	9.85	9.86	9.87	9.88	9.89	9.90	9.91	9.92	9.93	9.94	9.95	9.96	9.97	9.98	9.99	10.00	10.01	10.02	10.03	10.04	10.05	10.06	10.07	10.08	10.09	10.10	10.11	10.12	10.13	10.14	10.15	10.16	10.17	10.18	10.19	10.20	10.21	10.22	10.23	10.24	10.25	10.26	10.27	10.28	10.29	10.30	10.31	10.32	10.33	10.34	10.35	10.36	10.37	10.38	10.39	10.40	10.41	10.42	10.43	10.44	10.45	10.46	10.47	10.48	10.49	10.50	10.51	10.52	10.53	10.54	10.55	10.56	10.57	10.58	10.59	10.60	10.61	10.62	10.63	10.64	10.65	10.66	10.67	10.68	10.69	10.70	10.71	10.72	10.73	10.74	10.75	10.76	10.77	10.78	10.79	10.80	10.81	10.82	10.83	10.84	10.85	10.86	10.87	10.88	10.89	10.90	10.91	10.92	10.93	10.94	10.95	10.96	10.97	10.98	10.99	11.00	11.01	11.02	11.03	11.04	11.05	11.06	11.07	11.08	11.09	11.10	11.11	11.12	11.13	11.14	11.15	11.16	11.17	11.18	11.19	11.20	11.21	11.22	11.23	11.24	11.25	11.26	11.27	11.28	11.29	11.30	11.31	11.32	11.33	11.34	11.35	11.36	11.37	11.38	11.39	11.40	11.41	11.42	11.43	11.44	11.45	11.46	11.47	11.48	11.49	11.50	11.51	11.52	11.53	11.54	11.55	11.56	11.57	11.58	11.59	11.60	11.61	11.62	11.63	11.64	11.65	11.66	11.67	11.68	11.69	11.70	11.71	11.72	11.73	11.74	11.75	11.76	11.77	11.78	11.79	11.80	11.81	11.82	11.83	11.84	11.85	11.86	11.87	11.88	11.89	11.90	11.91	11.92	11.93	11.94	11.95	11.96	11.97	11.98	11.99	12.00	12.01	12.02	12.03	12.04	12.05	12.06	12.07	12.08	12.09	12.10	12.11	12.12	12.13	12.14	12.15	12.16	12.17	12.18	12.19	12.20	12.21	12.22	12.23	12.24	12.25	12.26	12.27	12.28	12.29	12.30	12.31	12.32	12.33	12.34	12.35	12.36	12.37	12.38	12.39	12.40	12.41	12.42	12.43	12.44	12.45	12.46	12.47	12.48	12.49	12.50	12.51	12.52	12.53	12.54	12.55	12.56	12.57	12.58	12.59	12.60	12.61	12.62	12.63	12.64	12.65	12.66	12.67	12.68	12.69	12.70	12.71	12.72	12.73	12.74	12.75	12.76	12.77	12.78	12.79	12.80	12.81	12.82	12.83	12.84	12.85	12.86	12.87	12.88	12.89	12.90	12.91	12.92	12.93	12.94	12.95	12.96	12.97	12.98	12.99	13.00	13.01	13.02	13.03	13.04	13.05	13.06	13.07	13.08	13.09	13.10	13.11	13.12	13.13	13.14	13.15	13.16	13.17	13.18	13.19	13.20	13.21	13.22	13.23	13.24	13.25	13.26	13.27	13.28	13.29	13.30	13.31	13.32	13.33	13.34	13.35	13.36	13.37	13.38	13.39	13.40	13.41	13.42	13.43	13.44	13.45	13.46	13.47	13.48	13.49	13.50	13.51	13.52	13.53	13.54	13.55	13.56	13.57	13.58	13.59	13.60	13.61	13.62	13.63	13.64	13.65	13.66	13.67	13.68	13.69	13.70	13.71	13.72	13.73	13.74	13.75	13.76	13.77	13.78	13.79	13.80	13.81	13.82	13.83	13.84	13.85	13.86	13.87	13.88	13.89	13.90	13.91	13.92	13.93	13.94	13.95	13.96	13.97	13.98	13.99	14.00	14.01	14.02	14.03	14.04	14.05	14.06	14.07	14.08	14.09	14.10	14.11	14.12	14.13	14.14	14.15	14.16	14.17	14.18
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CONCEPT FORMULATION & LAND-USE PROPOSAL

4.0 FORECAST :

4.1. POPULATION HOUSE-HOLD STRUCTURE DENSITY

a. POPULATION

After the data processing and synthesis, population forecast has been made. This projection of population has been done in respect of total Upazila, sphere of Influence and Upazila Shahar. Before doing so, it is necessary to provide some basic information of the present situation.

TABLE 26 : POPULATION, HOUSE-HOLD STRUCTURE & DENSITY WITHIN PHULBARI - POURASHAVA (UPAZILA SHAHAR) 1981.

