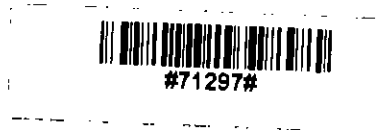
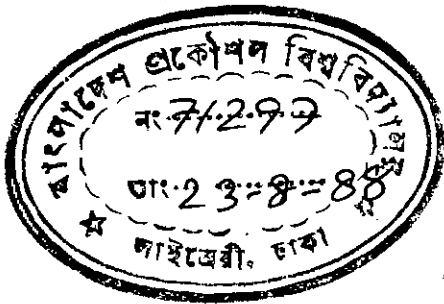


PHYSICAL PLANNING APPROACH FOR UPAZILA
HEADQUARTERS : A CASE STUDY OF MIRZAPUR

THESIS

Submitted in Partial Fulfilment of the
Requirements for the Degree of

MASTER OF URBAN AND REGIONAL PLANNING



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March, 1988

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THESIS

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A CASE STUDY OF MIRZAPUR.

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ABSTRACT

Upazila headquarters is a fast growing urban centre wherein most of the development activities are concentrated. Therefore, upliftment of the upazila headquarters has been identified by the government as a key strategy for social, economic and infrastructural development of the upazila region. This also coincides with the national policy of bringing administration and service facilities to the door steps of the teeming millions of people living in the rural areas. The aim is to turn the upazilas of the country into self-sufficient units.

Land constitutes the fundamental resource in almost all the upazilas of Bangladesh. Physical planning has a great impact, as most of the upazilas are experiencing uncontrolled and haphazard growth. The main thrust of the study is to identify the trend of developments, physical development requirements for the upazila headquarters and to propose the provision of land for future expansion of administrative, social and economic activities at the upazila centre. Lastly, to suggest ways and means for the effective utilisation of our urban land within the headquarters.

The study found that mixed landuses are dominant. The upazila and its surrounding areas are fast changing from rural to urban character. The study also points out that existing facilities such as housing, recreation, sanitation, garbage disposal are inadequate at the upazila centre and as Mirzapur upazila expands, so it will pose serious problems for the headquarters. The study is aimed at the effective utilisation of our urban land for the planned development of the upazila centre, which will help arresting sprawling growth and uncontrolled development.

Title of the Thesis:

Physical Planning Approach for Upazila Headquarters:
A Case Study of Mirzapur.

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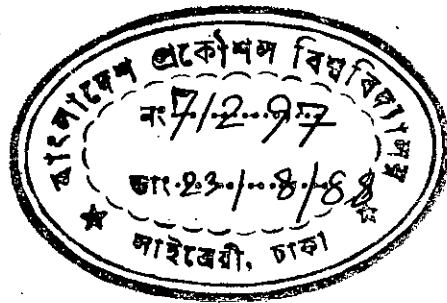
LIST OF ABBREVIATIONS

- ADB : Asian Development Bank
- BBS : Bangladesh Bureau of Statistics
- BSCIC : Bangladesh Small and Cottage Industries Corporation
- BRAC : Bangladesh Rural Advancement Committee
- CDA : Chittagong Development Authority
- DIT : Dhaka Improvement Trust (now Rajdhani Unnayan Kartipakhya)
- HSD : Housing and Settlement Directorate
- ICDDR : International Centre for Diarrhoeal Diseases Research.
- KDA : Khulna Development Authority
- NPP : National Physical Planning
- PHE : Public Health Engineering
- RTDA : Rajshahi Town Development Authority (now Rajshahi Development Authority)
- UNDP : United Nations Development Programme
- UNO : Upazila Nirbahi Officer
- UNCHS : United Nations Centre for Human Settlement
- UNICEF : United Nations International Children Education Fund.

introduction

CHAPTER - 1

INTRODUCTION



1. Introduction:

The policy of the government is to take the administration nearer to the people through administrative decentralisation at upazila level by developing centres outside the main urban concentration. The aim is to transform every thana (now Upazila) of the country into a self-reliant unit. Future urban growth is expected to take place in these urban centres. With this end, upazila centres at the local level have been proposed to be developed in a planned way.

Mirzapur upazila headquarters is a small urban centre in Tangail district. It has potential for rapid urban development. It is expected that in future it will continue to keep the present pace of development. Since the new offices of the government for different departments, allied institutions and agencies have sprung up in the upazila centre to activate development activities, it is time to make a policy guideline to plan upazila centre.

But we know that urban growth gives birth to urban problems also. To reduce these problems, planning of the area is needed for proper development according to certain guidelines. Without planning the condition of this upazila may deteriorate. Hence, physical planning has to be strengthened in the Mirzapur upazila headquarters as a first step, to study the manner in which the upazila is developing, and to identify the problems which are emerging. This study is aimed at formulation of such policies for planned development of the upazila centre.

1.1. Physical Planning Background in Bangladesh:

Physical planning has a profound influence in Bangladesh as she experiences progressive imbalance of man-land ratio. Population pressure on the rural areas has reached the saturation level. Urban sprawls and unplanned settlement has occurred in most of the upazilas, towns and cities and engulfs agriculture and forest. The result being a super-chaotic, uneconomic landuse pattern.

Family planning is expected to reduce the growth rate of population to a great extent. But it can be noted that a huge army of teen-agers is advancing to share our limited resources, land in particular. And it is almost at the door step (Khan 1986, P.187). Such a situation of gradually decreasing man-land ratio is menacing. Hence, it is warranted for immediate intervention. Physical planning can coordinate all the development activities of the country under unified approach in this respect.

Physical planning in Bangladesh is in its infancy. It started in a rudimentary form with the creation of planning department in February, 1948 as an offshoot of the department of Architecture, Communication, Building and Irrigation, Government of Bangladesh.

A planning sub-committee was formed under the chairmanship of the then Minister. The planning committee prepared a skeleton replanning schemes in only three and half a weeks time for the new Dhaka city covering a total area of 30 square miles. This planning committee made some proposals for the development of Chittagong and Khulna and some planning actions were also taken accordingly. In the meantime Building Construction Act, 1952 was framed.

Urban activity gained momentum with the creation of Dhaka Improvement Trust (Now Rajdhani Unnayan Kartipakhya) in 1956 and later the Housing and Settlement wing of the Building Directorate and other development authorities such as Chittagong Development Authority, Khulna Development Authority in late 50s. (The First Five Year Plan, 1973) and Rajshahi Town Development Authority in 1976.

1.1.1. Urban Development Directorate:

To cope with the planning problems of the expanding urban areas and growing industrial complexes, the necessity of creating a physical planning was felt. As a result in 1965 Urban Development Directorate was created with the following objectives (UDD, 1965).

- To formulate an urban development strategy for the country with proper physical and socio-economic studies through the assistance of the United Nations.
- To identify new growth poles and delimit the planning regions.
- To prepare plans for the urban areas and growing industrial complexes.
- To advise the local authorities on matters of planning and selections of sites.

The Directorate prepared eleven zila and hundred and eight upazila landuse plans for the cities and upazilas since its inception. It is still preparing landuse plans for the upazilas and districts with its own man power and by commissioning consultancy services.

Urban Development Directorate adopted two separate schemes of which one under the National Physical Planning Project (NPP) and the other under the Urban Housing Policy and Programmes with the assistance of United Nations Development Programme (UNDP) and United Nations Centre for Human Settlement (UNCHS).

The following are the main objectives of the National Physical Planning Project (UDD/UNDP,1978):

- i. Formulation of long term perspective plan for the next 15 to 20 years.
- ii. Preparation of specific regional development and growth centre plans

During 1970-80s under the National Physical Planning (NPP) schemes, Urban Development Directorate (UDD) with the assistance of United Nations Development Programme (UNDP) prepared Outline Landuse Plans for the five district towns such as Comilla, Jessore, Barisal, Mymensingh and Bogra. These plans were prepared for a period of 20 years i.e. 1980-2000. The main features of these planning approach were the forecasting of landuse development and identification as well as locational planning of public sector projects.

In 1986 under the Urban Housing Policy and Programme scheme, UDD with the assistance of United Nations Development Programme (UNDP) prepared the following plans (Das,1987, P.30):plans for slum upgradation for Islambag, Shaheednagar and Rasulpur and rehabilitation project at Dolaikhal area in Dhaka. This Directorate prepared sites and services schemes at Mirpur and Bhasantek at Mirpur, Dhaka. With the aid and assistance of the World Bank, UDD also completed an Area Development Project and an environmental improvement project in Chittagong in 1986.

Recently, Urban Development Directorate (UDD) with the assistance of United Nations Development Programme (UNDP) experts prepared nine structure plans (UDD,1987) of which five for district centres and the remaining four for upazila centres. The Structure Plans are: Rangpur, Panchhagarh, Narsingdhi, Rajbari and Jhenidah for the district centres and for the upazila centres such as Bochagong, Ramu, Kalapara and Balagonj.

1.1.2. Urban Development Directorate's Plan and their Qualitative Differences with Physical Planning Concept:

Land use plan is generally recognised as a proposal for future use of land and the structures built upon it. It is construed as a part of master plan which is devoted to proposals for both public and private uses of land such as industrial, commercial, residential and utility services (Chapin, 1965, P.356). It demonstrates more clearly the allocation of land in the background of socio-economic and physical analysis of a certain area. Therefore, the plan gives a good outline for the local authority to prepare detailed plan and to control haphazard land uses. Fundamentally, therefore, landuse plan embodies a proposal as to how expansion should proceed in future recognising the local objectives and generally accepted principles of health, safety, convenience, economy and the general amenities of urban living.

Physical planning (also frequently referred to as town and country planning, spatial planning, territorial planning or urban and regional planning) as a distinct form of planning, is concerned with the planning of total environment which is composed of land, physical infrastructure and various activities, social set up and economic behaviour of people. The physical planning is the output of organised thinking over spatial relationship with mankind. It translates the economic constraints into appropriate form to cater to the needs of physical environment.

It is, therefore, the geographic expression of a nation's economic and social policy. It is related to the distribution and re-distribution of productive phase of nation for better use of people, resources and production in a desirable physical environment (Waterstone, 1968). . . Physical planning intrinsically deals with all the natural phenomena

which affects man's existence in God's World both in present and future. It is aimed at directing and regulating the resulting economic and social phenomena on regional or country wide scale and adopting them to human needs. In short, its main task is to contribute man's happiness on earth (Shapiro, 1963). In this way, this is a broad umbrella term used by physical planners and it has greater dimension in respect of area.

The difference between physical plan and landuse plan is therefore, delicate and difficult to determine. The physical plan is concerned with the design, growth and management of the physical environment, in accordance with pre-determined and agreed policies whereby balanced social and economic objectives may be achieved. This is effected by making provision for and co-ordinating all forms of development activity at the national, regional and local levels (Franklin, 1980, P.7).

The landuse plan is concerned with land utilisation and requirement of land use relative to location and flexible in nature. The distinctive characteristics of physical planning is that it is prescriptive rather than analytical in nature (Crook, 1974, P.85). Now we shall discuss the qualitative differences between the UDD's plan and the physical planning concept which the study wants to deal with. The UDD's plan are mainly land use plans primarily consisting of a report together with supporting landuse maps. The plans are prepared for a period of 10-15 years. The main objective is to provide planned framework, better infrastructure and economise the use of land in the townships or in the newly re-organised upazila towns. The proposals are mainly devoted to the major aspects such as residential, commercial and utility services for both

public and private sectors. The methodology has been evolved to simplify the planning approach and identify or forecast the most likely future development in the upazila shahar, keeping in mind that it is not possible to control at present private development.

In the five district towns landuse plans prepared by UNDP/UDD viz: Bogra, Jessore, Comilla, Mymensingh and Barisal, the special characteristics are their departures from the traditional master plan approach that seek to secure landuse development as proposed in the plan. These districts landuse plans emphasize strict zoning control over the private and public use of land. The district plans tried to integrate sectoral development programme of the government in future in general, and the specific purpose was to provide technical support in the form of proposing densification all over the towns to the Department of Public Health Engineering (DPHE) and the Asian Development Bank (ADB) in their programme of expanding water supply network in these towns. Although, land requirement of other sectors development were considered, the principal emphasis was to determine bulk water supply needs for various purposes by the DPHE/ADB on the basis of these plans. Densification in the use of land, therefore, was main consideration under this planning approach. In a way it avoided confrontation with the private ownership of land which normally stand out as principal constraints against strict zoning control in the absence of adequate development control in these towns.

Hence, considering the present circumstances, realistic and implementable, these landuse plans are aimed at achieving only the planned and controlled development of the urban sector. For programming and implementation, the plans put forward suggestions such as approval, implementation of programmes etc.

But in practice, these are seldom adhered to, because of absence of regulatory powers and organisational weakness. Moreover, UDD's landuse plans are flexible in nature. Hence, due to its flexibility the landuse plans prepared by UDD are open to change by the implementing authorities. On the other hand, the physical plan, its different components are dimensionally interrelated, which is very important for the implementation purposes. Therefore, physical plan concept ensure more realistic and balanced spatial work of development.

Conclusion:

The physical planning activities are mainly confined within the large cities of this country, but have not been very effective. The Urban Development Directorate (UDD) was set up in 1965 to assist the country in physical planning. A number of urban plans have been prepared by the Directorate but have made little headway and could not be implemented due to various reasons, such as overambitious plans in relation to the poor economy, lack of sectoral allocation in the national level and want of political understanding and commitment. Moreover, these plans were drawn up without sufficient consideration of the administrative and legislative machinery that would be needed to implement the plans. For example, in the small towns the existing municipalities are very weak to do physical planning. The importance of physical planning was obscure to many in the government and to most of the general public.

Due to these fundamental limitations, there was an unfortunate lack of landuse control. As a result, the urban areas have been growing in Bangladesh with very little planning input from the government. To remedy this, UDD at the request of the government embarked on a programme of preparing landuse plans for the urban areas at the upazila level.

1.2. Upazila Centre Planning Approach and Problems :

1.2.1. Upazila Centre Planning Approach:

The government has embarked upon a programme of administrative decentralisation. Four hundred and sixty upazila headquarters have been designated as administrative units. These headquarters will comprise offices of eighteen government departments, the staff of the local councils, the local court and other services. The government abolished the twenty two old districts. This has necessitated enlarging administrative accommodation in the upazila centres. The Urban Development Directorate (UDD) under the Ministry of Works, has undertaken the task of preparing upazila and zila landuse plans using its own man power and the commissioning of local consultancy services. The Directorate instructed the consultants to prepare four separate reports for these plans. The title of the reports are as follows:

- i. Inception report
- ii. Report on socio-economic and existing landuse survey.
- iii. Draft plan and
- iv. Final plan.

Regarding zilas, UDD prepared eleven district plans (UDD, 1987) of which six have been prepared under the Technical Assistance of National Physical Planning (NPP). Another seventeen zila plans are going to be prepared soon. The remaining thirty two zila shahar and four Metropolitan Cities, to be planned in due time.

Regarding upazilas, UDD completed hundred and eight upazila landuse plans by its own man power and also by commissioning local consultancy services. Moreover, one hundred and twenty

two upazila landuse plans are, now, in progress. The remaining (163) upazila landuse plans are being prepared in phases. The Ministry of Works will implement these landuse plans. The main objectives of these landuse plans are mentioned below:

- To bring about significant improvement in the quality of life in rural areas through adequate provision of government services and facilities of the basic needs.
- To prepare the landuse plans in order to serve as locational/spatial guidelines indicating places of work, residence and recreation.
- To serve as a technical backup for the planned growth of human settlement in the country, specially at upazila level so that a significant segment of rural migrants to cities are induced to work and live there.
- To enhance the capability of physical planning services in the private sector in managing the preparation of landuse plans for the urban centres.
- To facilitate public and private developments at the upazila centre through physical planning approach (UDD, 1983).

1.2.2. Upazila Centre Planning Problems:

In formulating upazila sadar plans several main problems had to be dealt with. Here only the main problems of the upazila headquarters are discussed:

- (1) Rapid Growth: There has been drift of population from rural areas towards the upazila centres in search of employment. This has created physical and infrastructural problems for housing, water supply, roads etc. Everyone in the upazila centres cannot afford to buy or build a decent house. Consequently, unplanned growth of structures and make-shift living arrangements in the form of slum have sprung up reducing the scope for planned growth of the upazila towns.

2) Lack of Control over Land Development:

Efforts for planned growth for optimum utilisation and efficient management of land is almost absent. Landuse control in the upazila centres is utterly neglected. There are lots of incompatible landuses, for example, residential areas are sharing with other types of uses like business, education, industry etc. As a result of this, superchaotic, uneconomic and haphazard landuse pattern has emerged in most of the upazila towns in Bangladesh. In a situation of laissez-faire traditional practices and whims of landowners determine landuse. Even where some form of control operates, ineffective development control and inappropriate legislative and administrative arrangements prevent orderly growth and economy in landuse (Khan, 1986, P.13).

3) Lack of Urban Services:

Urban services in the upazila towns are inadequate and sanitation stands neglected. Few houses have sanitary latrines and sanitary sewers are scarcely to be seen in the upazila towns. Markets are the dirtiest places. People defecate in the open places. Drainage is poor. During the rainy season, low lying areas get flooded to knee-deep water. Garbage is found littered in the road and piled up in heaps. Roads are mostly kutcha and narrow. Most of the inhabitants obtain water from the ponds and rivers. Few have access to the tube-wells. Recreation facilities are also lacking.

4) Lack of Adequate Finance:

Financial difficulties stand in most of the cases as a stumbling block in the implementation of development projects at the upazila towns. And as such many essential projects remain unimplemented to the great disadvantage and inconvenience of the upazila people. And also the existing

infrastructure cannot be properly maintained due to the lack of finance. Tax rate is very low for which Upazila Parishad cannot collect enough revenue for providing services to the people.

5) Weak Urban Administration:

Urban administration may be defined as the whole range of governmental organisation and processes for planning at all levels, for decision making and for performing the public services related to an urban area. The main administrative weakness are (Abedin, 1970, P.170).

- i. Lack of relationship between various government agencies;
- ii. Lack of people's participation and representation;
- iii. Inability to manage urban resources for best uses;
- iv. Non-availability of necessary institutional aids for the improvement and development of urban area.

1.3. Objectives and Scope of the Study:

1.3.1. Objectives of the Study:

The main objective of the study is to produce a framework for the physical development of Mirzapur upazila headquarters. However, the specific objectives of this study are to :

- a) identify trends of physical development in the Mirzapur upazila headquarters;
- b) identify the physical development requirements for the headquarters;
- c) propose the provision of land for the expansion of administrative, social and economic activities at the upazila centre;
- d) suggest ways and means for the effective utilisation of this land within the upazila headquarters, especially, government policies and programmes to implement proposals referred to above.

1.3.2. Scope of the Study:

Mirzapur upazila study will cover all the major aspects related to preparation of physical plan for the upazila headquarters with particular attention being paid on the following aspects:

- a) Delineation of upazila headquarters based on the future potential development, expansion capacity and other ancillary local factors and conditions in and around the centre, (determination of the upazila town boundary);
- b) Preparation of physical planning for the upazila headquarters, which would identify suitable locations for residential, social, administrative, economic and circulatory uses for a period;
- c) The plan shall be prepared for three different stages of development through Five Year Programme of the government;
- d) The plan would indicate and outline possible frameworks and strategy for management and development control, institutional arrangements etc. for effective implementation within the upazila town.

1.4. Methodology:

1.4.1. Selection of Upazila:

The study area is Mirzapur, one of the eleven upazilas in Tangail district. Certain considerations are adopted for selecting this upazila as the study area.

- a) The proximity of the upazila with the capital city;
- b) The physiographic and socio-economic conditions of the upazila are almost similar to most other upazilas of the country. So, this upazila may represent all the upazilas of the country;
- c) It is a potential growth centre.

These are the factors which led to the selection of Mirzapur as the case study.

1.4.2. Selection of the Study Area:

An attempt was first made to identify logical study area as a base for physical planning exercise and for this purpose, three alternative sites were taken. Out of these three alternative sites, the most economically and socially justifiable one was selected.

1.4.3. Catchment Area

The sphere of influence or catchment area of the upazila shahar is the immediate hinterland which will depend upon the centre for administrative, financial, educational, health, recreational and other services. The catchment area does not depend upon circular location of settlement rather than on the basis of communication linkages. Detailed interviews were made with the upazila officials, people's representatives, elites and different sections of the people from surrounding areas who come to the upazila shahar and hats and bazars.

1.4.4. Survey Method:

The survey method of the present study was comprised of the following:

- a) Landuse Survey: Firstly, a detailed plot to plot landuse survey was completed in C.S. (Cadastral sheet) map in the scale of 1" = 330'. Primarily, the landuse survey for a vast area was completed showing all existing features therein. After considering the physical condition of the headquarters and its surrounding areas approximately 1550.0 acres of land was included in the planning area. A base map of existing landuse was prepared and then quantum of land was calculated to see the distribution of land under different uses.

- b) Socio-economic Survey: To conduct socio-economic survey, a structured questionnaire was prepared. A total number of 322 households covering 9 mouzas of the study area were surveyed. This represented about 15% of the total households in the study area. Interviews were conducted at the home of the dwellers. Heads of the families were interviewed. The selection of households was made on random basis.

Data was also collected from the local officials in order to supplement the findings of the field survey so that all aspects of the study can be satisfactorily completed.

1.4.5. Processing:

The data processing and analysis proceeded as follows

- a) Data Processing: Data of the socio-economic survey was then assembled on broad sheet whereafter relevant information have been produced in tabular form.
- b) Analysis: All the data thus obtained was analysed within the framework of the objectives and scope of the study so as to formulate policies and development proposals towards the achievement of balanced and integrated spatial development of the upazila centre.

1.4.6. Limitations:

Principal difficulty encountered in the field work was reluctance of the respondents to furnish the true picture of the socio-economic conditions such as age, income, expenditure etc. Besides, there were constraints of both time and resources for which it was not possible to undertake a comprehensive analysis. Yet needed socio-economic aspects were given due consideration and incorporated into the analysis.

CHAPTER – TWO
MIRZAPUR UPAZILA IN ITS
REGIONAL CONTEXT

CHAPTER - 2

MIRZAPUR UPAZILA IN ITS REGIONAL CONTEXT.

2. Mirzapur Upazila in its Regional Context:

2.1. Origin, Area and Size:

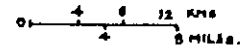
Mirzapur, once a little known village, was created thana in 1891 (Population Census, 1981). It was said that one Moghul revenue collector named Mirza Hossain came to this region and settled there. The local people are of the opinion that the name of the upazila originated from the name of that revenue collector. The upazila has of late, become famous throughout the country for the hospital and residential school established by a philanthropist Ranada Prasad Saha.

It is one of the eleven upazilas in Tangail district. It was upgraded in November, 1982. The upazila shahar is about 18 miles off from the district headquarters. It is predominantly rural comprising an area of about 90560 acres (141.5 sq. miles). The upazila contains 2,94,447 population in 233 villages (B.B.S. 1981). The villages, again, are distributed among twelve Union Parishads. These unions have further been divided into 207 mouzas. It reflects a density of about 2081 persons per square miles (804 sq.km.) with a percapita land of 0.29 acres.

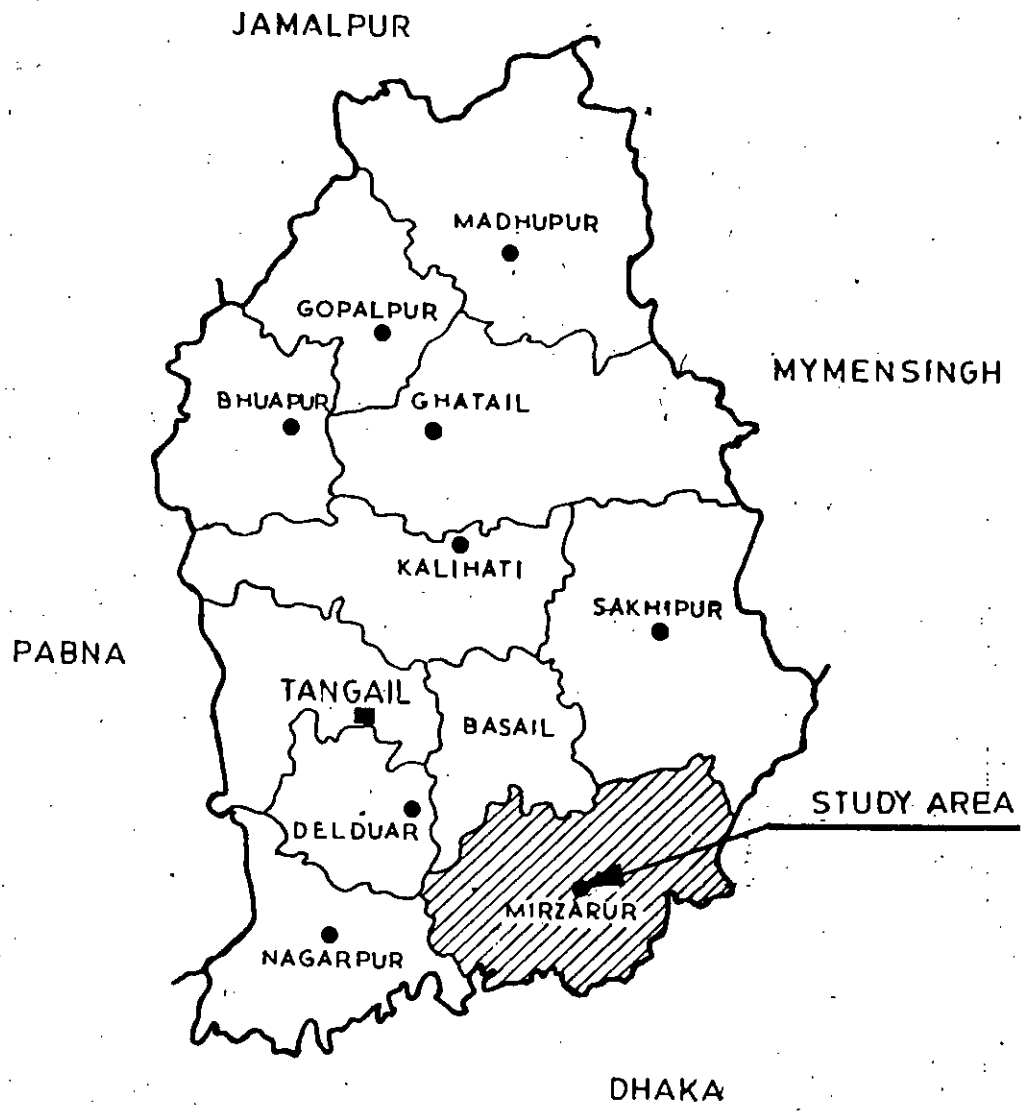
2.2. Location:

In the global context, Mirzapur upazila is situated between 24°0' and 24°13' north latitude and 89°58' and 90°15' east longitude. It is surrounded in the north by Shakipur and Basail upazila, in the south by Dhamrai upazila of Dhaka district, in the east by Kaliakoir upazila of Dhaka and in

LOCATION OF THE STUDY AREA



REGIONAL SETTING TANGAIL DISTRICT



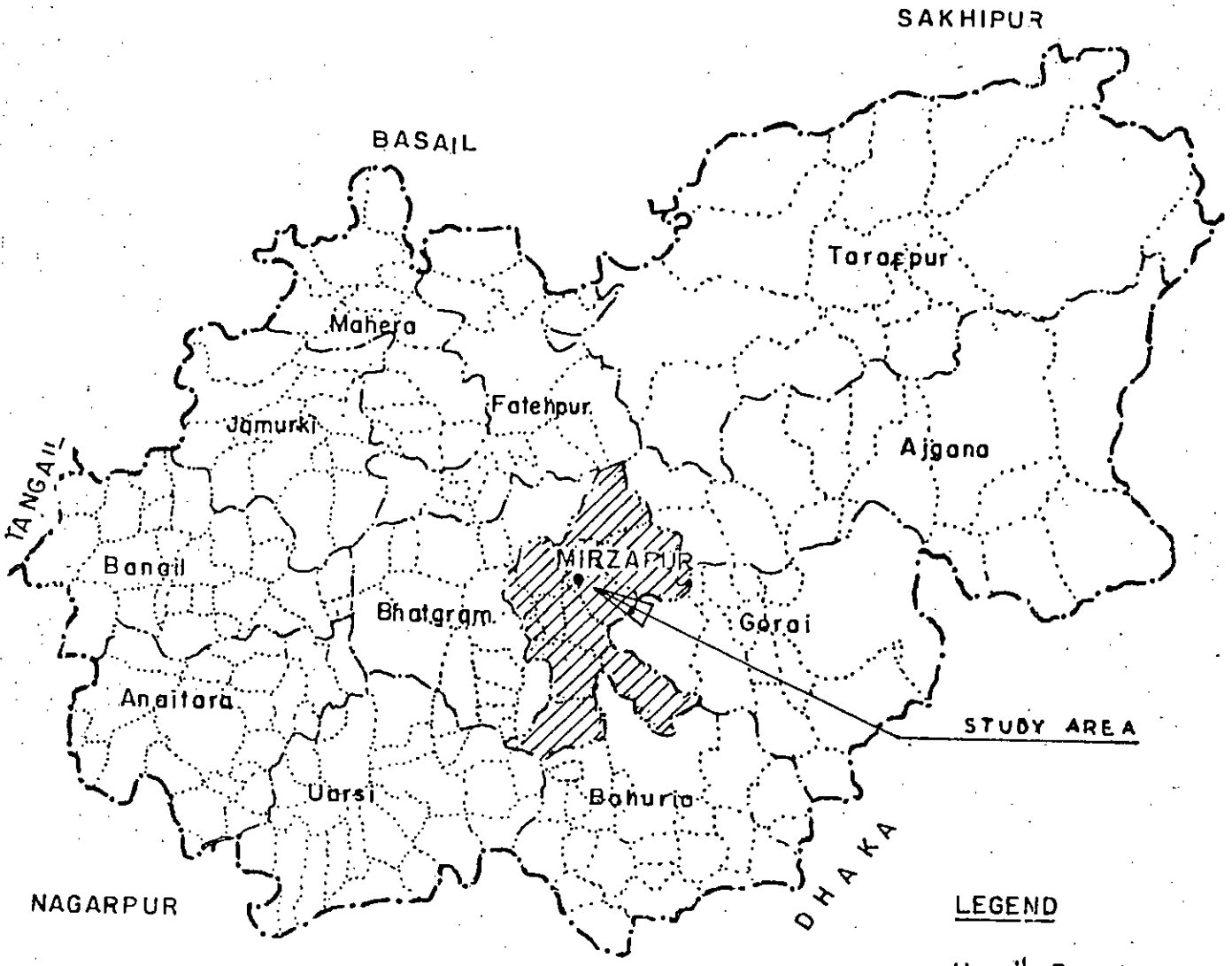
LEGEND

- DISTRICT BOUNDARY
- UPAZILA BOUNDARY
- DISTRICT H.Q.
- STUDY AREA


MIRZAPUR UPAZILA AND UNION BOUNDARY

M&P NO - 2

Scale: 1" = 1 Mile.



