

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

LAND USE / MASTER PLAN
TETULIA UPAZILA SHAHAR
PANCHAGARH ZILA

June - 1991

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

LAND USE / MASTER PLAN
TETULIA UPAZILA SHAHAR
PANCHAGARH ZILA


June - 1991



PM Engineers & Consultants Ltd.

Elahi Chamber (2nd Floor)
21, Motijheel Commercial Area
Dhaka-1000, Bangladesh
Telephone : 232192, 231924

This master plan may kindly be accepted


22.5.90

উপজেলা নির্বাহী অফিসার,
তেতুলিয়া, পঞ্চগড়।

URBAN DEVELOPMENT DIRECTORATE
MINISTRY OF WORKS

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

PROPOSED LANDUSE PLAN

UPAZILA SHAHAR TETULIA

P.M. ENGINEERS & CONSULTANTS LTD.
21, MOTIJHEEL COMMERCIAL AREA, DHAKA.

SURVEY : AKTER UDDIN, K. RAHMAN, M. RAHMAN.

DRAWN : ABDUL QUDDUS

CHECKED :

APPROVED :

SCALE :

DATE :

LOCATION OF THE STUDY AREA.
UPAZILA TETULIA

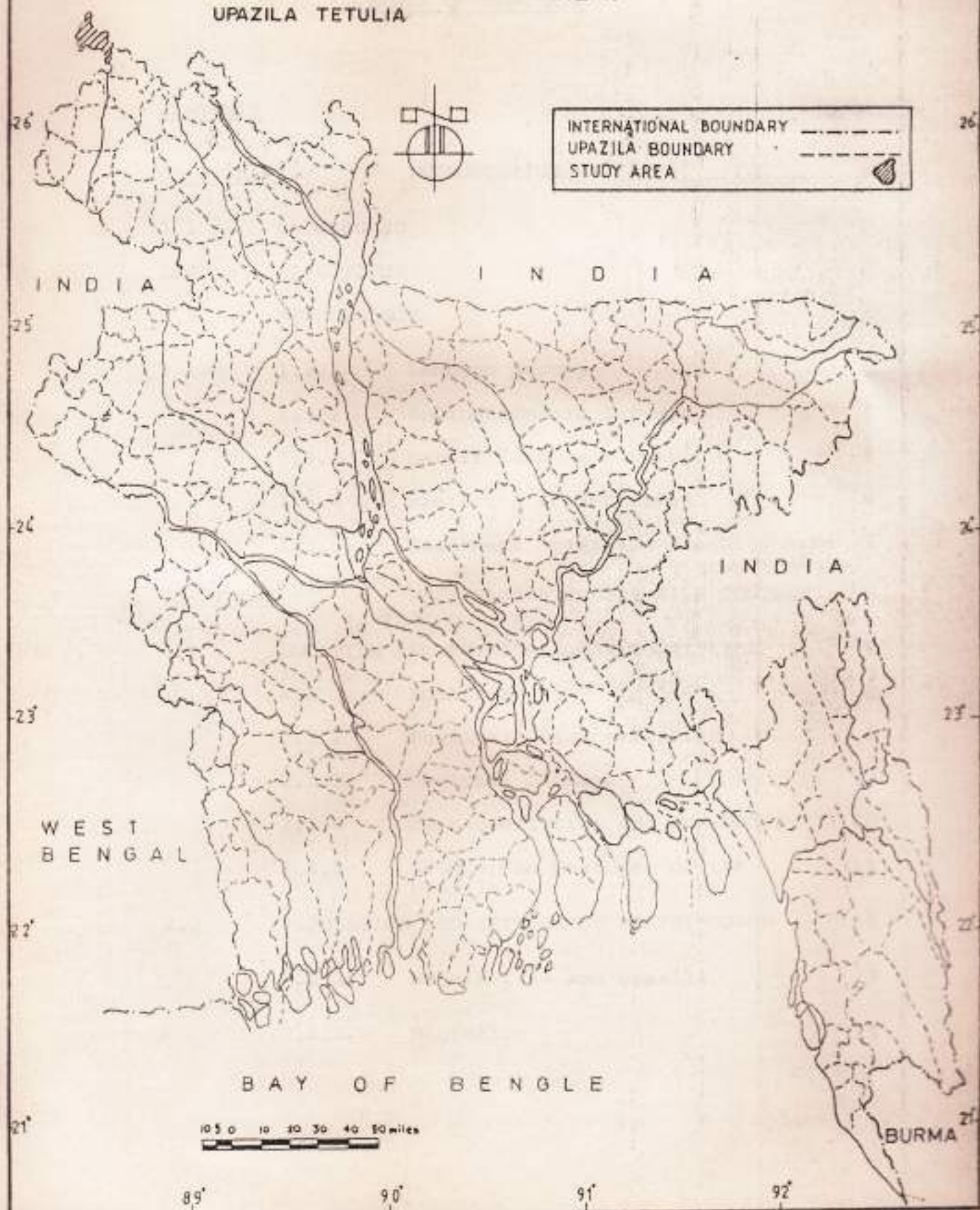


TABLE OF CONTENTS

<u>CONTENTS</u>	<u>PAGE NO.</u>
<u>CHAPTER -1</u> INTRODUCTION	1
1.1 BACKGROUND	1
1.2 OBJECTIVES	3
1.3 METHODOLOGY	4
1.3.1 Landuse Survey	4
1.3.2 Socio-Economic Survey	5
1.3.3 Detail Landuse Survey	5
1.3.4 Hierarchy of Settlement	6
1.3.5 Catchment Areas and Planning Area	6
<u>CHAPTER-2</u> THE UPAZILA IN ITS ZILA CONTEXT	8
2.1 LOCATION AND PHYSICAL CHARACTERISTICS	8
2.1 Location	8
2.1.2 Physical Characteristics	8
2.1.3 Regional Linkage	10
2.1.4 Characteristics and Drawbacks	10
2.1.5 Geographic Features of the Upazila	11
2.2 POPULATION AND SETTLEMENT DISTRIBUTION	13
2.2.1 within Zila and Upazila	13
2.2.2 Migration	15

<u>CONTENTS</u>		<u>PAGE NO.</u>
2.3	ECONOMIC PERFORMANCE AND TRANSPORT LINKAGE	15
2.3.1	Employment	15
2.3.2	Agricultural and Non-Agricultural Activities	16
2.3.3	Transport Linkage	17
2.3.4	Agriculture	17
2.4	SOCIAL AND ECONOMIC INFRASTRUCTURE	18
2.4.1	Market	18
2.4.2	Commerce	19
2.4.3	Education	20
2.4.4	Health and Family Planning	22
2.4.5	Electricity, other Services and Facilities	23
2.5	CURRENT DEVELOPMENT PROJECTS	23
2.6	SYNTHESIS: IDENTIFICATION OF HIERARCHY OF SETTLEMENTS	24
2.6.1	The Adopted Methodology	24
<u>CHAPTER-3</u>	THE UPAZILA HEADQUARTERS	29
3.1	DEFINITION OF SPHERE OF INFLUENCE OR CATCHMENT AREAS	29
3.2	DEFINITION OF THE STUDY AREA	33
3.3	EXISTING LANDUSE FACILITIES AND UTILIZATION CHARACTERISTICS	35
3.4	SECTORAL ANALYSIS OF LAND UTILIZATION	39
3.5	EXISTING SOCIO-ECONOMIC CONDITIONS	42
3.5.1	Findings of the Socio-Economic Survey	43
3.6	PHYSICAL OPPORTUNITIES AND CONSTRAINTS	45
3.7	ECONOMIC POTENTIALS	46

CONTENTSPAGE NO.CHAPTER-4

FORECASTS

4.1	POPULATION,HOUSEHOLD STRUCTURE AND DENSITY	49
4.1.1	Population Projections of Catchment Areas	49
4.1.2	Population Projections of Shahar Area	53
4.2	LABOUR FORCE AND EMPLOYMENT FORECASTS	56
4.2.1	Projection of Labour Force of Catchment Area	56
4.2.2	Projection of Labour Force of Shahar Area of Tetulia.	60
4.3	PROVISION STANDARD AND LAND REQUIREMENTS	66
4.3.1	Determination of Standard	66
4.3.2	Planning Standard	67

CHAPTER-5

PROPOSED LANDUSE PLAN

5.1	APPROACH,CONCEPT AND PLANNING PRINCIPLES	81
5.2.1	Education Facilities	82
5.2.2	Commercial Facilities	83
5.2.3	Industry	84
5.2.4	Health	84
5.2.5	Recreation	84
5.2.6	Urban Services	85
5.2.7	Socio-Cultural Facilities	85
5.2.8	Administration	85
5.2.9	Road	86
5.2.10	Residential	86
5.2.11	Reserve Land and Urban Deffered	86

<u>CONTENTS</u>	<u>PAGE NO.</u>
<u>CHAPTER-6</u> PROGRAMMING AND IMPLEMENTATION	88
6.1 PRIORITY ACTIONS AND COST IMPLICATION	88
6.2 PHASE-WISE DEVELOPMENT AND URBAN DEFFERED	90
6.3 DEVELOPMENT CONTROL	90
6.4 MONITORING AND REVIEW	92

CHAPTER -1

INTRODUCTION

CHAPTER -1

INTRODUCTION

CHAPTER -1

INTRODUCTION

1.1 BACKGROUND:

In the programme of administration decentralization of present government, the Upazila Headquarters have been recognised as the most significant level of administration and also the focal point of all Upazila level activities. Not only that, the Upazila system have given a new dimension in the administrative, social and economic development activities of the Upazila while is the new administrative centre under the recent decentralisation policy of the government. It is expected that the activities that are likely to engulf the Upazila Shahar would soon make it busy urban area. But as tradition goes most of our urban centres are growing in unplanned manner which created numerous civic problems for which proper planning of the physical growth can only save the new Upazila Shahars from the course of indiscriminate sprawl development.

In the Upazila system, Upazila Shahars are the focal points of development, administrative activities of a Upazila as a whole. The activities that are expected to be performed in the Upazila Shahars will act as propulsive factors for generating development in the whole of the Upazila. The landuse plan prepared for the Upazila Shahar will serve as a guideline to planned and co-ordinated development of the prospective Upazila Shahar upto the year of 2,000 A.D. when successfully implemented, the landuse plan will cause orderly growth of town and its various landuse. It will provide efficient transport network, promote development of commerce and industries, widen marketing facilities resulting in creation of more employment opportunities and will indicate more rational use of scarce land resources.

The plan covers all provisions of facilities necessary for modern living. It is a guideline to the potential dwellers of all headquarters for a healthy and pleasant living environment.

Planned development is the prime objective of the landuse plan. However, there is a common feeling that planning means a total development involving huge volume of fund. But such, idea is not fully correct. Planned development to a longer extent can be ensured through effective enforcement of development control regulation.

On the other hand, planning is a continuous process and the need for planning changes over the passage of time. Planning of Upazila Shahars may be termed as the first phase of a comprehensive planning and development programme in which other important settlements will be taken up for planning and development in course of time.

Attainment of planned development is the principle objective of the landuse plan. It is obvious that materialisation of the proposal under landuse plan will involve substantial fund which will not be an easy task for the government to provide. Keeping this reality in view it is suggested to keep the plan provisions flexible so that, they can be modified from time to time to accommodate changing needs over time. Even if it becomes difficult to implement plan provisions enforcement of development contrary to the landuse provisions of the landuse plan. Even if it becomes difficult to implement plan provisions the local authority can at least check haphazard growth by enforcement of development control measures by not allowing any development contrary to the landuse provisions of the landuse plan.

However, strong legal coverage will be necessary to enforce recommendations of the landuse plan.

In the light of above circumstances it is felt that, the upazila centre should grow up expeditiously and the preparation of landuse plan for such centre is of utmost important for better utilization of the whole region's land, people and natural resources. With this end in view, the Government of the People's Republic of Bangladesh has planned to engage local consultants for the immediate preparation of Landuse Plan/Master Plan for the different Upazila Headquarters of Bangladesh.

1.2 OBJECTIVES:

The followings are the major objectives of the present study:

- a) To prepare landuse plan in order to serve as a spatial guideline for location and use of space for residential areas, places of work, services and social facilities for the socio-economic emancipation and welfare of the common man.
- b) Orderly growth of upazila township and to facilitate public and private development of the upazila shahar through physical planning approach.
- c) To formulate landuse plan of the study area, programming and implementation of the plan period and also to serve as a technical backup for planning of human settlements in this Upazila Shahar, so, that a significant segment of rural migrants are induced to work and live in this Shahar.

- d) To enhance capability of physical planning services in managing the urban environment to ensure a better living and working place and recommendation for socio-economic development, administration, planning and development control in the Upazila Headquarters.

