

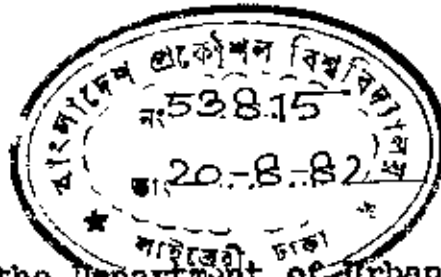
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY

PLANNING FOR FUTURE DEVELOPMENT :
A CASE STUDY OF RAJSHAHI CITY

BY

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A THESIS



Submitted to the Department of Urban and Regional Planning
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of

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THESIS ACCEPTANCE FORM

DEPARTMENT OF URBAN AND REGIONAL PLANNING
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On this day, the 24th February 1982..... 197
the undersigned hereby recommend to the Academic Council that
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A Case Study of Rajshahi City"

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16

ABSTRACT

Planned urban development is a necessity in a densely populated country like ours where so much imbalances between population and available land exist. In case of Rajshahi city this necessity seems to be more urgent because of the past neglect and future trend of growth. Although the city is both a district and a divisional headquarter, its development has not so far been guided and controlled by any planning policies and approach. That is why the development which occurred in the past has only created haphazard growth and this has resulted in the over burdening of the infrastructure and physical facilities. On the other hand the city is growing at a faster rate after the middle of this century and has become considerable in size now. So very recently Rajshahi Town Development Authority is established to take more conscious approach for future development of the city. They are preparing a master plan but the blue print is not yet ready.

Considering the above situation this study is initiated with the expectation that it will help to prepare a master plan for the city and for taking any policy relating to socio-economic and physical development planning. The study started with three objectives such as to investigate the urbanization trend in the light of socio-economic activities, to analyse potentiality of future growth and development, and to formulate policies and development proposals towards the achievement of more balanced and integrated spatial development. The whole study is based on

the data from secondary sources; and the methodology comprises of three parts, such as literature survey, physical and socio-economic investigation and the analysis of data within the framework of objectives to formulate policies and development proposals.

The study starts with a brief introduction of the problem with emphasis on justification of the study, objectives and methodology. Second and third chapters deal with historical background of the city, its regional context, physical character and landuse pattern. The fourth chapter explains the demographic and socio-economic character of the study area. This includes the population size, density and distribution, employment pattern, household income and expenditure, social and utility services etc. In chapter five the growth potentiality of Rajshahi city is analysed to know the future development prospects. Chapter six starts with a general discussion on planning criteria and standard for development. After analysing all those aspects a concept of future development plan is framed for Rajshahi city, which shows the expected structure of future development. Finally, the policy recommendations have been suggested for the future development of Rajshahi city.

Title of the Thesis : Planning For Future Development : A Case Study of Rajshahi City.

Thesis Supervisor : Mr. A.S.M. Mahbub-un-Nabi
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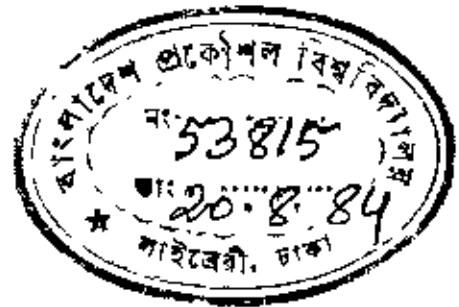
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CHAPTER - I
INTRODUCTION



1.1. INTRODUCTION OF THE PROBLEM :

Planned urban development is a necessity in densely populated countries like Bangladesh, where so much imbalance between population and available land exist. But not a single city even the capital of our country is properly planned. History of economic development of some of the developed countries has shown that inadequate attention to physical planning along with the development of other sectors of economy results not only in less than desirable level of living standard, but also create bottlenecks for further development, that results in an inefficient use of the facilities. The purpose of a development plan is to present the physical policies and proposals designed to achieve certain stated planning aims for the area.

Rajshahi city is the District as well as the Divisional Headquarters located on the north of Padma River. In the past, Rajshahi was an important riverport and a prosperous centre for trade and commerce, having her trade links with Calcutta, Murshidabad and Dacca. But after the partition of India in 1947 the city lost its linkages and its importance as a trading centre for silk and indigo has declined. Its large hinterland is cut-off because of the change of national boundary. Moreover, the shifting of the main channel of the river Padma made steamer communication impossible.

Although Rajshahi city has lost its past prestigious position as a trading centre, at present it has importance as a centre for higher education and silk production. Rajshahi was a small settlement until the beginning of the 19th century. It has a long history of development with a slow but steady growth. But after partition in 1947, the growth has become retarded for sometime due to large scale outmigration. Again after 1951, with the redefined functional role in the new political boundary, growth of the city started to get momentum.

(Presently Rajshahi city has become considerable in its size and it needs more attention than before, not only because of the population but also for the unplanned growth of the past which have already created unhealthy situation in physical environments, uncontrolled expansion of the administrative, commercial, industrial and educational functioning and their indiscriminate locations all have created a chaotic physical atmosphere for living. An unplanned infrastructure has already been overburdened and incapable to handle the increasing demand of the services.)

The city has a linear development pattern along the east-west direction. The development is confined with two landscape, viz. the railway line and the river Padma. Recently, the city is growing to the north across the railway line and along the Noakhata road. (So time has come to decide whether the city will be allowed to grow further in a linear fashion, or what will be the future form of the city.

All these are happening because Rajshahi has no master plan as yet. That is why the development is taking place in an unplanned and uncontrolled way. The recently established Rajshahi Town Development Authority is an organization to take more conscious approach for the future development of the city. The authority is willing to prepare a master plan for the city but the blue-print is not yet ready.

1.2. JUSTIFICATION OF THE STUDY :

Considering the above situation it is thought that a study can be undertaken that might help to prepare a master plan of the city and for formulating policies related to the socio-economic and physical development planning of the city.

The city is already overburdened with problems, in future there will be more pressure on land and social facilities and there will be need for extra land for urban development. But land in our country is scarce in relation to population. So one should be very careful about the future development of the city. It is expected that this study will contribute some ideas which might help in the future development of the city.

1.3. OBJECTIVES OF THE STUDY :

With the above background the study has been initiated with three objectives : (a) To investigate the urbanization trend in light of social and economic aspects. Rajshahi is the largest city in the northern Region of Bangladesh. Considering her population census upto 1974 it is clear that from 1872 to 1951 her population increased very slowly, an unusual growth (50.6%) is noticed

during 1931 to 1941 but this might be an exaggeration to show the communal strength. But after the middle of this century population growth rate is quite high. From 1951 to 1961, the growth rate was 43.4% and from 1961 to 1974 it was 69.7% which is half the total urban population growth of Bangladesh (137.56%). The urbanization process also influenced the socio-economic activities of the city. It should be studied what is the case in Rajshahi.

(b) The second objective of the study is to analyse the potentiality of future growth and development of the city. The importance of knowing the growth potentiality of the city is a must for her future development. Rajshahi city both being a District and a Divisional Headquarter, her development in the past has not taken place as was expected in comparison to other cities of the same rank in the country. There must be some reasons. It is imperative to know the city's future growth potentiality so that future development policy can be framed.