Mouza	A R E A			No. of House Hold	Average House hold size	Density of population per Km <sup>2</sup>
	Km <sup>2</sup>	Sq. mile	Population			
Chak Shahbajpur.	0.93	0.36	612	101	6.07	658
Chakchaka	1.50	0.58	808	141	5.74	539
Gouripara	1.48	0.57	4,976	803	6.20	3,362
Kanahar	0.98	0.38	791	111	7.14	807
Katabari	0.85	0.33	3,269	570	5.75	3,846
Krishnapur	1.55	0.60	2,070	355	5.83	1,335
Mollapara	0.26	0.18	33	8	4.13	127
Purba Ramchandrapur	1.01	0.39	533	99	5.39	528
Shahjahanpukur	0.72	0.28	797	101	7.89	1,107
Sujapur	3.42	1.32	3,531	606	5.84	1,032
Tentulia	2.38	0.92	909	154	6.90	382
Barakona	1.35	0.52	636	128	4.97	471
Total	16.66	6.43	18,965	3,177	5.96	1,183

SOURCE : BSS: Population Census - 1981.

In terms of house-hold size, Chakshahbajpur stands at the top with 6.07 persons per house-hold, whereas Barakona is the lowest with 4.97 persons per house-hold. But in case of density per Km<sup>2</sup> Katabari with 3846 persons per Kilometer is at the top whereas Chakachaka with 96 persons per Kilometer is the lowest. In our study area average house-hold size is 5.96 and density per Km<sup>2</sup> is 1183. Table 26 will give a more clear and comparative picture.

TABLE 27 : POPULATION HOUSE-HOLD STRUCTURE & DENSITY WITHIN SPHERE OF INFLUENCE OF 1981 - PHULBARI UPAZILA

Locality	A R E A		Popula- tion	No. of House Hold	Average House Hold size	Density of population per Km <sup>2</sup>
	Km <sup>2</sup>	Sq. mile				
Sujapur Union (Study area)	16.66	6.43	18,965	3,177	5.96	1,138
Aladipur Union	32.06	12.38	12,532	2,277	5.50	391
Khayerbari Union.	14.11	5.43	7,189	1,340	5.36	509
Total	62.83	24.24	38,686	6,922	5.61	679

SOURCE : BBS

In case of population characteristic of the sphere of influence table: 27 indicates that density of population is highest in Sujapur union and lowest in Aladipur union. In Sujapur, Khayerbari and Aladipur unions density of population is 1138, 509 & 391 respectively

TABLE 28 : PATTERN OF GROWTH-RATE OF UPAZILA, CATCHMENT AREA AND UPAZILA SHAHAR (POURASHAVA) FROM 1961-1981)

P E R I O D	G R O W T H      R A T E		
	Upazila	Catchment area	Upazila Shahar (Pourashava)
1974 - 1981	3.49	3.79	4.88
1961 - 1974	2.80	2.31	2.12
1961 - 1981	3.52	3.29	3.77

SOURCE : BBS



In case of population projection we consider certain assumptions and those are :

- a) Past trend of population growth from 1974 to 1981 was 4.88 which seems to be high.
- b) From the year 1961-1974 the growth was 2.12 which seems to be lowest for various reason.
- c) Then from 1961 to 1981 the growth rate was 3.77 which seems to be medium.
- d) The medium growth rate of the catchment area was 3.29, whereas it was 3.77 in the study area because of its existing urban character.
- e) Upto 1990 the national target of growth rate has been assumed as 1.9% with an expectation that it will be 1% by the end of the century. In comparision with that, we have considered 3.77% as the growth rate for the study area.
- f) Past trend of 20 years (1961-1981) of population growth was 3.77 for the study area which seems to be high natural growth because of low contraceptive prevelance rate.

Considering the above assumptions and after data processing and synthesis, population projection has been made. For assesment of demands and requirements of different urban and socio-economic facilities for the population in the study area and certain fraction of the age-group population of the catchment areas have been taken into consideration on the basis of medium growth rate upto 2001 AD is 40,309 in the Pourashava Planning area.

TABLE 29 : POPULATION PROJECTION OF THE CATCHMENT AREA (PHULBARI UPAZILA)

Trend of projection	1981 Base year	1986	1991	1996	2001
High : (3.79)	38,686	46,757	56,512	68,303	82,554
Medium: (3.29)	38,686	45,603	53,757	63,369	74,699
Low : (2.31)	38,686	43,422	48,739	54,706	61,407
National target G.R. - 1.9	38,686	42,541	46,780	51,442	56,568

The above table shows the projected population of the catchment area this projection has been made on the basis of three different growth rates which has been derived from the past trend of growth. For our planning purpose we have taken into consideration the medium growth rate of 3.29 which means that in AD 2001, the population of the catchment area will be 74,699. A comparative description of the population of catchment area on the basis of different growth rates has been presented.

TABLE 30 : POPULATION PROJECTION OF THE PHULBARI POURASHAVA FROM 1981 to 2001 AD.

Trend of projection	1981 Base Popu	1986	1991	1996	2001
High : (4.88)	18,965	24,206	30,895	39,432	50,329
Medium : (3.77)	18,965	28,990	27,649	33,384	40,309
Low : (2.12)	18,965	21,085	23,443	26,065	28,979
National target G.R. 1.9	18,965	20,855	22,933	25,218	27,731

According to the census of 1981 population of the study area was 18,965 and on the basis of that population, projection of study area has been prepared. In the case of study area three different growth rates have been considered, 4.88, 3.77 & 2.12, rates high, medium and



low respectively. For our purpose we have taken medium growth rate as a basis, and on that basis by 2001 AD the population of the study area will be 40,309 and the land-use plan has been designed on that growth rate.