LEGEND

- Upazila Boundary ————
- Union Boundary - - - - -
- Mouza Boundary ······
- Upazila Hqs. ●
- STUDY AREA 

the west by Nagarpur and Delduar upazila. The Dhaka - Jamalpur and Dhaka - Mymensingh road pass through this upazila (Map No.1 and 2).

2.3. Physical Characteristics:

2.3.1. Topography:

The river Bangsai flows by the side of upazila headquarters. The area is prone to seasonal flooding and inundation. Most built-up areas inundate following heavy rains. Generally, the upazila slopes downward from north to the south-east direction. There are a number of depressed areas (beels) in the upazila. The elevation of the land ranges from lowest 13' to the highest 38' above sea level (Tangail District Statistics, 1983).

2.3.2. Climate:

Meteorological station is situated at Tangail district headquarters and as such data recorded in Tangail are used at Mirzapur upazila. The climate of the upazila is moderate (Appendix-2, Table-1). It is broadly classified into three seasons namely:

- (i) the pre-monsoon or hot season falling between the months of March and May;
- (ii) the monsoon season, falling in the months of June-October, which is characterised by heavy rainfall and
- (iii) the dry or winter season from November to February having little rainfall.

The maximum rainfall is 434.6 millimetres and recorded in the month of August and the minimum rainfall is experienced in December when it hardly rains. The maximum and minimum temperatures recorded are 35.21°C and 11.96°C respectively. The average humidity of the area is considerably high throughout the year and does not fall below 69 percent.

2.3.3. Soil:

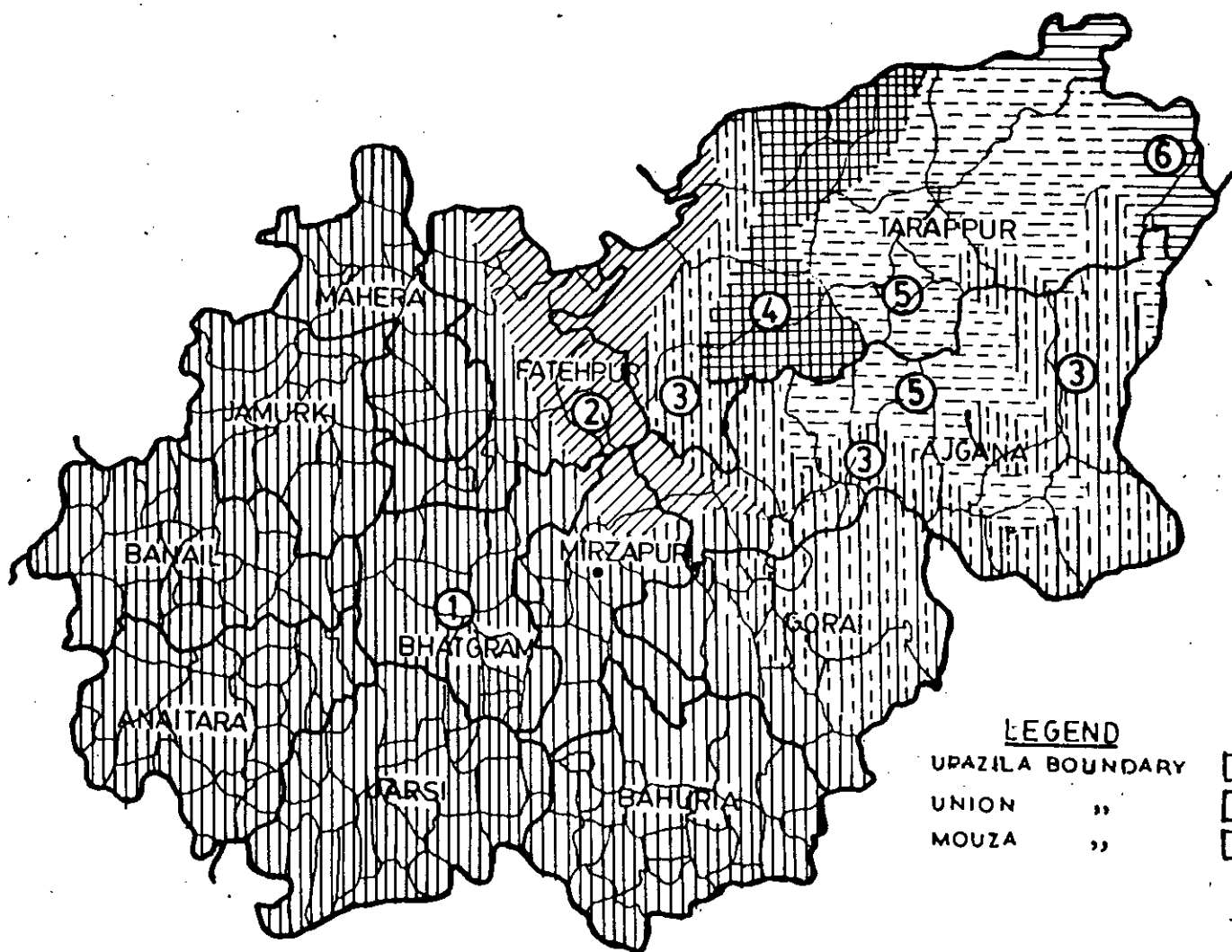
Soils in Mirzapur upazila has been classified into five categories, (Reconnaissance Soil Survey, Tangail, 1967).

- 1) Silmandi - Savar Bazar Association (Map No.3);
- 2) Ghatail Association;
- 3) Tejgaon Kalma Association Cultivated Phase;
- 4) Gherua - Kalma Association Forested Phase;
- 5) Chhiata - Chandra Association.

The landuse association of the upazila have been divided into :(Map No.4).

- 1) Mainly triple cropped with some double; mainly broadcasted aman rotations;
- 2) Mainly double with some single cropped land; broadcasted aman rotations and some boro;
- 3) Mainly double with some single cropped land; aus transplanted aman and some single aus on high land; aus transplanted aman valleys;
- 4) Double and single cropped land; dry land rotations on high land; various wet - land rotations in valleys;
- 5) Predominantly forest with little cropped; various wet land rotations in valleys.

SOIL ASSOCIATIONS, MIRZAPUR UPAZILA, TANGAIL



ASSOCIATIONS

1. SILMANDI SAVAR BAZAR ASSOCIATION
2. GHATAIL ASSOCIATION
3. TEJGAON KALMA KHILGAON ASSOCIATION
4. GHERUA KALMA ASSOCIATION CULTIVATED PHASE
5. GHERUA KALMA ASSOCIATION CULTIVATED FORESTED PHASE
6. CHHIATA CHANDRA ASSOCIATION



LEGEND

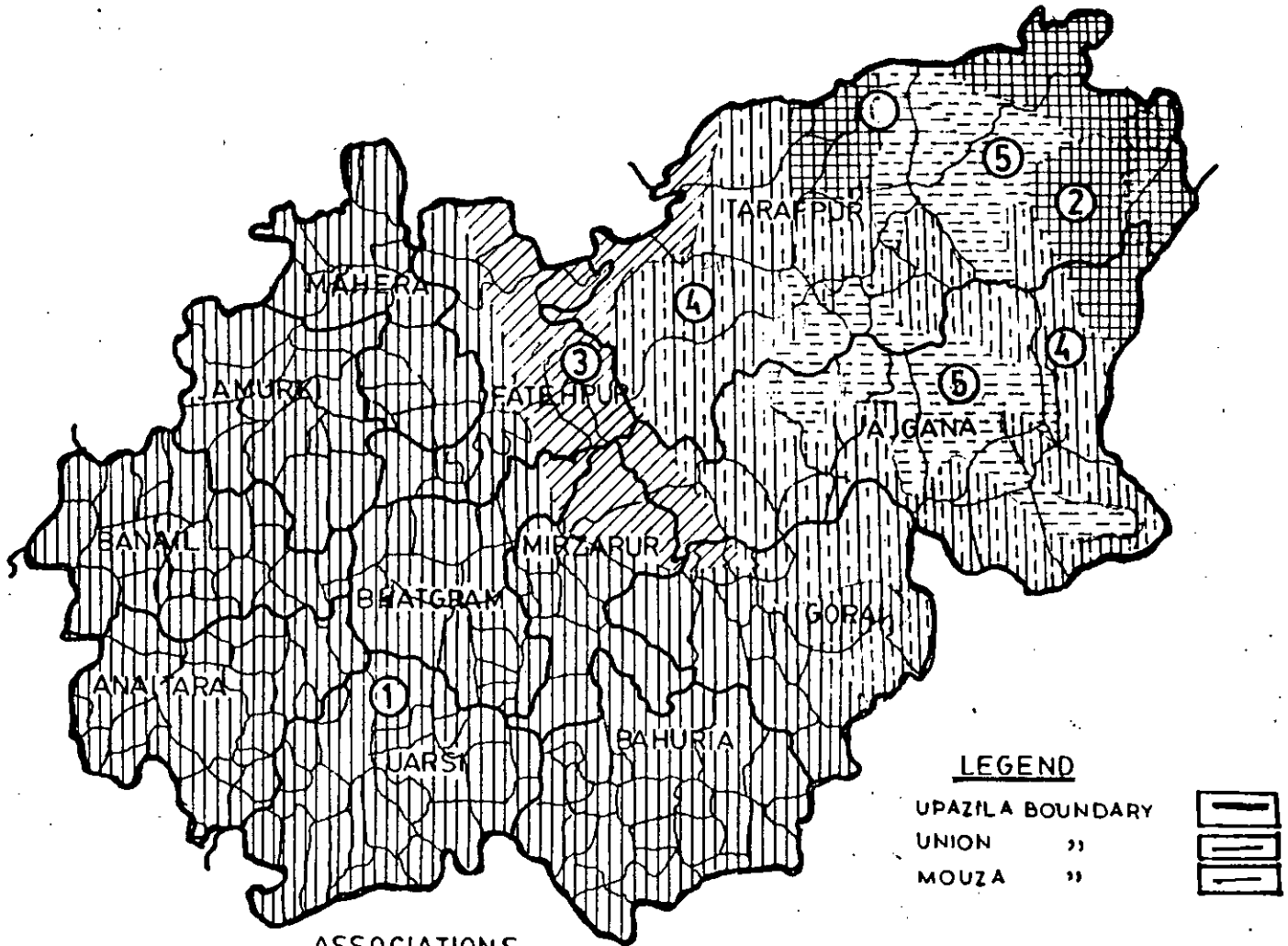
- UPAZILA BOUNDARY
- UNION
- MOUZA



SOURCE :-

RECONNAISSANCE SOIL SURVEY, TANGAIL, SUB-DIVISION, 1967

LAND USE ASSOCIATIONS, MIRZAPUR UPAZILA, TANGAIL

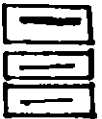


ASSOCIATIONS

1. MAINLY TRIPLE CROPPED WITH SOME DOUBLE CROPPED LAND; MAINLY BROADCASTED AMAN ROTATIONS.
2. MAINLY DOUBLE WITH SOME SINGLE CROPPED LAND; BROADCAST AMAN ROTATIONS AND SOME BORO.
3. MAINLY DOUBLE WITH SOME SINGLE CROPPED LAND; AUS -TRANSPLANTED AMAN AND SOME SINGLE AUS ON HIGH LAND; AUS TRANSPLANTED AMAN IN VALLEYS.
4. DOUBLE AND SINGLE CROPPED LAND DRY LAND; ROTATIONS ON HIGH LAND VARIOUS WET-LAND ROTATIONS IN VALLEYS
5. PREDOMINANTLY FOREST WITH LITTLE CROPLAND; VARIOUS WET LAND ROTATIONS IN VALLEYS

LEGEND

UPAZILA BOUNDARY
 UNION "
 MOUZA "



Soils in the western part of the upazila are occupied by the Silmandi - Savar Older Jamuna Meander Floodplains associations changing into Madhupur Traot soils of the deeply weathered and dissected uplands of Tejgaon - Kalma - Khilgaon or Gherua - Kalma association.

2.3.4. Agriculture:

Mirzapur upazila has developed an agriculture based rural-oriented economy. Agriculture is the primary sector - the main source of income and employment for the vast majority of the people. Table-1 shows that 81 percent of the land of the upazila is suitable for farming and a good amount of land (11.96 percent) are taken into settlement and waterbodies. The proportion of fallow and forested are not at all significant. Of these, total land available for farming (81.52 percent of the total), 27.17 percent are single cropped, 32.60 percent are double cropped and 21.75 percent are triple cropped with a cropping intensity of 193 percent.

Table - 1

Land Utilisation of the Mirzapur Upazila (1982-83)

Name of the Upazila	Area not available for cultivation	Current fallow land	Fores- ted area	Single cropped area	Double cropped area	Triple crop- ped area	Net crop- ped area	Gross crop- ped area	Crop- ping inten- sity.
92,000 (100)	11,000 (11.96%)	1,000 (1.09%)	5,000 (5.43%)	25,000 (27.17%)	30,000 (32.60%)	20,000 (21.74%)	75,000 (81.52%)	143000	193%

1. Source: Upazila Statistics, Vol.1, Page-258, Table No. 7.12.

2. Note : All figures are in acres.

Table-2 shows that aus, aman and boro are the principal crops of the upazila which produces 52.32 maunds per acre. It also appears from the table that among the three varieties of crops production, boro per acre is the highest (33.04 maunds). The other varieties aus and aman are 8.67 and 10.61 maunds respectively. Other agricultural productions include wheat, jute, potato, sugarcane etc.

Table - 2
Production of Different Types of Paddy of
Mirzapur Upazila (1982-83)

Type of Paddy	Area (in acres)	Production (in maunds)	Yield per acre (in maunds)
Aus	33500	290490	8.67
Aman	59000	625997	10.61
Boro	20705	684195	33.04

Source: Upazila Statistics, Vol.1, 1985, B.B.S.
P.82, Table No.3.01

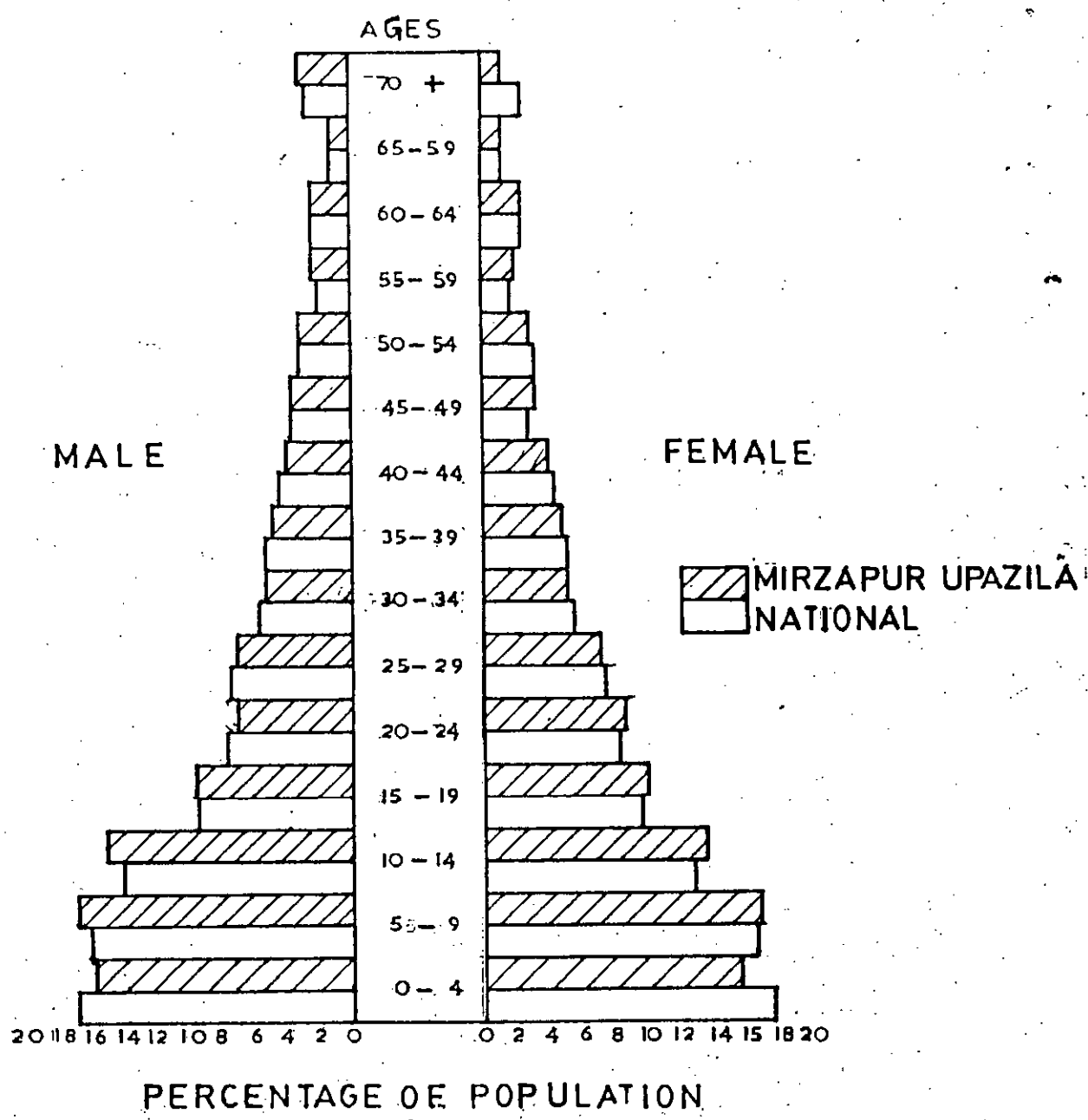
2.4. Socio-economic Characteristics:

2.4.1. Demography:

2.4.1.1. Population Structure:

The population structure of the upazila does not show any great variation than that of the national level (Appendix-2, Table-2). At both the upazila and national level, about 46-47.5 percent of the population are in the lower age group i.e. 0-14. At the national level, the age group of 15-44 years, proportion of male and female is higher (40.3 percent and 38.9 percent), while at the

AGE-SEX PYRAMID OF MIRZAPUR UPAZILA AND NATIONAL, 1981



upazila level this age group, the proportion of male and female is lower accounting for 37.1 percent and 39.9 percent respectively. Again, at the upazila level, the age group of 45-59 years, the proportion of male and female is higher which comprises 8.7 percent and 8.1 percent respectively, whereas at the national level, this age group, the proportion of male and female is lower constituting 8.6 percent and 7.7 percent respectively (Age - Sex Pyramid, Figure-1). The proportion of elderly people (age 60 and above) is, however, almost similar at the national level.

2.4.1.2. Population Growth Trend:

The annual growth rate of the upazila population in 1961-74, 1974-81, 1981-85 and 1961-85 were 2.4 percent, 2.3 percent, 2.8 percent and 2.3 percent respectively (Appendix-2, Table-3). It reveals that population growth trend had been more or less commensurate with national average (2.36 percent) during the period (1961-85). In the period 1961-85 Goral union showed the highest growth rate (4.1 percent) followed by Tarafpur, Ajgana, Mohera and Jamurki, all showing annual growth rate over 2 percent. The rest of the unions varies from 0.8 percent to 1.4 percent between 1961-1985. In the period 1981-85 Tarafpur had the highest growth rate of 3.3 percent and lowest 0.5 percent. In the year 1974-81 growth rate declined markedly (-0.9 percent) in Bhatgram union. This decrease may had been resulted due to the migration or mis-enumeration at the time of census.

2.4.1.3. Population Density:

In 1981 Mirzapur upazila population density per acre was higher (3.20) than that of the district (2.92) and the nation (2.52). Within the upazila, Mirzapur union had the highest density of population within the period i.e.

1961-81. In 1981 it was found that Mirzapur union also had the highest density (5.26) per acre followed by Fatepur, Gorai and Jamurki showing 4.03, 4.82 and 4.51 persons per acre (Appendix-2, Table-4). In 1974, the majority of the unions had a density between 2.03 to 3.68 persons per acre while only two unions such as Jamurki and Mirzapur had only 4.06 and 4.25 persons per acre only. In 1961, density of population per acre varies from 1.02 to 3.05.

2.5. Employment:

Agriculture, business and manufacturing are the main employment generating sources in the upazila. There are about 52,000 persons engaged in agricultural works, while about 24,000 persons are working in non-agricultural sector within the upazila (Tangail District Statistics, 1983). Main activity classification shows that 26.1 percent in agriculture (cropping 25.4 percent and non-cropping 0.7 percent) and household work (40.7 percent). It is important to note that about 21.5 percent are not working at all, while 40.7 percent are engaged in household work which do not bring any cash income to them. The detailed picture of the employment structure may be seen in Table-3.

Table-3

Employment Structure of Mirzapur Upazila
(10 years and above), 1981.

Type of employments	Member of persons engaged	Percentage
Agriculture		
- Cropping	50554	25.4
- Non-cropping	1308	0.7
Non-agricultural		
- Manufacturing	2205	1.1
- Business	7306	3.7
- Others	13683	6.9
Household work	80974	40.7
Not working	42745	21.5
Total	198775	100.0

Source: GOB, B.B.S., 1981 Tangail district Statistics, P.5, Table No.1.06

2.6. Industry:

The main industry in the upazila are handicrafts, weaving, pottery, cane bamboo, wooden furniture, tailoring, saw mill, fishing, rice mill, 'goor' processing and handloom industry (medium and small). In addition to these, there are a number of industrial units of which Tangail Cotton mills, Islam Jute mills and Premier Cotton mills are worth mentioning (Table-4).

Table - 4

Cottage Industries According to Type of
Mirzapur Upazila, (1982-83)

<u>Serial number</u>	<u>Type of Industry</u>	<u>Number of Units</u>	<u>Persons employed</u>
1.	Weaving	910	1500
2.	Handicrafts	1908	2800
3.	Pottery	255	553
4.	Cane Bamboo Furniture	106	299
5.	Wooden Furniture	44	86
6.	Tailoring	145	212
7.	Fishing Net	17	32
8.	Saw Mill	5	34
9.	Rice Mill	43	110
10.	Other Grain Mill	18	36
11.	Goor Processing	51	150
12.	Handloom Industry (Medium)	6	30
13.	Handloom Industry (Small)	4	16
14.	Oil Mill	3	9
Total		3515	5867

Source: Upazila Statistics, Vol.1, Government of Bangladesh, P.162, BSCIC, Motijheel Commercial Area, 1983. Table No.5.01.

2.7. Education:

Mirzapur upazila is the important centre of education of the whole country. Bharateswari Homes (school-cum-intermediate college) is an well known institution established by a philanthropist Ranada Prasad Saha, situated in this upazila. Students from different parts of the upazila come here to receive education for its standard of teaching and good results in the public examinations. Literacy rates for the age group 5 years and over are 23.4 percent (Population Census, 1981) for both sexes, 31.0 percent for male and 15.8 percent for female as against the district rate of 20.2 percent for both sexes, 26.8 percent for male and 13.5 percent for females. The national rate is 23.8 percent for both sexes.

Table - 5.

Number of Primary Schools, Junior High Schools, Madrasha and Teacher and Student ratios in the Upazila (1982-83)

Type of Institutions	Total Number		Teachers	Teacher - Student ratio
	Institu- tions	Students		
Primary	105	28434	521	54.58
Junior High School	5	400	17	23.53
High School	29	9191	385	24.00
Madrasha	3	450	12	37.50
College	2	1764	54	32.67

Source: Upazila Statistics, Vol.1 (1982-83), B.B.S., P.129, Table No.4.02, Upazila Education Officer, 1986.

School attendance in the age-group 5-24 are found to be 24.2 percent, 30.2 percent and 18.2 percent for both sexes, male and female respectively. There are 108 primary schools, 3 Junior High Schools, 29 High Schools, 2 Colleges (including 1 Cadet College) and 3 Madrashes in this upazila. The student teacher ratios in the Primary School are 54.58 for Junior High School 23.53, High School 24.00, College 33.0 and Madrasha 37.50 respectively as shown in Table-5.

2.8. Health Facilities:

Regarding health facilities Mirzapur upazila is encouraging. Kumudini hospital established by philanthropist Ranada Prasad Saha, is situated in this upazila. It is one of the biggest hospital in the upazila level with 750 beds (including three dispensaries). People from different parts of the country come here for availing this facility. In addition to this, the upazila has ten paramedics, twenty homeopaths as shown in Table-6.

Table-6.

Health Facilities in Mirzapur Upazila.

Upazila	Hospital	Charitable dispensary	Physicians		
			M.B.B.S.	Parame- dics	Homeo- paths
Mirzapur	1	3	55	10	20

Source: Field Survey, 1986 and Mirzapur Upazila Health Office.

2.9. Transport and Communication:

The importance of transport in upazila upliftment has many dimensions. Its basic functions are to provide essential linkages throughout the upazila. The internal road network in the upazila is still in a rudimentary stage. Most of these roads are very narrow and as such largely unsuitable for motorised traffic. As a matter of fact, these roads grew along pedestrian pathways and cart-tracks lacking proper alignment.

2.9.1. Mode of Transport:

The basic means of transport available in the upazila are bus and rickshaws. Bullock carts and buffalo carts are still found in the upazila. Short distance movement generally takes place by rickshaw and bus. There are 3 bus stopages within the upazila. Table-7 shows the detailed information about the vehicles.

Table - 7.

Number of Vehicles in Mirzapur Upazila.

Type of Vehicles	Number
Bus	15
Truck	14
Auto-rickshaw	8
Rickshaw	350
Bullock cart	2500

Source: Mirzapur Upazila Bus Drivers Association, 1986.

2.9.2. Roads:

The upazila is connected with zila and the national capital city, Dhaka by Dhaka - Mymensingh and Dhaka - Jamalpur Trunk Road which are the principal means of transportation to and from Mirzapur. The upazila is served by three types of roads. The total mileage is 268 of which 15 miles are pucca, 14 miles are semi-pucca and 243 miles are kutchra constituting 5.5 percent, 5.2 percent and 89.3 percent respectively. The primary roads (kutchra road) are the major mode to link the rural hinterlands with the arterial roads and the upazila headquarters shown in Table-8.

Table - 8
Roads in Mirzapur upazila, 1986

Type of roads	Mile	Percentage
Pucca	15	5.5
Semi-pucca	14	5.2
Kutchra	243	89.3
Total	268	100 %

Source: Mirzapur Upazila Engineer, 1986.

2.9.3. River and Water Ways:

Bangsai river is the principal waterway transport which passes along the Mirzapur upazila headquarters. The river is now in a moribund condition due to siltation. It becomes navigable only during rainy season. During this season boats of different sizes carry bulk of goods within the upazila through the river routes. About 1800 boats are available here to carry people and goods (Tangail District Statistics, 1983, B.B.S., P.76, Table No.7.04).