The main objectives of this report is to set forth the landuse plan of the shahar with necessary recommendations. The Chapter-2 of this report gives position of the subject Upazila in the Zila Context, the Chapter-3 describes the characteristics of the existing Upazila Shahar with particular reference to spatial aspects, forecaste population, labour force of the shahar as well as catchment area and also the land requirements of the plan have been presented in Chapter-4, Chapter-5 describes the landuse plan supported by necessary data, the last Chapter puts recommendations for implementation of the landuse plan/master plan and phasing of implementation.

1.3 METHODOLOGY:

The objectives and the scope of services for preparation of landuse plan for Upazila Shahar have been stated in Section-2 and Section-3 of the Terms of Reference (TOR) respectively. To fulfil the requirements of objectives and scope of services it was needed to go through the following methodology for conducting existing landuse and socio-economic survey.

1.3.1 Landuse Survey:

Mouza maps in the scale of 1 inch to 330 ft. were collected from D.L.R. Office covering whole of the designated study area and traced out with plot boundaries and numbers to prepare field survey sheets. Plot to plot survey of present use of land were marked on the survey sheet.

The layout of the special features were drawn on the survey sheets. The survey for current uses of land were completed for the whole of the designated study area. The survey sheets were compiled in the laboratory and existing landuse map prepared, the landuse map was examined and analysed and finally shahar area was delineated. From the survey sheets a base map of existing landuse was prepared in graphics.

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

1.3.2 Socio-Economic Survey:

A formate of questionnaire containing 9 items and about 85 variables was prepared and administered to collect the data on socio-economic condition of the people of the study area. Ten percent of the total households were interviewed by field investigators on random basis. The data thus collected were tabulated and analysed to determine the socio-economic characteristics of the study area. The landuse plan would be prepared to meet the socio-economic needs of the people of the shahar area as well as the catchment area.

1.3.3 Detail Landuse Survey:

A detailed landuse survey by plot to plot has been conducted and completed by the survey team for about 200-225 acres of core area (Scale 1:1000). Layout of all man-made structures also been plotted on the map in the correct scale.

The land level and floodability were also demarcated by physical varifications, contour maps have already been collected from Bangladesh Water Development Board and compared with the survey map. Contours were interpreted/supper-imposed on the survey map and its effect have been drawn and followed in the proposed landuse plan.

1.3.4 Hierarchy of Settlements:

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

1.3.5 Catchment Areas and Planning Area:

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

CHAPTER - 2

THE UPAZILA IN ITS ZILA CONTEXT

CHAPTER - 2

THE UPAZILA IN ITS ZILA CONTEXT:2.1 LOCATIONAL AND PHYSICAL CHARACTERISTICS:2.1.1 Location:

The Upazila Tetulia come into existence of as thana in 1947. It is said that in the past there was a big Tetul (Tamarind) tree in the present place of the Upazila Headquarters. The place where it was located named as Tetulia. The thana now upazila assumed the same at the time of its creation.

The Upazila is belongs to Panchagarh Zila of Rajshahi Division. It is at distance of 135 km or 84 miles from old Dinajpur District Headquarters. It lies between $26^{\circ}-24'$ and $26^{\circ}-38'$ north latitude and $88^{\circ}-21'$ and $88^{\circ}-33'$ east longitude. It is bounded in the north by Jalpaiguri District of India in the south by Purnia District of India, in the east by Darjiling District of India and in the west by Panchagar Zila proper. The Upazila comprises a total area of 189.10 sq.km. or 73.0 sq.miles including an area of 3.9 sq.km. of rivers, khals and other water bodies.

2.1.2 Physical Characteristics:

It is a place of charming scenic situated on the left bank of the river Mahananda. The panoramic view of the snow-capped peak of the Headquarter side is full of brushwood and some places are still covered with thick jungles.

The upazila contains a tank of prehistoric origin and Hindu Temple of mythological important, soils along the Dank river and Karotoa river are the black and brown sandy loams of the piedmont alluvium plain. Rest of the upazila is covered by the sandy clay loams.

The Urban area of this upazila covers about 4.2 sq.km. of area with 2,533 population. According to 1981, census, 3.8 percent of total population of the upazila live in Urban area is 2.2 percent of the upazila area. There are 113 males for every 100 families in this urban locality with a density of 603 persons per sq.km. The upazila urban population accounts for only 0.9 percent of the Zila Urban population. The literacy rates as found in 1981 census for the age group of five years and over are 32.60, 42.50 and 21.40 percent for both sex, male and female respectively.

There is no any big river flowing through this upazila. The Upazila Headquarters is situated of the western border of the upazila. One of the major striking feature is that the shahar area is comparatively higher than any other parts of the upazila.

The significant growth is observed that the shahar is growing near the main road. Another significant features is that, the shahar area has developed in an unplanned fashion having vacant land all around and also within the town itself. The vacant land might be available for future land requirements due to the growth of the shahar.

There are 20 hats/bazars in this upazila. This indicates that there is one hat/bazar for every 3,371 persons in the upazila. Currently electricity and sanitary facilities are available of the upazila headquarters.

Out of 245 villages of the upazila, 4 villages have 80 far been provided the electricity. This indicates that 1.6 percent of the total villages of the upazila have electricity facilities.

2.1.3 Regional Linkages:

The Tetulia Upazila Shahar is connected with other regional centres through by bus route. The national high ways also connected the upazila headquarters with other important places of the region, which ensures smooth transportation of the people and the commodities. There is no railway and waterways connection of the Upazila Headquarters with other parts of the region directly. For smooth transportation facilities train service is very much important which is absent now can provide smooth transportation for the people and commodities.

In regards of transport facilities, the Upazila Headquarters has a good linkage with the other places of the Upazila. The Upazila Headquarters is connected with the Zila Headquarters by road only. The basic means of transports available in the Upazila are bus rickshaw, cycle and motor-cycle. The Upazila Headquarters is connected with most of the union parishads office by kutcha and unmetalled roads.

2.1.4 Characteristics and drawbacks:

The Upazila Shahar having many problems of which insufficient drainage system are resulted unhealthy atmosphere. On the other hand, hapazard and unplanned growth of shahar and insufficient service facilities also another drawbacks. There are some irrigation facilities in the upazila but is not sufficient due to which users are facing problems in the dry season.

Some major peculiarities and problems are mentioned below:

- i) The upazila shahar is the main place of economic and administrative activities in the region. But due to un-metalled and kutcha road net-works causing difficulties for transportation of goods and commodities.
- ii) There is no railway linkage of the upazila headquarters with the important places of the region for quick movement.
- iii) There is a river passes through this upazila which is navigable in the rainy season only.
- iv) Tetulia is an old thana shahar but there are lacking in many urban services and facilities.
- v) Bus service is the principal means of transportation but the available bus service within the upazila are not quick and sometimes it become so uncertain that the people have to wait for a long time to avail a bus.
- vi) In most of the cases upazila headquarters is connected with union parishad by kutcha roads.

2.1.5 GEOGRAPHICAL FEATURES OF THE UPAZILA:

It is a place of charming picnic spot situated on the left bank of the river Mahananda. The panoramic view of the snow-capped peaks of the Himalayas can be seen from this place. The country side is full of brushwood and some places are still covered with thick jungles. The upazila contains a tank of prehistoric origin. Allmost all the land surface of the upazila is covered with un-broken stretches of paddy lands

intersected by river and by a number of canals. There are few marshy lands scattered almost all over the upazila. The land scape is generally covered with natural vegetation except for a certain period of the year.

i) Soil :

Soils along the Dauk river and karatoa river are the black and brown sandy loams of the piedmont alluvium plain. Rest of the thana is covered by the black sandy clay loams.

ii) Climate :

The Upazila of Tetulia lies just outside the tropics and its climate resembles more to that of Behar(India) than to the eastern part of the country. The cold weather may be said to set in early in November and to continue until the end of February. The summer season begins with strong west wind in the first week of March and continues till the middle of June. The climate during the hot season is sometimes almost unberable when the air is extremely dry. The monsoon, generally starts from the middle of June, and continues till the end of September or beginning October. From the middle of October the nights become appreciably cooler, though the days remain hot for some time longer.

There is a considerable variation in the rain fall in different parts of the Panchagarh Zila, the northern part of the Zila i.e. Tetulia & other sourrounding area having a heaver rainfall. The rainfall in the cold season is exceptionally light. The rainy season generally starts from the second week of June and continues upto August-September and the early part of October is generally hot occasional showers.

2.2 POPULATION AND SETTLEMENT DISTRIBUTION:

2.2.1 Within Zila and Upazila:

According to 1981 population census there are 12,601 households in the upazila of which 12,536 (about 99.5 percent) are dwelling units and the rest are institutional and business/industrial units. The average household size in dwelling units is found to be 5.3 as against 5.4 for the Zila and 5.7 for the nation. There are only 20 tribal households in the upazila. The structural pattern of dwelling units shows that 87.9 percent of the total dwelling units in the upazila are kutchha, 11.6 percent are semi-pucca and 0.5 percent is pucca. About 13.6 percent of the total dwelling households depend on tube-well, 85.3 percent on pond and shallow well and 0.9 percent on river as sources of drinking water. About 88.3 percent of the dwelling units are owned by one occupiers. There are 245 villages in the upazila out of which 225 (about 91.8 percent) are small villages with a maximum of 100 households and 20 (about 8.2 percent) are medium villages with more than 100 but less than 501 households.

According to 1981 population census the total population of the upazila is 67,425 out of which 34,931 are males and 32,494 are females. There are 107 males for every 100 females in the upazila as against 107 for the Zila. About 2.1 percent of the district population live in this upazila in an area of 2.9 percent of the Zila. The population density of the Upazila as calculated in 1981 census shows that there are 357 persons per sq.km. as against 487 persons for the Zila and 605 persons for the nation. About 48.4 percent of the total population belong to the ages less than 15 years, where 46.2 percent of the total population are voters or above 17 years of age. Dependency ratio for this upazila is found to be 104 for every 100 population of the age group 15-64.

Table : 2.1

DISTRIBUTION OF POPULATION BY UPAZILA

Sl. No.	Upazila	Population			1974 as % increase over 1961	1981 as % increase over 1974
		1961	1974	1981		
1.	Atwari	47,204	74,541	87,067	57.91	16.80
2.	Boda	90,856	1,48,927	181,185	63.91	21.66
3.	Debiganj	65,154	1,14,050	136,831	230.23	19.97
4.	Panchagarh	49,289	89,218	105,710	81.00	18.49
5.	Tetulia	35,185	56,330	67,425	60.09	19.67

Source : Population Census, 1961, 1974 and 1981 BBS.

Table : 2.2

POPULATION OF UPAZILA

Population	Year		
	1961	1974	1981
Male	18,643	29,653	34,931
Female	16,542	26,677	32,494
Total	35,185	56,330	67,425

Source : Population Census, 1961, 1974 and 1981.

As shown in the Table No. 2.2 the Upazila had a population of 35,185 persons according to the 1961 census, of whom 18,643 were males and 16,542 females. The 1981 census shows that the population has increased to 67,425 persons of which 34,931 are males and 32,494 are females. This indicates an increase of about 60.09% over the 1961 census and gives a density of 924 persons per sq.miles.

2.2.2 Migration:

The overall pattern of migration in Panchagarh Zila cannot be properly described because of lack of adequate data. Far long this part of Bangladesh was not attracted for living because most of the area was covered by thick bushes. As a result, growth as well as migration in the Zila was not so high. On the other hand, the value of agricultural land was cheap enough so the small farmers and landless family from the densely populated areas was interested to migrate there just to have a parcel of land by minimum cost. Since then population of the upazila marked gradual increase because of improvement of transportation facilities and agriculture.

Tetulia Upazila, however, marked comparatively smaller increase in population. Field survey by the consultants reveal about 70 percent of the households of the shahar are migrated there from other places of the upazila and outside. Of this 70 percent, about 80 percent have come from outside the upazila. Most of the households migrated because of availability of agricultural land with a minimum cost.

2.3 ECONOMIC PERFORMANCE AND TRANSPORT LINKAGES:

2.3.1 Employment:

The population in 10-49 age group is considered as a labour force in the catchment area. The major fields where

most of the male labour force are engaged include, farming, trade, professional occupations. According to the informations from secondary sources shows, about 45.20 percent of the total labour force are employed in household work, meaning they are females. Among the total labour force about 54.80 percent are economically employed in various income earning occupations. Officially, no data on under employment is available. The Census of 1981 shows about 18.79% of the labour force (male) of the Zila under the group of "not working". This "not working" group included the people of unemployment as well as the people are blind and physically incapable to work due to various reasons.

2.3.2 Agricultural and Non-Agricultural Activities:

Ascertained from the Agricultural Census, the intensity of cropping has been found 135.17 for the Zila against 153.19 for the country and 127.89 for the Upazila. The percentage of single, double and triple cropped area stands at 65.21%, 32.67% and 2.12% respectively. The agricultural sector of Zila and the Upazila are the major fields which absorbs about 65.29% and 85.21% respectively of the total economically employed labour force.