(c) The third objective of the study is the formation of policies and development proposals towards the achievement of a more balanced and integrated spatial development. Until recently physical development of the town has been rather unorganized and uncontrolled. So to check this haphazard growth a sound development policies are needed. So this study aims to formulate some policy guide lines which will help for future development of the Rajshahi city.

1.4. METHODOLOGY :

The whole study is based on data from secondary sources. The information were also collected personally from different organizations alongwith discussions with some town planners.

The methodology of the study comprises of three parts. At first literature survey was done to know the problems of Rajshahi, and necessary information were collected. Secondly, physical and socio-economic data were obtained from different secondary sources. These are the recent studies conducted by the Rajshahi Town Development Authority and other organization. These are:

- Study of Landuse, Traffic and Utility for Greater Rajshahi By Housing and Environmental Research Coll, BUET. 1960.
- Economic Base Analysis and Employment Survey of Greater Rajshahi Town. By Department of Economics, University of Rajshahi, 1930.
- Demographic Survey of Rajshahi Town, By Department of Sociology, University of Rajshahi.
- Rajshahi Water Supply Project Feasibility Study, Draft Final Report 1981 by Ministry of Local Government Department of Public Health Engineering, D.H.V. Consulting Engineers.

The third step was to analyse the data within the framework of the objectives of the study so as to formulate policies and development proposal towards the achievement of a more balanced and integrated spatial development of the city.

CHAPTER- II

THE STUDY AREA, ITS HISTORICAL BACKGROUND AND THE REGIONAL CONTEXT

2.1. THE STUDY AREA, (PAURASHAVA, URBAN FRINGE AND RURAL SURROUNDING) :

Although the city of Rajshahi is our study area, its future development plan will have to be considered within the physical and socio-economic environment prevailing not only within the city area but also of the area surrounding the city. For this reason the urban fringe and the rural surroundings are included in our study. The Paurashava area of Rajshahi city includes 8 urban wards with an area of 3.5 square miles. The urban fringe and rural areas consists of 11 unions. The Paurashava and the 11 unions constitute the R.T.D.A. area (49 square miles).

2.2. LOCATION :

The district of Rajshahi is located between $24^{\circ}06'$ and $25^{\circ}11'$ north latitudes and between $88^{\circ}02'$ and $89^{\circ}23'$ east longitudes. The city is situated on the northern bank of the river Padma. The city is bound on the south by the river Padma, on the north by Rajshahi-Ammura railway line, and Mirzapur, Dangmari and Budhur village on the east. The western limit of the city is marked by Haragram market. The city extends 5 miles from east to west and 2 miles from north to south and the total area is about 11 square miles.

2.3. HISTORICAL BACKGROUND :

Rajshahi literally means a royal territory and the city had this name because it was the home of many Rajas. The origin of the name is doubtful. But a possible explanation from Professor Blochmann's account exerts that in the 15th century a hindu Raja ascended the throne of a muslim ruler and with this the territory acquired the name of Rajshahi.¹

From the analysis of historical accounts, it is clear that the growth of Rajshahi city was influenced by the socio-economic activities which occurred at different times in the past. From 15th to 20th century it had many ups and downs which might have effected directly to the growth of the city from a small settlement in the past to a city at present.

Rajshahi was an important river-port and was linked with many important places by her excellent water ways in the past. The extensive cultivation of silk and indigo attracted many foreign traders establish a trading post here for the transshipment of silk and indigo. It started expanding gradually and attracted people from outside the area for settlement. "During the middle of the 18th century after Maratha invasion large number of people from Murshidabad and its adjoining area crossed the river Padma and settled in this region. Later on, the French and the English also established their trading centres here. In 1825 Rajshahi town was raised to the status of a district headquarters, and was shifted from Natore."²