TABLE 31 : POPULATION PROJECTION OF PHULBARI UPAZILA

Trend of projection	1981 Base popu.	1986	1991	1996	2001
High : (3.52)	92,183	1,09,923	1,31,076	1,56,299	1,86,378
Medium : (3.49)	92,183	1,09,758	1,30,683	1,55,598	1,85,263
Low : (2.8)	92,183	1,06,036	1,21,970	1,40,299	1,61,382
National target G.R. 1.9	9,21,369	1,01,369	1,11,471	1,22,580	1,34,796

In case of population projection for the upazila we have taken three alternative growth rates and those rates were derived from the past trend of population growth of this particular Upazila. In case of high growth rate the population will be 1,86,378 by 2001 AD and in medium growth rate it will be 1,85,263 in that period and 1,61,382 in case of low rate. But if the National target is achieved then the population of the subject Upazila will be 1,34,796. The above table reflects the picture of future population of Phulbari Upazila.

#### B. ASPECTS OF MIGRATION

The location of Phulbari Upazila is close to Kumarganj Police station of India. During the period of 1961-74 an out aspect of migration has been identified due to the war between Pakistan and India in the year 1965 and also the war of liberation in the year 1971 because, the Hindu population left their homesteads for India. In between 1961 & 1981 an insignificant (0.25%) migration has been identified in the study area. From 1974 to 81 The rate of migration was 1.39% and that indicates a trend of positive migration in the study area.

This migration trend has been taken into consideration for the projected population of study area, and on that perspective 3.77% growth rate has been considered as a medium growth rate for the study area.

TABLE 32 : ASPECT OF MIGRATION

Y e a r	Natural growth rate in percentage	Rate of Migration in percentage
1961 - 1974	2.80	- 0.68
1974 - 1981	3.49	+ 1.39
1961 - 1981	3.52	+ 0.25

4.2. LABOUR FORCE AND EMPLOYMENT :

a. LABOUR

Labour force has been projected according to the different phases while female sex has also been taken as a part of total labour force in the study area. However, one reservation has been made here that whether the age group from 10 to 14 who are actually school-going group, should be included in labour force or not, though they have been included in the census report. Projection for labour force has been made on the basis of same criteria used for population projection. On the perspective in the year 2001 AD, labour force in the study area will be 13,407, 10,738 and 7,719 on the assumption of 4.88, 3.77 and 2.12 growth rate respectively. For our planning purpose we have taken into consideration the medium growth rate (3.77) on that respect. By 2001 AD labour force will be 10,738. Following table indicates phase-wise projection of labour force. (Table 33)



TABLE 33 : LABOUR FORCE PROJECTION OF STUDY  
AREA PHULBARI UPAZILA (POURASHAVA)

Trend of projection	1981 Base Labour force	1986	1991	1996	2001
High : (4.88)	5,052	6,448	8,229	10,504	13,407
Medium: (3.77)	5,052	6,100	7,365	8,893	10,738
Low : (2.12)	5,052	5,617	6,245	6,943	7,719
National target G.R. 1.9%	5,052	5,555	6,108	6,716	7,385

b. EMPLOYMENT :

It is difficult to assume areas of concentration of employment in the absence of long range investment plan at the level of small size towns or growth centres. For the employment of the labour force in the urban areas sufficient number of shops and commercial establishments and few industrial concerns have been proposed, but it is doubtful whether the total labour force can be employed effectively within the area and the number of jobs can be provided in those industrial and commercial concerns and establishments. It is presumed that the labour force will be employed in agriculture, industry, commerce, shop and also in various services, like transport, restaurant & hotel business.

4.3 LAND REQUIREMENTS & PROVISION STANDARD :

Land requirement for various activities stated before has been calculated as per the standard area recommended by the Government in the TOR. But according to our observation and socio-economic trend of the concern Upazila we have prepared the land-use plan with the objective to make the plan practical and functionally useful for gene-

rating overall development at the Upazila level. In case of gross land-use requirement for the pourashava we have taken into consideration two different kinds of population as a basis for that requirement. In case of Residential use we considered the projected population of the study area but for providing educational facilities we consider 5% of 10-17 year age-group population of catchment area will come to avail of higher education facilities above primary level. For the case of providing different other facilities such as commerce, industry and recreation etc. 1% of the catchment area population will constantly stay in the shahr. Considering these realities land provision has been made for the proposed Upazila Shahr (Pourashava).

5.0 LAND-USE PLAN :

5.1 APPROACH CONCEPT, PLANNING PRINCIPLES :

Approach : The planning approach is fundamentally related to the government Policy of Administrative decentralization which calls for the establishment of Upazila administration. In that way there is a commitment to carry out different socio-economic activities relevant to land utilization and space maximization.

The approach here cannot be confined only to the need of the survey of existing land-use but also the utilities such as housing, drainage, road, water supply and socio-economic needs of the locality. Study has also been made from both primary and secondary sources to estimate the future potentials and possibilities. In short, the approach to planning for Upazila Shahr is thus :

- o Collection of base maps from different sources like UDD, Director of Land Records, Survey of Bangladesh and Bangladesh Water Development Board.