The total production of food grain of the Upazila in 1981 was 1297,203 maunds while the consumption totalled 1296,112 maunds thus showing a little surplus of 1,091 maunds. It is evident that performance of the agricultural sector of the Upazila fares well compared to other sectors.

2.3.3 Transport Linkage:

The Tetulia Upazila Shahar is connected with other regional centres through by bus route. The National High way also connected the upazila headquarters with other important places of the region which ensures smooth transportation of the people and the commodities. There is no railway and water ways connection of Upazila Headquarters with other parts of the region directly, which train service is very much important and which also can provide smooth transportation for the people and commodities.

In regards of transport facilities the Upazila Headquarters has a good linkage with the other important places. The Upazila Headquarters is connected with the Zila Headquarters by road only. The basic means of transports available in the Upazila are bus, rickshaw, cycle and motor-cycle. The Upazila Headquarters is connected with the Union Parishads by kutchha & metalled and 341 km. un-metalled roads.

2.3.4 Agriculture:

Soils along the Dank river and Karatoa river are the black and brown sandy loams of the piedmont by the alluvium plain. Rest of the upazila is covered by the black sandy clay loams. The soil of the Upazila is well suited for yielding best quality of rice which is the most important cash crop of the country. It is generally grown in the plains and the areas where the cultivation of rice is difficult, a quantity of sugarcane, nut, oil seeds and vegetables are extensively practiced at the receding periods of the flood water at monsoon. The upazila is also prominent for producing sweet potato, wheat and different varieties of winter vegetables.

According to the questionnaire survey within the proposed Tetulia Upazila Headquarters, it is found that the people are usually involved in a number of occupations. Usually the principal occupation of the study area is agriculture which might as well accompanied by a non-agricultural subsidiary occupation. In the study area 67.21% of the total households are engaged in agriculture, 4.11% in service, 2.34% in business, 15.33% daily labour and 11.01% are also engaged with other non-farm-activities.

2.4 SOCIAL AND ECONOMIC INFRASTRUCTURE:

- 2.4.1 Market: A village market is usually held in an open space, where vendors from neighbouring village and petty traders from distance areas sell the goods & services. The either the sit on the ground with their wares set out before them or occupy open sheds. A large number of trade is carried on at village hats or markets, which are held on fixed days one or twice or thrice in a week. There are also daily markets. Market is an important economic activities. The number of markets is conforming with the pattern else where in rural Bangladesh is not very high in Tetulia Upazila. Scattered settlement pattern and rudimentary level of activities probably accounts for the above. Broadly speaking three types of markets are noticed in the Tetulia Upazila. The major one at the Upazila Headquarters is primarily geared towards collection and distribution of such commodities as cloth, fuel, salt, agricultural implements, chemical inputs, farm-produces and consumers items. The second category of markets function as intermediate collection points local agricultural produces. The majority of the markets operate weekly and belong to the third category-essentially acting as transition points for farm produces.

Most of the buyers as well as sellers are drawn from the neighbouring areas & a few from outside. Generally these markets are inadequate for bulk disposal of crops as well as procurement of chemical inputs for the farms.

Since shops which can supply consumer goods are infrequent, a large proportion of the Upazila population have to travel upto a few miles for the basic necessities. Considering the low provision of roads, problem of the consumers can be well imagined in case of the primary producer, marketing their out-put is even more critical.

At present there are 20 hats and bazars in this Upazila. This indicates that there is one hat/bazar for every 3,371 persons in the Upazila.

2.4.2 Commerce:

The Upazila Shahar of Tetulia is the focal point of commercial activities in the whole Upazila. In the study area the total establishments i.e. commercial buildings, office, health, industries, education are of the total establishments. In the Upazila Shahar commercial activity covers the highest percentage which is about 15.72 percent of total activities. At the time of partition 1947, there was no banks at Tetulia and at present there are a few branches of Sonali Bank and other commercial banks in the Upazila Head Quarters.

Note: The commercial activities includes retailing i.e. food & drinks, cloth, household articles, whole sale, service and warehouse. On the other hand, services includes tea stall, restaurants, hair cutting, laundry, tailoring, goldsmith, watch maker, cycle & rickshaw maker, commercial artist, retail shops etc.

2.4.3 Education:

The provision of educational facilities in the Upazila is inadequate. According to 1981 census data, the literacy rate of the Panchagarh Zila was found 21.60 percent as against 20.0 percent for the Tetulia Upazila. The table 2.5 shows the comparative picture of education facilities in the Zila as well as in the Upazila.

Table : 2.3

EDUCATION FACILITIES IN THE TETULIA UPAZILA

Area	No. of Educational Institute			Rate of Literacy
	Primary School	High School	College	
Zila	310	50	5	21.60%
Upazila	36	7	1	20.0%

Source : Bangladesh Population Census, 1981
Dinajpur District.

as against the Zila rate of 21.6 percent for both sex, 30.7 for male and 11.8 for female. The literacy rates for all ages are 18.3, 14.8 and 15.0 percent for 1961, 1974 and 1981 respectively.

School attendance in the age group 5-24 are found to be 19.4, 24.6 and 14.10 percent for both sex, male and female respectively. Main activity classification shows that 34.4, 1.9 and 0.2 percent of population aged 10 years and over are engaged in agriculture, business and manufacturing activities respectively.

There are 7 high/junior high schools, 1 madrasha and 36 primary schools in this upazila. This shows that there is one high/junior high school, one madrasha and one primary school for every 1,241 person in the age group of 10-14 years; 32,327 persons in the age group of 5-24 years; 322 persons in the age group of 5-9 years respectively. The teacher-student ratio in high/junior high school, madrasha and primary school are 32, 38 and 59 respectively.

Note : The definition of literacy used in 1981 census is stricter than the definition of literacy followed in previous censuses. A person who could write a letter in any language was considered literate in 1981 whereas a person who could only read or write in any language was considered literate in earlier censuses.

2.4.4 Health & Family Planning:

In the Panchagarh Zila as a whole there are 7 health complexes with total number of 75 beds. The number of charitable dispensaries and other categories of health centres stands at 26 and 7 respectively. The number of family planning clinics and other similar centres in the Zila is 31. The Zila has 109 doctors with only 37 having M.B.B.S, 21 L.M.F. and 32 National Qualification.

The Tetulia Upazila has one hospital and 4 dispensaries/clinics with 10 beds and 2 doctors. This shows that there is one doctor, one bed and one clinic available for every 33,713, 6,743 and 16,856 persons respectively.

Table : 2.4

HEALTH AND FAMILY PLANNING FACILITIES

Area	Health & Family Planning Facilities Available			
	Health Complex	Dispensary	Other Health Centre	Family Planning Centre
Zila	7	15	5	5
Upazila	1	4	1	1

Source : District Statistics Dinajpur, 1983, B.B.S.

2.4.6 Electricity, other services and facilities:

Currently electricity and sanitary facilities are available at the upazila headquarters. Out of 245 villages of the upazila, 4 villages have so far been provided with electricity. This indicates that 1.6 percent of the total villages of the upazila have electricity facilities. There are also 4 post office and 1 telegraph office in the upazila.

2.5 CURRENT DEVELOPMENT PROJECTS:

For future development of the upazila, the upazila parishad has got important programme. Every year the Upazila Authority prepare a budget for overall development of the Upazila. During the year 1988-89 the Upazila Authority of Tetulia prepared a budget of Tk.65/- Lakhs for undertaking a number of development projects under different sectors. The major development Programmes of the upazila parishad are extension and development of road networks of the shahar area, improvement of activity services and facilities like sanitary, water supply and surface drainage facilities, to improve the existing road connection of union parishad with the upazila headquarters and there are also programme to develop the union parishad headquarters.

2.6 SYNTHESIS : IDENTIFICATION OF HIERARCHY OF SETTLEMENTS:

2.6.1 Adopted Methodology:

The hierarchy of settlement in a given area is the outcome of the quality and quantity of the various functions performed by a settlement which includes social and economic activities, transportation links with the headquarters and population agglomeration. Among the various methods used in determining functional classification of settlements, two are employed more often than others. The one of the method in which the average aggregate importance of a settlement can be calculated through a consumer travel behaviours survey. Because of the poor state of transportation in the study area this method has been considered inappropriate for the present assignment. The other is the method of awarding weights to individual settlements. There are two forms of weighting:

- a) Awarding equal weight for the each function and
- b) Weighting through indexing

Among these two forms, the former can lead to misleading judgement for it is possible that a settlement which is providing more than one unit of function may obtain a high score and may be regarded as a high order centre. Contrary to this the method of awarding weight through indexing is more appropriate and avoids any biased conclusion since it is known that a more common function is less important than the one which is provided in only a few centres.

Population concentration, growth of physical and social services facilities and transportation links with Upazila Headquarters are the principal objectives of the study.

In view of classifying the settlement in an order of importance, each settlement has been graded within the range of scope of " 100 " distributed over the number of population and concentration of social and physical infrastructure and economic development indicators. A complete analysis regarding the hierarchy of settlements is given in the Table 2.8.

In inventory of settlement function is used to arrive a their individual indexes. The following important areas other than the shahar area are selected on the basis of population and major services and given proper weightage in the Table 2.7 to classify and categorise them in the group of A, B, C and D.

Table No. 2.5

Table for categorising settlements by population & infrastructures

Population/ Services	Weight- age	Krish- na Cha- ran Joat	Bara Gharia	Shahab Joat	Tetu- lia Kalo- ni	Tetu- lia	Khu- lia Detia	Talia Para	Magora
1	2	3	4	5	6	7	8	9	10
1. Population (1000-2000)	3	3	3	5	3	-	3	3	3
2. Population (2001-3000)	5	-	-	-	-	-	-	-	-
3. Population (3001-4000)	7	-	-	-	-	-	-	-	-
4. Population (400 & above)	10	-	-	-	-	-	-	-	-
5. High School	15	15	15	15	15	15	15	-	-
6. Rail Station	9	-	-	-	-	-	-	-	-
7. Electricity	8	-	-	-	-	8	-	-	-
8. Union Council	7	7	-	7	-	-	7	7	7
9. Primary School	7	7	-	-	-	7	-	7	-
10. Hat/Bazar	6	6	6	6	6	6	6	6	6
11. Bus Road	5	5	5	5	-	5	5	5	5
12. Dispensary	5	-	-	5	-	5	-	-	-
13. Industry	4	-	-	-	4	4	-	-	-
14. River	3	3	3	3	3	3	3	3	3
15. Mosque/Madrasha	3	3	3	3	3	3	3	3	3
16. Post office	3	3	3	3	3	3	3	-	-
Total:	100%	52	38	50	37	71	45	31	24

Hierarchy of Settlements:

Name of the Settlements under Category A,B,C,D according to the gradation of the 2.5.

Sl.No.	Name of Mouzas	Hierarchy
10	Tetulia	A
12	Mathafata	A
4	Terani Hat	B
6	Tulshicabil	B
9	Sarkanipara	B
11	Darzipara	B
13	Khirki Dangri	B
14	Boal Mari	B
7	Kholkhat Para	C
8	Guabari	C
15	Majhi Para	C
17	Shal Bahan	C
5	Rawshampur	D
16	Loha Kanchi	D
18	Bala Bari	D
19	Haradighi	D
21	Sarkar Para	D
22	Kata Para	D
23	Kuraburi	D

CHAPTER - 3

THE UPAZILA HEADQUARTERS

CHAPTER - 3THE UPAZILA HEADQUARTERS:3.1 DEFINITION OF SPHERE OF INFLUENCE/CATCHMENT AREAS:

Sphere of influence is the immediate hinterland surrounding the rural area within 2 to 3 miles. People from surrounding areas normally commute such distances to take the advantages of various services & facilities of the shahar area.

There are some activities such as administration, commerce and higher secondary education i.e. education in college etc. for which the whole population of the upazila are influence by Upazila Headquarters. But also there are some activities such as education in primary and secondary school and other daily necessities for which the whole population do not depend on upazila headquarters. They are from where most of the people come towards the upazila headquarters for the purpose of daily necessities such as service, business, marketing and other activities daily and weekly in the catchment area. The following aspects are also considered for demarcation of catchment area:

- (i) Existing pattern of development surrounding the developed part of headquarters.
- (ii) Changing landuse areas from agricultural activities to non-agricultural activities.
- (iii) Future potential development/expansion capacity in and around the Upazila Headquarters.