2.10. Conclusion:

Mirzapur was an old thana since the British period and it was upgraded in 1982 into an upazila. It is located in Tangail district. The region is well connected by Dhaka-Mymensingh national highway. This means that it has got potential for rapidly developing into a growth centre. The upazila is an important trading centre. With the upgradation of thana into upazila, its importance has augmented to a great extent. About 2/3rd of its area is serviced by Mirzapur bazar. Agriculture is the mainstay of the upazila and absorbs substantial number of population. Aus, aman and boro are the main crops of the upazila. It has cropping intensity of 193 percent. Educationally, the upazila is much advanced. Literacy rate of the upazila is about 23.4 percent (Population Census, 1981) which is above the district rate (20.2 percent).

The existing level of health provision in the upazila is significantly higher than the district towns. It has got famous Kumudini hospital. The upazila has the physical advantage in having Bangsai river which flows by the side of the upazila centre. The river is now in a decaying position due to the siltation. If properly excavated, it can play a vital role in augmentation of the economy of the upazila.

The upazila has the potential for small scale industries. Weaving, cane and bamboo industries have already developed because of the availability of raw materials in the upazila. It is expected that all of the above activities will play an important role in the development of the upazila.

CHAPTER – THREE

THE STUDY AREA: MIRZAPUR

UPAZILA HEADQUARTERS

CHAPTER - 3.

THE STUDY AREA - MIRZAPUR UPAZILA HEADQUARTERS.

3. The Study Area:

3.1. Definition of the Headquarters Area:

The "Headquarters Area" means the area of the future upazila shahar which will need physical planning for its balanced development. Three possible alternative sites have been delineated on the basis of the spread of activities, topographical condition, physical barrier and existing transportation network. The growth of the upazila shahar may take place in different directions due to the availability of buildable land in and around the shahar. During the field visit, discussions were made in this regard with the government officials, local elites, and general people. Moreover, the growth potentials and trends of development were also discussed. In this way, the following three alternative sites were selected.

A. First alternative comprising 1550.0 acres or 2.4 Sq.miles:

<u>The Principal Advantages of this Alternative/</u>	<u>Disadvantages</u>
(i) Linearly developed along the main national highway to the east-west direction at the heart of the city;	(i) National highway with vehicular traffic bifurcates this area and acts as a constraints for the small upazila shahar;
(ii) This area is the Central Business District (CBD) and the main urban centre of administration;	(ii) Some of these areas are liable to flood during the rainy season.

Advantages

- iii) Mirzapur hospital and Bharateswari Homes whose catchment area are extended over the whole of larger Mymensingh and Dhaka district and are located at the right side of the upazila shahar;
- iv) Mirzapur college and bazar are situated on the western side of the upazila shahar;
- v) Maximum high land is available in this area which is easily buildable;
- vi) Infrastructure is developed to a great extent;
- vii) Eastward expansion of the upazila shahar is feasible for buildable land in Mirdeohata mouza.

B. Second alternative covering 1091.0 acres or 1.7 sq.miles:

Advantages

Disadvantages

- | | |
|---|---|
| i) This area is also the Central Business District (CBD) and the main urban centre of administration; | i) Buildable land is not readily available to the extent of requirement; |
| ii) Mirzapur bazar and college, hospital and Bharateswari Homes are also located. | ii) Heavy expenditure will be involved for infrastructural development for linking the core area of the upazila headquarters; |
| | iii) Flood protection scheme will be required at the southern part of this area; |

- iv) Depressed land are found here, the depth of which varies from 5' to 10' feet;
- v) No direct access to the national highway from the remotest corner of the upazila.

C. Third alternative comprising 2.9 sq.miles or 1830.0 acres:

Advantages:

- i) This area is also the Central Business District and the main centre of administration;
- ii) Mirzapur hospital and college, bazar and Bharateswari are located in this area.

Disadvantages:

- i) The Bangsai river acts as the main barrier in between the proposed development;
- ii) Buildable land is not available;
- iii) Due to maximum low land more cost will be incurred for construction of building and infrastructure;
- iv) Landuse survey reveals that road network is washed away due to the flash flood on the northern side of the Bangsai river;
- v) Social integration is not possible from the remotest corner of the upazila as all the social services are located near the upazila headquarters;
- vi) Potentiality for development to north - east direction is less and as such considerable land will remain unutilised or underutilised;
- vii) Seasonal flood causes substantial damage to the infrastructure (roads, schools etc).
- viii) Decentralisation of urban development far away from the existing upazila centre is considered to be unrealistic in the context of country's economic situation;
- ix) Finally, considerable agricultural fertile land is required to be brought under the development projects.

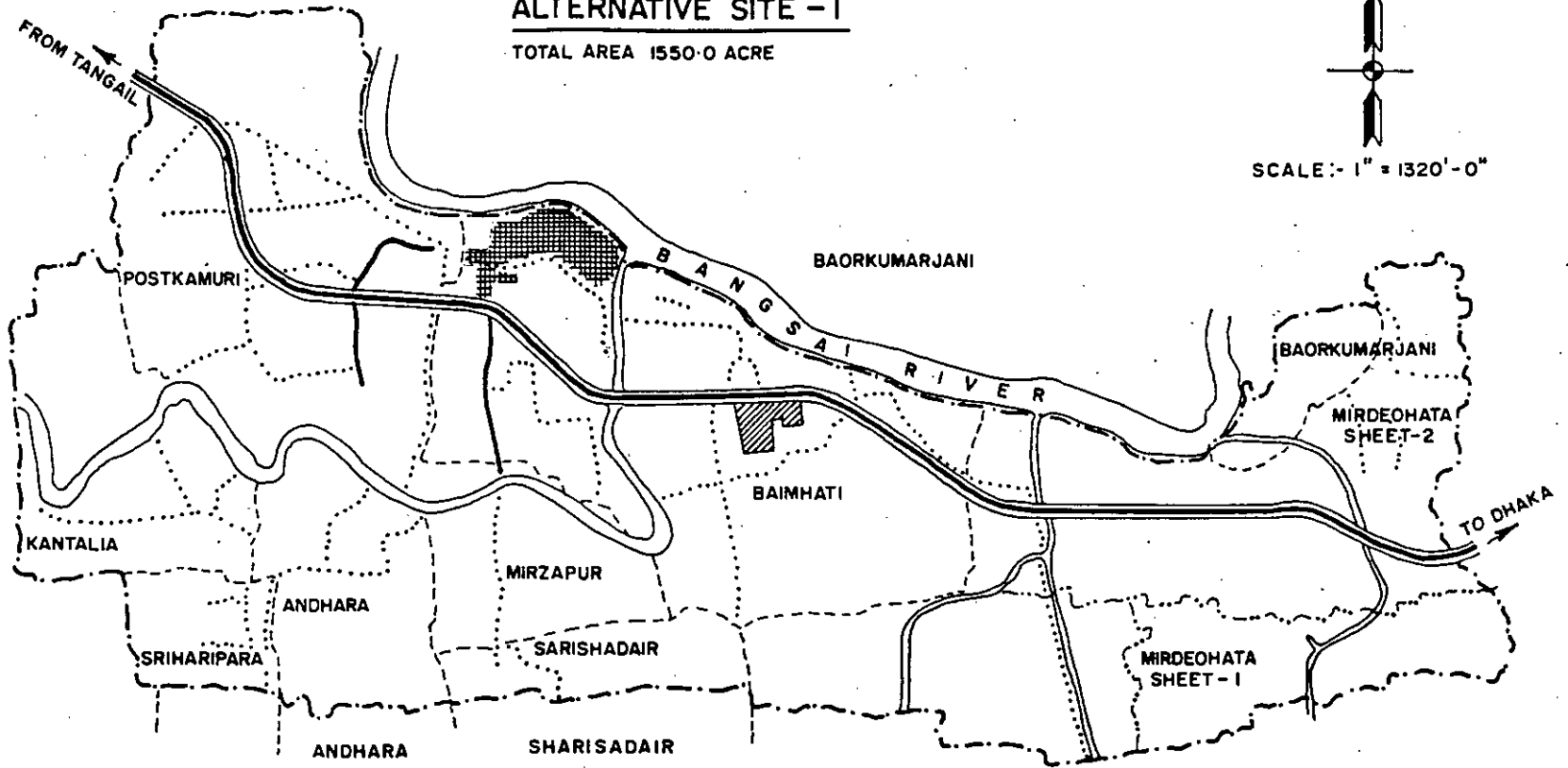
MIRZAPUR UPAZILA HEAD QUARTERS ALTERNATIVE SITE - I

TOTAL AREA 1550.0 ACRE

MAP NO. 5



SCALE: - 1" = 1320'-0"



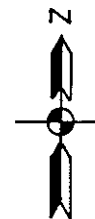
LEGEND

- | | |
|-------------------------|-----------|
| 1. PUCCA ROAD | — |
| 2. KUTCHA ROAD | |
| 3. MOUZA BOUNDARY | - - - - - |
| 4. MARKET | ▨ |
| 5. RIVER & CANAL | ~~~~~ |
| 6. STUDY AREA | ▨ |
| 7. UPAZILA H.Q. COMPLEX | ▨ |

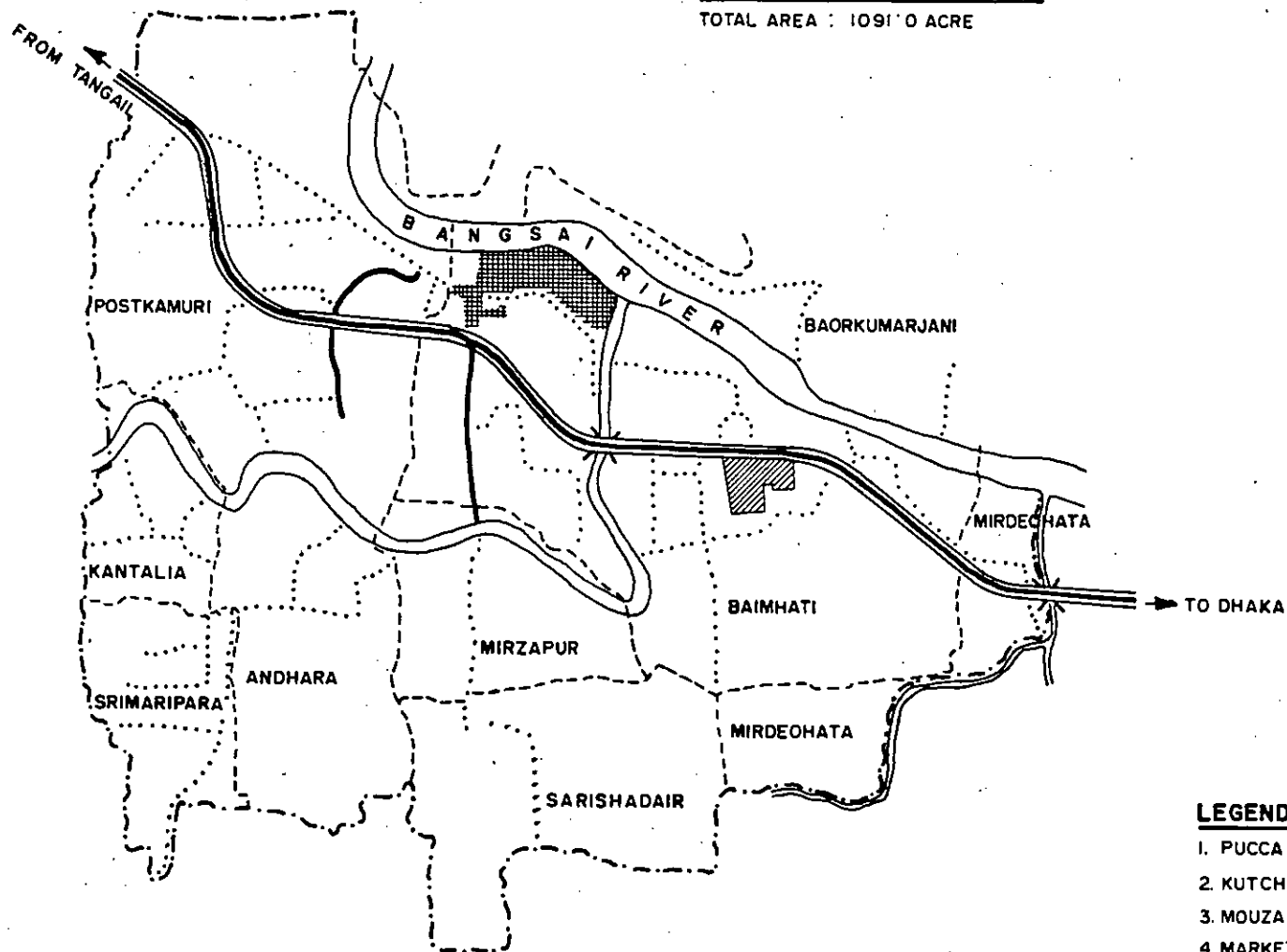
SOURCE: — LAND USE
SURVEY CONDUCTED
BY AUTHOR 1986

MIRZAPUR UPAZILA HEAD QUARTERS ALTERNATIVE SITE - 2

TOTAL AREA : 1091'0 ACRE



SCALE :- 1" = 1320'-0"



LEGEND

- 1. PUCCA ROAD : ———
- 2. KUTCH ROAD : (dotted line)
- 3. MOUZA BOUNDARY : - - - - - (dashed line)
- 4. MARKET : [Grid Pattern]
- 5. RIVER & CANAL : [Wavy Line]
- 6. STUDY AREA : [Hatched Pattern]
- 7. UPAZILA H.Q. COMPLEX : [Hatched Pattern]

SOURCE : LANDUSE
SURVEY CONDUCTED
BY AUTHOR 1986..

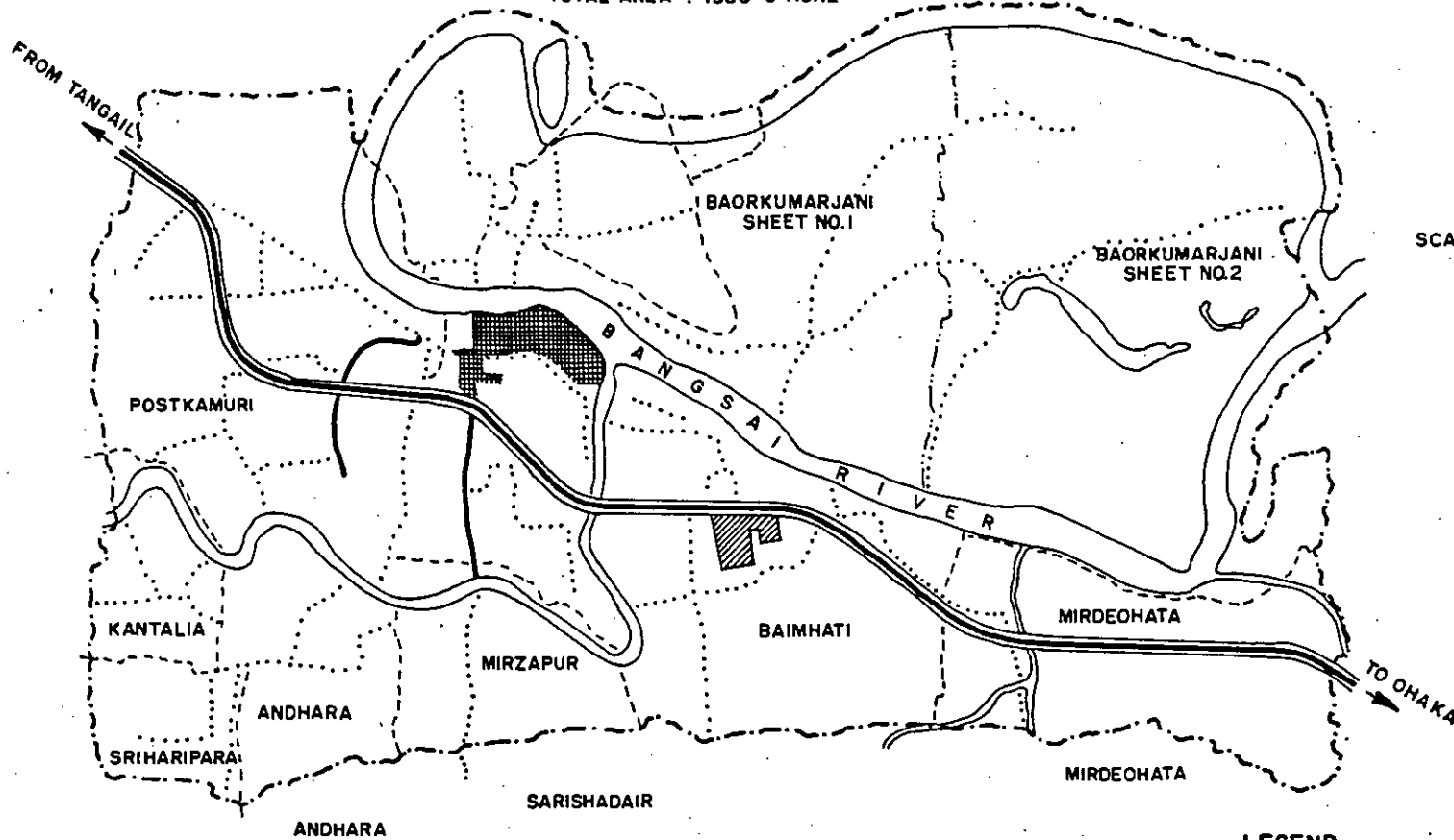
MIRZAPUR UPAZILA HEAD QUARTERS
ALTERNATIVE SITE - 3

TOTAL AREA : 1830.0 ACRE

MAP NO. 7



SCALE : - 1" = 1320'-0"



LEGEND

- 1. PUCCA ROAD : ————
- 2. KUTCH ROAD : (dotted line)
- 3. MOUZA BOUNDARY : - - - - - (dashed line)
- 4. MARKET : [grid pattern]
- 5. RIVER & CANAL : [wavy line]
- 6. STUDY AREA : [dashed line]
- 7. UPAZILA H.Q. COMPLEX : [diagonal hatching]

SOURCE : LANDUSE
 SURVEY CONDUCTED
 BY AUTHOR 1986.

Considering the relative advantages and disadvantages of the three alternative sites, it is found that the first alternative is more advantageous than the other two alternatives because of the availability of the services and facilities in this area. So, it is economic, if future development takes place here. Moreover, the existing trend indicates that in future the upazila will grow in a linear pattern. The alternative sites are shown in the Maps-5, 6 and 7.

There are nine mouzas in the first alternative selected for the study area. Population of the area increased from 11,537 in 1974 to 14,000 in 1981. To-day, it is approximately 17,000 people. This is evident in the following Table-9.

Table-9.
Area and Population of the Study Area.

Name of the mouzas	Sl. No.	Total area of the mouza (acres)	Area involved (acres)	Population Involved		
				1974	1981	1986*
More						
Urban: Baimhati	103	345.0	345.0	4196	5653	6812
" Postkamuri	102	399.0	290.0	1826	2146	2576
" Mirzapur	104	84.0	84.0	974	1050	1266
" Mirdeohata	149	950.0	470.0	2434	2494	3005
Less						
Urban: Kantalia	107	137.0	137.0	658	748	901
" Andhara	105	118.0	104.0	873	1096	1320
" Sriharipara	106	67.0	40.0	303	325	392
" Sarishadair	148	596.0	50.0	205	232	280
" Baorkumarjani	167	752.0	30.0	68	256	308
Total		3448.0	1550.0	11537	14000	16860

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

* Projected population.

Conclusion:

Considering the three alternative sites, we selected the alternative one, as the most suitable because of the availability of high land in the headquarters area. Administrative and social facilities also exist. It is rapidly changing from rural to urban character and corresponds with administrative boundaries. The other alternatives are rejected (i.e. alternative two and three) because buildable land are not readily available and potentiality for development in these alternative sites are also less. Infrastructure is rudimentary in nature in these alternative sites. Moreover, decentralisation of urban development from the upazila headquarters in outlying areas is also considered unrealistic.

3.2. The Sphere of Influence or Catchment Area:

Mirzapur upazila is the centre of administration, education, commercial and other facilities. Mirzapur hospital, which serves not only the entire upazila but also adjacent upazilas and districts. As such, Mirzapur upazila shahar has different sphere or zone of influence for different facilities. So, it does not make sense to have a single zone of influence. Moreover, the upazila shahar is well served by national highway connecting bus services through Dhaka - Tangail. Due to the availability of transport facilities substantial number of passengers usually travel daily to the upazila shahar for different facilities. Therefore, it indicates that the sphere of influence of the upazila extends beyond the upazila shahar.

The reason for estimating "catchment area" is that different facilities have different catchment population such as primary school, high school, vocational school, college, bazar, cinema hall, post office, hospital, police station etc. So, the land required for different facilities will be different, as it depends on the population served. A Table for this has been prepared listing the zone of influence and population of the area for the services and facilities in the following way.

The area of influence for different services and facilities have been worked out on the basis of interview taken from people who came for these services in the upazila shahar. It is seen that people come from different places for different services and also the distances vary. So, the population served by different services have been calculated on the basis of formula given below:

$$\text{Population served: Area X Population density} \\ (\pi \times r^2) \times \text{Population density}$$

(Please see Table -10, for figures).

Table - 10

Zone of Influence for Services and Facilities.

Level of Services	Frequency of demand	Maximum distance willing to travel	Area served in square miles	Population served in Mirzapur **
A. Primary Services:				
- Nursery School	Daily	0.5 miles	0.8 sq.m.	1,630
- Primary School	"	1.0 mile	3.1 "	6,530
- Secondary School	"	2.0 miles	12.6 "	26,140
- Vocational "	"	2.0 "	12.6 "	26,140
- Madrasha	"	2.0 "	12.6 "	26,140
- College	"	5.0 "	78.5 "	163,560
- Mosque/Temple	"	0.5 "	0.8 "	1,630
- Hat/Bazar	"	3.0 "	28.0 "	58,810
B. Secondary Services:				
- Family Planning Centre	Weekly	2.0 miles	12.6 "	26,140
- Dispensary	"	1.5 "	7.1 "	14,700
- Post Office	"	4.0 "	50.3 "	104,550
- Bank	"	4.0 "	50.3 "	104,550
- Agricultural Extension Service	"	5.0 "	78.5 "	163,560
C. Tertiary Services:				
- Hospital	Irregular (More than weekly)	6.0 miles	113.1 "	235,240
- Library	"	4.0 "	50.3 "	104,550
- Court	"	8.0 "	154.9 "	235,240
- Cinema Hall	"	5.0 "	78.5 "	163,560
- Stadium	"	4.0 "	50.3 "	104,550
- Community Centre	"	1.5 "	7.1 "	14,700
- Telegraph and Telephone	"	4.0 "	50.3 "	104,550
- Police Station	"	6.0 "	153.9 "	235,240
- Storage & Godown	"	1.5 "	7.1 "	147,020
- Bus Terminal	"	1.5 "	7.1 "	147,020

** See text for the method of calculation.

Conclusion:

Growth of Mirzapur upazila as an urban centre does depend not only the headquarters but also the hinterlands. In the headquarters, there will be different zone of influence or sphere of influence. So, it is not prudent to have a single zone of influence. Moreover, estimation of catchment area is essential, and different facilities have different catchment population. Hence, land required for different facilities will differ.

3.3. Existing Landuse Pattern:

The selected site contains 1550.0 acres. Table-11 explains the existing landuse pattern of the upazila shahar.

3.3.1. Agriculture:

It covers sizeable amount of land which constitutes 1075.0 acres or 69.4 percent of the study area. Agriculture is more or less concentrated in all the study area. The landuse survey reveals that it is predominantly concentrated in Mirdeohata, Baimhati, and Postkamuri mouzas.

3.3.2. Residential:

Total residential area is 211.0 acres which comprises 13.6 percentage of the total area. The main concentration of residential area is found at Postkamuri, Baimahati, and Kantalia mouzas and in some other areas within the upazila shahar. Houses are not evenly distributed.

Table - 11.
Existing Landuse in the Study Area (Mouzawise - 1986).

Name of the mouzas	Landuse (Acres)												
	Agri- cul- ture	Resi- den- tial	Com- merce	Indus- try	Admi- nistra- tion	Educa- tion	Health & Wel- fare	Recre- ation	Socio- cultu- ral	Road	Water Bodies	Utility servi- ces	Total
More													
Urban: Baimhati	207.0	31.7	11.2	2.0	9.0	13.3	33.80	0.4	2.2	21.6	10.4	2.4	345.0
" Postkamuri	194.0	37.9	0.2	2.1	8.5	0.5	24.1	0.1	0.8	20.8	1.0		290.0
" Mirzapur	38.2	25.5		0.7		6.2			1.3	0.8	11.3		84.0
" Mirdeohata	390.0	45.0	3.4		0.2	0.5			0.2	18.6	12.1		470.0
Less													
Urban: Kantalia	92.0	15.9				0.5				1.0	27.6		137.0
" Andhara	63.0	28.2	0.2	0.2						0.9	11.5		104.0
" Sriharipara	28.4	10.8								0.5	0.3		40.0
" Sarishadair	36.6	12.8								0.4	0.2		50.0
" Baorkumarjani	25.8	3.2								0.4	0.6		30.0
Total	1075.0	211.0	15.0	5.0	17.7	21.0	57.9	0.5	4.5	65.0	75.0	2.4	1550.0
Percentage	69.4	13.6	1.0	0.3	1.1	1.4	3.7	0.02	0.3	4.2	4.8	0.2	100.0

Source: Landuse Survey, 1986.

3.3.3. Commercial:

15.0 acres or 1.0 percent of land is occupied by commercial and shopping landuses of the study area. This type of landuse, banks are also included. In the study area there are two bazars of which Mirzapur bazar situated at Baimahati mouza has the highest concentration of commercial activities. Moreover, it is the central business area of the upazila shahar. The following establishments are found in the Mirzapur bazar and their lists are presented in Table-12. The bazar meets on Saturday and Wednesday in a week. Besides this, there is another market in the study area at Mirdeohat mouza, but its establishments are insignificant compared to Mirzapur bazar.

Table-12.

Shopping and other Establishments at Mirzapur Bazar.

<u>Sl.No.</u>	<u>Type of shops</u>	<u>Number</u>
1.	Stationary	10
2.	Grocery	12
3.	Small Shops	50
4.	Rationshop	6
5.	C.I. Sheet & Cement	4
6.	Hardware	5
7.	Cycle Rickshaw	4
8.	Electric	3
9.	Retail cloth shop on hat day	45
10.	Trunk and suit-case	1
11.	Cloth and Tailoring	45
12.	Shoe Store	2
13.	Nationalised Banks	3
14.	Medical Store	10
15.	Books and Stationery	8
16.	Hotel	6
17.	Restaurant	12

Source: Mirzapur Bazar Secretary, 1986.

3.3.4. Industry:

Landuse for industry constitutes 5.0 acres or 0.3 percent of the study area. Only a few small scale industries like oil mill, brick fields, rice and wheat mills etc. are found in the study area, though new industries are coming up fast (e.g. flour mill, saw mill).

3.3.5. Administration:

This type of landuse comprises government and semi-government and private offices. It occupies 17.7 acres or 1.1 percent of land of the study area. The major administrative and judicial offices are concentrated in the upazila shahar under Baimhati mouza which is centrally located along the Dhaka - Mymensingh highway. In addition to these, there are some other government offices which are located in the eastern side of the upazila adjacent to the Mirzapur bazar. CARE and BRAC are the non-government offices (NGO) engaged in rural development activities of the upazila.

3.3.6. Education:

Mirzapur upazila is an important centre for education in the whole of the upazila. The landuse survey recorded two colleges, three high schools (two for boys and one for girls'). All these institutions are centrally located. In addition to these, there are five primary schools, one madrasha in the study area. This type of landuse constitutes 21.0 acres or 1.4 percent of the total land of the study area.

3.3.7. Health and Welfare:

Table-11 reveals that a sizeable amount of land is occupied by hospital constituting 57.9 acres of land or 3.7 percent of the total area. The hospital is concentrated in two mouzas of Postkamuri and Baimhati, adjacent to the upazila shahar along the Dhaka - Mymensingh highway. In addition to this, there is one Family Welfare centre run by the government.

3.3.8. Recreation:

Landuse for recreational purposes are very poor and it amounts only 0.5 acres of the study area. The landuse survey reveals that there is one cinema hall in the study area. In addition to this, there are three clubs. Organised parks or open spaces are almost absent in the study area. The Mirzapur college football ground is the only organised playground in the study area.

3.3.9. Socio-cultural:

4.5 acres of land or 0.3 percent of land is occupied by the socio-cultural activities in the upazila. This type of landuse includes community centre, mosque, temple, library, graveyard, crematorium and the auditorium. The auditorium is being used by the upazila government officials for want of proper accommodation at the upazila centre.

3.3.10. Road:

The total road network covers about 65.0 acres or 4.2 percent of land, of which pucca road constitutes 50.0 acres, katcha road covers 15.0 acres of land. Among the katcha road includes both Upazila Parishad and Union

Parishad roads. Dhaka - Tangail highway passes through the study area which bifurcates the upazila sadar. It includes about 44.0 acres of land.

3.3.11. Waterbodies:

Rivers, canals and ponds are the main waterbodies covering an area of about 75.0 acres or 4.8 percent of the study area. Ponds are mainly created for the requirement of earth to fill up land for several purposes.