1. Govt. of Peoples Republic of Bangladesh, Bangladesh District Gazettors Rajshahi, 1976.

2. Housing & Environmental Research Cell, BUET. Survey for Landuse Traffic and Utility for Greater Rajshahi, 1980.

BANGLADESH

STUDY AREA 

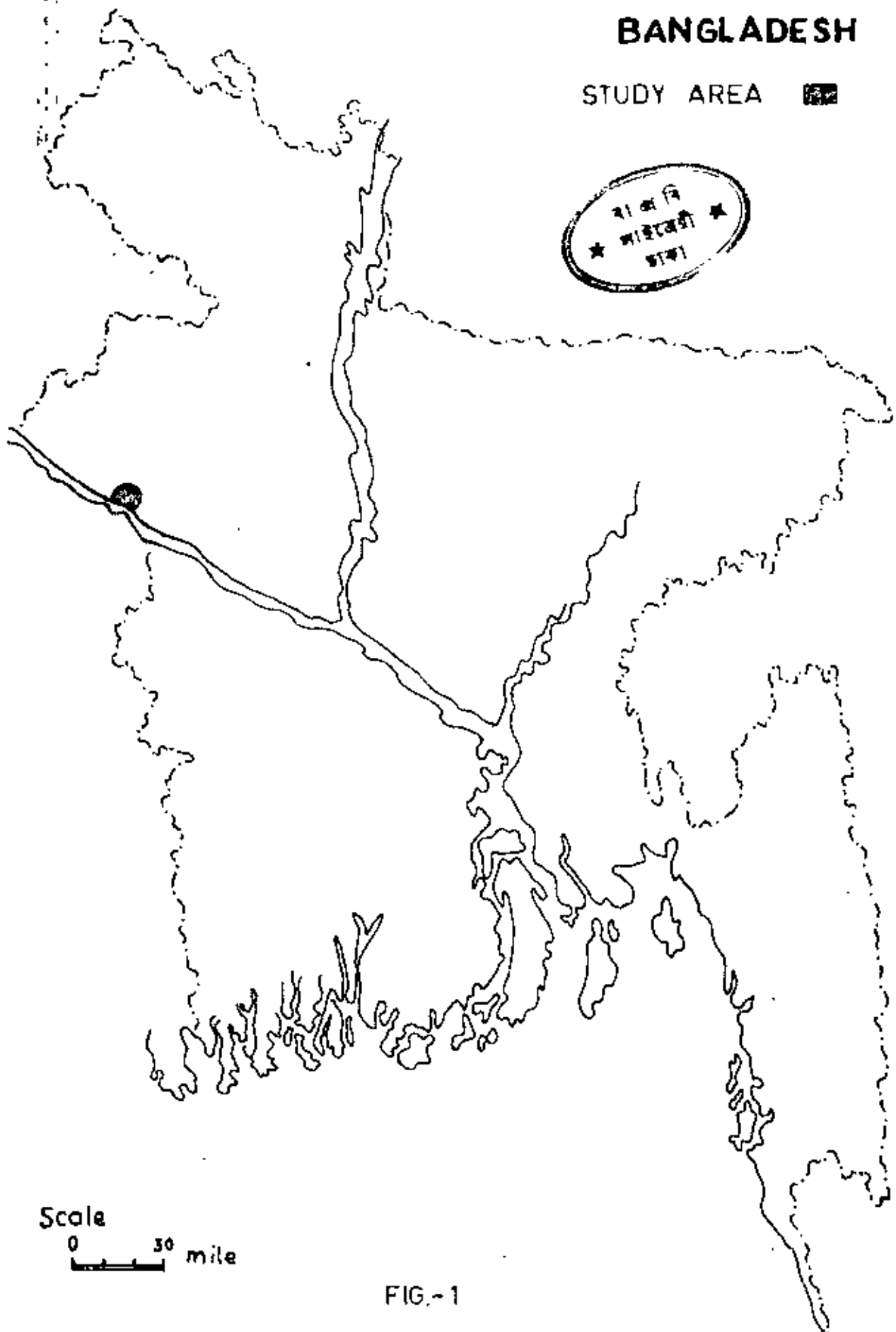
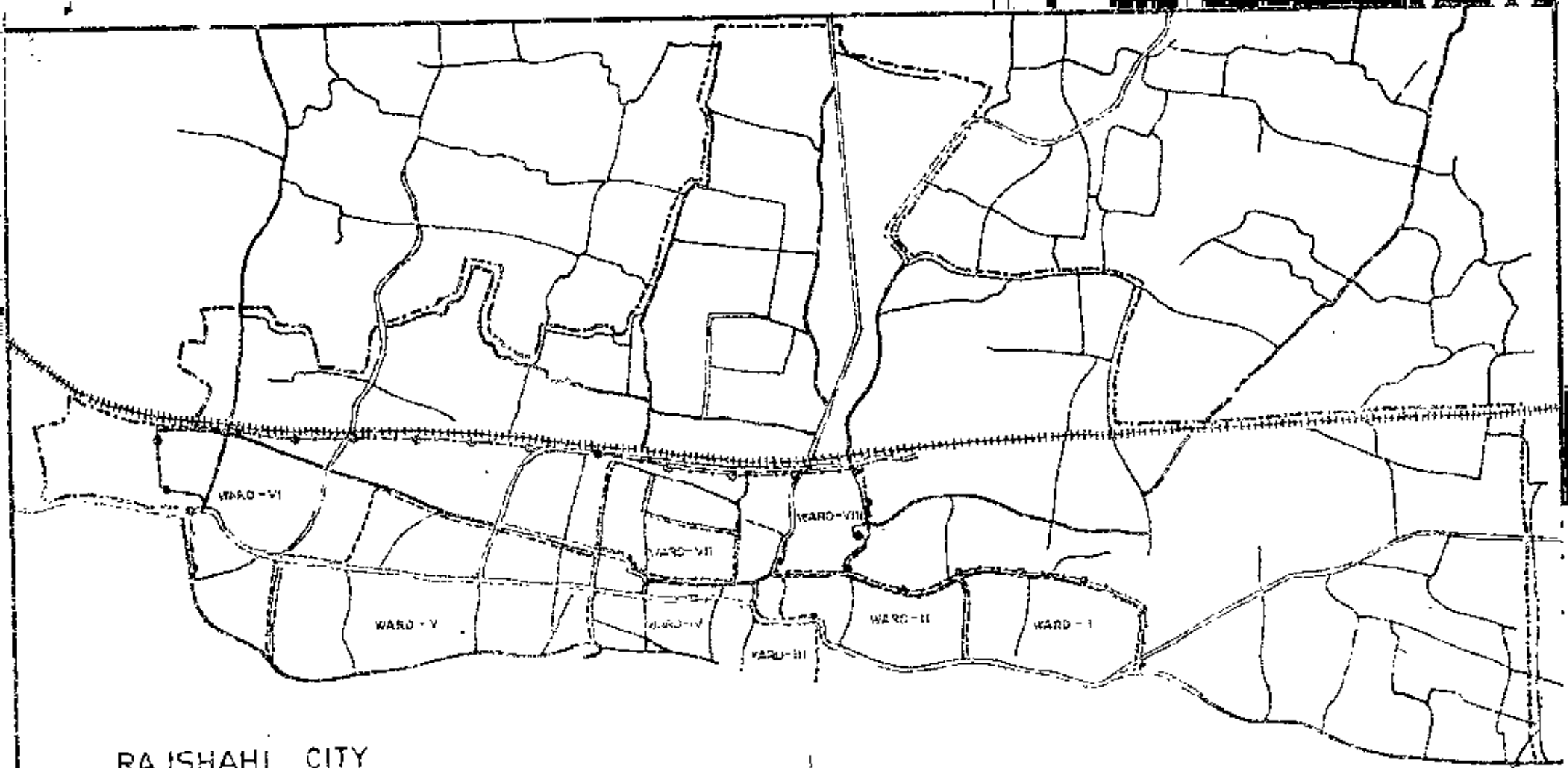


FIG.-1



RAJSHAHİ CITY

MAP SHOWING PAURASHAVA BOUNDARY / PAURASHAVA WARD BOUNDARY AND FRINGE AREA BOUNDARY

PAURASHAVA BOUNDARY
 PAURASHAVA WARD BOUNDARY
 FRINGE AREA BOUNDARY

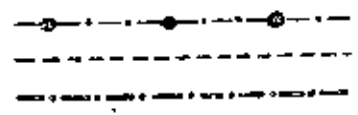
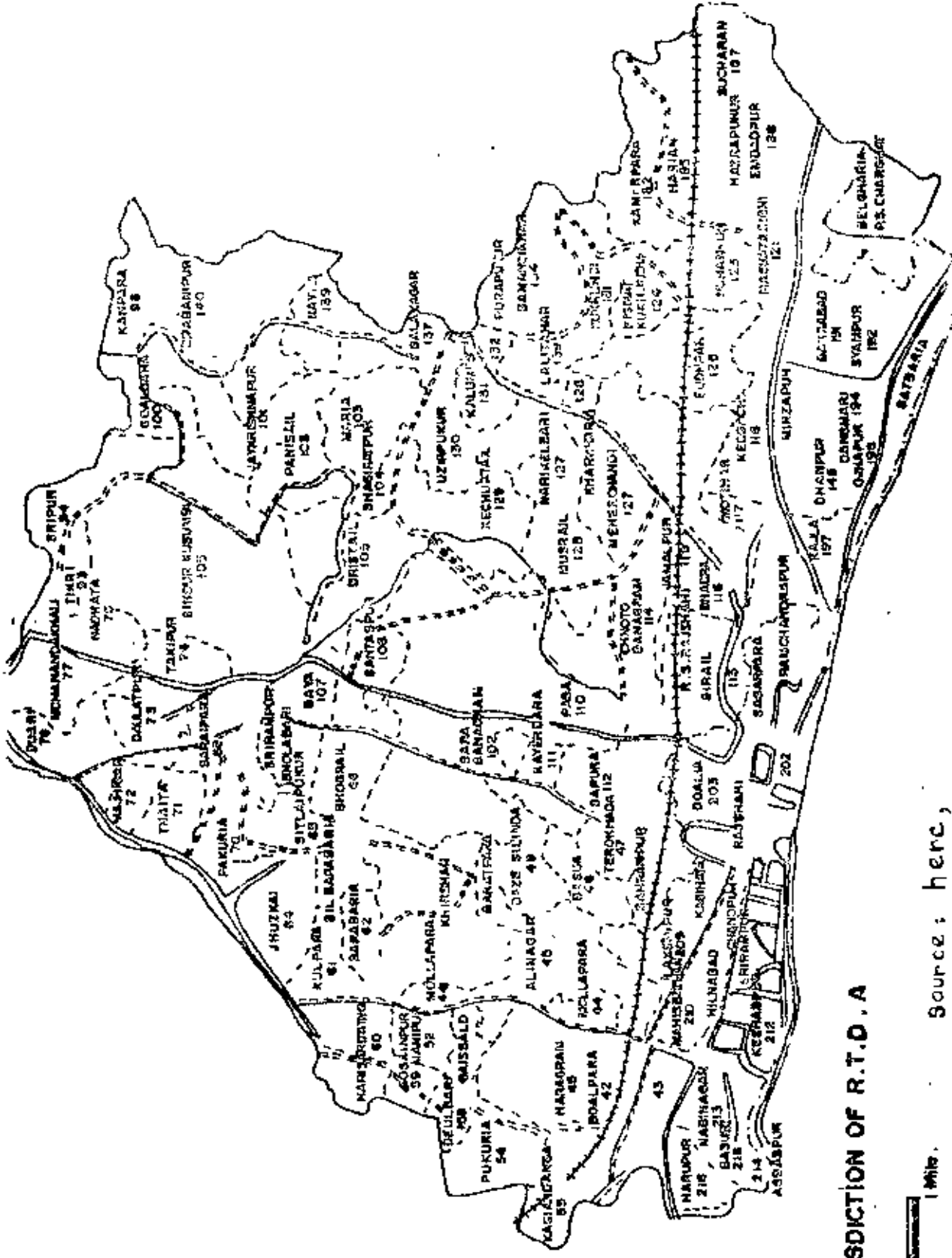