- (iv) Point of origin of journey to the headquarters, distance covered during the journey, reasons for making the journey & mode of travel.
- (v) Socio-economic and cultural behaviour pattern and urban services and facilities.

with the above point in view determined the catchment area of Tetulia Upazila Headquarters and it is found that the area of influence of Tetulia Upazila Shahar extends over an area 2 to 2½ miles from the centre of the Shahar. The zone of influence comprises 29 mauzas falling under 6 unions. The zone of influence has been determined by direct interview conducted in hats/bazars, educational institute, post office, Upazila Office and Court at the Upazila Shahar. From the survey it has been found that people from the zone of influence frequently visit shahar for their day to day business. The most vital element of attractiveness of the shahar lies in its importance in rendering administrative, educational, commercial and other social & health services to the community. The catchment area of the shahar shown in the following Table-3.1

The catchment area is identified by the total population which is served by the utilities and infrastructures available in the upazila shahar within its boundary. In the upazila the people which are being served by these facilities defines the boundary of the catchment area. It is an area usually having a radius of about two and a half to three miles around the shahar. The table below shows the area and population of the catchment area.

TABLE NO. 3.1

Catchment Area of Tatulia Upazila Shahar

J.L. No.	Name of Mouza	Area in Acre	Involved Areas	Population			Inv. population		
				1961	1974	1981	1961	1974	1981
4	Tirnaihat	2050.88	2050.88	1540	2346	2720	1540	2346	2720
5	Rawshampur	1797.57	1797.57	1150	1913	2235	1150	1913	2235
6	Tulshiabil	1551.13	1551.13	1175	1695	2407	1175	1695	2407
7	Khaikhat Para	2093.14	2093.14	1400	2394	2998	1400	2394	2998
8	Guabari	1129.48	1129.48	1360	2416	2227	1360	2416	2227
11	Darzipara	1530.39	120000	1705	2064	1200	1705	2064	1200
12	Mathafata	1362.94	1362.94	1440	1814	2138	1440	1814	2138
13	Khirkhi Damgi	1166.19	1166.19	1490	2278	1800	1490	2278	1800
14	Boql Mari	1689.92	1689.92	1600	1910	2350	1600	1910	2350
15	Majhipara	1124.48	1124.48	550	1661	1785	550	1661	1785
16	Loha Kanchi	1397.83	1397.83	850	1466	2140	850	1466	2140
17	Shal Bahan	1286.31	1286.31	700	1286	1376	700	1286	1386
18	Bala Bari	968.24	968.24	150	776	1021	150	776	1021
19	Haradighi	1111.15	1111.15	791	1029	1035	791	1029	1035
21	Sarkar Para	2058.50	2058.50	1120	1717	2004	1120	1717	2004
22	Kata Para	2019.99	2019.99	920	1723	1892	920	1723	1892
23	Karaburi	1090.76	1090.76	860	1501	1673	860	1501	1673

3.2 DEFINITION OF THE STUDY AREA:

The Tetulia Upazila Shahar Area mainly covers the administrative, commercial, industrial, educational, health, residential, religious, recreational, agricultural activities.

It can be defined as the future Township where all the development activities on the basis of population growth and land requirements for various purposes at certain level of density and attractiveness are performed.

Following are the main justification for selecting the Shahar Areas of Tetulia Upazila Shahar:

- i) Existing Urban and Semi-Urban Places.
- (ii) Probable future expansion areas considering existing trend & growth pattern
- (iii) Changing landuses from agriculture to non-agricultural activities
- (iv) Growth potential for expansion in and around the study area

Table No.3.2.

AREA AND POPULATION OF THE STUDY AREA, 1981

Involved Mauza	Total Area in Acre	Involved Area in Acre	TOTAL POPULATION			% of people involved in the Study Area	INVOLVED POPULATION		
			1961	1974	1981		1961	1974	1981
1	2	3	4	5	6	7	8	9	10
10 Tetulia	1046.40	1007.20	420	1744	2,533	90%	312	1,022	2,533

Note:- Tetulia is very large mauza consisted with seven sheets. Still the Shahar are confined within the same mauza.

Besides the above criteria, the area selected is physically contiguous and close to the arterial roads, land within the proposed shahar is fairly buildable and transportation system there is linkelihood that growth will take its course towards these areas.

The site has been selected keeping in mind to preserve compactness so at every stages of the growth of the town, its various components are developed in a balanced fashion.

The study area is considered for the proposed growth and future expansion of the town with the existing builtup area, having vacant land within the limit of the town. The table No. 3.2 shows the mouza and population of the study area.

The Tetulia Upazila is spread over only one mouza namely Tetulia, and the total area is about 1,046.40 acres comprising with two sheets. At the moment all of the public facilities, educational institution, government offices and economic activities are concentrated on Tetulia Mouza only(J.L.No.10). The area under the proposed Upazila Shahar spreads over an area of about 725.00 acres which is more than 1(one) sq.mile.

3.3 EXISTING LANDUSE, FACILITIES & UTILISATION CHARACTERISTICS:

The landuse structure is mainly the result of natural growth of Central Business District or C.B.D. of the Tetulia Upazila is located in the densely populated area at Tetulia and

Tetulia Bazar and this is surrounded by agricultural lands and privately owned residential houses. The overall situation that the existing land use is predominantly agricultural and residential in nature. Limited physical development have taken place in a small area of Tetulia Mouza only. The contents of this section is analyse the study area from physical perspective. The data and maps used in this analysis have been collected and prepared through field survey, necessary maps were also collected from BLRS, Local Upazila Office, Revenue Office and related office/agencies concerned with administration & development of the Upazila.

The total study area of the Tetulia Upazila Shahar has been surveyed which were divided into two broad types i.e. developed area and un-developed area. Developed area includes the area which have got certain types of infrastructural facilities. Undeveloped land includes the lands which is now being used for agriculture and other uses but subject to expansion of the Shahar in future. The undeveloped land is further sub-divided into the following categories:

- (i) Agriculture;
- (ii) Unbuildable land i.e. marshy lands, beels, rivers etc.

The following details have been categorically incorporated in the base map in addition to the broad land uses;

- 1) Physical details of drainage channel, river courses, ponds etc.
- 2) Infrastructural information i.e. communication networks, drainage etc.
- 3) Community facilities e.g. schools, mosques, hospitals, post offices, hats/bazars etc.

- 4) Major administrative centres i.e. upazila headquarters complex and other Govt. Offices existed or proposed if possible with detail lay-out plans of that particular office.

The following table shows the detail existing landuse of the study area:

Table No. 3.3

Existing Landuse Pattern of the Tetulia:

TETULIA UPAZILA STUDY AREA- 1989

Sl. No.	Type of Landuse/ Functional use	Area in Acre	Percentage the study area	Hectore	Remarks
1	2	3	4	5	6
1a	Commerce (Bazar, Mixed Commercial Use)	15.72	1.56	1.56	
1b	Industry	2.0	0.20	0.82	
2	Education				
	Primary School (2a)				
	High School (2b)	30.92	3.07	12.68	
	College (2c)				
	Madrasha (2d)				
	Vocational Training (2e)				
3	Health				
	Dispensary (3a)	8.55	0.85	3.51	
	Hospital (3b)				
	Vetrinary (3c)				

1	2	3	4	5	6
4	Administration; Govt. Office (4a), Semi-Govt. & Autonomous Deptt; (4b)	26.35	2.62	10.80	
5a	Recreation (Open) (Playground, Stadium, Park etc)	3.50	0.36	1.42	
5b	Recreation (Closed) Auditorium, Cinema Hall etc.	2.25	0.24	0.92	
6	Socio-Cultural (Mosque 6m, Temple 6t, Church 6c, Community Centre 6n, Club 6b, Graveyard 6g)	5.75	0.57	2.36	
7	Urban Services; Post Office, PDB/REB, T&T, Bus Station, Jail, Fire Station, Dack Banglow	2.0	0.20	0.82	
8	Residential; Private (8) Govt. (8G)	104.26	10.35	42.75	
9	Urban Reserve Tank, Water Bodies	8.75	0.87	3.59	
10	Roads/Hallots	27.24	2.70	11.70	
11	Agricultural Lands	760.91	75.54	311.97	
TOTAL		1007.20	100%	413.48	

3.4 SECTORAL ANALYSIS OF LAND UTILIZATION:

The Table-3.3 illustrates the present land utilization pattern in the country area. The existing land use is predominantly agricultural and residential in nature and it shows that agriculture covers 760.91 acres or 75.54% of the total area followed by 104.26 or 10.35% residential, 26.35 acres (2.62%) administration, 15.72 acres (1.56%) commercial, 30.92 acres (3.07%) educational, 8.55 acres (0.85%) health, 27.24 acres (2.70%) roads, 2.00 acres industrial, 8.75 acres (0.87%) waterbodies. The gross residential density in the study area is 7.31 persons per acres. The map projects that substantial amount of vacant land exists for urban expansion in the study area, which is also substantial by the occurrence of low densities as mentioned above.

1.a Commerce

The commercial areas are mainly composed of the shops along the station road the old Tetulia Bazar. It is observed that the existing commercial areas are sufficient to cater the need of the present population of the shahar. It has encroached upon a land of 15.72 acres which is 1.56 percent of the study area.

1.b Industry

A very small quantity of land is under industrial use in the study area. Virtually there is no any big industry in the shahar area. The mentionable industries in the study area is one rice mill only. The total land belonging account for about 2.00 acres which is about 0.20% of the total land of the study area.

2. Education

One college, two high schools (one boys & another girls) and primary schools etc. are the main constituent parts of the shahar's present educational landuses. The educational landuses in the study area account for about 30.92 acres of land i.e. 3.07 percent of the study area.

3. Health

The landuse survey of the study area has identified one health complex, one veterinary and family planning centre which is covering about 8.55 acres of land or 0.85% of the total study area.

4. Administration

The administrative zone are situated at the core or its around and this type of landuse in the study area includes all Government office establishments including the upazila complex. Land belonging to this category account for about 26.35 acres or 2.62 percent of the total study area. All of the administrative establishments are situated at Tetulia Mauza.

5.a Recreation (Open)

The open recreation facilities includes plays field, park, stadium etc. As open recreation facilities, the study area have some play field and some open space. There is virtually no park and provision of stadium at present in the study area. The survey has identified three play field in the study area, which occupied about 3.50 acres or 1.42 hectares.

Note: The Tetulia College is situated at the extreme eastern part of the Upazila Shahar & outside of the core area located at Mathafata Mauza.

5.b Recreation(Closed)

The closed recreation facilities includes Auditorium, Cinema Hall etc. As closed recreation, the study area has little facilities. There is virtually no such proper facilities available in the study area. The landuse survey has identified about 2.25 acres or 1.42 hectors of land under the use of this categories.

6. Socio-Cultural

The socio-cultural facilities includes public Library, Community centres, Mosque, Mandir, Eidgah and Graveyard etc. As socio-cultural facilities, the study area have some Mosque, one Graveyard which occupied about 5.75 acres or 2.36 hectors of land.

7. Urban Service

The urban service facilities includes Post Office, PDB/REB, T&T, Bus Station, Bus Depot, Police Station, Jail, Fire Station and Dak-Bungalow etc. At present most of these facilities, are not available in the study area. The landuse survey has identified about 2.0 acres or 0.82 hectores of land under this use.

8. Residential

After the agricultural landuse the residential is the second prominent among the landuse types in the study area. Maximum high lands are used for residential purpose and in the study area settlements are developed in a scattered fashion all over the study area. Residential density is comperatively higher in the core area of the shahar than the periphery. Most of the dwelling units are kutchra structures. The residential area covers about 104.26 acres or 10.35 percent the total land.

9. Urban Deffered Water Body

For the future expansion of important activities in the Shahar area some portion of land is required as Urban Deffered. But at present there is no provision of Urban Deffered in the study area. The study area has about 8.75 acres of waterbodies of different categories, that include khal, pond and ditches.

10. Road

The lands under roads seem to be insufficient in proportion to the total land of the study area. The Panchagarh-Bangabandhu road passed through the Tetulia are only pucca and rest of the internal roads are kutcha and brick covering 27.24 acres of land which is about 2.70% of the total area.

11. Agriculture

Till to-day for obvious reasons agriculture is the most dominant and single major landuse type in the study area. The present land-use survey reveals that 760.91 acres of land, which is about 75.54 percent of the study area belongs to agricultural use. It includes the marshy land, water logged low lying land and vacant lands within the limit of the shahar. The lands produce the traditional crops of the country, like rice, jute, sugarcane, pulses etc. & most of the lands are double cropped in nature. The agricultural land only within the boundary of the study area shall be considered for future development and expansion of the shahar.

3.5 EXISTING SOCIO-ECONOMIC CONDITIONS:

Population and household survey were conducted with the help of questionnaire and 5% sample households of the study area were surveyed. The purpose of the questionnaire survey was to

collect the information regarding population, demographic characteristics, employment, the ethnic background, economy and hopes and aspiration of the people.