3.3.12. Utility Services:

This category of landuse is composed of power station, telegraph and telephone, post office. It covers 2.4 acres of land or 0.2 percent of the study area.

Conclusion:

Mixed landuses are dominant. Agriculture occupies major portion of the upazila followed by residential areas. Utility and recreational facilities are almost absent in the upazila. Internal road networks are also rudimentary in nature. This means that planned and balanced development for the upazila headquarters is essential. Recreational and utility services which are lacking need to be provided for the healthy and proper environment.

3.4. Inadequate Service Facilities:

As a new urban area Mirzapur upazila town has small number of public services. Moreover, provision of most services are less than their requirements. The under provided services are electricity, bus stand and auditorium. But there are many services which are completely absent in the upazila town. These are stadium, parks, playground,

vocational school, library, garbage disposal, bus terminal, fire service station, petrol pump, BSCIC estates and housing estates (Table-13).

Table -13

Service Facilities Completely Lacking and Underprovided in the Study Area.

<u>Completely lacking services and facilities</u>	<u>Underprovided services and facilities</u>
- Vocational School	Auditorium
- Stadium	Bus Stand
- Parks	Electricity
- Play-ground	
- Library	
- Garbage disposal	
- Fire Service Station	
- Petrol Pump	
- Bus Terminal	
- BSCIC Estate	
- Housing Estate	

Source: Landuse Survey Conducted by Author, 1986.

3.5. Land Value of the Study Area:

Variation of land value of the study area within the locality is found in different categories of land. Values of land are determined by various factors such as location of land, high and low land, and its accessibility. In the upazila headquarters area there are two centres in which land value is highest. One is the existing administrative centre and another is Mirzapur bazar at Baimhati mouza. Their location, centrality, landuse category, land intensity and high rate of economic return have made them most valued in the upazila. The land value decreases away in all directions from the central peak (Map-8).

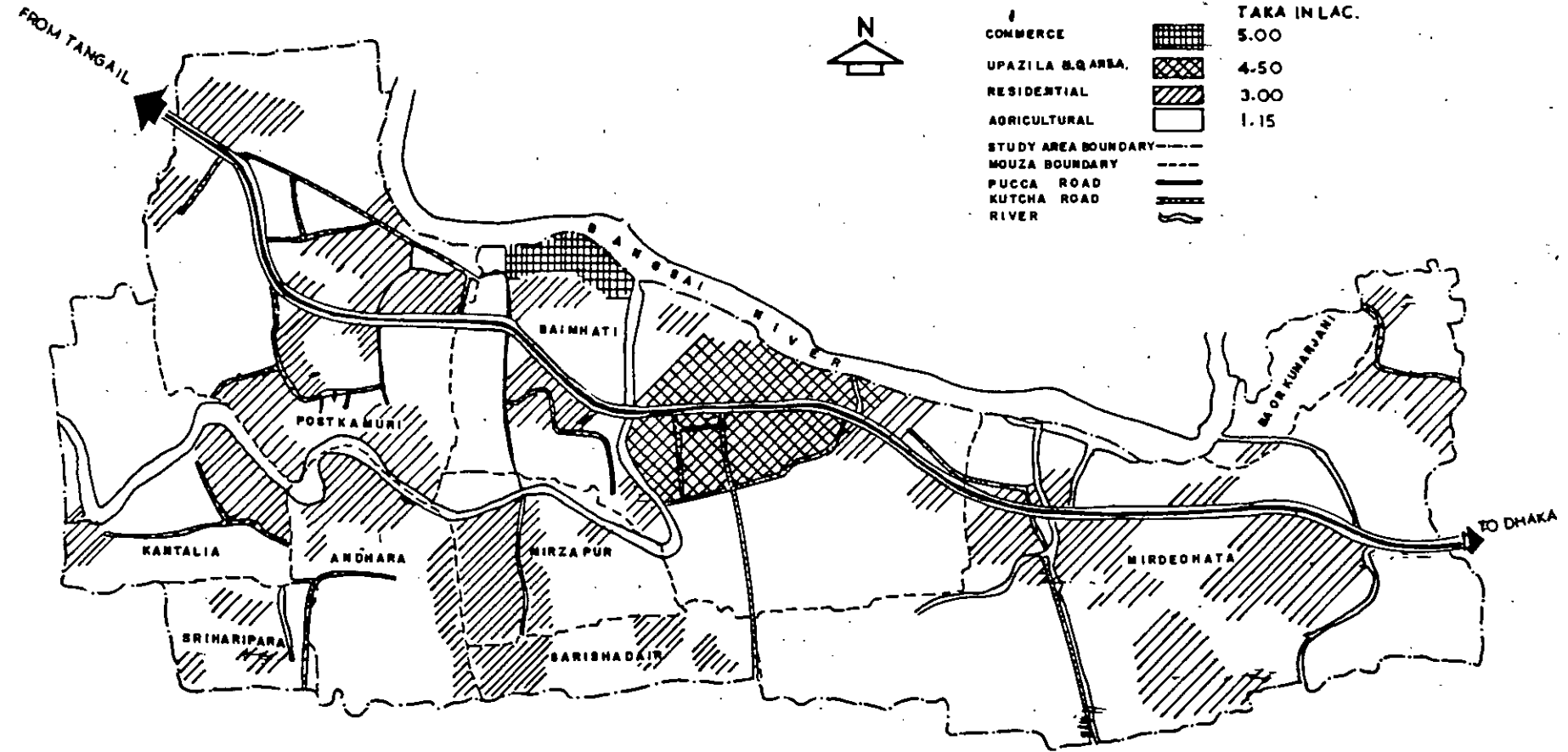
LAND VALUE 1987, MIRZAPUR UPAZILA HEADQUARTERS

SCALE:- 1=1920'

LEGEND.

LAND VALUE(per acre)

	LAND VALUE(per acre)
COMMERCE	5.00
UPAZILA S.Q AREA.	4.50
RESIDENTIAL	3.00
AGRICULTURAL	1.15
STUDY AREA BOUNDARY	
MOUZA BOUNDARY	
PUCCA ROAD	
KUTCHA ROAD	
RIVER	



SOURCE :- LAND USE SURVEY CONDUCTED BY AUTHOR, 1987

The upazila headquarters area shows a value of Taka 5.00 lakhs per acre in the case of commercial land while it varies from Taka 1.15 lakhs to 4.5 lakhs for other categories of land. The following is the general trend of land value in the study area which will be evident from the Table-14.

Table-14

Trend of Land Value in the Mirzapur Upazila Shahar.

Area	(Taka in Lakhs)				
	YEAR				
	1983	1984	1985	1986	1987
Price per acre					
Upazila headquarters area	2.00	2.50	3.25	4.00	4.50
Commercial area	2.25	2.75	3.75	4.25	5.00
Residential area	1.50	1.60	2.10	2.50	3.00
Agriocultural	0.60	0.70	0.80	0.95	1.15

Source: Interview with Upazila Chairman, Revenue Officer, Mirzapur Union Council and local people.

3.6. Trend of Development of the Study Area:

The upazila centre and its surrounding area are still predominantly rural in character. It has not attained true urban character. It is found that the land use is fast changing from agriculture to non-agriculture uses which is turning the upazila centre rapidly into an urban character. The upazila has some urban land problems like incompatible land uses, sanitation, drainage, availability of suitable land for construction of building and open

FUTURE TRENDS OF MIRZAPUR UPAZILA, TANGAIL

SCALE :- 1"=1320'-0"

MAP NO-9

LEGEND

EXISTING

FUTURE TREND

STUDY AREA BOUNDARY

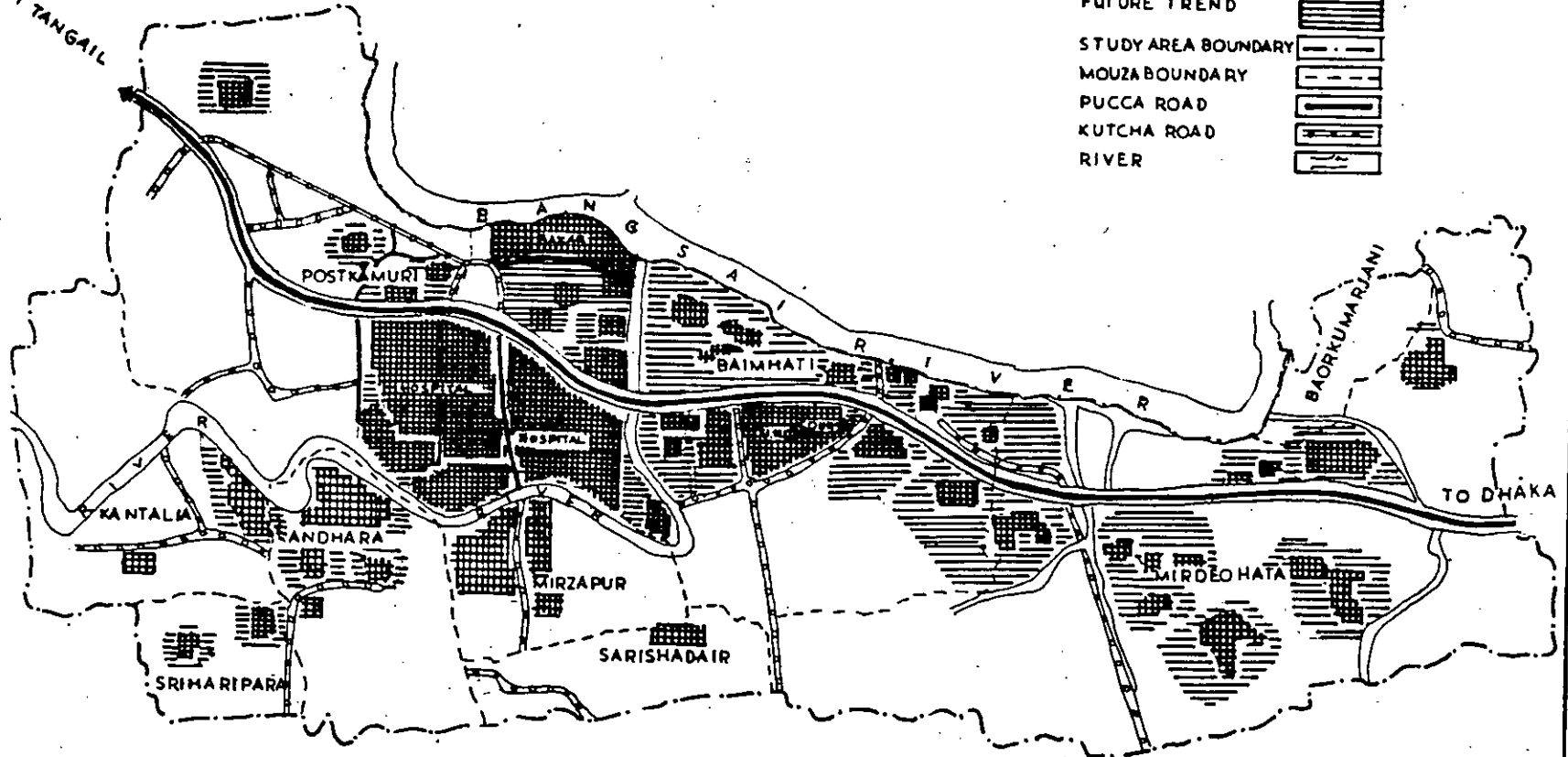
MOUZA BOUNDARY

PUCCA ROAD

KUTCHA ROAD

RIVER

FROM TANGAIL



LAND USE
SOURCE:- SURVEY CONDUCTED
BY AUTHOR-1986

spaces etc. The development of the upazila shahar is guided by the river Bangsai and the national highway which passes by the side of the upazila shahar for which a linear pattern of development is taking place.

The earlier development of the upazila shahar have occurred mainly along the eastern bank of the river Bangsai, where the main upazila market and hospital are located. In these areas, density of population is high but in the urban fringe it is quite low.

The present developments are spread over three mouzas namely Baimhati, Postkamuri and Mirzapur following the linear pattern which are again under the administrative boundaries of Mirzapur union. Recent development is taking place in the south-east and north-west direction of the upazila shahar along the national highway (Map-9).

Infilling of earth is taking place towards the north-west of the Upazila Office Complex for accommodating various government offices because of the non-availability of buildable land. Future development is expected to follow the present trend and will occur along both sides of highway. The upazila is endowed with significant chunk of fertile agricultural and buildable land. At present, these fertile lands are being encroached for the expansion of the upazila shahar. Still, there are enough land available for future development in and around the upazila shahar.

CHAPTER – FOUR

**SOCIO-ECONOMIC CHARACTERISTICS
OF THE STUDY AREA**

CHAPTER - 4
SOCIO-ECONOMIC CHARACTERISTICS OF
THE STUDY AREA

4. Socio-economic Characteristics:

4.1. Introduction:

The main objective of this chapter is to study living conditions of the study area, level of facilities and identify short falls and priorities for future provision. A structured questionnaire survey was prepared covering 322 households. This represented about 15 percent of the total households of the study area. The selection of the households was on random basis. Interviews were conducted at the house of the dwellers. The heads of the households were interviewed.

The survey was organised by the researcher himself of the study area along with investigators who were mostly college students. Prior instructions and training were provided to ensure the collection of reasonable and accurate data. Discussions were also made with the Upazila Nirbahi Officer, Upazila Chairman and other upazila level officers about their programmes and also their problems in the upazila shahar. With a view to enrich the survey, the researcher himself undertook the occasional trips of the study area to find problems of field investigators and to check the accuracy and reliability of the data. In this way, the credibility of the survey may be claimed justified by well prepared questionnaire procedure and accuracy of data.

4.2. Demographic and Socio-economic Characteristics in the Study Area:

The age-sex structure of the sample surveyed is similar to that of Bangladesh. 45 percent (male 23 percent and female 22 percent) of the population belong to the age group between 0-14 years, the age group 15-59 years constitutes 52 percent. The rest of the people (4 percent) are in the age-group of above 59 years (Appendix-2, Table-5). The average household size is 5.6 which is close to national figure of 5.8 (Upazila Statistics, 1982-83). Like Bangladesh, it is declining (Appendix-2, Table-6). Half of the population (43 percent) are unmarried (Appendix-2, Table-7). In the study area about 20 percent of the workforce are engaged in agriculture which varies from mouza to mouza. 10 percent of the population are in the business (Appendix-2, Table-8). The majority (34 percent) of the households monthly income is within the range of Taka 0-500 (Appendix-2 Table-9). The expenditure pattern of the household reveals that significant portion (41 percent) is within the range of Taka 501-1000 (Appendix-2, Table-10).

4.3. Housing Condition:

The present housing condition of the study area is described in the following pages.

4.3.1. Plot Size (Average) for Residential Purpose:

Various plot sizes for residential purposes in different parts of the study area are presented in Table-15. It is revealed from the survey that majority of the existing residential plots are less than 2178 square feet, which covers 49 percent and larger plot sizes having 8713 square feet and over covers 0.5 percent. In the study areas

Mirzapur has the highest percentage (60.0) of residential plots with less than 2178 square feet among all the categories of residential plots, while Sriharipara has the lowest (33.3 percentage).

Table - 15.
Residential Plot Size of Households (Square feet)

Name of the mouzas	Less than 2178	2179-4336	4357-6534	6435-8712	8713 and above	Total per-cent	Sample number
More Urban							
Baimhati	55.6	26.0	14.5	1.7	2.2	100	117
" Postkamuri	50.9	31.3	12.7	3.6	1.5	100	55
" Mirzapur	60.0	26.7	13.3	-	-	100	15
" Mirdeohata	56.7	28.3	10.2	4.0	0.8	100	60
Less Urban							
Kentalia	45.0	36.0	10.0	9.0	-	100	20
" Andhara	44.0	36.0	16.0	4.0	-	100	25
" Sriharipara	33.3	45.6	11.1	10.0	-	100	9
" Sarishadiar	50.0	30.0	20.0	-	-	100	10
" Baorkumar-jani	45.5	28.1	18.2	8.2	-	100	11
Total	49.0	32.0	14.0	4.5	0.5	100	322

Source: Field Survey, 1986.

Note: 1 decimal = 435.6 sft.

4.3.2. Living Space:

Different categories of living spaces are found in the study area ranging from less than 1307 square feet to more than 3921 square feet. From the survey it is evident that living space less than 1307 square feet dominated in all the study area which covers 54 percent followed by 1308 square feet to 2613 square feet having 34 percent (Table-16). Living space having 3921 square feet and above is less dominant and covers 3 percent. Most of the households have less than 1307 square feet. So, people have to live here in congested houses. Care has to be taken in this respect at the time of planning.

Table-16.

Living Spaces of the Households (In square feet)

Name of the mouzas	Less than 1307	1308-2613	2614-3920	3921 and above	Total percentage	Sample number
More						
Urban: Baimhati	55.5	38.7	5.0	0.8	100	117
" Postkamuri	61.8	29.0	5.4	3.8	100	55
" Mirzapur	57.3	26.0	13.3	3.4	100	15
" Mirdeohata	56.7	36.6	3.3	3.4	100	60
Less						
Urban: Kantalia	55.0	30.0	15.0	-	100	20
Andhara	48.0	36.0	12.0	4.0	100	25
Sriharipara	56.2	33.3	8.0	2.5	100	9
Sarishadair	50.0	40.0	10.0	-	100	10
Baorkumar-jani	45.5	36.4	9.0	9.1	100	11
Total	54.0	34.0	9.0	3.0	100	322

Source: Field Survey, 1986.

4.3.3. Open Space (Yard):

Open space varies in different parts of the study area. From the survey, it is found from Table-17 that majority of the open spaces are less than 1307 square feet which covers 44 percent. Open spaces classified within the range of 6535 square feet and above is less dominant which covers 3 percent only. From the study area, it is evident that most of the open spaces are recorded within the range of less than 1307 square feet (sft) while 6535 square feet and above is less dominant in all the study area. In a land hungry country like Bangladesh where population is increasing day by day, this size of open spaces may make the environment more hygienic.

Table-17.

Size of Open Spaces of the Households

Name of the mouzas	(In Square feet)						Total per-centage	Sample number
	Nil	Less than 1307	1308-2613	2614-4356	4357-6534	6535 and above		
More								
Urban: Baimhati	6.9	35.6	24.1	21.1	6.3	6.0	100	117
" Postkamuri	4.6	37.0	25.4	14.3	12.8	5.9	100	55
" Mirzapur	-	32.3	26.1	20.1	14.3	7.2	100	15
" Mirdeohata	6.5	43.3	28.1	13.3	5.3	3.5	100	60
Less								
Urban: Kantalia	-	55.0	25.0	15.0	3.0	2.0	100	20
" Andhara	-	52.0	24.0	12.0	9.6	2.4	100	25
" Sriharipara	-	55.5	33.1	11.1	0.3	-	100	9
" Sarishadair	-	51.0	30.0	10.0	9.0	-	100	10
" Baorkumarjani	-	34.3	36.2	18.1	11.4	-	100	11
Total	2.0	44.0	28.0	15.0	8.0	3.0	100	322

Source: Field Survey, 1986.

* This open space includes courtyard and other left over space.

4.3.4. Housing Tenure:

Information on tenurial characteristics of housing is necessary for rent policy and chalking out programmes for housing development. The survey conducted in 1986, collects information on tenurial status under three categories viz:(i) Owner occupied ,(ii) Rented and (iii) Tenant without rent. The survey reveals that on average 95 percent of the total households are owner occupied, 4.4 percent are rented and the remaining (0.6 percent) are tenants who do not pay rent to the landlord (Table-18). They are landless peasants. The rented accommodation is found mainly in the most urbanised mouzas.

Table-18.
Tenurial Status of Households

Name of the Mouzas	Owner occupied	Rented	Tenant without rent	Total percentage	Sample number
More					
Urban: Baimhati	90.7	8.4	0.9	100	117
" Postkamuri	92.2	6.8	1.0	100	55
" Mirzapur	92.7	5.3	2.0	100	15
" Mirdeohata	93.2	6.3	0.5	100	60
Less					
Urban: Kantalia	94.6	5.4		100	20
" Andhara	95.3	4.1	0.6	100	25
" Sriharipara	98.0	1.6	0.4	100	9
" Sarishadair	100.0			100	10
" Baorkumarjani	98.3	1.7		100	11
Total	95.0	4.4	0.6	100	322

Source: Field Survey, 1986.

The reason behind the prevalence of owner occupiers can be explained by the fact that in the study area, the majority of the households have inherited the property for a long time which emphasis that the percentage of owner occupied household is greater in number than tenant. On the other hand, the reason behind the low percentage of rented house and tenant without rent in the study area of Mirzapur is still predominantly rural. After upgradation of thana into upazila, the pressure of tenant is increasing gradually as people are attracted by the urban way of life and like to live in and around upazila shahar.

4.3.5. Structural Composition:

Structural composition are divided into three parts, such as 'Roof', 'Wall', and 'Floor'. For roof: Thatched, tin and concrete, for wall: bamboo, mud, C.I. sheet and brick and for floor: mud and pucca are considered as structural composition out of which they are constructed.

Different materials used for different parts of structures have been tabulated (Appendix-2, Table-11). For roofing mostly thatched material is used in all the area which constitutes highest (55 percentage). Regarding construction of wall, bamboo is mainly used which accounts for 44 percent, while for floor mostly mud is used which covers 85 percent. An insignificant portion used brick for floor construction.

Most of the households build their houses, the structural type of which depends on their capacity as well as the building materials available locally. In most cases, structures are temporary in nature. These are prone to wear out quickly. It was found that the poor owner of these

households have to spend substantial amount of money for repairing and maintaining their houses and some year, if the repair work is not undertaken the backlog taxes heavily on the owners in the next year. Small plots abounds as such the problem is likely to become worse.

4.4. Level of Education:

Appendix-2, Table-12 reveals the position regarding the level of education. It is found that on average in all the study area 'Illiterate' constitutes 55 percent followed by Primary Education comprising 17 percent. Secondary Education and Degree account for 5 percent and 2.6 percent respectively. Lastly, only 0.4 percent have access to Master's Degree.

4.5. Level of Health Services:

Existing level of health services in the study areas are significantly higher than the district. Mirzapur hospital located at upazila centre has 700 beds (including 50 doctors). In addition, there are other facilities such as family welfare centre and charitable dispensary. From the survey it is found that majority (50 percent) of the households availed the facility of the hospital, 27 percent availed charitable dispensary and 12 percent availed other facilities. Lastly, only a small portion (11 percent) availed family welfare centre. Other facilities include Kabiraj and Homeopath.

Health facilities are encouraging. Though majority have access to hospital but still a small segment of people goes to Kabiraj and Homeopath. Few percentages adopts family planning. Services provided by hospital are not satisfactory as revealed in the survey. People complain about the behaviour of the attendants, nurses and doctors.

4.6. Recreational Facilities:

Different types of recreation facilities such as playground, cinema hall, and clubs are found in the study area. On average in all the study area, it is found that 52 percent of the households go to the playground and cinema hall, 23 percent exclusively go to playground for enjoying football, as it is popular game in the upazila, 18 percent go to cinema hall and an insignificant portion (4 percent) goes to clubs. Finally, 3 percent of the households do not enjoy recreational facilities at all (Appendix-2, Table-14).

From the survey, it is revealed that majority of the households go to the playground and cinema hall for recreational purposes followed by playground. Apparently, as one sees there are lots of land parcels as open spaces in the study area, but these are not organised. Mirzapur college field is used as the playground for recreational purposes. The only striking feature, reveals that limited number of households do not have recreational facilities at all. When asked about the reasons for not enjoying recreational facilities at all, they added that they had indoor recreational facilities such as radio, carrom etc. As such, they do not go out for recreational facilities. Recreational facilities are quite inadequate. Organised parks are completely absent. Stadium is essential for the upazila, but this is absent.

4.7. Mode of Transport (Internal):

The people of the study area suffer from undeveloped transportation linkages with upazila shahar. Walking remains the predominant form of internal mode of transport. During the rainy season country boats are used in some of the study areas. Intra village movements are carried out on foot through halots (Appendix-2, Table-15).

4.8. Utility Services:

4.8.1. Sources of Drinking Water:

Pond, tube-well and community taps are the main sources of drinking water. The survey reveals that tube-well dominated in all the study area which covers 53 percent (Table-19). Tube-well and well jointly account for 25 percent followed by pond comprising 18 percent. Lastly, only 4 percent have access to the community taps.

Table-19.

Source of Drinking Water Supply.

Name of the mouzas	Tube well	Pond	Tube-well and well	Community tap	Total percent	Sample number
More						
Urban: Baimhati	65.8	11.9	22.3	-	100	117
" Postkamuri	63.6	9.1	27.3	-	100	55
" Mirzapur	60.0	13.3	26.7	-	100	15
" Mirdeohata	26.0	14.3	23.7	36.0	100	60
Less						
Urban: Kantalia	57.0	23.0	20.0	0	100	20
" Andhara	64.0	12.0	24.0	-	100	25
" Sriharipara	45.0	22.2	32.8	-	100	9
" Sarishadair	41.0	29.0	30.0	-	100	10
" Baorkumarjani	54.6	27.2	18.2	-	100	11
Total	53.0	18.0	25.0	4.0	100	322

Source: Field Survey, 1986.

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Most of the households use water from hand tube-wells for the purpose of drinking. These tube-wells are in the private ownership with access restricted and often found out of order in most cases. Water from pond cannot be directly used for drinking purposes or for preparation of food. However, it can be used for other domestic purposes such as washing and clothing. The only striking departure, is in the case of Mirdeohata mouza where a small portion of the households uses community tap provided by ICDDRB.

4.8.2. Sanitation:

Most of the households have some types of sanitary latrines. But these facilities are not adequate. From the Table-20, it reveals that private owned pit latrines dominated of all the study area which covers 44 percent

Table-20.
Type of Sanitary Facilities.

Name of the mouzas	None	Latrine shared with others	Private owned latrine	Sani-tary lat-rine	Pucca lat-rine	Total per-centage	Sample number
More							
Urban: Baimhati	12.8	21.4	55.5	-	10.3	100	117
" Postkamuri	14.5	45.5	27.3	-	12.7	100	55
" Mirzapur	19.0	26.7	46.7	-	7.6	100	15
" Mirdeohata	-	21.0	25.0	54.0	-	100	60
Less							
Urban: Kantalia	14.0	35.0	45.0	-	6.0	100	20
" Andhara	15.0	28.6	48.0	-	8.4	100	25
" Sriharipara	21.6	33.9	44.5	-	-	100	9
" Sarishadair	20.0	30.0	50.0	-	-	100	10
" Baorkumar-jani	9.1	36.9	54.0	-	-	100	11
Total	14.0	31.0	44.0	6.0	5.0	100	322

Source: Field Survey, 1986.

followed by latrines shared with others comprising 31 percent, 14 percent of the households have no latrines, while 6 percent have got sanitary latrines. Lastly, only 5 percent have access to pucca latrines.

An insignificant portion uses pucca latrine. Sanitary facilities are overwhelmingly traditional pattern such as bushes, kutchha and open pit latrines etc. These latrines are constructed by bamboo and are most unhygienic, present health risk and risk of contamination. Mosquito and fly breeding and unpleasant odours are among the problems most frequently encountered with these latrines. Few houses have access to sanitary latrines, bucket or any other system. The only departure, is in the case of Mirdeohata mouza where households use sanitary latrines installed by ICDDRBR under its Community Development Project.

4.8.3. Drainage Facilities:

Four categories of drainage facilities such as 'None', 'Natural drainage', and kutchha drainage are considered. From the survey it is evident from Table-21, that in all the study area large number of households have no drainage facilities which constitutes 48 percent. Natural drainage covers 32 percent. Stagnant water during rainy season accounts for 11 percent. Lastly kutchha drainage constitutes 9 percent.

Table-21.
Nature of Drainage Facilities

Name of the mouzas	None	Stagnant water during rainy season	Natural drainage	Kutcha drainage	Total per-cent	Sample number
More						
Urban :Baimhati	50.4	-	29.9	19.7	100	117
" Postkamuri	60.0	-	27.3	12.7	100	55
" Mirzapur	53.3	-	33.3	13.4	100	15
" Mirdeohata	75.0	-	16.7	8.3	100	60
Less						
Urban: Kantalia	50.7	17.0	27.9	4.4	100	20
" Andhara	52.0	16.0	32.0	-	100	25
" Sriharipara	33.3	22.2	44.5	-	100	9
" Sarishadair	30.0	23.4	40.0	6.6	100	10
" Baorkumarjani	27.3	20.4	36.4	15.9	100	11
Total	48.0	11.0	32.0	9.0	100	322

Source: Field Survey, 1986.

From the survey, it is revealed that drainage facilities are virtually absent or non-existent. It reflects dismal picture from the health point of view. It also indicates that households in each area have no access or are not provided with drainage facilities. When country experiences heavy rainfall, water stagnates in some of the study areas, creating inconveniences to the dwellers. Drainage being poor, flooding is common after rainfall. Hence, attention to the drainage system must be paid.

4.8.4. Garbage Disposal:

Three types of garbage disposal are considered such as 'No fixed place', 'Dumped in pit' and 'Ditch'. From the survey it is found that no fixed place dominated in all the study area which covers 56 percent. Dumped in a pit constitutes 21 percent. Lastly, ditch accounts for 23 percent (Table-22).