- o Present land utilization survey for investigation of the present land-use pattern and growth.
- o Conducting the socio-economic survey and the demographic survey on sample basis.
- o Identification of constraints & opportunities.
- o Assessment of future land requirement within Upazila Shahar for housing, employment and other purposes.
- o Delineation of Development control area on the basis of logical utilization of valuable agricultural land.
- o Certain percent of Projected population of the catchment area has been taken into consideration, except housing for proposed land use plan.

Planning approach has therefore been framed keeping in view of above mentioned observations.

a. Concept :

The National hard-rock mining project at Maddhayapara of Parbatipur upazila is located about 2 Km away from Phulbari upazila shahar and the other Barapukuria Coal mine project at Mouza Badyanathpur of the same Upazila is also located within the only 1 Km off from the northern boundary of the Phulbari upazila shahar. This Upazila shahar is the nearest urban centre of this two newly growing urban centre, which has invariably some urban impact on Phulbari Upazila Shahar.

These two said projects and the newly constructed highway linking the capital city of Dhaka to Dinajpur via Phulbari have direct urban impact on Phulbari upazila shahar (Pourashava). Considering these realities or socio-economic impact of the two nearest urban growth centre and locational aspect of the new highway, a concept plan has been formulated and the proposed urban centre will function as :

o Seat of Administration :

The Urban Headquarters of Upazila, in its full sense and entity as the seat of Administration & Economy,

o Service Centre :

The centre of the Upazila will function as a service centre not only for its influence zone but also for the Upazila as a whole.

o Seat of Commerce & Shopping :

This will function as the marketing centre for the agricultural and cottage industrial products of the Upazila.

o Centre for Socio-Cultural functions & Health Services :

This will be a centre for functions like Education and Cultural Centre for higher education viz. higher secondary and college and centre for special shopping, recreation and entertainment such as Mela, Circus, Cinema for its influence zone. This will also serve as a seat of hospital for the Upazila as a whole and health and maternity centre for its influence zone.

In fact, this will be an Urban Centre where agricultural labour and agricultural economy will be predominant factors for the sustained development of the society.

b. PLANNING PRINCIPLE:

No sieve Map has been prepared for the Upazila Shahar built-up area, but a constraint and opportunity map on the basis of contour map (Land configuration map) has been drawn from the information available from BWDB of scale 1:15840 to facilitate the work of plan making. Three cardinal principles of live, work and plan i.e. :

- 1) Places of residence, education, health and Religious Facilities, etc.
- 2) Places of jobs and employments.
- 3) Places of Social and Recreational facilities, have been followed in the planning.



The Principles adopted are that the Plan should be :

Economically Viable :

The Urban Area may be able to sustain within the economy generated within the area and in the Upazila for the maintenance of the population and the establishment set up here, as far as practicable and with a minimum govt. assistance. The industrial, commercial and shopping centres for the economic activities have been proposed according to the standard given in the TOR to provide job opportunities and employments of the labour force and people.

Socially Acceptable :

The proposal should be socially acceptable by the users, i.e. the local inhabitants of the proposed town & its hinter-land. Appropriate spatial allocations have been made for educational, recreational and entertainment facilities, etc.

Functionally suitable :

To make the Urban area functionally suitable and physically attainable, attention has been paid to the respective sector, such as suitable land for different activities, Communication and transportation system for easy travelling to & from their places of work etc.

Finally, the planning standard as suggested in the TOR has been followed for the plan making.

5.2. PLAN DESCRIPTION :

Land-use plan for Phulbari Upazila Shahar has been prepared on the basis of existing land-use potential and on the perspective of future requirements. Present Pourashava comprises an area of 1667 hectares (4119 acres) with rural land-use character and dominated by agricultural-use (76.60%). Present built-up area is concentrated in and around the available infrastructure of Upazila Complex. Considering these facts

and depending upon the following principles i.e.

- i) Potential agricultural land has been kept for agricultural use.
- ii) Land required for future urban expansion with suitable land form (contour) is available in and around the built-up area.
- iii) Rational utilization of present infrastructure and resource constraints.

An area of 780 hectares (1926.5 acre) has been delineated as planning area within the Pourashava area to serve the future estimated population.

Future land use plan for Phulbari Upazila Shahar has been prepared in a scale as per TOR and provision standard has been followed on the basis of standard provision of TOR. A table of land-use proposal and the following paragraphs will provide detailed description of sectoral land-use according to plan proposal and land-use analysis.

a. COMMERCE AND INDUSTRY :

At present 1.82% of the land is used for commercial purpose and in the land-use plan an additional requirement has been proposed with an allocation of 44 hectares, which means one hectare of land is used by 655 persons for commercial purpose. In case of industry at present only .08% of land is utilized and in the proposed plan 2.49% of land has been allocated for this purpose of industry with an estimate of 1200 persons per hectare.

EDUCATION

At present within the Pourashava area 14.26 hectares of land is used for educational purpose and considering the population of study area and catchment area an area of 12.44 hectares has been identified for educational use within the planning area.