3.5.1 Findings of the Socio-Economic Survey:

i) Population

The total population of the study area is 2,533 in 1981 (Base population) and subsequently household size from the sample survey stands at 5.62.

ii) Density and Population Changes

The average density per acre of the study is 10.06 at present and subject to change due to changing trend of the population. The annual growth rate in 1981 compared to 1974 is 3.91%.

iii) Age and Sex Distribution

About 50% of the total population of the study area are of the age below 19 years. The ratio of female per thousand male have increased slowly from 1961. But the low ratio is still visible from the sample survey of the household. It is observed that the female per thousand male are highest at the group of 30-39 years. At present female per 1000 male is 1974.

iv) Migration

There is no reliable data on the pattern of migration but it is understood from male-female ratio of the sample household survey that, more male members are staying outside the shahar either permanently or for earning purpose.

v) Household Structure

The majority of the households are having four to five or six to seven family members. The next household size are of eight to nine or two to three. Few households are still having the status of joint family.

vi) Employment :

Majority of the people still work in the shahar area (93.79%). Out of total work force of the sample survey, majority depend on business, agriculture & service respectively.

vii) Earning & expenditure pattern:

The highest number of people are in the earning group from Tk.1001-2000 and Tk.2001-3000, which tells that middle income group people are majority. The dwellers spend more than 75% of their earning for food items only. Other major expenditure incurred in clothing, education and health respectively.

viii) Dwelling types:

The types of structures of the shahar are mainly temporary and kutchha. Except the Govt. offices a very few of the private residences are pucca. The size of the dwelling houses are manageable for the majority of the households as admitted by the people during the sample survey and usual dwelling sizes are of 151-500 sft.

ix) Miscellaneous:

Very few families have any other property other than the dwelling houses. Some of the dwellers having small quantity of land property.

People of the Tetulia mainly travel on foot. The shahar dwellers depend upon tubewell for drinking water & majority of them takes bath in ponds and river. Sewage and rain water are generally discharged on ditches and pits.

The people from the catchment area mainly comes to shahar for the purpose of business, for treatment and for shopping. They usually travel by bus, bicycle and on foot.

3.6 PHYSICAL OPPORTUNITIES AND CONSTRAINTS:

Experience from field visit and study of landuse survey maps shows that about 90 percent of the shahar area will be readily available for development. For rest of the area average 3-4 feet filling may be necessary before making them ready for development. Only about 5 percent of the proposed shahar area is subject regular flooding during monsoon and another 5 percent area on the fringe go under water during abnormal flooding.

Presently more than 77 percent of the study area lands are under agriculture which is producing traditional crops. Only a few lands produce three crops a year more than 80 percent of the agricultural land produce double crops.

The upazila headquarters is situated at the western border of the upazila and one of the striking feature is that the area is comparatively higher than any other parts of the upazila. The shahar has developed in an unplanned fashion having vacant land all around and also within the town itself. The vacant land might be available for future land requirements due to the growth of the shahar.

The upazila shahar having many problems of which insufficient drainage system are resulted unhealthy atmosphere. On the other hand, hapazard growth of shahar and insufficient service facilities also another drawbacks. There are some irrigation facilities in the upazila but not sufficient due to which users are facing problems in the dry season. Some of the major peculiarities and problems are mentioned below.

- i) The upazila shahar is the main place of economic and administrative activities in the upazila but due to unmetalled and kutcha road-networks causing difficulties for transportation of goods & commodities. On the other hand, there is no railway linkage of upazila headquarters with the important places of the region for quicker movement. In most of the cases upazila headquarters is connected with union parishads by kutcha roads.
- ii) Tetulia is an old thana shahar but there are lacking in many urban services and facilities. Within the Upazila bus service is the principal means of transportation but the available bus service are not quick and sometimes it becomes so uncertain that the people have to wait for a long time to avail a bus.

3.7 ECONOMIC POTENTIALS:

Agriculture is the main occupation of the upazila and main agricultural products are rice, sugar-cane, jute, nut and tobacco. An extensive amount of rice of good quality grows in this locality. Industrially the upazila is quite undeveloped but if there would have a good transportation and communication system have a possibilities for development of small scale industries in the upazila. There are available manpower in the locality and the people of the area are found hard working and they would be invested in many productive fields.

Tetulia is an old thana a Shahar & also one of the business centre of the upazila. If there would be a good transportation and communication system it would have it would developed a potential business centre. As per retail trade is concerned Tetulia Bazar is the main-focal point for the trade and commerce.

The upazila headquarters is a place of charming scenic spot situated on the left bank of the river Mahananda. The panoramic view of the snow-capped peaks of the Himalayas can be seen from this place. The village side still is full of brushwood and some places are still covered with thick jungles & contains a tank of prehistoric origin and Hindu Temple of mythological importance. Considering these special features there is good potentialities to develop tourist spot in the upazila headquarters.

FORECASTS

2.2.1. RELATIONSHIP BETWEEN STRUCTURE AND FORECASTS

2.2.1.1. Prediction of the future of the world

The relationship between the structure of the world and the future of the world is a complex one. It is a relationship that is often overlooked. The structure of the world is the result of a long process of evolution. It is a process that is ongoing. The future of the world is the result of a long process of evolution. It is a process that is ongoing. The relationship between the two is a complex one. It is a relationship that is often overlooked.

CHAPTER - IV

FORECASTS

4.1. Introduction to the study of the future

The study of the future is a complex one. It is a study that is often overlooked. The future is the result of a long process of evolution. It is a process that is ongoing. The study of the future is a complex one. It is a study that is often overlooked.

Year	Population	GDP	Life expectancy
1950	2.5 billion	\$1.5 trillion	45 years
1975	4.0 billion	\$4.0 trillion	55 years
2000	6.0 billion	\$10.0 trillion	70 years
2025	8.0 billion	\$20.0 trillion	80 years

CHAPTER - IV

FORECASTS4.1 POPULATION, HOUSEHOLD STRUCTURE AND DENSITY:4.4.1 Population Projection of Catchment Area:

The catchment area of Tetulia Upazila Shahar extends over an area about 36.33 sq.km. covering 32 mauzas under 7 unions. In the year 1961, population of the catchment area was 10,678 persons, in 1974 it has increased to 18,312 persons, in 1981 the size of population was recorded as 23,898.

The following Table shows the projected population, household and density of population of the catchment area for the 1987, 1990, 1995 and 2000 A.D. and the projection have been made for High, Medium and Low level of growth.

i) Assumption of Growth Rate:

To derive growth rates of various levels the consultant planners have based the intercensal rates as past trends. Following are the growth rates found for various intercensal periods in the catchment area:

<u>Census Period</u>		<u>Growth Rate</u>
1961 - 1974	....	4.05%
1974 - 1981	....	3.78%
1961 - 1981	....	3.82%

Based on the above growth rates the planners have assumed the following High, Medium and Low level of growth rates for the Tetulia Upazila for its catchment areas population projections:

High level growth rate	.....	7.50%
Medium level growth rate	....	7.00%
Low level of growth rate	....	6.50%

The Tables 4.1, 4.2 and 4.3 show the projections of population, household structures and density of population of the Tetulia Upazila Catchment areas made on the basis of above assumed growth rates.

The sphere of influence or catchment area of the Tetulia Upazila Shahar has been identified in the Chapter-III in paragraph 3.2. Because of unforeseen situation in future, in terms of structural change in the economy, family planning measures etc. the population of the catchment area has been projected in high, medium and low profiles separately. However, for planning exercise, the medium has been considered. The following tables reveals the projected population (forecasted), household size and density in the catchment area of Tetulia Upazila Shahar.

iii) High Level Forecasts:

For high level forecaste growth rate has been assumed for the Tetulia Upazila catchment area as 7.50%. From the table No.4.2, it can be seen, the size of population under high level projection comes to 232,367 persons in the year 2000 A.D. with household as 33,192 and density of population per sq.km. as 1,411 persons.

Table No. 4.1

High Level of Forecasts for the Tetulia Upazila catchment Areas upto 2000 A.D.

Aspect	Base year	Projected Population			
	1981	1985	1990	1995	2000
Population	23,898	31,915	45,818	65,778	94,433
Household	4,193	5,600	8,039	11,541	16,569
Density/ sq.km.	658	879	1,262	1,811	2,600

Growth Rate = 5.0%
 Household size = 5.70 persons
 Influence Area = 36.33 sq.km.

The size of household has been calculated from population census 1981 as 5.70 persons. In the table No.4.2, 1981 has been shown as base year. The table No.4.2, shows projections for the years 1985, 1990, 1995 and the year 2000 A.D.

iv) Medium Level Forecasts:

In the following table No.4.3 shows the medium level of forecasts of population of Tetulia Upazila Shahar's catchment areas population, households and density. The table shows in the year 2000, the population of the catchment areas will be 212,669 persons, the households number as 30,379 and density of population as 1,290 persons per sq.km.

Table No. 4.2

Medium Level Forecasts for the Tetulia Upazila Catchment Areas upto 2000 A.D.

Aspects	Base year	Projected Population			
	1981	1985	1990	1995	2000
Population	23,898	31,325	43,935	61,622	86,428
Household	4,193	5,496	7,709	10,812	15,164
Density/ sq.km.	658	863	1,210	1,697	2,380

Growth Rate = 7%
 Households Size = 5.70 persons
 Influence Area = 36.33 sq.km.

v) Low Level Forecasts:

According to low level projection of catchment area population of Tetulia Upazila Shahar, the size of population, household and density per sq.km. comes to 2087 persons, 13,873 households and 79,069 persons, respectively in the year 2000 A.D.

Table No. 4.3

Low level forecasts for the Tetulia Upazila Catchment Areas population upto 2000 A.D.

Aspect	Base year		Projected Population		
	1981	1985	1990	1995	2000
Population	23,898	30,744	42,122	57,711	79,069
Household	4,193	5,394	7,391	10,126	13,873
Density/ sq.km.	658	847	1,112	1,523	2,087

Rate of Growth = 6.5%

Household Size = 5.70 persons

Influence Area = 36.33 sq.km.

4.1.2 Population projections of Tetulia Upazila Shahar Area upto 2000 A.D.

The Tetulia Shahar Area, assumed for the purpose of preparation of the Landuse Plan/Master Plan extends over an area of about 1007.20 acres or 1.45 sq.miles(4.13 sq.km) with a total population of 4,233 persons according to 1981 census. According to 1961 and 1974 population Census, the population of the Shahar stood at 2,650 and 3,723 persons respectively. Projection of shahar area population has been based on the past trends of population growth. To fix-up growth rates for different levels i.e. High, Medium and Low the planner consultants have based the intercensal growth rates as past population growth. The following are the past intercensal growth rates calculated for the Tetulia Upazila Shahar Area.

<u>Census Period</u>	<u>Growth Rate</u>
1961 - 1974	9.41%
1961 - 1981	5.27%
1961 - 1981	7.16%

On the basis of the above growth rates the consultant planner have determined the following high, medium and low level of growth rates for the purpose of Tetulia Shahar are population projection:

High level growth rate	.....	5.5%
Medium level growth rate	.....	5.0%
Low level growth rate	.....	4.50%

For the Tetulia Upazila Shahar, on the basis of the above assumed growth rates the following are the population, household and density projection have calculated. The size of household for this upazila shahar is assumed as 5.30 persons, as in found 1 1981 population census.

i) High Level Forecasts:

As per high level projection assuming growth rate as 5.5% the size of population, household and density of population per sq.km. respectively comes to 7,500 persons, 1272 households and 1,798 persons respectively in the 2000 A.D. In the following table No.4.4 shows the detail projection.

Table No. 4.4

High level forecasts for the Tetulia Upazila Shahar area:

Aspect	Base Year	Projection upto 2000 A.D.			
	1981	1985	1990	1995	2000
Population	2,533	3,138	4,101	5,360	7,005
Households	460	570	745	973	1,272
Density/ sq.km.	650	805	1,052	1,375	1,798

Growth Rate	5.5%
Household Size	5.70
Shahar Study Area	4.50 sq.km.

ii) Medium Level of Forecasts:

In the table No.4.5 shows the medium level forecasts for the Tetulia Upazila Shahar which gives the size of population, household and density of study area. According to the medium level of forecasts the size of population comes to 6,401 persons in the year 2000 A.D. with the consequent size of household and density as 1,162 and 1,643 persons per sq.km. According to the medium level forecasts detail projection for the Tetulia Upazila Shahar are given below:

Table No. 4.5

Medium Level Forecasts for the Tetulia Upazila Shahar Area:

Aspect	Base year	Projection upto 2000 A.D.			
	1981	1985	1990	1995	2000
Population	2,533	3,079	3,929	5,015	6,401
Household	460	559	714	911	1,162
Density/ sq.km.	650	790	1,008	1,287	1,643

Growth Rate	=	5.0%
Household Size	=	5.7%
Study Area	=	4.50 sq.km.

iii) Low Level Forecasts:

In the table No.4.6 shows the low level forecasts for the Tetulia Upazila Shahar which gives the size of population, households and density of the proposed study area. According to the low level of forecasts the size of population comes to 5,987 persons in the year 2000 A.D. with the

consequent size of household and density as 1,109 and 1,500 persons per sq.km. According to low level forecasts detail projection for the Tetulia Upazila Shahar Area are given below:

Table No. 4.6

Low Level Forecasts for the Tetulia Upazila Shahar Area:

Aspects	Base year	Project upto 2000 A.D.			
	1981	1985	1990	1995	2000
Population	2,533	3,021	3,764	4,691	5,987
Household	460	573	714	890	1,109
Density/ sq.km.	650	775	966	1,204	1,500

Growth Rate	=	4.5%
Household Size	=	5.7
Study Area	=	4.50 sq.km.