FIG. - 2

Source; herec, Survey For Land Use Traffic & Utility For Greater Rajshahi



JURISDICTION OF R.T.O. A

0 1 Mile.

Source: here,

Survey For Land Use Traffic & Utility For Greater Rajasthan

2.3.1. Growth and Development of the City :

Rajshahi got her municipality in 1976. But the transfer of the district headquarter from Natore to Rajshahi gave incentive to establish some administrative offices, educational and other socio-cultural institutions, such as the collectorate and judges court (1864-65), Sadar Hospital (1865), Rajshahi College (1873), Rajshahi Madrassa (1874), Public Library and Boalia Club (1884), Rajshahi Jail (1890-93), etc. over the years the importance of silk and indigo declined and the gradual change of the river channel of Padma hampered the river communication. The city at this stage started growing as an administrative, commercial, educational and cultural centre.

After the partition in 1947, the divisional headquarter was established at Rajshahi, and the city got importance not only of being an administrative centre but a centre of higher education and silk production too, because some institutional developments occurred at that time. These include the University at Motihar (1953), Teachers Training College (1953), Engineering College (1964), Polytechnique Institute and a number of private colleges and schools.

The growth of the city occurred in a linear pattern within two major landscapes viz., the railway line and the river Padma. In the eastern side, the urban growth is marked by Rajshahi Jute Mills at Katakhal and the Rajshahi Sugar Mills at Harian, about six miles far from the city centre.

In the sixties a satellite town was established in Sapura to solve the housing problem of immigrants from India, an industrial estate was also established in that area. With the satellite town, the city started growing across the railway line to the north and along the Noahata road.

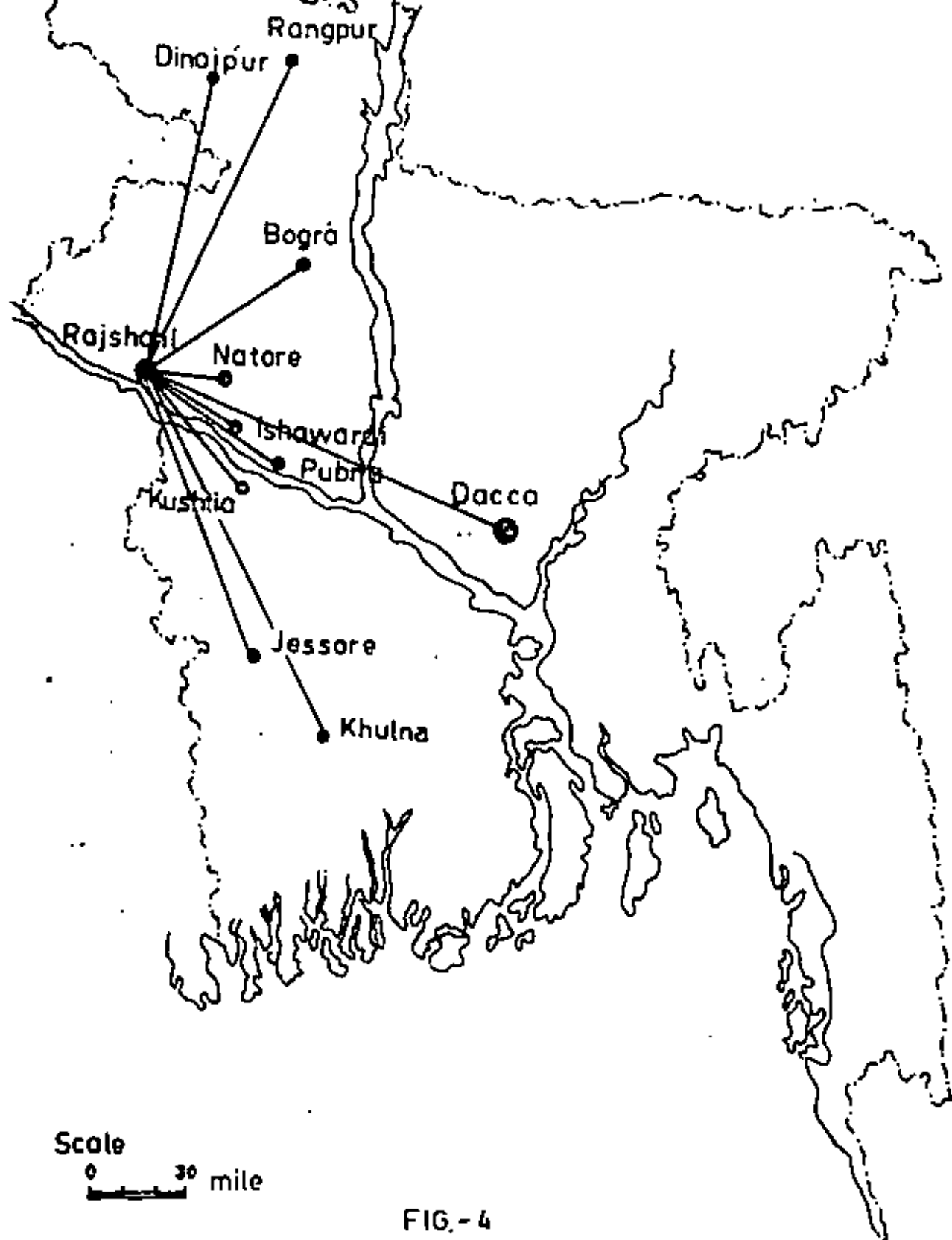
2.4.1. Regional Location :

Rajshahi is the headquarter of the District and also of the Division. Rajshahi Division consists of the districts of Rajshahi, Rangpur, Dinajpur, Pabna and Bogra, Instead of being located at the centre of the region the city is located eccentrically at the border of the regions, and her communication with other districts of the division is not very efficient.