#### HEALTH

5.26 hectares of land has been earmarked in the proposed land-use plan for health sector with a provision of extension of existing health complex and establishment of Health Clinic and MCH in suitable location.

#### ADMINISTRATION

At present 7.79 hectares of land is used for administrative purpose in the different locations within the built-up area. In the plan an area of 15.88 hectares has been proposed for administration use incorporating the present use and future needs close to the present use.

#### RECREATION

An area of 26.20 hectares has been proposed for recreational use with a calculation of approximately one hectare per 1500 population and within this recreation, stadium, Cinema Hall, Play ground and open space have been taken into consideration.

#### SOCIO-CULTURAL

In the pourashava area 3.86 hectares of land is used for socio-cultural purposes and in the plan 13.26 hectares has been allocated for this specific use which cover, mosque, temple, graveyard, community centre, etc.

#### RESIDENTIAL

620.75 acres of land, that is 251.23 hectares is used for residential purpose within the present pourashava and net percentage was 64.43 (excluding agricultural land) and in plan proposal within the area of 187.17 hectares (462.5 acres), that is, 34.60% will be used for residential purpose with an expectation that the present form of rural housing will transformed into an urban character.

#### URBAN SERVICES :

Only 7.65 hectares of land is used for different urban

services. With an expectation of urban growth an area of 7.65 hectares has been proposed incorporating the present use for urban services which will stand at only near about 1.42% of net built-up area by the beginning of the new century.

#### ROADS AND RAILWAYS

An area 82.70 hectares of land has been allocated for the widening of the present road and designing proposed roads. Major vehicular road proposed in the land-use plan are 100' width and secondary road has been proposed feeding the major road with a width of 40' to 60'. Most of the road has been proposed on the existing road network. The percentage of land to be used for this purpose will be 15.29%.

#### URBAN DEFERRED & RESERVE

An area of 75.27 hectares has been identified for urban deferred and the percentage of this specific use will be approximately 14%, 40.48 hectares of land has been kept as reserve in the proposed land-use plan for fish cultivation, nursery and agricultural uses.



TABLE 34 : ANALYSIS OF LAND-USE PROPOSAL FOR DIFFERENT FACILITIES FOR PHULBARI UPAZILA SHAHAR, DINAJPUR ZILA 1987.

Projected Population upto 2001 AD = 40309 persons

Symbol	Land use	Total area		Net Percent	
		Hectares	Acres	Excluding Agricultural land.	
				Existing N=963.53 acres	Proposed N=1336.50 acres.
	Agriculture	238.77	590.00	-	-
1.	Commerce	24.89	61.50	1.82	4.60
1-A	Industry	13.45	33.25	0.08	2.49
2.	Education	12.44	30.75	3.67	2.30
3.	Health	5.26	13.00	0.67	0.98
4.	Administration	15.88	39.25	1.99	2.95
5.	Recreation	26.20	64.75	0.89	4.84
6.	Socio-Cultural	10.23	25.25	0.98	1.89
7.	Urban Services	7.65	18.93	1.19	1.42
8.	Residential	187.17	462.50	64.43	34.60
	Major Roads & Railway	82.70	204.35	14.22	15.29
	River, Tanks, Canals, Bill & other water bodies.	39.26	96.97	10.06	7.25
9.	Urban Defferred	75.27	186.00	-	13.91
0.	Reserves	40.48	100.00	-	7.48
TOTAL		779.65	1926.50	100.00	100.00

NOTE :

GROSS AREA : 779.65 hectares (1926.50 acres)

Net Planning Area : 540.88 hectares (1336.50 acres).  
excluding Agricultural land use.

6.0 PROGRAMMING & IMPLEMENTATION

6.1 PRIORITY ACTION & COST IMPLICATION :

The present land-use plan has been based on the thrust of development activities that are assumed to be occurring at the Upazila Shahar till the beginning of the new century. The land-use plan by itself is not obviously an instrument to bring about development at this level of urban place in the country. The plan is a guide-line for the orderly development of the Upazila Shahar embracing housing, physical & social infrastructure, depending upon the size of the projected population.

Priorities have been given for establishment of administrative Structures and for economic activities with the central Business district, which has been the prime factor in setting the Upazila Headquarters while economic activities such as marketing, shopping, commercial activities and job opportunities in other income generating sectors like agriculture, commerce and horticulture and provision of communication facilities within the Shahar as well as linking other important places in and around the Upazila, have been proposed. This will activate the pace of development of the area and movement of goods to and from the areas. Therefore, the key development in every area should be taken up and other priorities depending upon the situation, as necessary, should also be given importance according to the prevailing conditions.

6.2 PHASING, URBAN DEFERRED

The future proposal of development has been framed into three phases starting from 1986, therefore, the Phases hereby are terms as follows :

From 1986 - 1991 as the First Phase  
" 1991 - 1996 as the Second Phase  
" 1996 - 2001 AD as the third Phase of development.



The plan has been developed on the basis of population projection at an interval of 5 years upto 2001 AD. Social and Physical infrastructure development has, therefore, been proposed for every five-year development plan. The above table shows the phasing of development activities according to the plan period. Urban deferred and Reserve have been recommended in the TOR as 10% and 5% respectively. An area of 186 acres (75.27 hectares) has been earmarked as deferred area for accommodating future urban services in case the medium range of population forecasting appears to be on the low side.