4.2 LABOUR FORCE AND EMPLOYMENT FORECASTS:

4.2.1 Projection of Labour Force Tetulia Upazila Catchment Areas:

i) High Level Labour Force:

Calculated from the 1981 population census data which indicated that about 71.04 percent of the Tetulia Upazila Shahar catchment area population are belongs to labour force. Of these total labour force, about 15.91 percent are in the non working group i.e. They are doing nothing.

On the otherhand 39.77 percent are engaged in household works. The consultant planner is assumed that the present ratio between total population and labour force will same in future i.e. upto 2000 A.D. On the basis of this assumption we have made the following projections of labour force and employment for the Tetulia Upazila Shahar catchment area. The following table No.4.7 shows the labour force projection.

Table No. 4.7

High level projections,labour force of Tetulia
Upazila Shahar Catchment Areas upto 2000 A.D.

Year	Total population	Labour force	Distribution of Projected Labour Force in different Sector.			
			Non working	Household work	Economically employed	Others
1981	23,898	16,978	2,438	6,682	6,266	1,592
1985	31,915	22,674	3,256	8,924	6,736	2,126
1990	45,818	32,551	4,674	12,811	7,281	3,052
1995	65,778	46,731	6,712	18,392	10,452	4,382
2000	94,433	67,088	9,634	26,404	15,005	6,291

Growth Rate = 7.50%

Catchment Area = 36.33 sq.km.

The Table No. 4.7 shows in the year 2000 A.D. the catchment area will have 67,088 number of labour force in different occupations at different percentages.

The table also shows that, the total population in the "non-working" group will be 9,634 persons. The labour force engaged in household works stands at 26,404 persons in 2000 A.D. The number of economically employed labour force upto the year 2000 A.D. will be 15,005 persons.

ii) Medium Level Labour Force:

The Table No. 4.8 shows medium level labour force projection of catchment area. The table shows in the year 2000 A.D. The labour force of the catchment area will be 61,401 persons. The number of people having "non working" group will be 8,817 the number of economically employed labour force will be 22,661 persons, and the percentage of labour engaged in household works comes to 24,166 persons.

Table No. 4.8

Medium Level Projection, Labour Force of Tetulia Upasila Shahar Catchment Areas upto 2000 A.D.

Year	Total population	Labour force	Distribution of projected labour force in different sectors			
			Non working	Household work	Economically employed	Others
1981	23,898	16,978	2,438	6,682	6,266	1,592
1985	31,325	23,255	3,196	8,759	8,213	2,087
1990	43,935	31,213	4,482	12,285	11,520	2,927
1995	6,16,222	43,778	6,287	17,230	16,157	4,105
2000	86,428	61,401	8,817	24,166	22,661	5,758

Growth Rate : 7.0% Catchment Area : 36.33 sq.km.

iii) Low Level Labour Force:

The following table No.4.10 shows low level labour force projection of catchment area. The table shows, in the year 2000 A.D. the labour force of the catchment area will be 56,173 persons. The people of having "non working" group will be 8,066 persons, the number of economically employed labour force will be 20,732 persons, and the percentage of labour force engaged in household works comes to 20,732 persons.

Table No. 4.9

Local Level Labour Force Projection¹

Year	Total population	Labour force	Distribution of projected labour force in different sectors			
			Non working	Household work	Economically employed	Others
1981	28,805	16,978	2,438	6,682	6,266	1,592
1985	30,744	21,842	3,136	8,596	8,061	2,048
1990	42,122	29,925	4,297	11,778	11,044	2,806
1995	57,711	41,000	5,888	16,136	15,132	3,845
2000	79,069	56,173	8,066	22,108	20,732	4,047

Growth Rate : 6.5% Catchment Area : 36.33 sq.km.

iv) Employment:

The projection of labour force shown in high, medium and low level forecasts in the Table No.4.8, 4.9 and 4.10 respectively. Now, the projection of employment are shown in the Table No. 4.10 which indicates the detail labour force distribution in various occupations.

Table No. 4.10

Employment Distribution of Labour Force of
Tetulia Upazila Shahar Catchment Areas upto 2000 A.D.

Year	Total Labour Force	Labour Force Distribution by Employment			
		Non working	Household	Economically Employed i.e. Agriculture, Manufacture and Trading	Others
1981	16,978	2,438	6,682	6,266	1,592
1985	22,255	3,196	8,759	8,213	2,087
1990	31,213	4,482	12,285	11,520	2,927
1995	43,778	6,287	17,220	16,157	4,105
2000	61,401	8,817	24,166	22,661	5,758

(Based on Medium Level Forecast)

4.2.2 Tetulia Upazila Shahar Area Labour Force projection and Employment Distribution:

i) High Level Labour Force Projection:

From the Census Report of 1981 it has been estimated that about 68.30 percent of the shahar area population

are belong to labour force. Among this total labour force: about 26.99 percent are economically employed, but another 31.16 percent are found engaged in household works i.e. they are females. The consultant planner assumed that the future labour force of the shahar will grow in the same growth rate upto the planned period i.e. 2000 A.D.

Table No. 4.JI

High Level Labour Force Projection of Tetulia
Upazila Shahar Area upto 2000 A.D.

Year	Total popula- tion	Labour force	Distribution of Project Labour Force			
			Non work- ing	House- hold work	Economi- cally employed	Others
1981	2,533	1,730	426	539	467	298
1985	3,079	2,143	528	668	579	369
1990	3,929	2,801	690	873	756	482
1995	5,015	3,661	901	1,141	988	631
2000	6,401	4,785	1,179	1,491	1,292	824

Growth in Rate : 5.5%

ii) Medium Level Labour Force Projection:Table No. 4./2

Medium Level Labour Force Projection of Tetulia
Upazila Shahar Area upto 2000 A.D.

Year	Total popula- tion	Labour Force	Distribution of Projected Labour Force			
			Non work- ing	House- hold work	Economi- cally employed	Others
1981	2,533	1,730	426	539	467	298
1985	3,079	2,103	518	655	568	362
1990	3,929	2,684	661	836	725	462
1995	5,015	3,425	843	1,067	925	590
2000	6,401	4,372	1,076	1,362	1,181	753

Growth Rate : 5.0%

iii) Low Level Labour Force Projection:Table No. 4.13

Low level labour force project for Tetulia
Upazila Shahar Area upto 2000 A.D.

Year	Total population	Labour force	Distribution of project labour force			
			Non working	Household work	Economically employed	Others
1981	2,533	1,730	426	539	467	298
1985	3,079	2,063	508	643	557	355
1990	3,929	2,571	633	801	694	443
1995	5,015	3,204	789	998	865	552
2000	6,401	3,993	983	1,244	1,078	688

Considered Growth Rate * 4.5%

The Table No. 4.13 shows that, in the plan period i.e. upto 2000 A.D. The total labour force of the Tetulia Shahar area will be 3,993 persons. It is also found that, the number of "Non Working" group as well as the number of females are engaged in "Household Work" will gradually reduce over this period and on the other hand the number of economically employed population will be increasing.

iv) Employment Distribution:

The total labour force of the upazila shahar(projected) distributed among the six different groups i.e. Non working, Household works, Agriculture, Manufacture, Business and unclassified. The table No. 4.14 shows the position of Tetulia Shahar area employment upto the year 2000 A.D. The tabulated figures indicates that, in the year 2000 A.D. There will be comparatively lower percentage of labour force working in the agricultural sector. Employment in business/trading and manufacturing also marked gradually increasing, which indicates the number of service holders, self-employed people, and professional people will increase more in comparison with agricultural labour force.

Table No. 4.14

Employment distribution of Tetulia Upazila

Shahar Area upto 2000 A.D.

Year	Total labour force	Labour Force Distribution by Employment			
		Non working	Household work	Economically Employed i.e. Agriculture, Manufacture & Trading	Others
1981	2,533	1,730	426	467	298
1985	H 2,143	528	668	579	369
	M 2,103	518	655	568	362
	L 2,063	508	643	557	355
1990	H 2,801	690	873	756	482
	M 2,684	661	836	725	462
	L 2,571	633	801	694	443
1995	H 3,661	901	1,141	988	631
	M 3,425	843	1,067	925	590
	L 3,204	789	998	865	552
2000	H 4,785	1,179	1,491	1,292	824
	M 4,372	1,076	1,362	1,181	753
	L 3,993	983	1,244	1,078	688

High Growth Rate	:	5.5%
Medium Growth Rate	:	5.0%
Low Growth Rate	:	4.5%

4.3. PROVISION STANDARD AND LAND REQUIREMENTS:

4.3.1 Determination of Standard:

On the basis of guidelines in the Terms of Reference (TOR) the provision standard and future land requirements provided in this section i.e. (section 4.3). The consultant planner revised the given TOR in detail and it was found that the provided TOR by UDD for the fixing planning standard in quite suitable. In few cases where the provision and standard as provided in the prescribed TOR was not found suitable to the real needs only in these points the consultant planner have revised and refixed the standard which is suitable for these particular cases. In the provision standard and land requirement, the standards are based on medium level projected population of shahar area and the catchment areas of Tetulia Upazila.

To prepare the Master Plan/Landuse Plan and to determine the land requirement for proposed facilities the estimated population of Tetulia Upazila Shahar and catchment areas and the calculated population upto the year 2000 A.D. under medium level projection. For different facilities such as Primary School, Madrasha, Dispensary,

Play ground, Mosque, Mandir, Eidgah, Graveyard, Post Office, T & T design population in the medium level projected population of the shahar area of the year 2000 A.D. that 212,669 persons. On the other hand, for the rest all other facilities such as High School, College, Technical Training Centre, Health Complex, Darks Stadium, Public Library etc. The design population considered the shahar area population plus catchment area population upto the year 2000 A.D. under the same medium level projection, that is (Shahar-area population 6,401 and catchment Area population 86,428 i.e. total 92,829 persons (including Shahar & Catchment Area)).

4.3.2 Planning Standard

To prepare the Landuse Plan/Master Plan the standard adopted for providing different landuse facilities and also showing the actual land requirement sector-wise. The provision standard and land requirement provided in this section is based on the guide-lines in the Terms of Reference. The Consultants have reviewed and refixed the standards in some cases where the provision and standard as provided in the TOR was not found suitable to the actual need which have mentioned earlier. High, Medium and Low level projection have shown but only the medium level projected population of Shahar and Zone of influence have considered.

i) Commerce/Industry:

At present commercial areas are mainly composed of the shaps along the bus station and Tetulia Bazar. Under the commercial use two broad categories of facilities will be provided in the shahar area. Of these facilities one bazar and another mixed commercial activities. It is observed that the existing Bazar and commercial areas are sufficient to cater the need of the population upto 2000 A.D. virtually there is no trend of growth of industries in the shahar. So it is suggested that a reserve of 3.50 acres land for every 20,000 people may be earmarked for the industrial use. This gives a total area of about 10.0 acres as the industrial zone of the Tetulia Shahar.

Table No. 4.15

Provision standard for commerce and industries for
the Tetulia Upazila Shahar upto 2000 A.D.

Facilities	Provision standard as per TOR	Recommended standard	Existing facilities	Recommended land requirement including existing facilities			Remarks	
	Pop/Acre	Pop/Acre	No/Acre	No	Acre	Hect		
Bazar	10000/1.50	20,000/1.50	1	1100	1	11.0	4.51	-
Mixed Commercial use	10000/1.50	20,000/1.50	1	4.72	1	4.72	1.94	-
Indus-tries	10000/1.50	20,000/3.50	-	2.0	1	1.10	4.10	-
Total				17.72 (7.27 hct)		25.72	10.55	

ii) Education:

The following provision standard for education facilities have recommended for the Tetulia Upazila Shahar upto 2000 A.D.