This urban centre of the northern region has few direct surface communication links with other district headquarters and railway junctions by means of roads and railways. The important connections from this town are with -

- (a) Ishardi - about 42 miles by railway and 60 miles by road.
- (b) Bogra town - About 62 miles by road and 86 miles by railway
- (c) Natore - The sub-Divisional Headquarter - About 30 miles by road.
- (d) Rangpur - About 126 miles by road and 150 miles by railway
- (e) Dinajpur - About 69 miles by road and 58 miles by railway
- (f) Kushtia - About 70 miles by road and 64 miles by railway
- (g) Dacca - About 170 miles by road and 180 miles by railway.

REGIONAL LOCATION OF THE
RAJSHAHI CITY IN CONTEXT OF
BANGLADESH



2.4.2. Regional Functions :

The relation of a city to the region in which it belongs is important. One can not comprehend the life and trends of a city unless he acquires an understanding of its external relationships.

Rajshahi city is an administrative headquarter of Rajshahi district as well as of the division. Its functions are mainly administrative. The service sector employment is predominant in the city. The administration of the district can be broadly divided into 7 categories, they are, namely, General administration, judicial administration, Land record and registration, Police and Jail administration, Nation Building Department, and Local Self-Government. As a divisional headquarter it has a divisional commissioner who keeps track of what is happening in the administrative spheres of different districts of the divisions.

The city has got an important character. It serves as a centre of higher education for the north western region of Bangladesh. A good number of educational institutions like University, Medical College, Engineering college, Government Degree college, Teachers Training college, Varendra Research Museum etc. are located in the city.

The city has also commercial and industrial activities. Although large scale industrial undertakings are not that important, there are a few large industrial establishments such as the Rajshahi Jute Mill, Rajshahi Textile Mills, Rajshahi Sugar Mill and

Sericulture industry; their products have market outside the study area. There are some small scale industrial establishments, viz. pharmaceutical industries, food processing industries, match factories, shoe manufacturing, and other industries mainly based on locally produced raw materials. Their products are not only consumed in the city but also goes outside the city area. Thus marketing of industrial products provides the regional context of the study area.

2.4.3. Regional Links :

Rajshahi is the largest city in the northern region of Bangladesh. Being situated in the north west corner of the country it is not well linked with other parts of the country. The communication system is not at all satisfactory, so the regional links is not that strong. The river transport service which played a vital role in the development of the city is now virtually non-existent. The city is connected with Dacca and Khulna by roads but both the routes are interrupted by the river Jamuna and Padma. The condition of rail communication is also the same, but it has a bridge over the Padma at Paksby which permits direct rail connection with Khulna. Communication system is so poor that it does not permit easy and frequent movement with other central places of the Rajshahi Division.

Although Rajshahi city is the higher order of central places, it is not located in the centre of its hinterland and is not connected with efficient transport network. So the service facilities are not easily available to other parts of the region. (This will be discussed in detail, in chapter V.)

CHAPTER - III
PHYSICAL PATTERN AND LAND USE CHARACTER
OF THE STUDY AREA

3.1. FORM AND SIZE OF THE CITY :

Rajshahi city has linear development in which development occurred between two major landscape the river Padma and Ishwardi Amura railway line which extends from the east to the west. The city extends 5 miles from east to west and 2 miles from south to north and total area of the city is about 11 square miles. The city is roughly rectangular in shape and often described as a city which have length without proportional breadth.¹ Another strip of development is found along the Moshata road, from south to north beyond the railway line; this development started very recently. So there is linear development of the city in two direction --- one in east-west and the other in north-south; both of them follow the line of communication.

In Rajshahi city compact development has not occurred. Development within the city is more or less dispersed. There are agricultural and unused land within the city area. In ward I, particularly in Ranchandrapur, development has not occurred at a large scale and there are lying considerable amount of vacant buildable land, whereas the eastern part of the city area beyond Ranchandrapur is already developed as educational zone such as the University and Engineering college. The dispersed growth has already created

1. Housing and Environmental Research Cell, BUET., Survey for Landuse Traffic and Utility for Greater Rajshahi, 1980.

some socio-economic problems. It is costly to provide social facilities and public utilities. So to provide social facilities more economically, compact development of the city is must.

According to 1974 census the R.T.D.A area has 271,845 population with a density of 8.63 persons per acre. Indeed the density is very low. But in Paurasava area, density is high, i.e. 42.70 persons per acre, even then it can not be said as a highly dense area. Rajshahi Paurashava has 96,645 population according to 1974 census, with an area of 3.54 square miles. The present city is about 11 square miles and the whole R.T.D.A. area is about 49 square miles.

The new development adapts, or modifies an existing environment and so, before taking any decision, it is necessary to find out all that is relevant about that environment.

3.2. PHYSIOGRAPHIC CHARACTERISTICS OF THE STUDY AREA :

3.2.1. Climate :

Like Rajshahi District, the city also has tropical monsoon climate with high temperature, quite a good amount of humidity, moderate rainfall and fairly marked seasonal variation. Rainfall is very low from November to February, increases somewhat in March and April-- the season of local disturbances, and continues uniformly at about 10 inches in the monsoon months from June to September. Rainfall is about 5 inches in May and October and is due to the occasional incursion of cyclonic storms when heavy rain may fall for several days at a time. The main causes of rainfall

are shallow depressions, which frequently form during those months. The average annual rainfall at Rajshahi is recorded to be 57 inches. The chart below shows the details of rainfall variations in inches for the station at Rajshahi (Year 1902-61).

RAINFALL AT RAJSHAHI (YEAR 1902-61)

IN INCHES

Records	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Mean	0.54	0.64	1.5	2.49	5.14	10.43	11.78	10.40	8.86	4.45	0.46	0.12	57.3
Max	5.09	5.05	5.62	7.85	16.18	26.44	22.57	24.41	19.07	20.07	5.00	2.03	83.8
Mini	0.00	0.00	0.00	0.00	0.00	1.91	2.95	2.87	0.00	0.00	0.00	0.00	30.8

Source : Govt. of Peoples Republic of Bangladesh, Bangladesh District Gazetteer: Rajshahi, 1976, PP.18.

The summer season starts from early March when the mean monthly maximum temperature is 90°F and the mean monthly minimum temperature is 65°F, as recorded in Rajshahi district. High temperature is recorded in the months of April and May and also in the first half of June. The lowest temperature is recorded in the month of January.