Table-22.

Nature of Garbage Disposal.

Name of the mouzas	No fixed place	Dumped in pit	Ditch	Total percentage	Sample number
More					
Urban: Baimhati	62.4	23.1	14.5	100	117
" Postkamuri	48.1	21.8	30.1	100	55
" Mirzapur	45.7	34.4	19.9	100	15
" Mirdeohata	65.0	19.3	15.7	100	60
Less					
Urban: Kantalia	58.7	16.0	25.3	100	20
" Andhara	64.0	13.0	23.0	100	25
" Sriharipara	55.6	23.2	21.2	100	9
" Sarishadair	50.0	20.0	30.0	100	10
" Baorkumarjani	54.5	18.2	27.3	100	11
Total	56.0	21.0	23.0	100	322

Source: Field Survey, 1986.

Majority of the households have no fixed place for garbage disposal. The method of garbage disposal is crude. Inhabitants normally dispose off solid wastes by dumping, since there is plenty of land, the need for an institutionalised system of collection and disposal is minimum. Uncontrolled refuse accumulates in drains, roads, and open spaces causing disruption of community life and creating additional problems in the operation of other public services. It reflects a deteriorating situation from the health point that in all the study area there are no proper garbage disposal system.

Conclusion:

From the observation it is observed that drinking water does not seem to be a major problem at present, but the standard of service is declining. But sanitation, drainage and garbage disposal pose serious problem particularly in the more urbanised mouzas.

4.8.5. Source of Energy (For cooking):

Energy for cooking purposes comes from a variety of sources such as kerosene, wood, and cowdung. From the survey it is evident that cowdung and wood dominated in all the study area which covers 21 percent, kerosene constitutes 6 percent, and other accounts for 11 percent (Table-23).

Table - 23

Source of Energy (For Cooking)

Name of the mouzas	Wood	Kero- sine	Cowdung and wood	Others	Total percen- tage	Sample number
More						
Urban: Baimhati	23.7	10.3	52.1	13.9	100	117
" Postkamuri	20.8	5.5	63.6	10.1	100	55
" Mirzapur	20.0	6.7	60.0	13.3	100	15
" Mirdeohata	27.1	8.3	53.3	11.3	100	60
Less						
Urban: Kantalia	14.0	6.0	75.0	5.0	100	20
" Andhara	23.0	5.0	64.0	8.0	100	25
" Sriharipara	33.3	1.0	55.5	10.2	100	9
" Sarishadair	9.0	1.0	80.0	10.0	100	10
" Baorkumarjani	18.1	10.2	54.5	17.2	100	11
Total	21.0	6.0	62.0	11.0	100	322

Source : Field Survey, 1986.

Thus from the above table it is revealed that cooking is mostly done by wood and cowdung while poorer sections of the people of the study area mostly use tree leaves. This is because of the existence of forest. A small section uses kerosene. Bio-mass gas was not found in the study area which is most economic and easily manageable.

4.8.6. Source of Energy (For Indoor Lighting):

Regarding the source of energy for indoor lighting it is revealed that majority of the households have got electricity which covers 37 percent. KUPI/Hassak constitutes 34 percent and Hurricane and Electricity covers 29 percent (Table-24).

Table-24.
Nature of Indoor Lighting.

Name of the mouzas	Electri- city	KUPI/ Hassak	Hurricane and elec- tricity	Total per- cent	Number of sample
More					
Urban :Baimhati	72.7	10.2	17.1	100	117
" Postkamuri	60.0	18.2	21.8	100	55
" Mirzapur	46.7	20.0	33.3	100	15
" Mirdeohata	51.0	35.0	14.0	100	60
Less					
Urban: Kantalia	26.0	50.0	24.0	100	20
" Andhara	16.0	40.4	43.6	100	25
" Sriharipara	22.2	33.6	44.2	100	9
" Sarishadair	20.0	61.9	18.1	100	10
" Baorkumarjani	18.4	36.7	44.9	100	11
Total	37.0	34.0	29.0	100	322

Source: Field Survey, 1986.

There is no power plant of the study area. Energy is supplied from Gorai electricity sub-station which is about 3 miles away from the upazila headquarters. Most of the houses in the study areas are within the easy access of electricity. But the supply position is inadequate and much below the existing demand as revealed

in the survey. Except for some priority areas in the shahar, it is enveloped in darkness at night. Mirzapur hospital has its own source of power i.e. its own power generator.

4.9. Conclusion:

The upazila town Mirzapur is in primary stage of development still now. Problems in every spheres of services and facilities are in existence. Existing facilities like housing, sanitation, garbage disposal, recreation etc. are not adequate for the people in the town. Some of the facilities are also lacking. But it is not possible to take up development of all the services and facilities at a time due to financial constraints. So, phase-wise development is needed and for this purpose opinion of the general people, local members and government officials were sought to identify the priorities. Moreover, during the survey it was keenly observed which one of the facilities may get priority.

From all observation, it may be concluded that drinking water supply does not seem to be a major problem at present, though the standard of services is declining. But sanitation, drainage and garbage disposal are serious problems. Housing will not pose a problem at present, but pressure of renting will increase gradually as more people will be attracted by the urban way of life after upgradation of thana into upazila. This suggests that priority should be given to sanitation, drainage and garbage disposal by the Upazila Parishad to make the environment healthier and hygienic. Population projection is now made in the following chapter for assessing the requirements of land to provide services and facilities, as it depends on the growth of population in future.

CHAPTER - FIVE

POPULATION FORECAST AND
URBAN PROBLEMS

CHAPTER - 5

POPULATION FORECAST AND URBAN PROBLEMS

5.1. Introduction:

Population projection is essential for the preparation of a physical plan. This plan is drawn for certain period (1987-2005). A period of 18 years is selected for, it is very hard to project anything beyond this. At every interval of time everything changes like population, land form, government policies. So, 2005 A.D. is taken as a target year.

We are to forecast population for this period to determine approximate requirement of land for providing services and facilities. The amount of land required for various purposes such as residential, commercial, industrial, recreation, health, administration etc. depends on the growth of population in future. This chapter examines how the need for land may increase over the years upto 2005 A.D.

5.2. Population Projection:

5.2.1. Forecast:

The adopted projections are based on three possible growth rates (i.e. high, medium and low). It is projected for five year intervals as shown in Table-25.

Table-25.

Projected Population of the Study Area (1987-2005)

Past Population			Level of projection	Annual growth rate	Projected Population				
1961	1974	1981			1987	1990	1995	2000	2005
6614	11537	14000	High	4.3% (1961-74)	18000	20400	25000	30800	38000
6614	11537	14000	Medium	3.8% (1961-81)	17500	19600	23600	28400	34000
6614	11537	14000	Low	2.8% (1974-81)	16500	17900	20500	23500	27000

The Assumptions behind these Alternative Projections are as follows:/

A fairly rapid growth rate is likely to be achieved due to decentralisation of administration and upgradation of thana into upazila. As a result, more people are expected to live and work in an around the upazila headquarters. The area's population is expected to grow at least as fast as the national average (say 2.36 percent) due to natural increase. But since, it is an urban area and developing fast there is likely to be some net-migration also. We cannot predict how much in-migration will take place and we can only make a sensible guess. So, we make a high and low estimate of annual growth reflecting higher and lower rates of in-migration. It is possible that much of the employment growth will be taken by people who live in the surrounding villages - this would mean a low rate of in-migration. But if employment growth rate is taken by people who move into area from another place, then a high rate in-migration will occur.

A lot depends on the type of employment growth e.g. large factories, colleges, government offices are likely to attract middle income skilled people i.e. migrants. Some establishments like shops, small scale industries, brick-fields are likely to attract people from surrounding villages i.e. not migrants but underemployed people who commute daily.

5.2.2. Migration:

The migration trend indicated that a total population of 1804 of the sample surveyed in the study area, there were only 104 in-migrants. Of these, 33 persons were from the outside the upazila constituting 32 percent and the remainder were from within the upazila comprising 68 percent as shown in Table-26.

Table-26.
In-migrants of the Study Area.

Areas of in-migration	Number of in-migrants	Percentage
Outside the upazila	33	32.0
Within the upazila	71	68.0
Total	104	100.0

Source: Field Survey, 1986.

Causes of In-migration:

The causes of in-migration are varied. The causes may be divided into two categories viz: economic and non-economic. The economic causes are business, service and poverty. The non-economic causes are medicare, amenity and others. Economic causes dominate over the non-economic causes.

From the field survey it is revealed that highest portion, that is, 27 percent of the in-migrants came for business and only 4 percent came for amenities. For employment and poverty reasons 25 percent and 20 percent have migrated respectively (Table-27).

Table-27.

Causes of In-migration of the Study Area.

Reasons	Number of in-migrants	Percentage
Job opportunity	26	25.0
Poverty in rural areas	21	20.0
Business	29	27.0
Medicare	6	6.0
Education	11	11.0
Amenities	4	4.0
Others	7	7.0
Total	104	100.0

Source: Field Survey, 1986.

Out-migration:

On the contrary, some out-migrants have gone out to different places from the study area, people say that all of them have gone out temporarily. But in practice, there are some permanent migrants leaving behind their families. The number of recorded out-migrants was 35 of which 29 have migrated outside the upazila and the remaining within the upazila (Table-28).

Table-28.
Out-migrants of the Study Area

Areas of out-migrants	Number of out-migrants	Percentage
Outside the upazila	29	83.0
Within the upazila	6	17.0
Total	35	100.0

Source: Field Survey, 1986.

The Causes of Out-migration:

People say all these out-migrants are temporary migrants but actually there are many permanent migrants. The temporary out-migrants are students, service holders, agriculture and industrial labourers etc.,(Table-29).

Table-29.
Causes of Out-migration of the Study Area.

Reasons	Number of out-migrants	Percentage
Service holders	11	32.0
Labour	12	34.0
Business	4	11.0
Education	5	14.0
Others	3	9.0
Total	35	100.0

Source: Field Survey, 1986.

Net-migration:

Table-30, shows that the number of net-migrants in the study area is 69, which comprises 3.8 percent only of the total (1804) population of the sample survey. Hence, migration in Mirzapur upazila in the past has been rather insignificant

Table-30.

Net-migration in the Study Area.

Number of in-migrants	Number of out-migrants	Net-migrants
104	35	69

Source: Field Survey, 1986.

and therefore, does not provide much guide as to future levels of migration. For a better idea of this, future employment is now considered, as the nature of future employment may give an indication of the type of migration (if any) that might be expected.

5.2.3. Employment Forecast:

Two categories of employment have been assumed: educated and unskilled employment. Educated employment is the main causes of in-migration while unskilled or labour employment tends to attract villagers from the surrounding areas of the upazila headquarters who commute daily. They commute daily because they go daily to their homes. Moreover, there are abundant idle labour force in the rural areas. The following forecast have been made on the basis of persons employed in 1986 and also considering the economic growth of the upazila headquarters.

Educated sectors may provide employment in administration, health and education totalling 1,000 persons in 1995 and 1480 persons in 2005 respectively. The number of unskilled labour force is estimated at 4961 persons and the number of skilled labour force is estimated at 700 in the year 1986. The ratio comes to about 1:7.1 as shown in Table-31.

Table-31.

Projected Sector-wise Labour Force (1995-2005)

Category	Persons employed in 1986	Percentage	Assumed growth rate	Projected labour force	
				1995	2005
<u>Unskilled Labour Force:</u>					
<u>1. Agriculture</u>					
- Crop	1700	30.0%	2.0%	2030	2470
- Non-crop	791	14.0%	3.0%	1030	1380
Sub-total	2491	44.0%		3060	3850
<u>2. Industry</u>					
- Small scale	530	9.4%	6.0%	990	1610
<u>3. Transport</u>					
- Rickshaw	350	6.2%	6.0%	590	1060
- Water transport	90	1.6%	6.0%	150	270
Sub-total	440	7.8%		740	1330
<u>4. Trade Service</u>					
- Hat/Bazar(whole and retail)	1300	23.0%	6.0%	2200	3940
<u>5. Other Service</u>					
- Private	130	2.3%	6.0%	220	300
- Professional	70	1.2%	6.0%	120	210
Sub- total	200	3.5%		340	510
<u>6. Educated Labour Force:</u>					
- Administration	160	2.8%	4.0%	230	340
- Health	320	5.6%	4.0%	460	680
- Education	220	3.9%	4.0%	310	460
Sub-total	700	12.3%		1000	1480
Grand Total	5661	100.0%		8330	12720

Source: Upazila Statistical Office, Office of the Union Parishad and Institutional Organisations, 1986.

Assumptions behind these growth rates are:

Unskilled Labour Force:

- (a) Agriculture: Urbanisation has a great impact on agricultural land. The upazila is fast changing from rural to urban character. Agricultural land is fixed and inelastic and cannot be increased. In addition, agricultural land is being encroached for the construction of government offices and development works for running the administration. Considering this, agricultural land will decrease. So, it is assumed 2 percent growth rate in agriculture and 3 percent in non-crop sector.
- (b) Industry: Mirzapur upazila centre is a growing urban centre. It has potential for small scale industrial growth. Although, industrialisation in the past has been rather slow, with the elevation of thana into upazila and with the higher rate of urbanisation and government industrialisation programme, industries will develop. Moreover, this upazila has some small scale industries such as oil, flour, weaving and saw mills. Hence, it is expected to rise 6 percent growth rate for small scale industries.
- (c) Transport: Transport is another important sector in the urban area, which presently employed 440 persons. With the upgradation of thana into upazila and the establishment of court and other administrative offices, the movement of the people from the surrounding areas at the upazila centre will greatly increase. Moreover, for availing these services, people from the surrounding areas will come to the upazila headquarters. So, the volume of transport will increase and this sector is expected to rise 6 percent.

- (d) Trade and Commerce: Trade (retail and wholesale) employed largest number of people. Though shops are found in most of the upazila shahar, but their concentration in the market and around the core is apparent. There are two markets in the study area comprising 400 shops, of which Mirzapur market has the largest (250) concentration of shops and the remaining (150) are in the Mirdeohata bazar. These markets operate daily but have special market days. The temporary shops operate mostly on special market days and moreover, these shops mostly come from the surrounding areas. The number of these temporary shops also are not less. In addition to these, with the increase of urban population, trade and commerce will greatly increase to meet the higher demand of commodities. Hence, it is assumed 6 percent growth rate.
- (e) Educated Labour Force: Educated labour force is expected to have 4 percent growth rate which is less than industry and commerce. The government, semi-government and private offices are limited in number in the upazila centre. To run these offices require small number of persons who are mostly educated. On the other hand, for small scale industries, trade require large number of persons which do not require educated persons. Hence, it is considered less than the industry and commerce.
- (f) Other Services: It includes private service and professional groups. Under professional groups doctors, lawyers, technicians etc. are considered. In 1986 under this sector 200 persons are employed. It is expected to have 6 percent growth rate giving employment to persons 510 in 2005.

Conclusion:

Employment is expected to increase at least as fast as population growth. Even in 'low' forecast population in 20 years time may be double the present population. Growth will be mainly natural increase and the rest due to migration. In-migration likely to be mainly educated people in services and business. Labouring jobs will probably be filled by villagers from the surrounding villages. This will limit the extent of in-migration at least in the early stages of Mirzapur's growth. Much depends on the future level of government investment e.g. a couple of large factories would have a big impact. But this is hard to predict.

5.3. Main Urban Issues:

The main issues of urbanisation in the Mirzapur upazila are of varied nature. Some of the major ones are considered to be:

- i) Incompatible Landuse: The upazila has experienced unplanned growth so long. It does not have well-defined landuse zones. Most of the areas have mixed landuses and has only one central core that is Mirzapur bazar. The main market and the hospital are located by the side of the national highway. Private and government offices and schools are not located in particular zone. It has been mixed up with other landuses. Most of them are situated in and around the upazila centre. The residential areas do not follow any systematic pattern. Urban growth is taking place where the land is available for development. As such, there has been more variability than homogeneity. The upazila centre has a linear development pattern along the north-western direction following the line of communication.

We can influence the shape and direction of urban expansion through dual approach such as: positive approach and negative approach. The positive approach tries to promote what is desirable and the negative approach tries to prevent what is undesirable. Positive controls include location of infrastructure such as road construction, electricity, water supply, market and schools etc. and also the location of government developments such as housing estates, industrial estates. Negative controls are mainly landuse zoning, building controls and landuse control. A building may catch fire or may produce pollution, if it houses factory producing products of chemicals. Therefore, all types of buildings, residential, shopping complexes, cinema houses and education should be constructed with sufficient precaution.

ii) Land for Future Public Purposes: Land being a scarce and valuable commodity specially in Bangladesh, it is obvious that no body is willing to part with single parcel of land for the welfare of the people. As for example, roads in rural upazila towns are found extremely narrow and tortuous and its width often varies from 4' to 5'. As such, it is not possible to negotiate two rickshaws at a time. Often, many residential houses are constructed right upto the edge of road preventing any possibility of widening the roads in future. Hence, the future expansion of roads in upazila towns poses a formidable problem.

In the similar way, though there are enough open space in the upazila centre, they are not organised. For maintaining healthy environment in the upazila centre, open spaces are warranted. But in practice, these are often extremely lacking. Schools, health and administration are essential for the urbanisation. In these case also, these services are often found lacking.

- iii) Land Acquisition: Land acquisition is a complex affair. Ownership has a great influence on land utilisation. When government decides to undertake construction or improvement schemes, the land affected are immediately rendered attractive for more profitable uses. The prices go up, what is often referred to as the 'existing use value' to a development value that reflects the most profitable potential use to which the land, in its improved state might be put. It can raise the land prices in potential development area to a point where the government cannot afford to undertake the required improvement.
- iv) Expansion of Urban Facilities: Expansion of urban facilities is also another issue in the upazila centre. The following are the main urban facilities which are described below:
- (a) Drainage: The condition of drainage service in the upazila centre is very much dismal and non-existent. Mostly natural ditches, canals and rivers are the main channels of drainage. Often, these drains are not properly connected. The result is pool of stagnant water found almost everywhere. No pucca drain has yet been constructed. Kutcha drains do exist, but constitute small segment. During the concentrated heavy rainfall the effect of inadequate drainage become visible.
- (b) Sanitation: Facilities for disposal of human waste are very poor in the upazila towns. Few houses have access to sanitary latrines. Private owned latrines or latrines shared with others and even bushes are common. The excretion either dries up or is washed away by flood water. Occassionally, shelter are raised over the stagnant water along road sides for

use by traders and residents of the adjacent bazars. Open pit latrines are relatively inexpensive, temporary in nature and constructed by bamboo. These are potentially hazardous to public health and will be increasing as density increases.

- (c) Garbage Disposal: Garbage disposal and collection are the responsibility of the Upazila Parishad. But the appearance of the upazila towns testifies to inadequacy and insufficiency of the system. Refuse is piled up in heaps in the roads. Rubbish is potential health hazard. The main reason for its collection is to improve health but more efficient removal will also improve drainage situation.

5.4. Conclusion:

The economy will continue to expand at an accelerating rate due to the upgradation of thana into upazila and also due to the natural increase and influx of rural population to the headquarters area. More open space and other utility services will continue to attract substantial number of people and hence new developments. Expansion of urban area should develop primarily in a well planned way. This means that development policies and programmes should extensively be scrutinised in order to guide the future development.

CHAPTER – SIX

**RECOMMENDED POLICIES AND
PROGRAMMES**

CHAPTER - 6

RECOMMENDED POLICIES AND PROGRAMMES

6.1. Introduction:

The physical plan for the upazila shahar aims to encourage orderly physical growth of the centre through comprehensive and planned development. Plan formulation must take into account the physical characteristics and future growth of the town. In addition, the cost of development of the upazila headquarters must be considered, since the resources of the Upazila Parishad are poor and many of the proposed projects will be financed by the government agencies (such as upazila headquarters buildings, the main road as well as certain other uses like government housing estates, industrial estates and recreational facilities). Finally, to ensure proper implementation, administrative and legislative measures should be introduced such as procedures for land acquisition, building bye-laws and means of encouraging public interest.

6.2. Review of the Government Policies and Programmes in Mirzapur Upazila:

6.2.1. Development Control:

Development control is an important tool for the effective utilisation of land in the urban areas. In Bangladesh, small towns have been growing without any development control over the use of land. In Dhaka city, even under the very nose of Rajdhani Unnayan Kartipakhya many unauthorised construction have occurred in the past due to the weakness of development control.

The same phenomenon is found in most of the upazila towns in Bangladesh where haphazard growth and uncontrolled developments are taking place due to the absence of planning regulation and control of landuses. In the upazila town enforcement of planning and development control is the responsibility of the Upazila Parishad, because they are better placed to know the land characteristics and suitability and use of land for its effective utilisation. Recently, development control is applicable within a radius of 1 mile or with an area of about 4 square miles taking Upazila Parishad Bhavan or Court building as the centre (CMLA Secretariate Order No. 7131/1/IX/Imple-2/1131 dt.7.9.1983). Upazila plans are being prepared by the Urban Development Directorate (UDD), while the Upazila Parishad controls the development of the upazila shahar headquarters area.

In Mirzapur upazila headquarters to construct a building every person as a rule has to submit an application to the Upazila Chairman. The Upazila Chairman, finally provides sanction. There is no instance of objection or rejection of the plan. Some owners of pucca buildings seek building permission but owners of kutchha house do not. When permission is granted no particular guidelines are followed (From an interview with U.N.O. 1987). As a result of this, haphazard and uncontrolled growth is taking place in most of the upazila centres. Laws should be enacted to guide private uses of land. Private individuals has the right to develop upon his land but we should always abide by the laws for aesthetic and convenience in urban areas.

6.2.2. Present Public Land Programme:

Most land in Mirzapur upazila is in private hands. As pressure for development increases, agricultural land will change to urban use. There is, however, some land in public sector ownership in Mirzapur upazila. At present 102.7 acres of land are owned by the government in the study area (6.6 percent of the total study area). 62.0 percent of this land is devoted to road (65.0 acres) most being considered by the national highway. A further 15.6 percent accounts for Upazila Parishad Complex, Upazila Court and other administrative, government and semi-government offices such as Roads and Highways, Upazila Police Station, Mirzapur Union, Tahsil Office. The remaining are various other public landuses (e.g. education, health, socio-cultural and utility services) (Table-32 and Map-10).

One striking feature is that there is no public land in the form of recreational facilities. Most of the government land are now fully utilised and will not be sufficient for future requirements. Government lands were acquired in the years shown below.

Year of acquisition	Area (in acres)	Percentage
Before 1960	81.4	79.3
1961-1971	13.7	13.3
1972-1980	5.9	5.7
1981 to date	1.7	1.7
Total	102.7	100.0

Source: Upazila Revenue Office, Mirzapur and Tangail Zila Record Office, 1987.

GOVERNMENT LAND IN MIRZAPUR UPAZILA, TANGAIL.

SCALE: 1" = 1320'-0"

MAP NO-10

LEGEND

PUBLIC INSTITUTION

HOMESTEAD

EDUCATION

COMMERCE

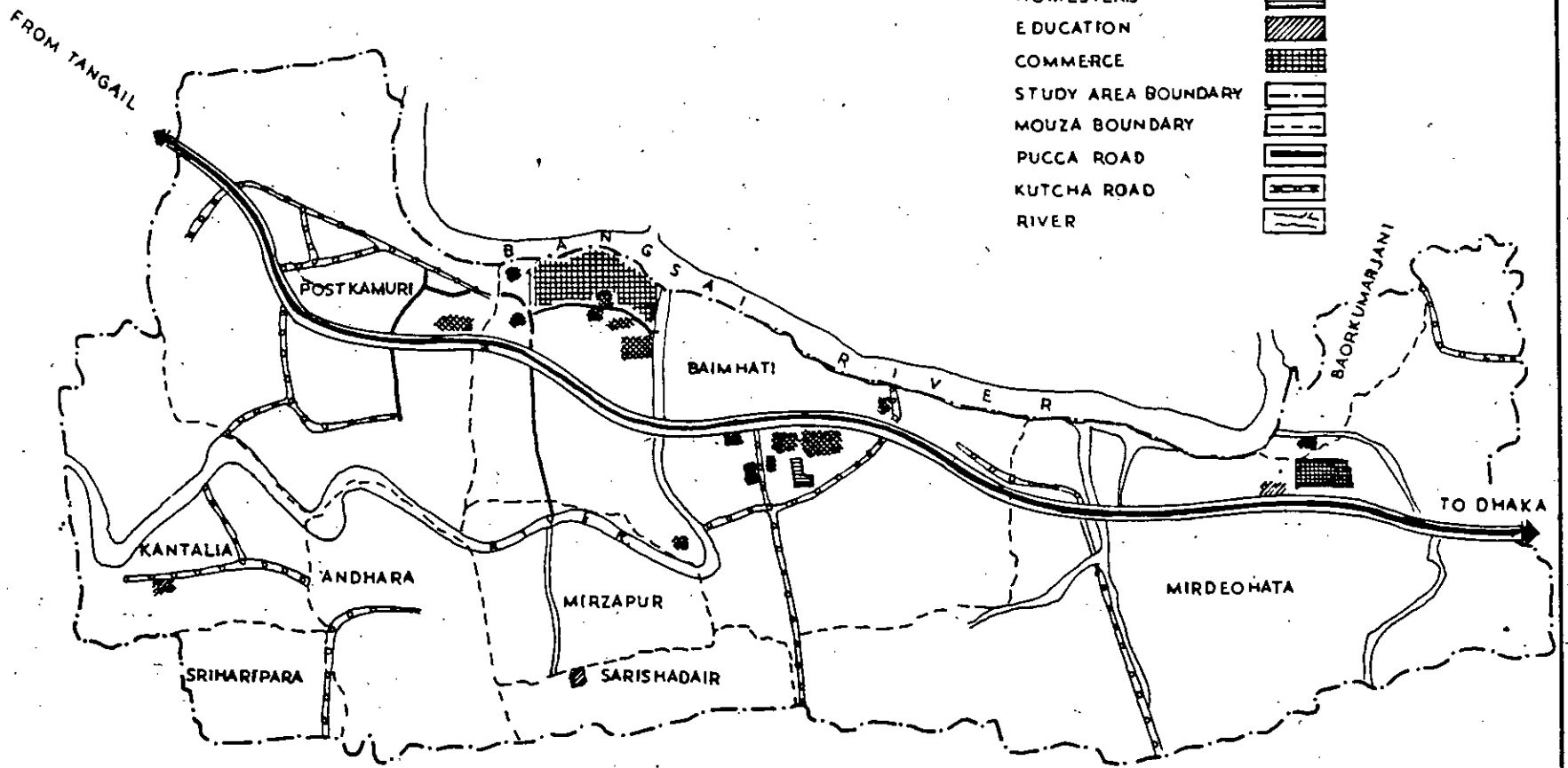
STUDY AREA BOUNDARY

MOUZA BOUNDARY

PUCCA ROAD

KUTCHA ROAD

RIVER



LAND USE
SOURCE :- SURVEY CONDUCTED
BY AUTHOR-1988

Table-32.

Present Public Land Ownership in Mirzapur
Upazila Headquarters.

Sl. No.	Type of uses	Name of the Organizations	Agencies concerned	Area (in acres)	Year of acquisition	Location
1.	<u>Commerce</u> (Hat/Bazar)	Upazila Parishad	Ministry of Local Govt. and Rural Development	13.0	1950	Baimhati
2.	<u>Education:</u>					
	- Primary Education	Directorate of Primary Education	Ministry of Education	2.6	1973	Postkamuri
3.	<u>Health and Welfare:</u>					
	- Family Welfare Centre	Family Welfare	Ministry of Health and Family Welfare	0.3	1968	Baimhati
4.(1)	<u>Administration and Judiciary :</u>					
	- Upazila Office Complex/Upazila Parishad Office	Upazila Parishad	Ministry of Local Govt. and Rural Development	6.0	1971/72	Baimhati
	- Upazila Court		Ministry of Law and Parliamentary Affair	3.0	1979	Baimhati
(11)	<u>Other Govt. and Semi-govt. Office:</u>					
	- Govt. Office	Roads and Highways	Ministry of Communication	3.7	1965	Postkamuri
	- do -	Sub-registrar Office	Ministry of Land Adm. and Land Record	0.48	1960	Baimhati
	- do -	Upazila Police Station	Ministry of Home	1.7	1950	Baimhati
	- do -	Mirzapur Union	Ministry of Local Govt. and Rural Development	0.56	1952	Baimhati
	- do -	Tahasil Office	Ministry of Land Record and Land Administration.	0.56	1950	Boarkumarjani
5.	<u>Socio-cultural:</u>					
	- Community Centre	Upazila Parishad	Ministry of Local Govt. and Rural Development	0.30	1970	Baimhati
	- Auditorium	-do-	- do -	0.30	1972	Baimhati
	- Graveyard	-do-	- do -	1.8	1965	Baimhati and Postkamuri
	- Burningghat	-do-	-do-	1.2	1968	Mirzapur and Baimhati.
6.	<u>Utility Services:</u>					
	- Power Station	Bangladesh Power Development Board	Ministry of Energy and Mineral Resources	0.2	1981	Baimhati
	- Telegraph and Telephone	Telegraph and Telephone Board	Ministry of Telegraph and Telephone	0.2	1965	Baimhati
	- Post Office	-do-	-do-	0.3	1950	Baimhati
	- Storage and Godown	BADC	Ministry of Agriculture	1.5	1981	Baimhati
7.	<u>Roads:</u>	National Highway, Upazila Parishad and Union Parishad	Ministry of Communication	65.0	1940	Postkamuri, Baimhati, Mirzapur, Mirdehata Andhara.
Total				102.7		

Source: Upazila Revenue Office, Mirzapur and Tangail Zila Record Office, 1986.