Table No. 4.16

Provision standard for Education facilities for
the Tetulia Upazila Shahar

Education Facilities in the study area	Planning standard as per TOR	Standard Recommended	Existing available facilities		Land requirement inclu including existing facilities upto 2000 A.D.		Remarks
			No	Acre	No	Acre	
College	20,000/5.0 (2.05 hct)	20,000/2.5 (1.03 hct)	1	2.6 (1.1)	2	11.60 (4.76 hct)	1 Boys 1 Girls
High School	20,000/5.0 (2.05 hct)	20,000/2.5 (1.03 hct)	2	10.00 (4.10 hct)	4	11.60 (4.76 hct)	3 Boys 1 Girls
Primary School	5,000/2.0 (.82 hct)	5,000/2.5 (1.03 hct)	1	2.52 (1.03 hct)	4	3.22 (1.31 hct)	1 Existing 3 Proposed
Technical Training Centre/School	Not mentioned	For Upazila 2.5 (1.03 hct)	-	-	1	2.50 (1.03 hct)	Proposed
Madrasha	Not mentioned	For Upazila 2.0	-	(.41) hct.	2	2.0 (0.82 hct)	1 Proposed
Total				23.52 (9.64 hct)		30.97 (12.67 hct)	

iii) Health:

In the Tetulia Upazila Shahar at present 8.55 acres (3.55 hct) land are covering by health facilities which includes one health complex. One veterinary and a family planning centre for public Health facilities. The consultant planner suggested to keep the existing facilities remain as it is up to the year 2000 A.D. Provision standard and distribution of land are shown in the Table No. 4.17.

Table No. 4.17

Provision standard for health facilities for the Tetulia Upazila Shahar upto the year 2000 A.D.

Facilities	Provision standard as per TOR	Recommended standard	Existing facilities.	Recommended land requirement in the Existing Facilities			Remarks
	Po ^B /Acre	Po ^B /Acre	No/Acre	No	Acre	Hect.	
Health Complex	20,000/5.0	20,000/1.5	2 4.00	1	6.96	2.85	
Maternity & Child Care Centre	5,000/1.0	20,000/1.5	1 1.20	2	6.96	2.85	1 Proposed
Veterinary Hospital	Not mentioned	One for Upazila	1 0.50	1	1.0	0.41	-
Dispensary	5,000/1.0	5,000/.28	- -	2	1.0	0.41	2 Proposed
Total			8.55 (3.51 hct)		15.92	6.53	

iv) Administration

The administrative zones are situated at the core of the Upazila Headquarters which covers 26.71 acres of land which is sufficient upto the year 2000 A.D. The Landuse Plan/Master Plan does not recommended any further additional land for administrative purpose.

In this Upazila the place for general administration regulatory and judiciary, development and professional services have been located at the centre of the Upazila Complex. The Master Plan proposes 26.71 acres of land for the purpose including an area of 10.0 acres for the Government Officer's Staff Quarters. These quarters will be used by the officers and staffs of the Upazila as well as the Chairman of the Upazila.

Table No. 4.18

Proposed Land for Administration

Land Use	Existing Uses (in Acre)	Proposed (Acres)	Hectores
Govt. Office Upazila Complex	26.71	16.71	6.85
Residence (Govt. Quarters)	Including the Govt. Quarters	10.00	4.10
Total	26.71	26.71	10.95

v) Recreation:

The recreation facilities includes Play Field, Park, Stadium, Auditorium, Cinema Hall etc. The existing recreational facilities in the Tetulia Upazila Shahar in good enough. The total land recommended for these facilities is 8.50 acres which is included the above mentioned facilities. The following Table No. 4.19 shows detail of provision standard and land requirement.

Table No. 4.19

Provision standard for Recreation facilities in
the Tetulia Upazila Shahar upto 2000 A.D.

Facilities	Provision standard as per TOR	Recommended standard	Existing facili- ties		Recommended land require- ment includ- ing existing facilities			
	Pop/Acre	Pop/Acre	No	Acre	No	Acre	Hect	
Play Field	1,000/1.0	1,000/0.50	-	-	3	2.0	1.31	3 Propo sed
Park	1,000/1.0	20,000/1.50	-	-	1	2.50	2.85	Propo- sed
Stadium	20,000/3.0	20,000/1.50	1	2.0	1	2.90	2.85	
Audito- rium	20,000/.50	20,000/0.50	-	-	1	0.80	0.95	
Cinema Hall	20,000/.50	20,000/0.50	1	0.40	1	0.80	0.95	
Total				5.00 (2.05)		10.53 (8.50)	4.32 (3.49)	

vi) Socio-Cultural:

The socio-cultural facilities includes Public Library, Community Centre, Mosque, Eidgah, Mandir and Graveyard etc. about 10.25 acres of lands have been allocated for various uses i.e. above mentioned facilities under socio-cultural facilities and shown in the Table No. 4.20

Table No. 4.20

Provision standard for socio-cultural facilities recommended for the Tetulia Upazila Shahar upto the year 2000 A.D.

Facilities	Provision standard as per TOR	Recommended standard	Existing Facilities		Recommended land requirements including Existing facilities			Remarks
	Pop/Acre	Pop/Acre	No	Acre	No	Acre	Hect	
Public Library	Not indicated	Upazila Shahar/.50	-	-	1	0.50	0.21	-
Community Centre	20,000/1.0	2,000/1.0	-	-	3	2.00	1.82	-
Mosque	5,000/.50	5,000/.50	4	1.0	6	2.00	0.82	-
Eidgah	Not indicated	For Shahar 1.50	-	-	1	1.50	0.62	-
Mondir	Not indicated	For Shahar .25	-	-	1	0.25	0.10	0.10 -
Graveyard	20,000/5.0	Shahar 4.0	-	-	1	4.00	1.64	-
Total				1.75 (0.72)		10.25	4.20	-

vii) Urban Services:

At present the existing urban service facilities in the Upazila Shahar are not satisfactory. The urban services generally includes post office, T & T, PDB/REB establishments, bus station, Police Station, Jail, Fire Station, Dack Banglow etc. The Table No. 4.21 shows details of provision standard and land requirements.

Table No. 4.21

Provision standard for Urban Services facilities for the Tetulia Upazila Shahar upto the year 2000 A.D.

Facilities	Provision standard as per TOR	Recommended standard	Existing facilities		Recommended land requirements including existing facilities			Remarks
	Pop/Acre	Pop/Acre	No	Acre	No	Acre	Hect	
Post Office	20,000/0.50	5,000/.50	1	1.0	3	1.0	0.41	-
PDB/REB	20,000/0.30	Upazila/1.0	1	.50	1	0.50	0.21	-
T & T	20,000/0.30	Upazila/1.0	1	.50	1	0.50	0.21	-
Bus Station	20,000/1.0	20,000/0.50	1	-	1	2.25	0.92	-
Police Station	20,000/2.0	Upazila/3.0	1	3.0	1	2.25	0.92	-
Jail	Not indicated	Upazila/1.50	-	-	1	1.0	0.41	-
Fire Station	Not indicated	Upazila/1.50	-	-	1	0.50	0.21	-
Dack Banglow	Not indicated	Upazila/1.0	1	1.0	1	0.50	0.21	-
Total						8.50	3.49	

viii) Residential:

Upto the year 2000 A.D. 312.33 acres of land have been marked for residential use for the Tetulia Upazila Shahar. For this Upazila Shahar recommended average density per acre is about 38 persons. Of this total land for residential area 30 acres of land will be reserved for acquisition land for planned housing development. The Table No. 4.22 shows the detail residential land for the Tetulia Upazila upto the year 2000 A.D.

⁹
Table No. 4.22

Land requirements for⁹ residential use upto the year 2000 A.D. the the Tetulia Upazila Shahar.
⁹

Types	Standard as per TOR	Recommended standard	Existing Acre	Recommended Area	
	Density/Acre	Density/Acre	Acre	Acre	Hectore
General Private Develop- ment	100 Persons/ Acre	40 Persons/ Acre	104.26	182.33 182.33	74.76
Planned Develop- ment	Not indicated in TOR	40 Persons/ Acre	-	28.27	11.59
Total			104.26	2010.60	85.25-

(x) Reserve and Urban Deffered:

According to TOR 10 percent of the study area is to kept Urban Deffered and 5 percent is to kept for reserve land. For future development TOR standard has been followed for these two categories of landuse provision. The land includes different kinds of water bodies or low-laying area kept under urban deffered.

Table No. 4.13

Reserve and Urban Deffered for the
Tetulia Upazila Shahar upto 2000 A.D.

Types	Standard as per TOR	Recommended standard	Recommended Area	
	Percent of Total	Study Area	Acre	Hectore
Urban Deffered	10%	10%	100.00	41.00
Reserve Land	5%	5%	48.00	20.30
Total			148.00	60.30

×) Road:

The Tetulia Upazila Shahar area is situated along side of the National High Way. The land under roads seem to be insufficient in proportion to the total land of the study area. The roads are mainly of brick soling covering about 27.24 acres of land of present. For future internal circulation system it is proposed to keep an area of 239.57 acres of land. Table No. 4. shows the detail land budget for road circulation upto 2000 A.D.

Table No. 4.24

Land requirements for road & future
internal circulation upto 2000 A.D.

Types	Existing			Proposed			Remarks
	Miles	K.M.	Acres	Miles	K.M.	Acres	
60 feet wide	2	.	-	2	.82	14.51	-
40 feet wide	-	-	27.24	5.50	2.26	33.20	-
25 feet wide	-	-	-	25.50	10.46	-	-
Un-specified	20.00	-	-	-	-	50.79	-
Total			27.24 (11.17 hct)			98.50 (40.39 hct)	

xi) Outlying Agricultural Use:

The Landuse/Master Plan of Tetulia Upazila Shahar recommended to keep outlying agricultural use about 423.34 acres of land 173.57 hct. At present these land being used for purely agricultural purpose. When it will expand the shahar they may be put into urban use whenever necessary in the future period.

TABLE NO. 4.25

SUMMARY OF LAND ALLOCATION FOR VARIOUS USES (ACRES)

LANDUSE PROPOSAL UPAZILA SHAHAR:TETULIA, ZILA:PANCHAGARH

Sl. No.	Landuse	EXISTING LANDUSES		PLANNED LANDUSE PROPOSAL		Percent	Hectare	Remarks
		In Study Area (Acres)	In Study Area (Percent)	Estimated Required Land	Proposed Land Including Existing			
1	2	3	4	5	6	7	8	9
1a	Commerce	15.72	1.56	29.20	17.72	1.76	7.27	-
1b7	Industries	2.00	0.20	12.00	10.00	0.99	4.10	-
2	Education	30.92	3.07	31.00	30.92	3.07	12.68	-
3	Health	8.55	0.85	15.92	10.52	1.04	4.31	-
4.	Administration	26.35	2.62	27.00	26.35	2.62	10.80	-
5a	Recreation (Open)	3.50	0.36	8.50	5.00	0.50	2.05	-
5b	Recreation (Closed)	2.25	0.24	6.50	3.50	0.35	1.44	-
6	Socio-cultural	5.75	0.57	17.00	14.25	1.42	5.84	-
7	Urban Service	2.00	0.20	13.00	8.50	0.84	3.49	-
8	Residential	104.26	10.35	-	210.60	20.91	85.35	-
9	Urban Deferred, Reserves Water Bodies Tanks etc.	17.75	1.73	149.00	148.00	14.70	60.68	-
10	Roads	27.24	2.70	110.00	98.50	9.78	40.39	-
11	Agricultural	760.91	75.54	-	423.34	42.02	173.57	-
	TOTAL	1007.20	100%	-	1007.20	100%	413.48	-

CHAPTER - 5

PROPOSED LAND USE PLAN

CHAPTER - 5PROPOSED LANDUSE PLAN:5.1 APPROACH, CONCEPT AND PLANNING PRINCIPLES:

The basic approach towards preparation of landuse plan has been based on the guidelines set forth in the TOR. The adopted approach basically involves collection of physical and socio-economic data of the study area, appraisal of data gathered and preparation of landuse plan. However, because of inadequate time and found no indepth data about the physical and socio-economic aspect of the study area could be collected. But since this will be basically a landuse guide plan, the information collected will be sufficient to support preparation of a workable landuse plan.

The present landuse plan is based on the concept of self contained town development. The main is to render the Upazila Shahar in to a growth centre, both, in geographical and economic sence. It has been designed to serve as a growth centre not only for the Tetulia Upazila as a whole but also establish itself as an important business centre for the Upazila, Zila and as well as for the region.

The plan has been prepared based on some basic principles such as, the plan will give proper consideration to the development already in existence, the plan provision will be setforth in such a way so that unproductive and unutilised lands, are not put in to use for accommodating the same.

Discussion meeting were conducted at the Upazila level with chairman and members of Upazila Parishad and Union Parishad, Upazila Nirbahi Officer, Upazila Engineer, and Officers of other government agencies.