### 6.3 DEVELOPMENT CONTROL

For the purpose of development control of the Upazila Shahar in the perspective of Upazila land-use plan, a Development Control Boundary has been proposed indicating the area of development for the projected population by the beginning the new century under different phases.

This development control will prevent an undesirable land uses which may occur in the near future. A land area of 1926.50 acres (779.65 Hectares) has been proposed as a planning area for a population of 40309. Some green land surrounding this planned area has also been proposed to avoid undesirable Urban growth.

The present Building Construction Act applicable to the Municipality should be applied to the subject Upazila Shahar with an objective to control all types of construction activities irrespective of Govt. and private to ensure orderly development of the Upazila Shahar in accordance with the land-use proposals. Before implementing the land-use proposals, a detailed survey according to the priorities of different zones should be undertaken.

It is desirable to constitute a "COMMITTEE" to implement the land use plan/master plan within the frame work of existing Municipal Act and the Building construction Act. It is proposed that this Committee will be headed by the Chairman of the Pourashava. This committee should be strengthened further by inclusion of the Chairman, upazila parishad, Phulbari as a member and more technical and planning personnels in it to facilitate administrative, illustration and implementation of the plan proposals.

Local Engineers of the Govt. organisations within the upazila shahar may be included in the committee as ex-officio members. The Pourashava along with the upazila parishad will also function for site selection for present and future development activities within the planned area of the upazila shahar.

The Planner/Engineer of the Pourashava will act as the Authorised officer in approving the construction plans within the planned area in respect of residential, commercial, industrial, socio-cultural and other uses.

It is also desired that the Pourashava authority will constitute a plan implementing cell within the Pourashava administration, comprising the planner, engineer, economist and other supporting technical staff for approving the proposed construction in accordance with the land use plan/master plan of the upazila shahar. This cell has the following responsibility to perform;



- a. Approval, illustration of the proposed plans for construction submitted by the public or organisations etc. within the jurisdiction of upazila shahar and its Development control boundary of land use plan.
- b. Co-ordinate with the committee to implement and control the development activities within the planed area.
- c. Assist in implementing the land use plan according to the priority and resource allocations.
- d. Detailing of the different zones of the land use plan / master plan for proper implementation.

Apart from this an enabling legislation should be framed by the Govt. and approved by the parliament to empower the Pourashava to control the unplanned growth and to implement the land use plan of the upazila shahar in a cost effective manner.

#### 6.4 Monitoring & Review:

The land use plan of the Phulbari Upazila Shahar (Pourashava) should be monitored and reviewed. Each plan should be reviewed after a lapse of certain time to see the progress and the direction of development and to assess the fulfilment of the requirement according to the necessity of the area. This will also indicate the errors when the analysis of the achievement is done. If any correction in the alignment of the development is required, the plan should be modified after then before entering the implementation of the next phase. The Feed-back effect as a corrective process of the plan proposals and alignments.

This will also impart the plan with a dynamic nature instead of making the plan static, outdated and age-barred.

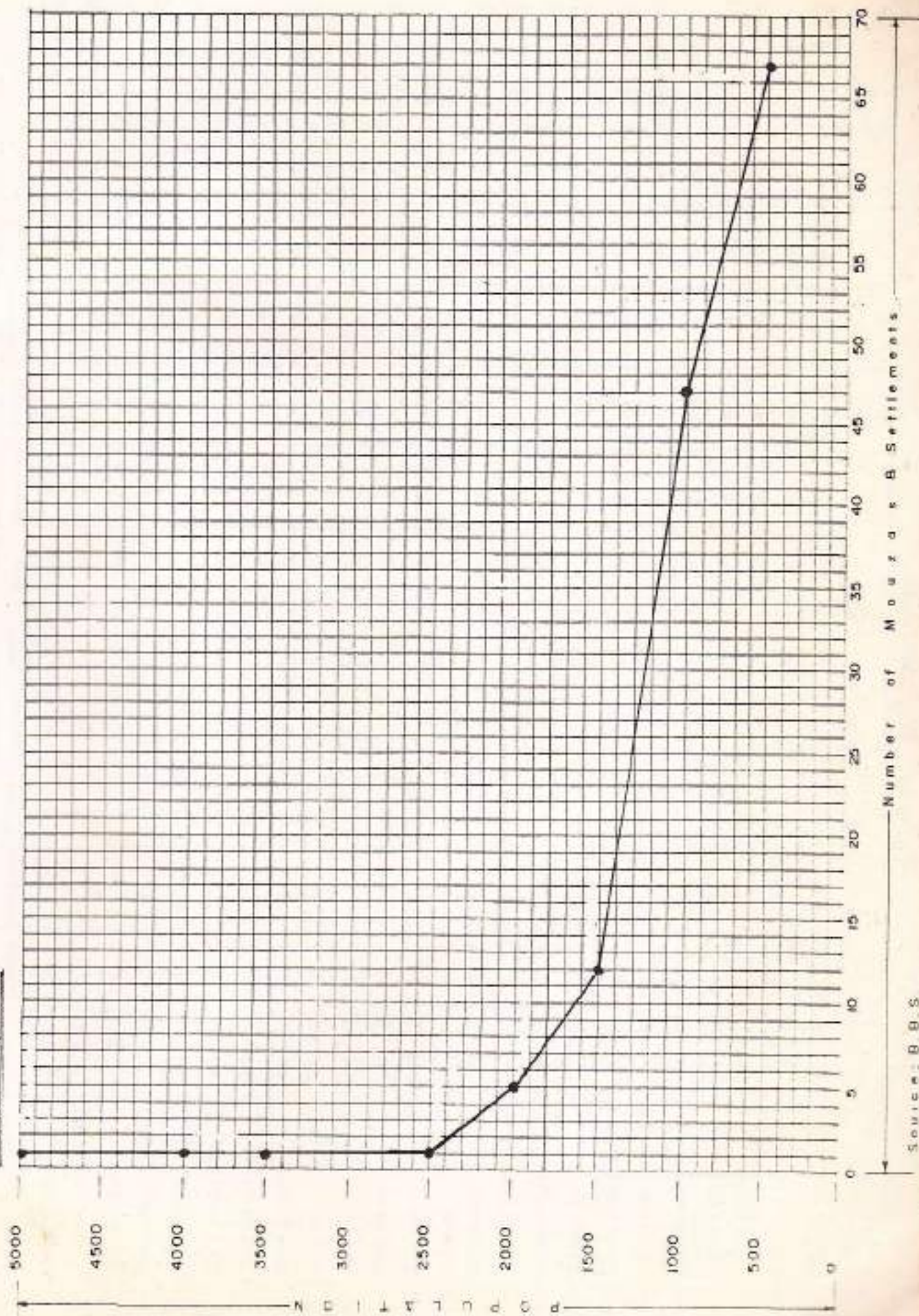
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# HIERARCHY OF HUMAN SETTLEMENTS OF MAJOR ORDERS BY MOUZA.