3.2.2. Soil :

The study area is newly laid alluvial deposits along the river Padma. Its soil is sandy to sandy loam with grey colour as distinct from the reddish to yellowish soil of the Barind type. It is of recent origin. The higher land along the bank of the Padma is not so fertile but produces a variety of autumn and

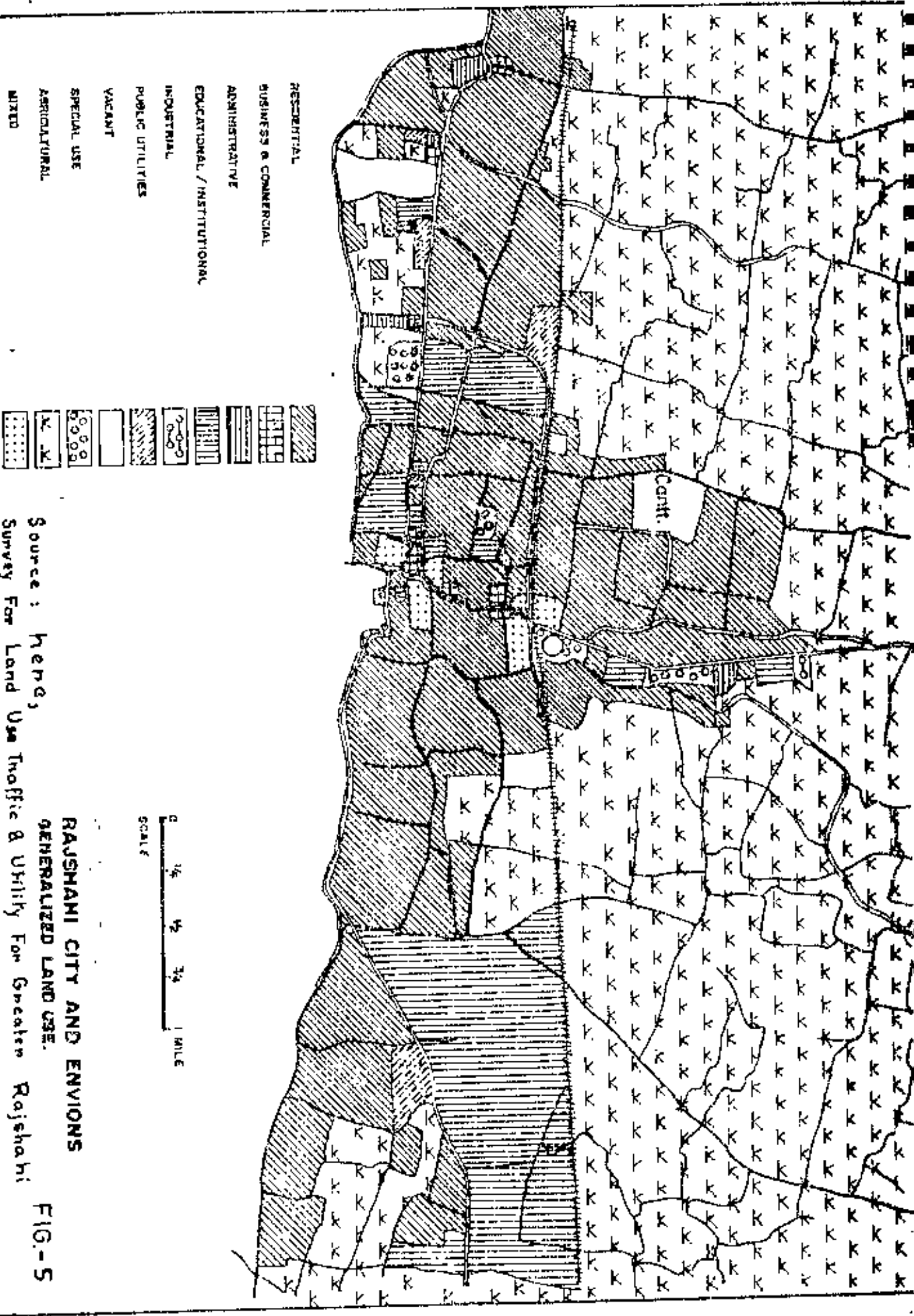
winter crops. The soil of the marshes is ordinarily black loam very fertile and most suitable for paddy. The soils of the low-lying beels contain black clay enriched by vegetable matter.

3.2.3. Topography :

The city is a flat alluvial plain which is about 60 feet above the mean sea level, and the level is slightly lower than the river Padma. The Padma flows along the southern part of the city. Every year the Padma is forming new land in one part and eroding in another part, along its courses by constant alternation of erosion and deposition. The area has artificial depression, embankments and tanks which breaks the monotony of the flat alluvial land. There are two khals at the northern part of the R.T.D.A. area.

3.3. EXISTING LANDUSE CHARACTER (PAURASHAVA AREA, FRINGE AREA AND RURAL SURROUNDING) :

In R.T.D.A. area, landuse pattern is more or less mixed in character, even though one may find some distinctive landuses according to some functional activities. Table (3.1) gives major landuse pattern of the whole study area, and Table (3.2) explains the landuse pattern of the Paurashava or the urban area. Differences in the land use of the area are explained by the fact that the Paurashava is a built-up area, but the R.T.D.A. area comprises of both built-up and rural areas.



RAUSHAHI CITY AND ENVIRONS
GENERALIZED LAND USE.
FIG.-5

3.1.1. Commercial Area :

About 47 acres of land is devoted to commercial and business purposes in Greater Rajshahi Area; it is only 0.14 percent of the total area. Shahab Bazar has the highest concentration of commercial activities. It is the core area of the city. It has been the nucleus of wholesale and retail commercial activities since Rajshahi became an urban centre. The next important shopping centre is the municipal new market, built at Government initiative in the early sixties. Shahab Bazar is located along the main thoroughfare of Natore - Nowabganj road. The function of Shahab Bazar is extended to adjacent areas of Ranibazar and Ghoramara. The new market is an enclosed shopping centre situated along the station road. Besides these two areas, important commercial activities are also found in Haragram, Talainari and along the major roads like Natore road, Laxmipur road, Kazihata road, station road and the Greater road.

3.3.2. Residential Area :

Residential area occupies 13.74 percent of the total area which is 4329.44 acres. In R.T.D.A. area, houses are not evenly distributed. The greater density is found along the core of the city and along the major arterios. Many private houses have offices, show rooms, and sales room. Density is higher in the eastern part of the city than in the western part. The residential area of the western part is mainly government residences. The middle and lower income residential areas, are in the eastern part of the city, mainly in Raninagar,

Talainari and Ramchandrapur. This type of residential areas have semi-pucca and kutchra structures with vary limited or no municipal civic facilities. This area also includes the core area of the city. Non-Bengali refugee settlement area at the north of the railway line, is also included in this type.

The upper class residential areas are residential quarters of civil lines, government and semi-government quarters elsewhere and the private housing areas in Laxmipur, Kazihata and Jagirpara, Bosepara, Manibazar, Seroil etc. These areas have pucca houses with all municipal facilities.

The typical middle class housing areas are in Hatemkhan, Sopoy para and Tikopara.

3.3.3. Office and Administrative Area :

Land being used for administration covers 0.28 percent of the total land of the Greater Rajshahi Area. The old official buildings such as Rajshahi court and Collectorate buildings were established in the British period at Haragram. But after that there is no particular area where the administrative buildings will be located; so the administrative buildings are mixed up with residential, commercial and educational land uses. The court and civil line in the western part of the city have large number of government offices.