Discussion were made throughly about the existing landuse and the proposed landuse plan. Consultants have included some valuable suggestions given by them in the proposed landuse plan. Based on the existing landuse survey, socio-economic and other survey and discussion at Upazila level, the proposed landuse plan have been prepared.

5.2 PLAN DESCRIPTION:

The landuse plan of Tetulia Upazila Shahar has been prepared keeping in view the existing developments in the area and requirement of facilities upto the year 2000 AD. Following is the sector-wise description of the landuse provisions proposed in the Master Plan/Landuse Plan.

5.2.1 Education Facilities:

The education facilities proposed in the plan consists of Primary Schools, High School, Vocational Training Centre, College etc.

i) Primary School:

At present there are only one primary school in the study area. As per projection of population, the Tetulia Upazila Shahar will need 3(three) primary schools upto the year 2000 AD. as per adopted standard. One primary school has been recommended for every 3000 persons of the shahar. The 2(Two) new primary schools have been suggested one in central part of the shahar and another in the eastern part of the shahar.

ii) High School

At present the Tetulia Upazila Shahar already possesses 2 high school (one for boys and another for girls) close to the old bazar area. One new high school for boys has been proposed at the eastern part of the shahar near the Tetulia college. One high school has been proposed for every 20,000 population of catchment as well as shahar area population.

iii) College and other educational institutions;

At present in the Tetulia Upazila Shahar there exists one college which is located at the extreme eastern part and is situated at the Mathafata Mouza which is outside of the study area. Besides, a technical training centre has also been suggested close to the new bazar over an area of about 3.0 acres.

5.2.2 Commercial Facilities:

Under commercial facilities two broad categories of used have been recommended-bazar and general commercial landuse for mixed other commercial facilities. The study area has two bazars. One at near the police station i.e. old bazar & the other at the near of the Tetulia Bus Station. Both the bazars will be sufficient to meet needs of the Shahar and its sub-Urban population. Therefore, the Master Plan/Landuse Plan does not recommended for any other more bazar in the study area at the moment.

5.2.3 Industry

To accommodate new industries and facilitate industrial development and additional area of 12.12 acres have been recommended at the eastern part of the study area along the main road. The proposed industrial estate will, thus, enjoy transport facilities of road.

5.2.4 Health:

The study area has one health complex over an area of about 2.75 acres which enough to meet the demand. The Master Plan, therefore, does not suggest any new hospital. However, the plan recommends one maternity and childcare and three dispensaries. One maternity and one dispensary has been proposed at the eastern part of the study area. Besides, there exists a verterinary hospital at the northern side of the Upazila Complex.

5.2.5 Recreation:

The open recreation facilities, the Master Plan suggests three play grounds. One park and one stadium. The existing picknique stop will remain same. For closed recreation a cinema hall has been recommended. The existing flood free agricultural land near the new bazar earmarked as stadium, within the area of 3.00 acres. Out of this three play ground, one beside boys high school, one beside the girsl high school and another will be located at the eastern part of the study area.

The Cinema Hall has been placed south of the new bazar along the proposed 100' road from Tetulia bus station towards the south of the study area. A auditorium has been proposed along the Tetulia Upazila Complex. A small park covering an area of 2.50 acres has been placed at eastern part of the study area.

5.2.6 Urban Services:

In the Master Plan/Landuse Plan, about 1007.20 acres of land have been earmarked for various urban services facilities, like post office, T&T, spaces for PDB/REB, bus station, police station, and fire station. The Upazila Shahar of Tetulia will have 3 post offices including one already in existence. Of these two new post offices, one will be G.P.O. located beside the Upazila Complex. There is also establishment of T&T over an area of about 1.25 acres. There is one bus terminal near the existing post office occupied about 1 acre of land. A fire fighting station will be established at the eastern side of the new bazar on an area of 20 acres. The study area already has two dakbungalow over an area of about 2 acres of land.

5.2.7 Socio-Cultural Facilities:

Under socio-cultural facilities the plan proposes to establish library, community centre, mosque, etc. A public library will be established near the old Tetulia Bazar. Three community centres have been proposed one at near old bazar, one at near new bazar and the other beside the proposed housing estate. A central mosque for the Upazila Shahar will be established over an area of about 1.0 acre at the existing place of old mosque close to Upazila Complex. There is a big graveyard at the extreme northern part of the Shahar and a new graveyard has been suggested at the souther-eastern part of the study area over an area of about 3.00 acres, which will serve upto the year 2000 A.D.

5.2.8 Administration:

Upazila Complex is the main administrative zone of the study area, while there are some important Govt. offices are catered all over the Sharar. The Upazila Complex setup in a

plian vacant land which will be able to accommodate all the Govt. offices. The Upazila Complex comprises an area of 26.71 (10.95 hct) acres. It is not required to suggest any more land for administrative purpose.

5.2.9 Read:

The Panchagarh-Tetulia National Highway runs through the heart of the Shahar. The Master Plan/Landuse Plan proposes about 60', 45' and 30' wide roads for the circulation of the Tetulia-Upazila Shahar. Most of the roads have been proposed as extension and development of existing roads. However, new link roads have also been suggested. Altogether 98.50 (40.39) hct. of road network have been recommended for the Shahar.

5.2.10 Residential:

The Master Plan/Landuse Plan earmarks about 230.0 acres of land for residential purpose. The density has been estimated about 35 persons per acre. The plan proposes about 30 acres of land for planned development to accommodate the affected families and also for distribution to the general public. The community facilities under the landuse plan have been distributed in such a way that population in all residential areas will have easy access to those facilities.

5.2.11 Reserve land and Urban Deferred:

The Master Plan/Landuse Plan of Tetulia Upazila Shahar proposes to keep earmarked about 80.29 acres of land as reserve that includes the low lands in the study area. About 148 (60.30 hct) acres of land will be kept reserved as urban Deferred are presently being used for agriculture purpose. They may be put into use whenever necessary in near future and if it is required any modification in the Master Plan or Landuse Plan.

CHAPTER - 6

PROGRAMMING AND IMPLEMENTATION

6.1. PRELIMINARY MATERIAL AND COST ESTIMATION.

The plan proposes peripheral expansion of the Uperla Center by extension of existing network of service facilities as required. The existing road network and service facilities including fuel and laundry shops are being used to improve, widening or extending wherever and wherever be needed to meet existing as well as future requirements. The proposed expansion is being planned to identify

CHAPTER - 6

PROGRAMMING AND IMPLEMENTATION

of the Uperla Center. The proposed expansion is being planned to identify

6.1. Approval of the Expansion Plan

The proposed expansion of the Uperla Center shall be approved by the respective authority in favour of the Government of India. The proposed expansion is being planned to identify

6.2. Preparation of Detailed Plan

On the basis of this master plan, detailed plans shall be prepared for implementation.

CHAPTER - 6PROGRAMMING AND IMPLEMENTATION:6.1 PRIORITY ACTIONS AND COST IMPLICATIONS:

The plan proposes peripheral expansion of the Upazila Shahar by extension of existing network of service facilities as required. The existing road networks and service facilities including functional building should be utilized by improving, widening or expanding whenever and wherever be needed to meet existing as well as short term preserve to provide necessary service facilities. So, identification of priority actions are deemed to be necessary to ensure timely and efficient development of the Upazila Headquarters. The priority action which will be undertaken for implement the Master Plan/Landuse Plan are as follows:

i) Approval of the Landuse Plan:

The prepared Master Plan/Landuse Plan shall have to be approved by the respective authority in favour of the government. If any major changes required in the near future would be carried out through permission of the approving authority. The approved plan would mean a legal document for the Upazila Centre and building for all agencies, public and private.

ii) Preparation of Detail Plan:

On the basis of this Master Plan/Development Plan, detailed development plans should be prepared for immediate implementation.

It will indicate necessary design controls such as plot boundaries, building ratio, building lines, height restrictions, building uses, plinth area, parking, servicing, site circulation etc.

iii) Implementation Programme:

The prime responsibility for creation of Upazila Centre fall upon those dealing with various aspects of implementation. The Master Plan/Landuse Plan as a guidelines for all developments for a Upazila Shahar, should initiate proposed land acquisition and construction of roads and other important functions in phases. This will ensure the gradual development of all landuse zones drainage, sewerage and other services.

iv) Need for achieving social and Economic goals:

- a) The Upazila Centre would be able to create certain goods and services for its own population and other potential centres such, potential small industries should be identified through economic analysis.
- b) The income of the people should be increased in order to enable them to support the cost services to be provided. The development would therefore be linked with economic development in the planning area and within the headquarters as per landuse proposals. The development would infact stimulate planned constructions and development in the Upazila Centre and thus help achieving the economic and social goals.

6.2 PHASE-WISE DEVELOPMENT AND URBAN DEFERRED

Sporadic development should be avoided because, it would increase the initial cost of investments. The phasing of all area wise developments according to junctions and existing land utilization have been calculated and forecasted in broad classification groups and been shown detail in the Chapter No. IV. The broad groups are as follows:

- i) Commerce and Industry.
- ii) Educational Landuse.
- iii) Landuse for Health.
- iv) Landuse for recreation.
- v) Socio-Cultural Landuse.
- vi) Landuses for Urban Services
- vii) Land for Road Development
- viii) Land for Residential uses.
- ix) Land for Urban Deferred.

6.3 DEVELOPMENT CONTROL:

i) Legal matters and Legislation:

The pourashava Ordinance 1977 may serve as the basic law for planning and implementation and the Upazila Parishad being the caretaker of this Master Plan/Landuse Plan to ensure planned development. For control, planning and building by laws need to be prepared by appropriate authority. There should be a Upazila planning officer who will be responsible for plan preparation and implementation for UDD until the Upazila Parishad becomes technically equipped.

ii) Institutional Arrangement:

For carrying out development control and development activities, an institutional arrangement should be made. It is suggested that, the local Upazila Parishad may carryout detailed planning of the study area with the assistance of the Urban Development Directorate, Ministry of Works and supervise the construction by the Upazila administration :

Potential development may be identified with the assistance of the Urban Development Directorate, Ministry of Works and then landuse plan may be reviewed to make adjustments if any with changed circumstances towards the growth of the township. People's participation in the use of land would be ensured through benefit of development, employment and service along with housing. The supervision of construction activities may be undertaken by a Technical Committee headed by the Chairman of the Upazila Parishad and represented by relevant local public representatives for this purpose and by the government agencies like Land Acquisition Authorities, Public Works Department, Water Development Board and all other Departments related to development activities.

The Upazila Chairman should be the caretaker of the plan. The Upazila Nirbahi Office (U.N.O) should be the co-ordinator. The Upazila Planning Officer/Engineer may act as the Technical Advisor. The Upazila Parishad should prepare detail plans in accordance with the Master Plan/Landuse Plan guidelines and in consultation with the implementation team and seek permission for implementation for the appropriate authority.

6.4 MONITORING AND REVIEW:

i) Monitoring:

The proposed Master Plan/Landuse Plan would require monitoring and evaluation for general progress. The Project(Master Plan/Landuse Plan) monitoring procedures should follow the lines of those general adopted by the supervising agency. Initially a compilation of existing and collection of additional data would be made. Working procedure the data collection would follow landuse survey, questionnaire survey, reconnaissance survey and data from the secondary sources collected by the Planning Team of M/s. P.M.Engineers & Consultants Limited.

Monitoring would include the assembly and analysis of data relating to the progress of Project Programmes, the project output, the effect of the programmes on landuse plans and the improved capacity of each project area for self sustained growth. The implementation of the landuse plan in the context of the need for achieving the landuses or components of the developments and their goals and then in the context of further details of the each of the landuses.

The landuse planning programme would involves an number of separate agencies as well as the Urban Development Directorate. Success would be dependent on the co-ordination of these agencies at all levels. At the time of implementation the landuse plan/Master Plan would require identification of objectives and the programmes on priority basis. The responsibilities would be placed upon the Upazila Parishad. For each project activities, a set of objectives would be elaborated for the project out put, efforts and impact.

1) Review :

The plan, prepared in response to the administrative re-organization, proposes in addition to location of administrative function, land use for economic and social developments which are necessary elements in the decentralization and development policy of the Government.

The analysis and the entire Land use Plan/Master Plan report can be described as an outline of a possible framework for implementation, management and development control and should be reviewed as a guidelines rather than a rule.

The Master Plan/Land use Plan proposals are the products of considerations and analysis of optimum available forecasts and assumptions for the point in time. The plan provides a firm basis for initiation of the process of Upazila Centre development and form a flexible framework for further requirements.

The Master Plan/Land use Plan report summarises the works to be undertaken during successive stages of development and help identify agencies responsible such development. Its purpose is to assist those responsible for implementation of development proposals and to enable the Upazila Centre Development Committee to formulate coherent policies for guiding and implementation towards the original goal.