Total number of mouza within the upazila = 135 nos.  
base year 1981 as per census.

Phulbari upazila.





HIERARCHY ORDERS BY MOUZAS, POPULATION  
AND SERVICE FACILITIES OF PHULBARI UPAZILA.

I

ANNEX - I

S.L. NO	Name of Mouza.	Population 500 +	Social Service										Economic activities		Total Score	Rank
			College	High school	Primary School.	Madrasa	Health Centre	Bank	Post office	Thana Court	Administra- tion office	Hot bazar	Daily bazar			
1	Sujanpur (U)	24	7	6	5	5	6	24	6	x	90	5	7	180	A	
2	Gouripara (U)	35	x	x	10	5	x	6	6	x	30	x	x	92	B	
3	Daulatpur	27	x	x	x	x	x	x	x	x	6	x	x	27	C	
4	Katabari (U)	23	x	x	10	x	x	x	x	x	12	x	x	45	C	
5	Khayerbari	16.5	x	x	x	5	x	x	x	x	x	x	x	21.5	C	
6	Krishnapur	14.5	x	x	5	x	x	x	x	x	x	5	x	24.5	C	
7	Baruipara	13.37	x	x	5	x	x	x	x	x	x	x	x	18.37	C	
8	Kamjihat	12.59	x	x	x	x	x	x	x	x	x	x	x	12.59	C	
9	Baral	11.77	x	x	x	x	x	x	x	x	x	x	x	11.77	C	
10	Eluri	11.01	x	6	5	x	x	x	x	x	x	x	x	11.01	C	
11	Chintaman	9.15	x	6	5	x	x	x	x	x	x	5	x	25.15	C	
12	Amrabari	8.42	x	x	x	5	x	x	x	x	x	x	x	13.42	C	
13	Uttar Raghunathpur	8.16	6	x	x	x	x	x	x	x	x	x	x	14.16	C	
14	Aladipur	8.16	6	x	5	x	x	x	x	x	6	x	x	25.16	C	
15	Bhimulpur	7.5	6	x	5	x	x	x	x	x	x	5	x	23.5	C	
16	Pakuri	7.31	6	x	5	x	x	x	x	x	x	5	x	23.31	C	
17	Gharpuiglad	6.83	x	x	5	x	x	x	x	x	x	x	x	11.83	C	
18	Saidpur	6.48	7	x	5	x	x	x	x	x	x	x	x	11.48	C	
19	Tenturia	6.36	x	x	5	5	x	x	x	x	x	x	x	16.36	C	
20	Netdighi	6.16	6	x	5	5	5	x	x	x	6	x	x	28.16	C	
21	Jaitgaon	6.16	6	x	5	x	x	x	x	x	x	x	x	11.16	C	
22	Panikata	5.99	x	x	5	x	x	x	x	x	x	6	x	16.99	C	
23	Salgaon	5.96	x	x	5	x	x	x	x	x	x	x	x	10.96	C	
24	Mohadiipur	5.84	x	x	5	x	x	x	x	x	x	x	x	10.84	C	



HIERARCHY ORDERS BY MOUZAS, POPULATION  
AND SERVICE FACILITIES OF PHULBARI UPAZILA.