TABLE - 3.1 : LANDUSE IN GREATER RAJSHAHI AREAS

Type of Landuse	Total area (in acres)	Total area (in sq. mile)	Percentage
Residential	4329.44	6.77	13.74
Business & Commercial	46.80	0.07	0.14
Administrative	88.24	0.14	0.28
Educational Institutional	1124.40	1.75	3.57
Personal Business and Professional service	8.65	0.01	0.02
Industrial	227.90	0.35	0.72
Public utilities communication and transport	93.49	0.14	0.29
Recreational	69.61	0.11	1.62
Open space	510.66	0.79	1.62
Water bodies	1003.02	1.57	3.18
Special use	164.27	0.25	0.52
Agricultural use	21355.27	33.37	67.79
Horticulture	320.97	0.50	1.01
Road	1458.73.	2.28	4.63
Railway line	125.09	0.19	0.29
Embankment	48.38	0.07	0.15
River	118.95	0.18	0.38
Canal/Drain	405.82	0.63	1.28
Total	31499.69	49.21	100.00

Source : Housing and Environmental Research Cell, BUAT, Survey for Land Use Traffic and Utility for Greater Rajshahi, 1980.

TABLE : 3-2 : LANDUSE IN THE RAJSHAHI PAURAHSAVA AREA

Landuse Type	1	2	3	4	5	6	7	8	Total area in acres	Percentage
	(Area in Acres)									
1. Residential	85.37	65.10	44.88	36.57	116.56	212.18	64.39	116.47	741.46	32.76
2. Business and Commerce	0.09	2.05	10.57	0.67	5.91	1.38	1.07	8.38	30.15	1.33
3. Administrative	0.03	1.85	3.23	1.37	12.55	18.37	0.97	2.05	40.43	1.78
4. Educational Institute	0.82	1.67	4.68	30.88	42.76	137.41	4.21	7.57	230.03	10.16
5. Personal Business and Professional services	0.22	0.71	1.72	0.53	0.30	0.37	0.35	2.2	6.51	0.28
6. Industrial	2.05	0.05	0.36	0.01	-	6.95	0.26	0.37	4.04	0.17
7. Public utilities /communication and transport	1.30	0.25	1.55	3.98	7.15	19.4	1.47	-	35.12	1.55
8. Recreational	-	0.67	0.25	3.02	50.18	1.52	-	1.62	57.88	2.55
9. Open space	44.25	10.37	8.36	4.51	16.08	28.56	14.23	25.30	151.68	6.70
10. Water Bodies	25.33	21.41	10.62	8.37	35.1	59.03	18.73	47.78	226.05	9.98
11. Special use	-	-	-	-	21.50	3.45	1.32	7.47	33.75	1.49
12. Agricultural use	0.35	7.60	-	-	257.22	36.40	-	29.57	331.15	14.63
13. Horticulture	1.72	-	-	-	-	22.57	-	-	24.30	1.07
14. Road	24.97	18.91	23.39	19.24	67.57	63.59	15.82	23.62	257.14	11.36
15. Embankment	-	-	-	-	-	1.63	-	-	1.65	0.07
16. Canal/Drain	7.11	2.45	3.77	2.19	12.67	56.75	3.36	3.22	91.59	4.04
Total	193	133.11	113.06	111.31	646.36	663.62	126.13	275.67	2262.94	100.00
								(3.54 sq. miles)		

Source : Housing and Environmental Research Cell., E.U.T. Survey for Landuse Traffic and Utility for Greater Rajshahi, 1980.

3.3.4. Educational Area :

Educational institutions are mainly found in four zones in Greater Rajshahi area. The first zone consists of Government college, collegiate school, Loknath High school, Survey school, etc. near the city centre. The second zone comprises of medical college, P.T. college, Sericulture Institute etc. located at south of greater road. The third zone of educational institutions is in the west and near the administrative offices. It includes the Mission Girls' High school, Court Academy, P.T. Institute, Halenabad Girls' School etc. Rajshahi University and Engineering College are located in another zone in the eastern part of the city and outside the municipal area. 3.57 per cent of the total land area (1124.40 acres) within Greater Rajshahi is occupied by the educational institutions.

3.3.5. Industrial and Manufacturing Area :

This type of land use occupies 0.72 percent of the total R.T.D.A. area. Large scale industry is very few in the area. There are only three major industries, viz., a sugar mill at Harian, a Jute mill at Katakhal, and a cotton mill at Sapura. All other industries are small-scale like silk factory, a few zarda factories, pharmaceutical laboratories, bakeries and confectionaries etc. These are mainly located in the central business district. During mid-sixties an industrial estate was established at Sapura which includes a cotton mill, a match factory, one cold storage and a few other manufacturing establishments.

3.3.6. Recreation/Open Space :

The most developed and organized open spaces in the city are stadium near Rajshahi Railway station, Bhuban Mohan Park in the core area, Idgah maidan near the central jail and the Central Park in Kazihata. There are a few other open spaces, most of them are in the government residential areas and in Ramchandrapur area. The river embankment is also used for walking purpose. The play ground is located in the place like Srirampur and Helanabad. There are very few cinema halls, and are located within half a mile to one from the city centre.

3.3.7. Landuse in Paurashava Area :

Rajshahi Paurashava consists of 3.54 square miles which is 2262.94 acres of land. Table (3-2) shows the details of Paurashavn landuses. In the categories, 32.76 percent is used for residential purpose which is the highest category of land use. Next comes agriculture 14.63 percent which is quite high within an urban area and 11.36 percent land is used for roads. Educational land occupies 10.16 percent. Water bodies occupy 9.98 percent of urban land, and open spaces cover 6.70 percent.

3.3.8. Land use of the City Fringe Area :

The survey report prepared by 'herc' (1980) identified Rajshahi Fringe area about 7.5 square miles. They defined fringe area as outside municipal area which have significant urban characteristics. The direction of growth is prominent along the Koshata road. The agricultural land occupied major land use type, which is 35 percent. The second land use type is residential which is

23 percent. Educational institutions occupy 17 percent which includes Rajshahi University and Engineering College. Open spaces occupy 7 percent and roads occupy 6 percent of land in urban fringe area.

3.4. HOUSING :

In Bangladesh deplorable housing conditions prevail all over the country. The present urban housing condition and its increasing deficit has become national concern in recent years. The rate of new housing construction has not been able to keep pace with the rate of urbanization. Almost every city of Bangladesh is burdened with slums. The housing situation in Rajshahi is more aggravated after 1947 with the influx of a very large number of displaced persons who started settling in the urban area.

During the period between 1961 to 1974 population growth was not equally distributed over the total RTDA area. The overall population density in RTDA area increased from 3.63 persons per acre in 1961 to 8.63 persons per acre in 1974. Within the Paurashava, population density increased from 25.82 persons per acre in 1961 to 42.70 persons per acre in 1974. Again within Paurashava area, population density varies among the wards. The buildings in RTDA area are mostly single storeyed but two-storey structures are also found in the area.

There is no housing for a large number of people in Rajshahi city. The low income settlements are in slums and squatters and are found all over the city at varying degrees. But majority of these households agglomerated in some particular areas (presented in Table 3.3).

The people in the study area seems unsatisfied with room spaces available to them. The existing accommodation is not adequate for the majority of the people. It leads to congestion. This becomes clear from Table 3.4.

Housing is not merely a provision of living rooms, it is invariably a composite of few other necessities like kitchen, bed room and lavatory. A dwelling unit without these facilities is an incomplete unit and deprives a family of privacy and independence.