Most of this land was acquired in pre-Independence days and even before 1960. Therefore, in recent years very little government acquisition of land has taken place and it is certainly not being acquired fast enough to meet the upcoming needs of the people. For example, neither the Union nor Upazila Parishad (both under the Ministry of Local Government and Rural Development) have acquired any land since 1972, and there are a number of new land requirements fast emerging (e.g. roads, open space and other urban amenities).

6.2.3. Provision of Urban Facilities:

The situation regarding urban facilities and infrastructures is described in the following pages:

- (1) Water Supply: At present, there exists no piped water supply system in the upazila centres and its vicinity. The main source of water supply is hand tube-well. Public Health Engineering Department maintains a skeleton office in the upazila. In 1985/86 (Mirzapur upazila, PHE, 1987) this Public Health Engineering Department with the assistance of UNICEF distributed 60 tube-wells in the upazila. Again in 1986/87, it also distributed 64 tube-wells. ICDDR, an international organisation distributed 115 hand tube-wells in 1987 at Mirdeohata mouza under the upazila centre in the study area. Now the total number of publicly distributed tube-wells are 124 in the study area. The present number of population is 17500 in the study area. So, one tube-well is for 140 population, which is close to the Third Five Year Plan target of 1 tube-well for 125 people though rather low for an urban area.

In addition to these, there are some privately owned ring-wells and tube-wells in the study area but their numbers could not be ascertained due to the lack of data from the Public Health Engineering Office or from the statistical office. People along the river banks use water from the river for bathing and washing but use tube-wells for drinking water. There does not seem to be any specific programme to allocate tube-wells to the upazila centre apart from the upazila wide programme.

- (2) Sanitary Facilities: Regarding public health, the Upazila Parishad has no arrangement for the removal, collection and disposal of refuse from the streets, latrines, urinals and drains. In 1987, the PHE department with its limited activities distributed a total of 170 sets of water sealed latrines (made of concrete slab with water seal pans and 5 concrete rings) with the help of UNICEF within the upazila. ICDDR, an international organisation also installed 150 twin pit latrines with their own staff in 1987. They also repair these latrines if they get out of order.
- (3) Drainage System: Drainage system in the upazila centre is dismal. Small segment of pucca drains do exist in the Upazila Parishad Complex and the bazar, but they are confined to a limited space. Water stagnates for days together during the rainy season, thus creating inconveniences to dwellers of the upazila centre. There are some kutchra drains which carries storm water through its natural slope towards the river and the low lying areas.

- (4) Repair and Maintenance of Road: There are total road length of 15 miles within the upazila centre. Of these, 3 miles are paved and the rest 12 miles are kutchha (Mirzapur Upazila Engineer, 1987). The Upazila Parishad performs some maintenance of road. This is carried out jointly with the district and Union Parishad. However, the present condition of road is generally poor in the upazila centre.

Role of the Bazar Committee: There are two bazars in the study area. Of them, one is the Mirzapur bazar and another is the Mirdeohata bazar. This bazar committee is formed with the Upazila Parishad Chairman as the Chairman of the Bazar Committee. At present, the Mirzapur bazar committee has 20 members and Mirdeohata bazar committee has 5 members. These bazar committees employ a handful of staff to perform the bazar upkeep. They engaged 4 sweepers for Mirzapur bazar and 2 sweepers for Mirdeohat bazar.

Collection and disposal system is very crude. The sweepers just collect the rubbish from the bazars. For this, they do not use van or rickshaw. Frequency of collection of garbage is also irregular. There is no fixed place for garbage disposal. The garbages are generally thrown into the ditches in nearby places. The Upazila Parishad is nominally the local authority for development and maintenance of the upazila town. But it does not perform the functions at all due to the lack of personnel. The supply of urban services is not adequate. Financially, the Upazila Parishad is not self-sufficient for running these services. Therefore, a significant amount of Upazila Parishad's expenditure is being subsidised by the government.

6.2.4. Conclusion:

The preceding sections are aimed at reviewing the government measures and programmes to guide the shape of the town and ensure reasonable facilities, services and environment. For this, further measures such as development control, public land acquisition programme and urban services like water, sanitation, garbage disposal and drainage system will have to be strengthened.

Development control is vital for the effective utilisation of scarce urban land. Upazila Parishad is the local authority for planned development of the upazila shahar. Most of the land is under private ownership. The Upazila Parishad is supposed to provide urban services to meet the present need. Thus, reviewing the present policy programmes it can be concluded that development control is non-existent. There are no planning guidelines in particular to be followed. The public land acquisition programme are falling far behind requirements. The urban services are also minimal.

Hence, various service organisations and departments of the government need to identify their future land requirement and submit proposals for the land acquisition committee. The shape of the town is highly influenced through positive actions like government land purchase and also by negative controls such as development control.

For effective, intensive and timely use of public land requirement, programme should be drawn up earlier so that with the availability of money land can be acquired. Hence, institutional measures covering three areas e.g. funding, development control and arrangement of service provisions are also needed.

6.3. Identification of Future Land Needs in Upazila Headquarters:

6.3.1. Selection of Physical Planning Standard:

The main objective for the determination of physical planning standard is to formulate guideline for plan. Because, it provides one of the inputs on which to base the decision, as to what kind of services are to be provided in the physical plan, taking the projected population and their expected needs into account. However, there is not necessarily a single standard that would be followed for all urban areas in Bangladesh. Nor are foreign landuse standards wholly applicable in our country.

In Bangladesh, standards may need to be different for different urban areas according to local condition. As for example, the old part of Dhaka requires one standard, while Barisal requires another standard, because the cost of land and population pressure are different between these two areas. In addition, many different alternatives for meeting the land needs are available: e.g. intensification by vertical building, shift system in schools, multiple use of single facilities etc.

So, considering all these factors, standards have been suggested here keeping in mind: (i) the actual socio-economic situation in many urban areas of Bangladesh, (ii) the need to minimise the cost of land acquisition and (iii) reference to standard published in various sources, such as the Urban Development Directorate's (Terms of reference) for the Upazila Centre Planning, the Master Plan of the Dhaka Improvement Trust (now Rajdhani Unnayan Kartipakhya) and other books and sources mentioned in Table -33.

Table -33.
Source of Physical Planning Standard

Type of uses	T.O.R. (UDD)		D.I.T.		UNCH's Mirpur Project		Delhi (India)		Recommended standard	
	Min. size (acres)	Min. pop.	Min. size (acres)	Min. pop.	Min. size (acres)	Min. pop.	Min. size (acres)	Min. pop.	Min. size (acres)	Min. pop.
Education:										
- Primary School	2.0	5,000	3.0	7,500	0.3	10,000	2.5	3,000	0.5	5,000
- Secondary School	5.0	20,000	10.0	15,000	0.6	20,000	5.0	10,000	4.0	20,000
- Vocational School			5.0	7,500					2.0	20,000
- Madrasa									2.0	20,000
- College	5.0	20,000	14.0	50,000			10.0	50,000	5.0	20,000
Recreation:										
- Parks, Open Space and Children Park	1.0	1,000	2.0	1,000			4.0	1,000	0.2	1,000
- Cinema (closed space)	0.5	20,000							0.3	20,000
- Sports Stadium	3.0	20,000							3.0	25,000
- Club									0.2	20,000
Socio-cultural:										
- Community Centre	1.0	20,000			0.5	50,000	0.5	15,000	0.3	20,000
- Mosque/Temple	0.5	5,000			0.15	10,000			0.2	5,000
- Library							0.5	15,000	0.3	20,000
- Graveyard/Crematorium	5.0	20,000							2.0	20,000
- Auditorium									0.3	20,000
Utility Services:										
- Post Office	0.5	20,000			0.1	30,000			0.3	20,000
- Telegraph	0.5	20,000			0.5	75,000			0.3	20,000
- Fire Service Station									0.3	20,000
- Bus Terminal	1.0	20,000							1.0	20,000
- Storage and Godown									2.0	20,000
- Power Supply									0.3	20,000
- Water Supply									0.3	20,000
- Garbage Disposal									1.0	20,000
- Bus Stand									0.1	20,000
Commerce:										
- Market										
- Shop	1.5	1,000							1.5	2,000
- Office										
Industry:										
- Small Scale Industry	1.5	1,000							1.5	2,000
Administration & Judiciary:										
- Administration and Judiciary		12.0 fixed per Upasila Centre							1.0	2,000
- Govt. and Semi-Govt. Private Office		(including officers residence)							1.0	2,000
Health and Welfare:										
- Dispensary										
- Maternity	1.0	5,000							0.3	20,000
- Child Care										
- Hospital	5.0	20,000							10.0	25,000
- Health Clinic					0.3	25,000			0.3	20,000
Residential:										
Average of 100 persons per acre net of road and other facilities. Local access road system to be included and to be sufficient to provide access to all plots. Applies to headquarters population only.									1.0	100
Road:										
(a) Major Road 60'	60' - 30'									
(b) Secondary Road	40' - 20'									
(c) Local Road	24' - 12'									
									Major Road: 40'-20'	
									Secondary " 30'-15'	
									Local " 24'-12'	

Source: D.I.T. : Minoprio and Spencely and P.W. MacFarlane, 1958.
U.N.C.H.'s Mirpur Project, Dhaka, working paper, 1985/86
Urban Development Directorate (T.O.R), Sept. 1983, Dhaka,
K.V. Sundrom, (1974): Regional Planning in India, Delhi.

(a) Roads: Roads are proposed to provide adequate access for vehicle and pedestrian and form an efficient system on inter communication between all parts of the upazila shahar and its surrounding areas. For this three categories of roads are considered:

- i. Major road: 40' wide (surface 20') for linking with different Upazila and Unions.
- ii. Secondary road: 30' wide (surface 15') to form a linkage between different functional areas.
- iii. Local road: 24' wide (surface 12') to provide access to individual areas and buildings.

The total land required for all these roads are 92.0 acres. It is about 8 percent of the total urban area. Existing land use for road covers 65.0 acres. So an additional 27.0 acres of land to be provided in the planning area;

- i. The 40' - wide road will be 2.43 miles (12870' x 40') : 51,4800 sft. or 11.8 acres.
- ii. The 30' - wide will be 2.1 miles (10890' x 30') : 326700 square feet or 7.5 acres.
- iii. The local roads of 24' - wide road will be 2.7 miles (14,190' x 24') : 340560 sft. or 7.8 acre.

(b) Residential: The present population of the study area is 17,500 and the existing residential area covers 211.0 acres of land. Thus the gross density comes to about 80 persons per acre. The population is expected to rise 34,000 persons by 2005. Assuming this density rises, say 120 persons per acre. Hence, present area (211.0 acre) multiplied by new density (120 persons per acre) comes to 25,320 persons. Balance (34,000 - 25,000) = 9000 must find extra land at the rate of 100 persons per acre: 9000/100 i.e. 90 acres. So, approximate additional 90 acres of land will be needed to give a total of 300.0 acres.

- (c) Industry: There are some small scale industries such as rice, oil, flour and saw mills in the private sector which comprises 5.0 acres of land. No industrial estate as yet. The projected population is 34,000 in 2005.

Table-34.

Recommended Standard for Small Scale Industry

Type of uses	UDD (TOR)		Total space re-quired in 2005 (acres)	Recommended standard		Total space re-quired upto 2005 (acres)
	Min. size (acres)	Min. pop.		Min. size (acres)	Min. pop.	
Small scale industry	1.5	1,000	51.0	1.5	2,000	25.0

For small scale industries, if Urban Development Directorate (Upazila Centre Planning) standard (1.5 acre per 1000 persons) is followed, then 51.0 acres of land will be needed by 2005. But we cannot afford such huge amount of land, because this will involve huge financial expenditure. So, for our study we have adopted a standard which gives 1.5 acre per 2,000 persons. Total space required upto 2005 is shown in Table-34. So, an additional 20.0 acres of land may need to be acquired.

- (d) Commerce: It includes markets, shops and offices. In this case also, if we adopt UDD(Upazila Centre Planning) standard, then 51.0 acres of land will be needed. For our plan we have adopted 1.5 acres per 2,000 persons. The existing land use covers 15.0 acres (including 13.0 acres for public sector and 2.0 acres under private sector).

Table-35.

Recommended Standard for Commerce.

Type of uses	UDD (TOR)		Total space required in 2005 (acres)	Recommended standard		Total space required upto 2005 (acres)
	Min. size (acres)	Min. pop.		Min. size (acres)	Min. pop.	
<u>Commerce</u>						
- Market	1.5	1,000	51.0	1.5	2,000	25.0
- Shop						
- Office						

Total space required in 2005 is shown in Table-35. So, an additional 10.0 acres of land may be needed by 2005.

(e) Administration:

1. Administration and Judiciary:

It comprises Upazila Parishad Office Complex and Upazila Munsif Court.

Table-36

Recommended Standard for Administration and Judiciary, Government and Semi-government and Private Offices.

Type of uses	UDD (TOR)		Recommended standard		Total space required upto 2005 Area(in acres)
	Min. size (acres)	Min. pop.	Min. size (acres)	Min. pop.	
Administration and Judiciary	12.0 acres of land (fixed)		1.0	2,000	17.0
Government, semi-govt. and private office			1.0	2,000	17.0
Total					34.0

For Administration and Judiciary, UDD (Upazila Centre Planning) standard is 12.0 acres fixed for every upazila headquarters. But upazila differs in respect of population, topographical condition and cost of land. The existing landuse covers 9.0 acres and the existing population is 17,500. The standard thus comes to about 2000 persons per acre of the Upazila Parishad and the Munsif Court. So, we have adopted a standard (1.0 acre per 2,000 persons). Total space required by 2005 A.D. is shown in Table-36. So, an additional 8.0 acres of land will be needed.

ii. Government and Semi-government and Private Offices:

The land already acquired by government and semi-government offices such as Roads and Highways, Police Station, Sub-registrar office, Tahsil office and the Mirzapur Union Council comprises 7.0 acres and the land acquired by private offices such as CARE, ICDDRB and BRAC covers 1.7 acres thus totalling 8.7 acres. The amount of land (7.0 acres) acquired for government offices is considered enough. Hence, the study does not consider any extra land for these offices. In this case also, the same standard (i.e. 1.0 acre per 2,000 persons) is followed. Total space required upto 2005 is shown in Table-36. So, an additional 8.3 acres of land will be needed. Thus, the total additional land will be required by 2005 under both Administration and Judiciary and Government and Semi-government and Private Offices are 8.0 acres and 8.3 acres respectively.

(f) Utility Services: It comprises power station, water supply, post office, telegraph and telephone, garbage disposal, bus stand, bus terminal, fire service station, petrol pump and storage and godown.

Table-37

Recommended Standard for Utility Services

Type of uses	UDD (TOR)		Total space required in 2005 (acres)	Recommended standard		Total space required upto 2005 (acres)
	Min. size (acres)	Min. pop.		Min. size (acres)	Min. pop.	
a) Power station				0.3	20,000	0.5
b) Water supply				0.3	20,000	0.5
c) Post office	0.5	20,000	0.85	0.3	20,000	0.5
d) Telegraph and telephone	0.5	20,000	0.85	0.3	20,000	0.5
e) Garbage disposal				1.0	20,000	1.7
f) Bus terminal	1.0	20,000	1.7	1.0	20,000	1.7
g) Bus stand				0.1	15,000	0.2
h) Fire service station				0.3	20,000	0.5
i) Petrol pump				0.3	20,000	0.5
j) Storage and godown				2.0	20,000	3.4
Total						10.0

For post and telegraph, following UDD(Upazila Centre Planning) standard (0.50 acres per 20,000 persons) 0.85 acres of land will be needed by 2005 for each. Existing space for these services is now comprised only 0.5 acre of land. Considering the existing situation we have adopted a lower standard (0.30 acre per 20,000 persons) for both post and telegraph offices. This will provide 0.50 acres of land for each. For bus terminal we have adopted UDD (Upazila Centre Planning) standard (1.0 acre per 20,000 persons) which gives 1.7 acre of land. The existing space for food and storage now constitutes only 1.30 acres. For

this service facility a standard of 2.0 acres per 20,000 persons is adopted, which gives 3.4 acres of land by 2005. For fire service station a standard (0.30 acre per 20,000 persons) has been considered. This gives 0.5 acres of land. The existing space for power station is only 0.2 acre, whereas for water supply there is no space at all. The proposed standard for these services is 0.30 acre per 20,000 persons which will give 0.50 acre by 2005. Again, for petrol pump a standard of 0.30 acre 20,000 persons is adopted.

The existing landuses under public sector such as power station, post and telegraph office, storage and godown comprises 2.2 acres excepting garbage disposal, bus terminal, bus stand and fire service station. Under private sector there is only space for petrol pump comprising 0.2 acres, thus totalling under both sector 2.4 acres. Total space required by 2005 is shown in Table-37. So, an additional 7.6 acres of land will be needed.

- g) Socio-cultural: It comprises library, community centre, graveyard, crematorium, auditorium, mosque and temple. For library and community centre, if Delhi standard (0.5 acre per 15,000 persons) is followed, 1.13 acres of land will be needed in 2005 for each. For our study we have adopted a lower standard (0.3 acres per 20,000 persons) for community centre and library. The standard set by UDD (Upazila Centre Planning) for graveyard and crematorium is 5.0 acres per 20,000 persons which comes to 8.5 acres of land. Hence, we have adopted a lower standard (2.0 acre per 20,000 persons) for each of these category. For auditorium, Delhi standard is 0.5 acre per

Table-38.

Recommended Standard for Socio-cultural Facility.

Types of uses	Delhi (India)		UDD (TOR)		Total space required upto 2005 (acres)	Recommended standard		Total space required upto 2005 (acres)
	Min. size (acres)	Min. pop.	Min. size (acres)	Min. pop.		Min. size (acres)	Min. pop.	
Community centre	0.5	15,000			1.13	0.3	20,000	0.5
Library	0.5	15,000			1.13	0.3	20,000	0.5
Graveyard			5.0	20,000	8.5	2.0	20,000	3.4
Crematorium			5.0	20,000	8.5	2.0	20,000	3.4
Auditorium	0.5	20,000			0.85	0.3	20,000	0.5
Mosque			0.5	5,000	3.4	0.2	5,000	1.4
Temple			0.5	5,000	3.4	0.2	5,000	1.4
Total								11.1

20,000 persons which comes to 1.7 acres of land. For our study we have adopted a standard (0.3 acre per 20,000 persons). For mosque and temple UDD (Upazila Centre Planning) standard is 0.5 acre per 20,000 persons which comes to 3.4 acres of land. The proposed standard for mosque and temple are 0.2 acre per 5,000 persons for each.

The existing landuses under public services such as community centre, graveyard, crematorium and auditorium comprises 3.7 acres, while there is no space for library and the remaining services under private sector such as mosques and temples comprises 0.8 acres. Thus, the existing total landuses under both sectors come to 4.5 acres. The total projected land required upto 2005 is shown in Table-38. So, an additional 6.6 acres of land will be needed by 2005.

h) Education: Mirzapur upazila is the centre for education. At present, there are two colleges comprising 12.0 acres (including one girl's college, known as Bharateswari Homes which comprises 5.0 acres and the other is the Mirzapur Degree college constituting 7.0 acres) in the study area. Both these institutions are under the private sector. This amount (12.0 acres) of land is considered enough for the existing colleges. Moreover, the policy of the government is to establish one college in every upazila headquarters. So, the study does not consider any extra land for the colleges.

Table-39.

Recommended Standard for Educational Services.

Type of uses	UDD (TOR)		D.I.T.		U.N.C.H.		Reoommended standard		Total space required by 2005
	Min. size (acre)	Min. pop.	Min. size (acre)	Min. pop.	Min. size (acre)	Min. pop.	Min. size	Min. pop.	
High school	5.0	20,000					4.0	20,000	6.8
Primary school	12.0	5,000			0.30	10000	0.5	5,000	3.4
Vocational school			5.0	7500			2.0	20,000	3.4
Madrasha							2.0	20,000	3.4
Total									17.0

Projected population of the upazila headquarters is 34,000 by 2005. For high school, if the Urban Development Directorate (Upazila Centre Planning) standard (5.0 acres per 20,000 persons) is adopted, then 8.5 acres of land will be needed in 2005. The existing land of 3 high schools covers 6.0 acres. This equals to 2.0 acres of land for each high school on average. Considering the existing situation a standard of 4.0 acres per 20,000 persons is adopted.

For primary schools, UDD (Upazila Centre Planning) standard is 2.0 acres per 5,000 persons which comes to 13.6 acres of land; on the other hand, if United Nations Centre for Human Settlement's Mirpur project standard (0.30 acre per 10,000 persons) is followed, then 1.02 acres of land will be needed. The existing landuse for 5 primary schools covers 2.60 acres of land. Of these, two schools have got less than 0.40 acres. Moreover, these schools are working well with the existing space. So, a standard of 0.50 acres per 5,000 persons has been adopted. For vocational school, following the D.I.T. (Now Rajdhani Unnayan Kartipakhya) standard (5.0 acre per 7,500 persons) 22.70 acres of land will be needed by 2005. But we cannot afford huge amount of land for the upazila centre. So, for physical plan a standard of 2.0 acres per 20,000 persons is adopted for vocational school which gives 3.40 acres of land. Again, a standard of 2.0 acre per 20,000 persons is adopted for Madrasha which gives 3.40 acres of land. Thus the total land under both private sector (6.5 acres) and public sector (2.6 acres) comprise 9.1 acres. Total space required by 2005 is shown in Table-39. So, an additional 7.9 acres of land will be needed.

- 1) Recreation: It includes parks, open space, children park, cinema hall, stadium and clubs. For parks, open space and children parks, following UDD (Upazila Centre Planning) standard (1.0 acre per 1,000 persons) 34.0 acres of land will be needed by 2005. But we cannot afford such huge amount of land for the Upazila centre, because this will involve enough substantial amount of money. Hence, we have adopted a lower standard (0.2 acre per 1,000 persons) for these services, which give 6.8 acres of land. There is no

Table-40.

Recommended Standard for Recreational Services

Type of uses	UDD (TOR)		Total space required in 2005 (acres)	Recommended standard		Total space required in 2005
	Min. size (acres)	Min. pop.		Min. size (acres)	Min. pop.	
Open space, parks	1.0	1,000	34.0	0.2	1,000	6.8
children parks						
Sports stadium	3.0	20,000	5.0	3.0	25,000	4.0
Cinema hall	0.5	20,000	0.85	0.5	20,000	0.5
Club				0.2	20,000	0.3
Total						11.6

stadium at the upazila centre. For our physical plan a standard of 3.0 acres per 25,000 persons has been adopted for stadium. This will give 4.0 acres of land. Again, for cinema hall, UDD (Upazila Centre Planning) standard (0.5 acre per 20,000 persons) is followed, this will give 0.85 acres of land for cinema hall by 2005.

The proposed standard for club is 0.2 acre per 20,000 persons. The existing landuse under private sector such as cinema hall and club comprises 0.5 acres while the remaining services such as parks, stadium under public sector are completely absent. Total space required in 2005 is shown in Table-40. So, an additional 11.1 acres of land will be needed.

- j) Health and Welfare: Mirzapur upazila has one private hospital (including 3 dispensaries) with a capacity of 700 beds, run by Kumudini Welfare Trust. It occupies 57.9 acres of land. In Bangladesh, most of the upazila, health

complexes comprises only 31 beds. So, the capacity of this hospital is significantly higher than those of other upazilas and districts, Hence, the study does not consider any extra land for this category.

Table-41.

Recommended Standard for Health and Welfare.

Type of uses	UDD (TOR)		Total space required in 2005 (acres)	Recommended standard		Total space required in 2005 (acres)
	Min. size (acres)	Min. pop.		Min. size (acres)	Min. pop.	
Family Welfare Centre	1.0	5,000	6.8	0.3	20,000	0.5
Charitable Dispensary	1.0	5,000	6.8	0.3	20,000	0.5
Total						1.0

The projected population is 34,000 by 2005. For Family Welfare Centre and Charitable Dispensary, if UDD (Upazila Centre Planning) standard (1.0 acre per 5,000 persons) is followed, then 6.8 acres of land will be needed by 2005 each. But we cannot provide such huge amount of land for these services. Moreover, this will involve huge amount of money. The existing landuse of the Family Welfare Centre now comprises only 0.30 acres, whereas there is no space for Charitable Dispensary. Considering the existing situation a lower standard (0.30 acre per 20,000 persons) is adopted for these services which come to 0.50 acres of land for each. Total space required by 2005 is shown in Table-41. So, an additional 0.70 acres of land will be needed by 2005.

Total additional land required under private and public sector in 2005 comprises 197.2 acres. It is proposed to be divided between private sector (83.2 acres) and public sector (114.0 acres) respectively as shown in Table-42. In proposing land under private and public sectors certain considerations are made which are described below:

Housing is mostly private sector activity, direct government investment can solve only insignificant portion. So, it is proposed more in the private sector than public sector. Road is mainly public sector activity. So, it is placed completely under the public sector. Government is recommending for creation of industrial estate in every upazila headquarters area. Hence, emphasis is given more in the public sector. Administration and judiciary will be greatly increased with the decentralisation policy of the government and governmental activity. Hence, allocation of more land is made in public sector. Under the public sector, there are no recreation facilities such as stadium, parks, children park at all whereas, there is only one cinema hall under private sector in the upazila centre. Hence, under public sector more land is provided in this sector. Socio-cultural facilities under the public sector do exist but it is insignificant, the only auditorium in the upazila centre is being occupied by the government offices for want of accommodation. Keeping in mind in this regard, allocation is made more under public sector. Utility services also exist but it will decline with the pressure of population. Moreover, utility services are overwhelmingly public sector activity. So, emphasis is given more in the public sector than private sector. Health and Welfare is also public sector activity. In the upazila centre there is a big hospital under the sector. Hence, less emphasis is given in this regard. Moreover, resource constraints of the Upazila Parishad is considered.

Table-42.

Proposed Additional Land for Public Sector
and Private Sector Use (1987-2005).

Type of uses	Total additional land to be required by 2005	Percentage of land	Public sector (in acres)	Private sector (in acres)
1. Residential	90.0	45.6	20.0	70.0
2. Road	27.0	13.7	27.0	-
3. Industry	20.0	10.1	17.0	3.0
4. Commerce	10.0	5.1	8.0	2.0
5. Admin. and Judiciary	16.3	8.3	13.6	2.7
6. Recreation	11.1	5.6	10.8	0.3
7. Education	7.9	4.0	5.0	2.9
8. Socio-cultural	6.6	3.4	4.6	2.0
9. Utility services	7.6	3.8	7.3	0.3
10. Health and Welfare	0.7	0.4	0.7	-
Total	197.2	100.0	114.0	83.2

6.3.2. Preferred Public Land Acquisition Programme for Mirzapur Upazila Centre:

The main objective of the acquisition of land is to adopt a programme for Mirzapur upazila centre. It is spread over next 18 years involving different government department and agencies. The initial land acquisition programme is expensive but some of the land costs can be recovered later i.e. self-financing schemes such as industrial estates, housing estates and markets. There is also trade-off between early purchase of land while it is still cheap (though this means government funds are tied up in unproductive vacant land for a number of years), and late purchase at a much higher cost (due to urban growth and rising prices).

The criteria for deciding how much government land acquisition should be carried out in sector-wise are:

- (i) funds likely to be available in the Upazila Parishad;
- (ii) which items should come first e.g. roads, industry, commerce and housing?
- (iii) which land is the most urgent for development in the upazila centre ?
- (iv) lumpiness of investment (i.e. land cannot easily be acquired by piece-meal).
- (v) the likelihood of cost recovery (e.g. self-financing schemes may allow a greater amount to be purchased).

We have chosen the target year 2005, starting with 1987 as the year of implementation. The time period is divided into three phases. For convenience, we have extended the phase one upto 1995, the second phase the next 5 years (1996-2000) and the phase three (2001-2005) as shown in Table-43.

Table-43.

Public Land Acquisition Programme in Phases (1987-2005)

Phases	Year	Projected population	Additional proposed land to be acquired in 2005 (in acres)
Phase One	1987-1995	23,600	54.2
Phase Two	1996-2000	28,000	35.2
Phase Three	2001-2005	34,000	24.6
Total			114.0

The speed of development will depend on the growth of upazila centre and its potentiality. If the proposed projects are not developed within the plan period, the work could be shifted to the next phase of development. It will be needed to review the plan in every phase upto 2005 A.D. to study the speed of growth and development and to review the land requirement as prepared. Now how can we spend the government budget? Which items deserve priority, such as industrial estates, housing estates or commerce. These are revenue generating but how much needed from the environmental point of view are to be determined. Parks, stadium and roads are also needed but these are not revenue generating.