II

SL NO	Name of Mouza.	Population 500 +	Social Service								Economic activities.		Total	Rank		
			College	High school	Primary School	Madrashe	Health Centre	Bank	Post office	Thana Court	Administration office	Hot bazar			Daily bazar.	Score
25	Chokchoka	5.65	x	x	10	x	x	x	x	x	6	18	6	x	44.65	C
26	Sajanpukur (U)	5.57	6	x	5	x	x	x	x	x	x	x	x	x	16.57	C
27	Kanahat (U)	5.53	6	x	5	x	x	x	x	x	6	x	x	x	22.53	C
28	Ganipur	5.49	x	x	10	x	x	x	x	x	x	x	x	x	15.49	C
29	Basudebpur	5.38	x	x	5	x	x	x	x	x	x	x	x	x	10.38	C
30	Mokhtarpur	5.25	x	x	5	x	x	x	x	x	x	x	x	x	10.25	C
31	Chak Enay- atpur	5.11	6	x	5	x	x	x	x	x	x	x	x	x	16.11	C
32	Maichanda	4.99	6	x	5	x	x	x	x	x	x	x	x	x	15.99	C
33	Jai Krish- napur	4.91	6	x	10	x	x	x	x	x	x	x	x	x	20.91	C
34	Uttar Laxmipur	4.60	6	x	10	x	x	x	x	x	x	x	5	x	25.60	C
35	Daldalia	4.19	6	x	5	x	x	x	x	x	x	x	x	x	15.19	C
36	Lalpur	3.64	x	x	10	x	x	x	x	x	x	x	x	x	13.64	C
37	Khojapur	9.86	x	x	x	x	x	x	x	x	x	x	x	x	9.86	D
38	Rangamati	9.12	x	x	x	x	x	x	x	x	x	x	x	x	9.12	D
39	Choukaipara	8.44	x	x	x	x	x	x	x	x	x	x	x	x	8.44	D
40	Karai	8.23	x	x	x	x	x	x	x	x	x	x	x	x	8.23	D
41	Rudrani	7.5	x	x	x	x	x	x	x	x	x	x	x	x	7.5	D
42	Bhatpail	7.26	x	x	x	x	x	x	x	x	x	x	x	x	7.26	D
43	Kausulpur	6.32	x	x	x	x	x	x	x	x	x	x	x	x	6.32	D
44	Amra	5.93	x	x	x	x	x	x	x	x	x	x	x	x	5.93	D
45	Mirpur	5.81	x	x	x	x	x	x	x	x	x	x	x	x	5.81	D
46	Sengra	5.48	x	x	x	x	x	x	x	x	x	x	x	x	5.48	D



HIERARCHY ORDERS BY MOUZAS, POPULATION  
AND SERVICE FACILITIES OF PHULBARI UPAZILA.

III

III

TABLE.

500 +

Name of Mouza.

SL No.

SL No.	Name of Mouza.	Population 500 +	Social Service										Economic activities		Total Score	Rank
			College	High school	Primary School	Madrasa	Health Centre	Bank	Post office	Thana Court	Administration office	Hat bazar	Daily bazar			
47	Paschim Ramchandrapur	5.40	x	x	x	x	x	x	x	x	x	x	x	x	5.40	D
48	Uttar damoderpur	5.35	x	x	x	x	x	x	x	x	x	x	x	x	5.35	D
49	Uttar Jagannathpur	5.25	x	x	x	x	x	x	x	x	x	x	x	x	5.25	D
50	Ankhighothna	5.22	x	x	x	5	x	x	x	x	x	x	x	x	10.22	D
51	Rasulpur	5.17	x	x	5	x	x	x	x	x	x	x	x	x	10.17	D
52	Bheran	5.13	x	x	5	x	x	x	x	x	x	x	x	x	10.13	D
53	Junipur	5.13	x	x	5	x	x	x	x	x	x	x	x	x	10.73	D
54	Rashidpur	5.04	x	x	x	x	x	x	x	x	x	x	x	x	5.04	D
55	Kerampur	4.97	x	x	x	x	x	x	x	x	x	x	x	x	4.97	D
56	Chaurait	4.79	x	x	x	x	x	x	x	x	x	x	x	x	4.79	D
57	Barakona	4.45	x	x	5	x	x	x	x	x	x	x	x	x	9.45	D
58	Chakshahabapur	4.28	x	x	x	x	x	x	x	x	x	x	x	x	4.28	D
59	Khudakhaf	4.27	x	x	5	x	x	x	x	x	x	x	x	x	9.27	D
60	Faridabad	4.08	x	x	x	x	x	x	x	x	x	x	x	x	4.08	D
61	Gakul	4.02	x	x	5	x	x	x	x	x	x	x	x	x	9.02	D
62	Rameshwaripur	3.92	x	x	x	x	x	x	x	x	x	x	x	x	3.92	D
63	Nathan	3.87	x	x	5	x	x	x	x	x	x	x	x	x	8.87	D
64	Purba Ramchandrapur	3.73	x	6	5	x	x	x	x	x	x	x	x	x	14.73	D
65	Sripur	3.54	x	x	5	x	x	x	x	x	x	x	x	x	8.54	D
66	Nandailpur	3.54	x	x	x	x	x	x	x	x	x	x	x	x	3.54	E

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