Regarding industrial estates, it can be argued that, it is revenue generating and also helps to guide the physical development in a planned way. Moreover, government is recommending for the establishment of the industrial estates in each upazila. With the creation of industrial estates there will be employment opportunity. So, the economy of the upazila will be viable. With regard to housing estates, it may be said that creation of this, housing plots can be sold to the public. In this case also, expenditure incurred for this purpose can be recovered. With the increase of urban population, there will be demand for shopping centre. Hence, commercial centres can be developed by the Upazila Parishad which will be distributed to the traders taking money advance from them. In such a way certain amount of money can be reclaimed.

Table-44.

Public Land Needs in Mirzapur Upazila
Headquarters (1987-2005) in Phases.

Type of uses	Total addi- tional land to be ac- quired		Per- cen- tage of land	First phase 1987-1995		Second phase 1996-2000		Third phase 2001-2005	
	Acres	Cost*		Acre	Cost	Acre	Cost	Acre	Cost
1. Road	27.0	108.0	23.7	11.0	44.0	9.0	36.0	7.0	28.0
2. Residential (Housing Estate)	20.0	80.0	17.5	8.0	32.0	7.0	28.0	5.0	20.0
3. Industry	17.0	68.0	14.9	8.0	32.0	9.0	36.0	-	-
4. Recreation	10.8	43.2	9.5	5.0	20.0	3.0	12.0	2.8	11.2
5. Administra- tion and Judiciary	13.6	54.4	11.9	9.0	36.0	2.1	8.4	2.5	10.0
6. Commerce	8.0	32.0	7.0	5.0	20.0			3.0	12.0
7. Utility Services	7.3	29.2	6.4	2.8	11.2	2.5	10.0	2.0	8.0
8. Education	5.0	20.0	4.4	3.0	12.0	1.0	4.0	1.0	4.0
9. Socio- cultural	4.6	18.4	4.1	2.0	8.0	1.6	6.4	1.0	4.0
10. Health and Welfare	0.7	2.8	0.6	0.4	1.6	-	-	0.3	1.2
Total	114.0	456.0	100.0	54.2	216.8	35.2	140.8	24.6	98.4

*Cost at the rate of Taka 4 lakhs per acre (1987 Price).

The cost has been calculated on the basis of prevailing market price of land. The present cost of land in the upazila is around Taka 4 lakhs per acre. The total cost of land of the upazila headquarters has been divided in three phases as shown in Table-44.

The rationale behind this proposed public land acquisition programme is now discussed below.

Justification for Future Physical Plan Proposal:

The objective of the physical plan is to provide rather a broad guideline for future development of the upazila centre than to prepare a series of detail plans for individual schemes. Once these principles are agreed, it will be necessary to work out the proposals. The proposals are evolved on the basis of existing conditions and the expected trend in growth as shown in Map-11.

- 1) Road: Mirzapur upazila will continue to grow as a potential urban centre, provision of new roads at appropriate standards of construction to provide the missing links in the existing areas and in anticipation of future landuse are considered. The following are the proposals for the improvement of road networks at the upazila centre.

First, for providing good accessibility to the Mirzapur bazar located by the side of the national highway and also by the Bangsai river, the road adjacent to this bazar is proposed to be widened upto 30' which is only 8' wide at present. Because, in future more traffic will be generated with the expansion of commercial activity.

Second, two other important roads are needed to be completed to cover the major development work at the upazila centre. Of these, the first one, for establishing better linkage at the upazila centre at Baimhati mouza and also to the national highway. So, the road passing through the southern side of the upazila is proposed to be widened upto 30' by converting from kutchha to pucca. The existing width of this road is only 7' wide. The other road for linking the Mirzapur mouza at the upazila centre is proposed to be widened upto 30', which is only 6' wide at present. The importance of this road will be greatly felt with the elevation of thana into upazila and also due to the increased movement of people in future.

The third and the most important of all these roads is, for the purpose of quick and good accessibility to the Kumudini hospital located at Postkamuri mouza, the road adjacent to this hospital is also proposed to be widened upto 40' which is now 10' wide only. In addition to these, some new roads within the residential areas of Mirzapur, Sarishadair, Postkamuri and Mirdeohata mouzas are proposed at various width of 30' wide to 24' wide which will be converted from kutchha into pucca. This roads will serve as linkage among the mouzas of the study area.

2) Residential:

Housing is overwhelmingly a private sector activity. Direct investment can only solve a tiny fraction. So, for meeting partial demand of housing for government employment three separate housing estates each having 8.0 acres, 7.0 acres and 5.0 acres totalling 20.0 acres are proposed. In these housing estates, accommodation will be made for 490

households having 2700 family members. This constitutes 8 percent of the total households (6071) of the study area. In proposing the location of the housing estates, trends of development, availability of high land, nearness to market, work place and easy accessibility are considered. So, it is proposed at Baimhati, Postkamuri and Mirdeohata mouzas.

3) Commerce:

Markets develop in response to demand and hence their size will vary according to amount of trade. Upazila centre has two well developed markets, which are fairly distributed. So, their changes could affect the relative importance and location of markets. Considering this, Mirzapur bazar located by the side of the upazila centre and by the bank of river Bangsai, whose proposal has been given for the expansion upto 2.0 acres of land to meet the future need of this market. Another market located at Mirdeohata mouza is also expanding to its present site. Hence, it is proposed for expansion upto 2.0 acres of land. A shopping complex in an area of 3.0 acres has been proposed at Baimhati mouza to the upazila centre. Besides these, for banks and local corner shops 1.0 acre of land is proposed at various mouzas.

4) Administration:

i. Administration and Judiciary:

The plan should safeguard towns role as a regional centre and foster expansion. It is inevitable that functions of the upazila centre will expand due to the decentralisation policy of the government. As population increases, there will be need for government function. So, for meeting the future requirement

of the upazila administration, proposal has been given to its present site comprising 8.0 acres of land. Because, it has the provision for expansion in the eastern side at the upazila centre.

ii. Government and Semi-government Office:

At present the only auditorium of the upazila shahar is being occupied by the upazila office such as Upazila Fishery, Upazila Engineering Office, Mass Communication Office, Settlement Office for want of accommodation. In addition to these, Upazila Agriculture Office, Upazila Village Defence Office, Upazila BADC seed office are functioning in the rented house. So, 5.6 acres of land are proposed for these offices adjacent to the upazila headquarters at Baimhati mouza.

5) Industry:

It is rational to site outside the city centre and also where vacant land and transportation routes do exist. So that truck/lorries can easily ply and reach the industrial estates. Considering this, it is proposed at two different places at Postkamuri and Mirdeohata mouza constituting 9.0 acres and 8.0 acres of land respectively. Moreover, there are two reasons for siting two distinct industrial estates so as to get a better distribution of traffic than is possible with only one estate.

6) Recreation:

(a) Calm and quiet place is convenient for parks. In addition, it should be placed outside the major roads but where the secondary and local roads exist. So, proposals are given for parks, open space and children parks at Baimhati and Postkamuri mouzas comprising 5.0 acres and 1.8 acres respectively.

(b) For stadium requires large area, the catchment area of stadium encompasses not only the planning area but also the whole upazila. For this good access is warranted. So, it is proposed at Baimhati mouza, centrally located place having 4.0 acres.

7) Socio-cultural:

- (i) Library: Educational zone and central place is convenient for library and also where people can easily commute from their residences. Hence, it is proposed at Postkamuri mouza comprising 0.5 acres of land, a place located in the core of the upazila.
- (ii) Community Centre: Residential areas and centrally located places are suitable for community centre. The existing community centre is sited at the upazila headquarters. So, it is proposed for expansion having 0.2 acres of land.
- (iii) Auditorium: Existing auditorium is located by the side of the upazila headquarters at Baimhati mouza. It is also a central place accessible to all sides. So, it is proposed for expansion of this auditorium upto 0.2 acres of land.
- (iv) Graveyard: It is generally located outside the residential area. So, proposals are given for the expansion of the existing graveyards having 1.5 acres of land at various sites of the mouza.
- (v) Crematorium: The existing crematoriums are located in different mouzas of the study area. So, proposals are given for the expansion of the existing crematoriums upto 2.2 acres of land.

8) Education:

Mirzapur, Postakamuri and Baimhati mouzas accommodate most of the existing educational facilities of the Mirzapur upazila. These will continue in its present locations.

- (i) Primary Schools: Walking distance of primary schools should not be more than $\frac{1}{2}$ or $\frac{1}{4}$ miles. It is rational to site them specially in relation to the existing and proposed residential areas and also to those areas which are badly served. So, proposals are given for the expansion of the existing primary schools at various mouzas comprising 0.8 acres of land.
- (ii) High School: The catchment area of high schools encompasses not only the planning area but also the surrounding areas of upazilas. So, it is proposed for the expansion of the existing high schools located at various mouzas of the study area comprising 0.8 acres of land.
- (iii) Vocational School: The catchment area of vocational school also encompasses not only the planning area but also the surrounding area. At present, there is no vocational school in the upazila centre. So, proposal has been given near the Baimhati mouza, a place centrally located and also adjacent to the upazila headquarters comprising 3.4 acres of land.

9) Health and Welfare:

- (i) Family Welfare Centre: The present family welfare centre sited at Baimhati mouza, is a centrally located place. For this service facility also warrants good accessibility, so that people can easily commute from their residences. Hence, proposals has been given for the expansion of this service upto 0.2 acres of land.

(ii) Charitable Dispensary: Mirzapur hospital caters to the services of charitable dispensary at the upazila headquarters. There is no government charitable dispensary as yet. So, we propose for a new charitable dispensary having 0.5 acres of land at Mirdeohata mouza, a place about 1½ miles away from the central core of the upazila.

10) Utility Services:

(i) Post Office: The catchment area of post office encompasses not only the planning area but also the surrounding areas of the upazila. Existing post office located at Baimhati mouza is proposed for expansion comprising 0.3 acres.

(ii) Telegraph and Telephone: With the decentralisation and devolution of development activities by the government, it is imperative to extend the telecommunication facilities to the upazila headquarters. Hence, the existing telegraph and telephone office is proposed for expansion upto 0.2 acres.

(iii) Garbage Disposal: Riverside and lowlying areas are suitable for garbage disposal. It should also be outside the city centre, so that rotten articles can be easily disposed off. Hence, it is proposed at Mirdeohata mouza comprising 1.7 acres.

(iv) Bus Terminal: The location of bus terminal should be outside the city centre but should be adjacent to the national highway, so that it can operate easily. So, it is proposed at Mirdeohata mouza.

- (v) Bus Stand: The space for bus stand should be adjacent to the national highway and where concentration of people are substantial enough. So, it is proposed at two places: one near the Mirzapur bazar at Postkamuri mouza and another at Baimhati mouza adjacent to the Upazila Parishad comprising 0.1 acres each.
- (vi) Fire Service Station: It is rational to site by the side of the industrial and commercial centres where chances for fire hazards exist. It also requires good accessibility so that it can reach the place of occurrence immediately. Hence, it is proposed at Mirdeohata mouza with immediate access to the national highway having 0.5 acres.
- (vii) Storage and Godown: Storage and godown generally seek to locate where volume of business and trade are large enough. For this service facility good access is warranted so that truck/lorries can easily operate for loading and unloading of goods from the godown. Existing godown located at Baimhati mouza will remain in its present position. So, it is proposed a new godown at Mirdeohata mouza comprising 1.9 acres of land which is also by the side of the national highway.
- (viii) Power Station: There is space for WAPDA at Baimhati mouza, centrally located place comprising 0.2 acres. It is proposed for expansion having 0.3 acres for both office and supply station.
- (ix) Water Supply: The location for water supply is proposed at Baimhati mouza having 0.5 acres. At present, there is no space for this service.

6.3.3. Likely Budget Available, Agencies Responsible and their Cost:

Total additional land to be proposed upto 2005 is 114.0 acres comprising of few sectors. The executing agencies are different for different uses. The services which are considered here are road, industrial estates, commerce, socio-cultural, administrative and judiciary, utility services, education, health and welfare and recreation facilities. The agencies responsible for undertaking these services include Public Works Department (PWD), Upazila Parishad, Bangladesh Small and Cottage Industries Corporation (BSCIC), Health Directorate, Housing and Settlement Directorate (HSD), Directorate of Public Instruction (DPI). The cost of the proposed additional land divided into three phases are given below:

Table-45.

Phase-wise Distribution of Proposed Additional Land and their Cost.

Phases	Year	Area (in acres)	Cost (at the rate of Tk. 4 lakhs 1987 price)
First phase	1987-1995	54.2	216.8
Second phase	1996-2000	35.2	140.8
Third phase	2001-2005	24.6	98.4
Total		114.0	456.0

Financing and Cost Recovery: Financing and cost recovery are important dimension of any development project. The resources can be generated from provisions such as housing estates, industrial estates, commercial development, and also providing some non-profitable land use such as road, stadium, parks and open space. These are discussed in the following way:

- (i) Housing Estates: It is proposed that the government will develop housing estates based on 'sites and services'. The general focus should be making housing affordable to groups for government employees. These housing estates will be divided into plots. The total cost for development of these plots will be calculated and the cost will be divided on each plot holder. Then these plots will be sold. In this way the total cost can be recovered.
- (ii) Commercial Development: With the increase of population the need for shopping centres and markets will increase. Hence, commercial centres can be developed by the Upazila Parishad which will consist of shops and markets and these will be distributed to the businessmen taking money advance from them. Then certain amount of rent per square feet (sft) will be determined for each shop which will have to be paid by the shop owners on monthly basis. In this way cost can be recovered.
- (iii) Industrial Estates: With the upgradation of thana into upazila, government is recommending for industrial estates in each upazila headquarters. As such industrial estates will be developed by the BSCIC. This BSCIC estates will be developed into plots which will

be distributed to the industrialists taking money advance according to the cost of land and development. In this way also cost can be recovered.

- (iv) Bus Terminal: By providing bus terminal in the upazila headquarters, the local upazila authority can raise the income by imposing charges on the bus and truck operators who use the terminal.
- (v) Provision for Non-profitable Landuses: The cost cannot be recovered from roads, stadium and parks, because these are provided for non-profitable uses. However, entry fees may be introduced. In this way, only a small amount of money can be realised.
- (vi) Upazila Parishad Budget: Development of public services and acquisition of land require adequate financial resources. Presently, government is the only source of resources. But the resources are very inadequate. Upazila Parishad receives varying amounts (around less than 1 crore taka) of government grant in different years. Only a small fraction of this grant can be utilised for the implementation of the upazila development activity within the shahar area. Under this condition three alternative sources can be identified to implement development plan. These are the following :
 - (a) There are several service organisations such as BSCIC, HSD and PHE which can share the development programmes. Co-ordination between these organisations and the Upazila Parishad is necessary in order to undertake efficient implementation of project. To overcome the budget constraints, the amount for different sectors and Ministries have been shown in Table- 46. HSD will need to set aside

Table-46.

Likely budget available, agencies responsible and their cost

Type of uses	Agency	Ministry	Additional land to be acquired by 2005 and the cost		First Phase (1987-1995)		Second Phase (1996-2000)		Third Phase (2001-2005)	
			Acre	Cost	Acre	Cost	Acre	Cost	Acre	Cost
Primary road	Upazila Parishad	Ministry of Local Government and Rural Development	7.4	29.6	3.0	12.0	2.0	8.0	2.4	9.6
Commerce	Upazila Parishad	-do-	8.0	32.0	5.0	20.0	-	-	3.0	12.0
Upazila Complex	-do-	-do-	4.0	16.0	2.0	8.0	1.0	4.0	1.0	4.0
Open spaces, parks and children park	-do-	-do-	6.8	27.2	3.0	12.0	2.0	8.0	1.8	7.2
Upazila Engineering Office	-do-	-do-	0.5	2.0	0.3	1.2	-	-	0.2	0.8
Socio-cultural and other services such as library, community centre, crematorium, graveyard, garbage disposal	-do-	-do-	8.4	33.6	4.0	16.0	3.0	12.0	1.4	5.6
Water supply	Public Health Engineering Deptt.	-do-	0.5	2.0	0.3	1.2	-	-	0.2	0.8
Secondary road	Zila Parishad	-do-	11.8	47.2	5.0	20.0	4.0	16.0	2.8	11.2
Local road	Union Parishad	-do-	7.8	31.2	4.0	16.0	2.0	8.0	1.8	7.2
Sub-total			55.2	220.8	26.6	106.4	14.0	56.0	14.6	58.4
Housing Estate	Housing and Settlement Directorate	Ministry of Works	20.0	80.0	8.0	32.0	7.0	28.0	5.0	20.0
Industrial Estate	Bangladesh Small and Cottage Industries	Ministry of Industry	17.0	68.0	9.0	36.0	8.0	32.0	-	-
Education	Directorate of Public Instruction	Ministry of Education	5.0	20.0	3.0	12.0	1.0	4.0	1.0	4.0
Stadium	Sports Directorate	Ministry of Youth	4.0	16.0	2.0	8.0	1.0	4.0	1.0	4.0
Upazila Court		Ministry of Law	4.0	16.0	2.0	8.0	1.0	4.0	1.0	4.0
Agri. office, Upazila Seed Office, BADC Godown	Agri. Directorate Bangladesh Agri. Development Corporation	Ministry of Agriculture	2.9	11.6	1.5	6.0	0.9	3.6	0.5	2.0
Bus terminal and Bus Stand	Bangladesh Road Transport Corporation	Ministry of Communication	1.9	7.6	0.6	2.4	0.8	3.2	0.5	2.0
Health and Welfare	Health Directorate	Ministry of Health	0.7	2.8	0.4	1.6	-	-	0.3	1.2
Telegraph and Telephone	Telegraph and Telephone Board	Ministry of Telegraph and Telephone	0.5	2.0	-	-	0.3	1.2	0.2	0.8
Fire Service Station and Village Defence		Ministry of Home	1.0	4.0	0.5	2.0	0.5	2.0	-	-
Upazila Fishery	Directorate of Fishery	Ministry of Livestock and Fishery	0.5	2.0	-	-	0.2	0.8	0.3	1.2
Upazila Mass Communication	Information Deptt.	Ministry of Information	0.5	2.0	0.3	1.2	-	-	0.2	0.8
Upazila Settlement Office		Ministry of Land Administration and Land Record	0.5	2.0	0.3	1.2	0.2	0.8	-	-
Power Station	Power Development Board	Ministry of Flood Control and Water Resources	0.3	1.2	-	-	0.3	1.2	-	-
Grand Total			114.0	456.0	54.2	216.8	35.2	140.8	24.6	98.4

* Cost at the rate of Taka 4 lakhs per acre (1987 price)

80 lakhs for this purpose. BSCIC will require 68 lakhs and Sports Directorate have to set aside 16 lakhs.

- (ii) Upazila Parishad presently has very limited scope of mobilisation of local resources. Sufficient resources may be mobilised from the town area through taxation of property and trade.
- (iii) Central government may provide lump sum grant to the Upazila Parishad for implementing development programmes within the town area.

6.4. Funding and Implementation.

6.4.1. Government Fund for Implementation of the Plans:

Upliftment of public services and development of commercial, industrial activities have been included in the physical plan for the upazila headquarters. This is followed by acquisition of land. All these will involve substantial financial expenditure and put severe strain on the government exchequer. For providing these services and acquisition of land within the stipulated period (for 18 years) the estimated cost is 4.56 crore.

Presently, government is the only source of fund. But resources at its disposal are scant. Government provides annual block grant to the Upazila Parishad. The amount varies from year to year. As a result, only a small portion may be utilised for the implementation of the upazila development activities within the headquarters area. There are several approaches that this financial constraints can be resolved.

1. A Share of Upazila Block Grant:

Upazila headquarters is a fast growing urban centre wherein most of the development activities are concentrated. Therefore, upliftment of the upazila headquarters has been identified by the government as a key strategy to achieve the goal of upazila development. In order to ensure judicious utilisation of fund, government has fixed certain guidelines for the sectoral allocation in the Annual Upazila Development Plan(AUDP) and identified five key sectors. The permissible range for allocation of fund in these key sectors are indicated below.

Table-47.

Sectoral Allocation for Annual Upazila Development Plan.(AUDP).

Sectors	Minimum	Maximum
1. Agriculture and Irrigation	15%	25%
2. Small and Cottage Industries	5%	10%
3. <u>Physical Infrastructure</u>		
i) Transport and Communication	17%	30%
ii) Housing and Physical Planning	10%	17.5%
4. <u>Socio-economic Infrastructure</u>		
i) Development of Education	5%	12.5%
ii) Health and Welfare	7.5%	15%
5. <u>Sports and Culture</u>		
i) Sports and Culture	2.5%	7.5%
ii) Grants to Union Parishads	5%	7.5%
6. Miscellaneous	2.5%	5%

Source: Guidelines for Upazila Parishads as revised in 1985, Ministry of Planning, P-4.

Thus from the above discussions, it is apparent that the existing sectoral distribution formula does not seem to be sound and rational. It is, because, under the prevailing system a wholesale distribution of money (prescribing minimum to maximum ceiling for each sector) has been made. But the upazila headquarters being the focal point of development activities for the whole of upazila, the necessity of providing special allocation of fund should be considered. A sizeable number of population live at the upazila headquarters. To provide service facilities for the population living at the centre and its areas of influence, there is also a pressing need for higher investment in these areas. Hence, special allocation of fund is necessary for the centre. Without allocation of money, the upliftment activities of the upazila headquarters area, in a real sense and rapid pace, will not be forthcoming. That in turn may have negative effect on the welfare of the people.

So, the existing sectoral distribution formula may be changed by allocating a share of grant for the upliftment activities at the headquarters area. Considering the population of the upazila centre's area 10 percent of the total allocation and another 10 percent for creating service facilities for the influence area may be made. Thus, totalling atleast 20 percent of the total fund may be allocated for the headquarters area. By adopting this formula, about Taka 20 lakhs may be available per year for the upazila headquarters. Thus the development programme at the upazila headquarters will be rationalised and this will reflect the supreme needs of the day.

2. Co-ordination of activities of various national government agencies:

Organisations such as Housing and Settlement Directorate (HSD), Bangladesh Small and Cottage Industries Corporation (BSCIC), Public Health Engineering (PHE) etc. can share the upliftment activities in the upazila headquarters. Co-ordination of activities among these organisations is warranted in order to streamline the development activities at the upazila headquarters for the implementation of the plans. Under these programmes, housing estates may be established by HSD as proposed in the physical plan. These housing estates will have required number of plots. The cost of development of these plots will be calculated and cost will be divided among the plot holders. Correspondingly, industrial estates may be developed by BSCIC, which is under the Ministry of Industries. This will be distributed to the investors against the cost of development. In this way the total cost will be recovered.

In addition to these, under Rural Works Programme (RWP) and Food for Works Programme (FWP) various types of projects are undertaken. The important ones are construction of roads and embankments. In the proposed physical plan three types of roads i.e. major, secondary and local roads are provided which may be implemented under these programmes.

3. Increased allocation of fund from the national government:

A special fund may be set up by the national government from which Upazila Parishad could borrow on long term repayment basis, for the purpose of land acquisition. Long term repayment would be met from the enhanced tax

income in future and rents from the land (e.g. markets, industrial estates), vehicles licensing (roads, bus stations etc.) and so on. Hence, it is necessary that a new law be enacted in this regard. In this way also implementation of the upazila headquarters may be partially fulfilled.

4. Non-government assistance:

If funds are not available in the Upazila Parishad, schools may be constructed by the philanthropists. In this regard, Upazila Parishad may request the philanthropists to come forward in financing such projects.

Conclusion:

Any one of the above mentioned ways by itself cannot solve the implementation of the upazila headquarters plans. Government assistance is inevitable in financing the cost of acquisition of land and undertaking project works for public purposes. Because, land being a scarce and valuable commodity it is obvious that no body is willing to part with single parcel of land for the implementation of the upazila headquarters plans. Moreover, through pice meal assistance by the private individuals and philanthropists the upazila headquarters plans may be partially implemented. Hence, it is emphasised that the national government could provide a long term loan at the disposal of the Upazila Parishad which would be ultimately repayable in future through the imposition of municipal taxes on industrial estates, markets, bus stations and householders. Moreover, government should provide loan either through BSCIC or HSD or a revolving fund for the implementation of the headquarters plans.

6.4.2. Proposals for Strengthening Development Control:

The organisation and legal statutes are the two fundamental instruments in the process of town development. But Mirzapur Upazila Parishad lacks in both. The functions and responsibilities of the Upazila Parishad has been augmented by the upgradation of thana into upazila. In Bangladesh, there are about 400 upazila headquarters, of which only a small number of upazila headquarters have Paurashava. As Mirzapur upazila headquarters does not have a Paurashava, two alternative proposals may be suggested for the control and development of the upazila headquarters.

Firstly, during the period within which no other local government is given responsibility of development control, the Upazila Parishad may be allowed the responsibility for the upazila headquarters.

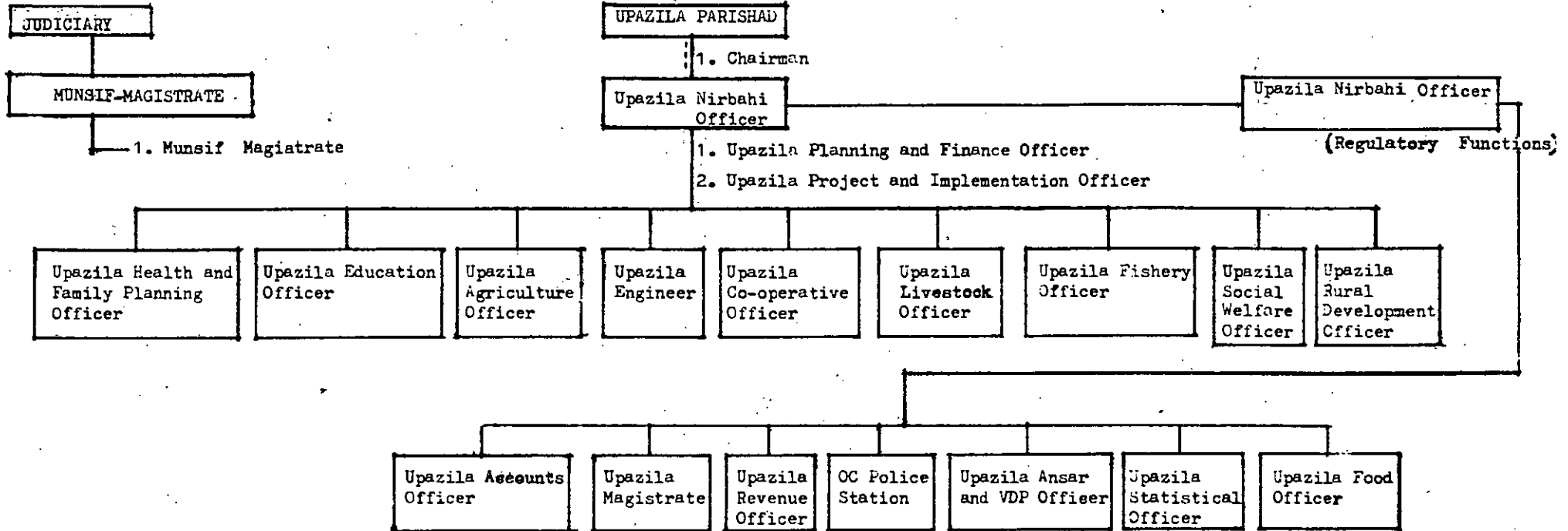
Secondly, the idea is to declare the upazila headquarters as a Paurashava. At present, the population of the study area is about 17,000 and it will shot up to 34,000 by the year 2005. Within the headquarters there are two markets. Of these, Mirzapur bazar located at the upazila centre has the highest number of shops totalling 250. The other market located at Mirdeohata mouza is also not less significant comprising 100 shops.

To encourage efficient landuses in the upazila headquarters and to reduce the physical problems the following steps can be suggested.

- (i) Roads in the upazila headquarters are narrow and tortuous. So, initial set back in anticipation of future widening of primary, secondary and local roads should be strictly followed.

- (ii) Government owned land should be properly utilised specially using at more reasonable (maximum) residential density of population on plots (e.g. maximum population per acre or maximum plot ratio or maximum of floor space).
- (iii) Buildings which give rise to special siting problems like petrol filling stations, cinema halls will require very careful consideration before they are permitted in any use zone.
- (iv) People living at the upazila headquarters are acquainted with the local problems. Public involvement may be very much effective in decision making, preparation of socio-physical infrastructures, designing of services according to their effective demand, cost recovery, maintenance and even review of the plans from time to time. In the urban areas, it is important in implementing building controls, selecting sites for public uses and paying for land acquisition. So, local people should be allowed to express their opinions and decisions relating to local problems and their opinions should be given due importance before preparing physical plan. If this is done, it will be easier to implement the physical plans in the upazila headquarters.
- (v) At present, there is a post of Upazila Planning and Finance Officer as shown in the Upazila Administration Chart. But this post has not yet been filled up. Instead of it, one Assistant Commissioner has been given the charge of Planning and Finance Officer in addition to his own duties. The Assistant Commissioners do not have adequate knowledge and experience with the

ORGANISATION OF UPAZILA ADMINISTRATION



Source: CMLA'S, 1984 : Manual on Upazila Administration, Vol.-II, Dhaka.

intricacies of physical planning and landuse planning. Moreover, their involvement with other functions including magistracy do not allow them to devote sufficient time on planning. For the planning perspective, the Assistant Commissioners may currently play a vital role for balanced and controlled development of the upazila headquarters. By this time, all upazila headquarters are experiencing developments under the private and public sectors involving the change of existing landuses for the purpose of seeking planned development. The landuse plans are being prepared by the Urban Development Directorate. Therefore, Assistant Commissioners incharge of planning may be imparted with in service training in the field of physical planning. In future, the post of Planning Officers should be filled up with professional physical planners who can deal with the multifaceted problems relating to landuse and physical plans. This will enable the Upazila Parishad at present and the Paurashava when constituted in future, to take the advantage of planners in the proper use of scarce land and other resources at the local level.

- (vi) The Physical Plan is a broad guideline for the development of Mirzapur upazila headquarters. The proposals of the plan has been evolved on the basis of existing conditions, and the expected trend in growth and their future projected population. The implementation of this plan is also spread over 18 years. Within this period significant changes in any of the basic criteria may make it necessary to revise some of the proposals embodied in the plan. Hence, it would

be correct to say that it would be an ever continuing work, and not a 'once and for all' job. So, it should be reviewed once in 5 years to see the progress of development in the light of the changed circumstances. On the basis of monitoring of the progress, the Upazila Parishad may make revisions incorporating changes and modifications in the plan.

- (vii) It is essential that Mirzapur Upazila Parishad will be executive authority for wide range of planning and development control of the upazila headquarters and will function as the sole authority. To this end in view a 'Joint Advisory Committee' may be formed comprising of Upazila Parishad Chairman as its Chairman, Upazila Nirbahi Officer as the co-ordinator, Upazila Engineer as the member, while the officers incharge (at local level) of the respective sector agencies should be co-opted as the Technical Advisor. The Planning Officer would act as the Member-secretary of the said committee. This committee should be known as the "Development Control Committee". This will also act as a 'Site Selection Committee' and would have role of co-ordinating private and public investment in infrastructure in Mirzapur upazila headquarters and preparing long term strategies and resolving disputes that emerge in the construction of building.

Conclusion:

Proper planning and development control is indispensable for future development of the upazila headquarters in Bangladesh. The upazilas are the new tier of local government in the country. If haphazard and uncontrolled

development takes place, potentials of the economic and social development in these headquarters will not be forthcoming. Therefore, required at the moment are proper statutes for maintaining the planned development. Without formulation of proper laws the Upazila Parishad will not be in a position to arrest unplanned growth.

6.4.3. Proposals for Improving Water, Sanitation, Garbage Disposal and Road Maintenance:

Improvement of urban facilities and infrastructure policies have major impact in the living standard and can also influence the direction and location of urban growth. Here, the following suggestions are proposed in this aspect.

- (a) Water Supply: The Third Five Year Plan specifies the provision of one tubewell for drinking water per 125 people. The projected population is 34,000 by 2005. So, the number of tubewells that may be needed are 272 by 2005. The existing number of tubewells are 124. So, an additional 148 numbers of tubewell will be required for additional population 17,200. At present, there is no possibility of installing power pump, deep tubewell or extract water from the river for purification and then supply same in the upazila centre. Because, the government has no programme to provide such facilities such as, piped water supply in the upazila centre. Moreover, this will involve huge expenditure which the government cannot afford due to resource constraint. By 2005 it may be possible to get such facility by imposing taxes to the upazila dwellers on compulsory basis. It may also be possible if the non-government organization (NGO) comes forward in this regard.

Priority should be given to those areas of greatest concentration such as markets, schools and bus stations where provision of water supply is currently poor and where the cost could be recovered. The financial return from these projects will be practically zero. Although water tax can lead to partial recovery of the investment. The upazila should take the responsibility for installation arrangement (i.e. sinking of the well and construction of the base) and overall maintenance of the tube-well. The Upazila Parishad may be asked to recover the installation cost by instalments which may be deposited to the Upazila Parishad from time to time.

The Public Health Engineering (PHE) and Upazila Parishad will be responsible for providing all component parts of the tube-well piping, pumping head and materials for the tube-well base. The Upazila Parishad would be responsible for determining in conjunction with the residents and the Union Parishads Chairman where tube-well would be installed and who the beneficiaries would be .

- (b) Sanitation: Domestic sanitation is generally an individual responsibility. The Third Five Year Plan contains no specific target relating to sanitation in urban areas. It also specifies that use of water sealed latrines should be encouraged and their manufacture should be encouraged in the zila and upazila centre. The adoption of single pit latrine proposed by UNICEF as the model for rural areas has been proposed here.

A considerable education programme is needed to advertise the benefit of improved latrines. The possibilities opened up by the lower cost latrines should be publicised and the manufacturing of burnt clay should be encouraged. Making

provision of improved twin pit latrines in public buildings such as the market and the bus station can be provided. Cost can be reclaimed from bus station and market users fees. The twin pit latrines has the advantages that excreta is totally biologically degraded before removal. It is, therefore, very suitable in areas of heavy use.

For the implementation of this programme, Upazila Parishad should take responsibility for the distribution of lower cost latrines among the people. The maintenance of the latrines in the parks and market places would be responsibility of the Upazila Parishad. However, maintenance of units in the school will be responsibility of the relevant schools. If families lay their own foundation and dig pit latrines the costs are substantially reduced. This will make the improved pit latrines affordable to every one who can afford.

- (c) Garbage Disposal: Garbage disposal is indispensable for the healthy environment in the upazila. But in the upazila headquarters there is no garbage disposal system. So, it is proposed that it should be developed by more resource through placing of garbage bins. These garbage bins should be preferably be placed in commercial and busy residential areas.

Specific sites for refuse disposal in residential areas will be determined by the local residents and subject to public health and sanitation considerations. Moreover, for collecting rubbish from bazar areas, pushcarts may be used with sweepers for ensuring efficient operation of the garbage bins and drains. For this, a marginal

increase in rent in the shops may be introduced to allow the bazar committee to cover the costs of such improved services. Rubbish collection should be arranged daily in the bazar areas and the bus stations being emptied. The sites for refuse disposal should not be located near the residential areas but should not be as to require long journey by the garbage collector. These sites will have to be acquired as these are not government land.

- (d) Road Maintenance: The Upazila Parishad without the government assistance cannot afford the financial cost of road widening in the built up areas. The main emphasis in the physical plan should be on making the best use of the existing road maintenance and limited improvement to overcome the specific problems. Trade and businessmen should not be allowed to encroach on declared roads or side walks and it should ensure that the road reserve remains in public use.

Internal roads in the market places should be maintained properly. The bazar committee should have enough power for taxation and for proper maintenance of internal roads of the bazar. In addition, Housing and Settlement Directorate (HSD) under the Ministry of Works can create housing estates. In these housing estates by providing internal road in the physical plan, it may be suggested to recover some costs by imposing taxes from the road users for the maintenance of the roads.

6.4.4. Conclusion:

Mirzapur upazila shahar is still predominantly rural. It is found that landuse is fast transforming from rural to urban character. Haphazard and uncontrolled growth is taking place leading to mismanagement of landuses. To arrest this haphazard and uncontrolled growth, a rational physical planning approach towards the development of the upazila centre is warranted to make the environment aesthetically pleasing, healthier and hygienic

appendices

APPENDIX-1

QUESTIONNAIRE

Department of Urban and Regional Planning
Bangladesh University of Engineering and Technology, Dhaka.

Research Title: Physical Planning Approach for Upazila
Headquarters : "A Case Study of Mirzapur".

1. Name of the Interviewer :
- Date of Interview :
- Signature :
2. Name of the Mouza/Union :
3. Total monthly income :
- (In Taka)
4. Total monthly expenditure :
- (In Taka)

5. General Information of the Family:

Sl. No.	Name and Relation with the Head of the family	Age	Reli-gion	Sex		Marital status (use code)	Educa-tion (use code)	Occupa-tion (use code)
				Male	Fe-male			

1. _____

2. _____

3. _____

4. _____

5. _____

Marital Status Code/

1. Married
2. Unmarried
3. Widow

Education Code

1. Illiterate
2. Primary
3. Secondary
4. Higher Secondary
5. Degree
6. Master Degree
7. Doctor/Engineer

Occupation Code

1. Farming
2. Business
3. Tailor
4. Student
5. Teacher
6. Fisherman
7. Service
8. Barber
9. Doctor
10. Labour
11. Imam
12. Others

6. What is the approximate area of your homestead (in square feet) ?
 - 6.1. What is the approximate Built-up area (in square feet)?
 - 6.2. What is the approximate open space (in square feet)?
 - 6.3. What types of building materials are used in your locality (circle) ?
 - (a) Roof
 - (b) Wall
 - (c) Floor
 - 6.4. Are you owner or a tenant in this house? (circle)
 - (a) Owner occupied
 - (b) Rented
 - (c) Tenant without rent
7. What type of recreation facilities you avail? (circle)
 - (a) Parks
 - (b) Playground/Open space
 - (c) Cinema hall
 - (d) Club
 - (e) Auditorium
 - (f) Library
 - (g) Others (specify)
8. What types of health facilities are there in your locality (circle) ?
 - (a) Health Complex
 - (b) Maternity Centre
 - (c) Family Welfare Centre
 - (d) Charitable dispensary
9. What are the sources of your drinking water (circle)?
 - (a) Pond
 - (b) Well
 - (c) Tube-well
 - (d) Community tap
 - (e) River/Khal
 - (f) Others (Specify).

10. Do you have sanitary facilities of any kind in your locality ?(Circle).

- (a) No fixed latrine
- (b) Own managed pit latrine
- (c) Latrine shared with others families
- (d) River/Khal
- (e) Bush/Jungle
- (f) Others (specify)

11. Do you have drainage facilities in your locality? (Circle)

- (a) Pucca
- (b) Kutcha
- (c) Natural drain
- (d) Stagnant water during rainy season

12. Where do you dispose garbage? (Circle)

- (a) No fixed place
- (b) Dumped in a pit
- (c) Ditch
- (d) Others (specify)

13. What is the source of energy? (Circle)

A. For cooking

- a. Wood
- b. Kerosine
- c. Cowdung
- d. Others (specify)

B. For lighting

- a. Electricity
- b. Kupi/Hassak
- c. Hurricane/Lamp
- d. Others (specify)

14. What is the mode of transport (Internal movement)? (Circle).

- (a) On foot
- (b) Boat
- (c) Rickshaw
- (d) Motor cycle
- (e) Baby taxi
- (f) Cycle
- (g) Others (specify).

15. Migration:

15.1. From where did you arrive here? Village : _____
Upazila : _____
District: _____

15.2. When did you arrive here in this locality:?

Month _____ Year: _____

15.3. Why did you come here?
(Please mention the cause)
(Circle)

- (a) Poverty in the rural areas
- (b) Job opportunity
- (c) Medicare
- (d) Amenities
- (e) Natural hazard/flood
- (f) Others (specify).

Appendix-2.

Table-1. Climatic Conditions of Mirzapur Upazila.

Records	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Octo	Nov.	Dec.
Rainfall in M.M.	10.8	17.7	34.9	95.1	201.1	363.1	306.1	434.6	238.8	164.4	16.7	8.0
Temperature												
oC Max.	24.90	26.96	30.95	35.21	30.00	31.35	31.31	32.85	31.6	31.50	30.45	28.51
Min.	11.99	14.69	20.00	24.19	23.46	26.65	26.34	26.21	25.59	23.51	20.64	14.00
Humidity (Percent)	77.00	72.00	69.33	77.33	78.00	86.33	90.66	87.00	86.33	79.66	75.66	80.00

Source : Tangail District Statistics, 1983, B.B.S. P-11.

Appendix-2.

Table-2. Population by Age-Sex Structure, Mirzapur Upazila and National, 1981.

Age Structure	Upazila		National	
	Percentage of male	Percentage of female	Percentage of male	Percentage of female
0 - 4	15.7	15.7	16.6	17.5
5 - 9	16.8	16.9	15.9	16.5
10 -14	15.0	13.6	13.9	12.8
15 -19	9.7	10.0	9.3	9.7
20 -24	7.0	8.6	7.3	8.3
25 -29	7.0	7.2	7.3	7.5
30 -34	5.0	5.3	5.5	5.8
35 -39	4.7	4.8	5.2	4.9
40 -44	3.7	4.0	4.3	4.1
45 -49	3.5	3.3	3.5	3.0
50 -54	3.1	2.9	3.1	3.0
55 -59	2.1	1.9	2.0	1.7
60 -64	2.3	2.2	2.3	2.2
65 -69	1.3	1.1	1.2	0.9
70 above	3.1	2.6	2.6	2.1
Total	100.0	100.0	100.0	100.0

Source: B.B.S. 1981 Census.

Union/Region	Population				Growth Rate			
	1961	1974	1981	1985*	1961- 1974	1974- 1981	1981- 1985	1961- 1985
Ajgana	17288	27623	33107	33715	3.7	2.6	0.5	2.8
Anaitara	13465	17645	19743	21055	2.1	1.6	1.6	1.7
Bahuria	18394	24782	27212	28711	2.3	1.4	1.3	1.9
Banail	13441	17601	19932	21379	2.1	1.9	1.7	2.0
Bhatgram	13040	16720	15652	16281	1.9(-)	0.9	0.9	0.8
Fatepur	13150	16715	19901	21984	1.8	2.5	2.4	2.2
Gorai	12732	23690	29431	33318	4.9	3.2	3.1	4.1
Jamurki	15938	21179	25167	27768	2.2	2.5	2.4	2.5
Mohera	13286	17319	20920	23299	2.1	2.6	2.7	2.3
Mirzapur	17885	17918	22171	25031	0.1	3.1	3.6	1.4
Tarafpur	19463	29339	36995	42060	3.2	3.1	3.3	3.2
Warsi	16398	21321	24217	26049	2.1	1.7	1.8	1.9
Mirzapur Upazila	184480	251852	294447	321855	2.4	2.3	2.8	2.3
Tangail District	1486588	2077924	2443992	2680905	2.6	2.4	2.3	2.5
Bangladesh	54531000	76398000	89950000	98746628	2.4	2.4	2.4	2.5

Source: B.B.S. Population Census, 1961, 1974 and 1981.

*Projected Population.

Appendix-2,

Table-4. Mirzapur Upazila Population Densities 1961, 1974 and 1981.

Unior/Region	Area in acres	Population			Density (Per acre)		
		1961	1974	1981	1961	1974	1981
Ajgana	13607	17288	27623	33107	1.27	2.03	2.43
Anaitara	5642	13465	17645	19743	2.38	3.12	3.49
Bahuria	6979	18394	24782	27212	2.64	3.55	3.90
Banail	5472	13441	17601	19932	2.45	3.21	3.64
Bhatgram	4538	13040	16720	15652	2.87	3.68	3.44
Fatepur	6289	13150	16715	19901	2.09	2.56	3.16
Gorai	7300	12732	23690	29431	1.74	3.24	4.03
Jamurki	5213	15938	21179	25167	3.05	4.06	4.82
Mohera	4633	13286	17319	20920	2.86	3.73	4.51
Mirzapur	4209	17885	17918	22171	4.24	4.25	5.26
Tarafpur	19043	19463	29339	36995	1.02	1.54	1.94
Warsi	7124	16398	21321	24217	2.32	2.99	3.39
Mirzapur Upazila	92000	184480	251852	294447	2.00	2.73	3.20
Tangail District	837760	1486588	2077924	2443992	1.77	2.48	2.92
Bangladesh	35582720	54431000	76398000	89950000	1.53	2.14	2.52

Source: Computed from Population and Area in acres 1961, 1974 and 1981, B.B.S

Appendix-2.

Table-5. Distribution of Population by Age-Sex Structure of the Study Area.

Age Structure	Male	Percent	Female	Percent	Bothe Sexes	Per- cent
0-4	153	8.5	152	8.44	305	16.9
5-9	142	7.9	140	7.7	282	15.6
10-14	119	6.7	99	5.4	218	12.1
15-19	81	4.5	82	4.4	163	8.9
20-24	76	4.3	85	4.6	161	8.9
25-29	79	4.4	76	4.2	155	8.6
30-34	55	3.1	56	3.1	111	6.2
35-39	53	2.9	45	2.4	98	5.3
40-44	44	2.4	39	2.2	83	4.6
45-49	36	2.1	29	1.6	64	3.7
50-54	33	1.8	28	1.5	61	3.3
55-59	20	1.1	15	0.8	35	1.9
60-64	22	1.2	18	1.1	41	2.3
65-69	11	0.7	8	0.4	19	1.1
70 above	5	0.4	3	0.2	8	0.6
Total	929	52.0	875	48.0	1804	100.0

Source: Field Survey, 1986.

Appendix-2.

Table-6.

Household Size of the Study Area

Name of the Mouzas	No. of house-holds	Population	Average household size
<u>More Urban:</u> Baimhati	117	639	
" Postkamuri	55	303	
" Mirzapur	15	82	5.6
" Mirdeohata	60	356	
<u>Less Urban:</u> Kantalia	20	110	
" Andhara	25	145	
" Sriharipara	9	51	
" Sarishadair	10	57	
" Baorkumarjani	11	61	
Total	322	1804	

Source: Field Survey, 1986.

Appendix-2.

Table-7. Distribution of Population by Marital Status of the Study Area.

Name of the Mouzas	Unmar- ried	Married	Widow	Divor- ced	Total percent	Sample number
<u>More</u>						
<u>Urban</u> : Baimhati	55.3	39.2	3.7	1.8	100	117
" Postkamuri	54.5	43.0	2.1	0.4	100	55
" Mirzapur	53.6	43.8	2.6	-	100	15
" Mirdeohata	51.13	47.2	1.4	0.3	100	60
<u>Less</u>						
<u>Urban</u> :Kantalia	55.3	40.9	3.3	0.5	100	20
" Andhara	51.0	45.5	2.9	0.6	100	25
" Sriharipara	58.6	39.2	2.2	-	100	9
" Sarishadair	52.5	43.9	3.6	-	100	10
" Baorkumarjani	54.1	44.3	1.6	-	100	11
Total	54.0	43.0	2.6	0.4	100	322

Source: Field Survey, 1986.

Appendix-2.

Table-8. Distribution of Population by Occupation of the Study Area

Name of the Mouzas	Agricul- ture	Busi- ness	Ser- vice	La- bour	House- hold work	Others	Total percen- tage	Sample number
<u>More Urban:</u> Baimhati	13.5	16.3	8.4	15.5	22.1	24.2	100	117
" Postkamuri	12.8	13.4	10.2	17.6	26.8	19.2	100	55
" Mirzapur	10.0	14.7	16.6	18.8	14.5	25.4	100	15
" Mirdeohata	26.0	3.7	3.2	14.1	25.8	27.2	100	60
<u>Less Urban:</u> Kantalia	27.6	9.8	4.4	9.3	29.9	19.0	100	20
" Andhara	29.0	4.4	2.2	13.4	28.5	22.5	100	25
" Sriharipara	8.3	15.5	9.4	13.8	34.7	18.3	100	9
" Sarishadeir	25.8	8.5	5.3	8.4	35.9	16.1	100	10
" Baorkumarjani	27.0	3.7	3.3	15.1	24.8	26.1	100	11
Total	20.0	10.0	7.0	14.0	27.0	22.0	100	322

Source: Field Survey, 1986.

1. Service : A person working in any private or government institution or industry.
2. Business : A person engaged in any business activity such as retail, wholesale.
3. Others : Persons who are not included in the above categories such as rickshaw-pullers, carpenters etc.

Appendix-2.

Table-9. Percentage Distribution of the Households by Monthly Income.

Name of the Mouzas	(Monthly Income in Taka)							Total per-cent	Sample number
	0-500	501-1000	1001-1500	1501-2000	2001-2500	2501-3000	3000 and above		
<u>More Urban:</u> Baimhati	10.4	22.2	29.9	16.3	8.5	7.6	5.1	100	117
" Postkamuri	12.7	34.4	18.2	14.5	7.3	9.3	3.6	100	55
" Mirzapur	14.3	32.3	26.8	13.3	6.7	6.6	-	100	15
" Mirdeohata	17.6	23.3	25.9	15.0	8.3	3.3	6.6	100	20
<u>Less Urban:</u> Kantalia	15.0	39.6	26.0	10.0	5.0	4.4	-	100	25
" Andhara	21.6	44.0	8.0	12.0	7.7	4.0	2.7	100	25
" Sriharipara	22.2	44.4	22.3	-	11.1	-	-	100	9
" Sarishadair	21.0	30.0	21.7	16.9	9.6	0.8	-	100	10
" Baorkumarjani	18.2	35.8	19.2	19.0	7.8	-	-	100	11
Total	17.0	34.0	22.0	13.0	8.0	4.0	2.0	100	322

Source: Field Survey, 1986.

Appendix-2.

Table-10. Percentage Distribution of Household by Monthly Expenditure.

Name of the Mouzas	0-500	501-1000	1001-1500	1501-2000	2001-2500	2501-3000	3000 above	Total percentage	Sample number
<u>More Urban:</u> Baimhati	10.9	23.9	33.3	17.9	5.1	4.2	4.7	100	117
" Postkamuri	14.5	36.3	21.8	10.9	7.2	5.3	4.0	100	55
" Mirzapur	12.7	46.6	13.3	6.6	13.3	7.5	-	100	15
" Mirdeohata	16.6	26.6	30.0	11.7	5.0	6.0	4.1	100	60
<u>Less Urban:</u> Kantalia	15.0	50.0	20.0	10.0	2.4	-	2.6	100	20
" Andhara	23.0	47.0	13.4	4.0	6.6	4.0	2.0	100	25
" Sriharipara	22.2	55.2	11.1	11.2	-	-	-	100	9
" Sarishadair	20.0	39.0	10.0	19.0	12.0	-	-	100	10
" Baorkumar-jani	18.1	44.1	9.1	16.7	11.4	-	0.6	100	11
Total	17.0	41.0	18.0	12.0	7.0	3.0	2.0	100	322

Source: Field Survey, 1986.

Appendix-2.

Table-11. Structural Composition of Houses (Roof) of the Study Area.

Name of the Mouzas	Thatched	Tin	Cono- rete	Total percent	Sample number
<u>More Urban:</u> Baimhati	52.7	39.3	8.0	100	117
" Postkamuri	63.5	30.5	6.0	100	55
" Mirzapur	53.3	41.0	5.7	100	15
" Mirdeohata	55.0	40.7	4.3	100	60
<u>Less Urban:</u> Kantalia	50.0	45.0	5.0	100	20
" Andhara	52.0	44.0	4.0	100	25
" Sriharipara	55.5	44.5	-	100	9
" Sarishadair	60.0	30.0	10.0	100	10
" Baorkumarjani	53.0	36.0	11.0	100	11
Total	55.0	39.0	6.0	100	322

Structural Composition of Houses (Wall)

Name of the Mouzas	Bamboo	Mud	C.I. Sheet	Brick	Others	Total per- cent	Sample number
<u>More Urban:</u> Baimhati	40.7	29.0	12.8	14.8	2.7	100	117
" Postkamuri	50.8	20.0	18.5	10.7	-	100	55
" Mirzapur	41.0	26.1	20.0	12.9	-	100	15
" Mirdeohata	46.7	23.3	13.3	16.7	-	100	60
<u>Less Urban:</u> Kantalia	40.3	35.0	15.0	9.7	-	100	20
" Andhara	36.0	28.0	24.5	11.5	-	100	25
" Sriharipara	44.8	33.3	11.1	10.8	-	100	9
" Sarishadair	50.0	30.0	10.0	10.0	-	100	10
" Baorkumarjani	45.7	27.3	18.8	8.2	-	100	11
Total	44.0	28.0	16.0	11.7	0.3	100	322

Structural Composition of House (Floor).

Name of the Mouzas	Mud	Pucca	Total percent	Sample number
<u>More Urban:</u> Baimhati	82.9	17.1	100	117
" Postkamuri	83.7	16.3	100	35
" Mirzapur	86.8	13.2	100	15
" Mirdeohata	83.4	16.6	100	60
<u>Less Urban:</u> Kantalia	85.5	14.5	100	20
" Andhara	84.0	16.0	100	25
" Sriharipara	77.8	22.2	100	9
" Sarishadair	90.0	10.0	100	10
" Baorkumarjani	90.9	9.1	100	11
Total	85.0	15.0	100	322

Source: Field Survey, 1986.

Appendix-2.

Table-12. Level of Education of the Households of the Study Area.

Name of the Mouzas	Illiterate	Primary	Secondary education	Higher Secondary	Degree	M.A.	Total per-cent	Sample number
<u>More Urban:</u> Baimhati	41.4	25.8	16.9	8.7	5.7	1.5	100	117
" Postkamuri	61.4	15.6	11.0	9.3	2.3	0.4	100	55
" Mirzapur	43.9	21.9	18.2	8.4	6.3	1.3	100	15
" Mirdeohata	79.4	10.9	5.3	2.5	1.5	0.4	100	60
<u>Less Urban:</u> Kantalia	75.7	16.8	5.0	1.6	0.9	-	100	20
" Andhara	73.8	13.9	7.5	3.5	1.3	-	100	25
" Sriharipara	54.4	23.7	13.1	6.6	2.2	-	100	9
" Sarishadair	77.9	10.6	7.0	2.5	2.0	-	100	10
" Baorkumarjani	77.1	13.8	6.0	1.9	1.2	-	100	11
Total	65.0	17.0	10.0	5.0	2.6	0.4	100	322

Source : Field Survey, 1986.

Appendix-2.

Table-13.

Health Facilities Enjoyed by Household
of the Study Area.

Name of the Mouzas	Hospital	Family Planning	Chari- table dispensary	Others Others	Total per- cent	Sample number
<u>More Urban:</u> Baimhati	59.8	9.2	17.1	13.9	100	117
" Postkamuri	47.3	11.1	29.1	12.5	100	55
" Mirzapur	46.7	13.3	26.0	14.0	100	15
" Mirdeohata	49.3	11.2	28.3	11.2	100	60
<u>Less Urban:</u> Kantalia	56.0	15.0	20.0	9.0	100	20
" Andhara	49.0	8.0	32.0	11.0	100	25
" Sriharipara	45.4	12.1	33.3	9.2	100	9
" Sarishadair	41.0	10.0	30.0	19.0	100	10
" Boarkumar- jani	55.5	9.1	27.2	8.2	100	11
Total	50.0	11.0	27.0	12.0	100	322

Source: Field Survey, 1986.

Appendix-2.

Table-14. Recreational Facilities Enjoyed by Households of the Study Area.

Name of the Mouzas	Play-ground	Cinema Hal	Cinema Hall & Play-ground	Club	No response	Total per-cent	Sample
<u>More Urban:</u> Baimhati	21.3	13.8	54.6	6.9	3.4	100	117
" Postkamuri	27.2	17.9	46.2	6.4	2.3	100	55
" Mirzapur	25.4	14.7	52.3	7.6	-	100	15
" Mirdeohata	23.3	18.8	45.1	9.5	3.3	100	60
<u>Less Urban:</u> Kantalia	25.0	15.5	53.9	5.6	-	100	20
" Andhara	23.6	16.9	51.5	-	8.0	100	25
" Sriharipara	22.2	23.8	54.0	-	-	100	9
" Sarishadair	20.0	20.7	49.3	-	10.0	100	10
" Baorkumar-jani	19.0	19.9	61.1	-	-	100	11
Total	23.0	18.0	52.0	4.0	3.0	100	322

Source: Field Survey, 1986.

Appendix-2.

Table-15. Mode of Transport (For Internal Movement) by the Households of the Study Area.

Name of the Mouzas	Foot	Cycle	Foot & Cycle	Rickshaw	Motor Cycle	Total percentage	Sample number
<u>More Urban:</u> Baimhati	48.7	12.8	-	36.0	2.5	100	117
" Postkamuri	40.0	10.9	15.1	32.5	1.5	100	55
" Mirzapur	46.7	13.3	-	40.0	-	100	15
" Mirdeohata	56.0	15.0	-	27.6	1.4	100	60
<u>Less Urban:</u> Kantalia	35.0	11.5	24.0	29.5	-	100	20
" Andhara	37.0	8.0	23.5	31.5	-	100	25
" Sriharipara	44.8	-	21.0	34.2	-	100	9
" Sarishadair	51.0	-	28.0	21.0	-	100	20
" Baorkumarjani	45.8	18.5	-	35.7	-	100	11
Total	45.0	10.0	12.4	32.0	0.6	100	322

Source: Field Survey, 1986.

APPENDIX -3

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