3.4.1. Building Characteristics of the Study Area :

In this study structuring are classified into three groups. These are, viz.,

- Pucca - Building with brick, cement and concrete
- Semi-pucca- Brick cement plus, tin and earth mixed.
- Kutcha - Structures of mud and thatch

Since data are not available for the whole RTDA area, the type of structures are presented for the paurashava and the fringe area in Table 4A.

TABLE 3.3 : LOW INCOME SETTLEMENT

No. of the ward	Name of the ward	Name of the locality	Approximate no. of household	Type of settlement
Ward-7	Hatemkhan	Karigarpara	100	Slum
Ward-3	Shahab Bazar CBD Area	Gonokpara	50	"
Ward-6	Court Area and Helanabad	Ghoshpara	150	"
Ward-8	Fanibazar or Station Road	Station para	100	"
Sub Total			400	Slum families
Ward-6	Baragram	Lakshimpur	150	Squatters
Ward-8	Seroil	Seroil	250	"
Ward-5	Kazihata	Sri Rampur	150	"
Ward-6	Haragram	Close to Bazar	100	"
Total			650	Squatters

Source : Housing and Environmental Research Cell, BUET., Survey for Land use Traffic and Utility for Greater Rajshahi, 1980.

TABLE - 3.4 : WARD/UNION WISE DISTRIBUTION OF RESPONDENTS HAVING ROOMS IN THEIR HOUSE WHICH CAN/CANNOT MEET THEIR NEED.

Wards/Unions	Whether the rooms in the house can/cannot meet their need				
	Yes		No		
	F	%	F	%	
Ward-1	23	8.33	17	4.06	
Ward-2	9	3.27	26	6.20	
Ward-3	22	7.98	18	4.29	
Ward-5	12	4.34	34	8.11	
Ward-6	25	9.06	35	8.35	
Ward-7	11	3.99	19	4.54	
Ward-8	22	7.98	28	6.69	
Union-1	20	7.24	7	1.67	
Union-2	25	9.06	43	10.26	
Union-3	3	1.08	3	0.72	
Union-4	6	2.17	13	3.10	
Union-5	24	8.69	39	8.11	
Union-6	17	6.16	28	6.69	
Union-7	4	1.45	8	1.91	
Union-8	7	2.54	35	8.35	
Union-9	3	1.09	10	2.39	
Union-10	4	1.45	6	1.43	
Union-11	27	9.79	38	9.67	
Total	No	276	100%	419	100
	%	39.7%		60.3%	

Source : Deptt. of Sociology, University of Rajshahi, Demographic Survey of Rajshahi Town 1980.

TABLE 3.4A. : DISTRIBUTION OF HOUSES BY TYPES OF STRUCTURES (IN PERCENT)

	Pucca	Semi-pucca	Kutcha	Total
Paurashava (by wards)	41.04	15.96	43.00	100.00
Fringe Area (by U.G.)	37.27	9.45	53.45	100.00

In both Paurashava and fringe areas kutcha houses are the dominant type of structures. The second position is occupied by pucca housing types. Pucca structures are more in the Paurashava area than in the fringe area.

3.4.2. Age and ownership of the Buildings :

The age and ownership of the buildings are presented in Table 3.5. It appears from the Table that in the urban area ward 1, 5, 8 & 6 have the highest concentration of the recently built houses. Most houses in urban area fall within the group of 6-20 years of age, and 21-50 years of age. A few percentage of houses were built before 50 years.

In the fringe area highest percentage of buildings fall within 6-20 years of age. The second highest percentage of buildings are very recent, between 0-5 years. So it is clear that most of the buildings in the fringe area are newly built, between 0-20 years.

In both Paurashava and fringe area the private ownership is dominant. Only a few percentage of houses are owned by the public.

TABLE- 3.5: PERCENTAGE DISTRIBUTION OF BUILDING BY AGE AND OWNERSHIP IN PAURASHAVA AND FRINGE AREAS

Ward No.	0-5	6-20	21-50	51+	Private	Public	Total
1	33.67	41.50	27.69	7.14	100.00	00.00	100.00
2	19.30	39.18	24.56	16.96	85.96	14.04	100.00
3	0.0	32.43	56.76	10.81	93.24	6.70	100.00
4	6.82	36.36	40.91	15.91	100.00	0.0	100.00
5	22.69	50.15	14.78	2.38	81.19	18.81	100.00
6	15.60	51.74	30.73	1.93	96.15	3.85	100.00
7	12.88	60.00	24.00	3.20	100.00	0.00	100.00
8	17.53	42.53	33.12	6.82	92.45	4.55	100.00
Fringe							
No.							
1	17.87	64.87	16.96	0.31	99.80	0.20	100.00
2	2.63	91.99	4.38	0.0	73.47	26.53	100.00
3	4.40	60.07	35.53	0.0	100.00	0.00	100.00
4	27.74	54.74	16.42	1.00	100.00	0.0	100.00
5	22.03	60.17	17.80	0.0	100.00	0.0	100.00
6	54.94	32.10	7.10	5.56	100.00	0.0	100.00

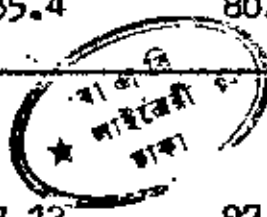
Source : Housing and Environmental Research Cell, BUST, Survey For Land Use Traffic and Utility for Greater Rajahmuni, 1980.

3.4.3. Building Density Pattern :

In the study area building density does not seem very high. Moreover, most of the buildings are single storeyed. Few areas have two -storey building and very few are three-storey building. In the Paurashava area of the Rajshahi city, highest and lowest percentage of one-storey buildings are 98.2 and 27.2 respectively. Two-storey buildings are more in ward 7, 3 & 4. Building coverage and floor space is almost same because the buildings are mostly one storey. The building coverage is highest in ward 4, which is 1607.50 sq.ft. per acre and 20150.30 sq.ft. per acre is the floor space. The lowest building coverage is in ward no. 1, which is 8630.63 sq.ft. per acre and the floor space is 8930.88 sq.ft. per acre. Ward 7 is an exception where the percentage of 3 storey buildings are more than one-storey and two-storey buildings (see Table 3.6).

In the fringe area more or less the same pattern is observed as in the paurashava area. The one-storey buildings are predominant, a few buildings are two and three storied. For that reason, building coverage and floor space has no significant difference. The building coverage varies from 2729.04 sq.ft. per acre to 9505.30 sq.ft. per acre and the floor space varies from 2612.22 sq.ft. per acre to 10239.05 sq.ft. per acre. The details of building coverage and floor spaces are presented in Table 3.6.

TABLE - 3.6 : BUILDING DENSITY PATTERN IN THE PAURASHAVA AREA AND THE FRINGE AREA.

Ward No.	Building coverage sq.ft./ acre	Floor space sq.ft./acre	Percentage of Buildings under different storey		
			1	2	3
1	8630.63	8930.88	98.2	1.4	0.3
2	7504.14	10419.56	85.4	12.3	2.3
3	14737.40	18511.95	75.6	22.9	1.3
4	16067.50	20150.30	79.5	18.2	2.3
5	5004.09	6816.63	91.9	6.3	1.8
6	5197.16	5345	95.9	3.2	0.9
7	14160.12	18408.15	27.2	35.2	37.6
8	9662.66	13335.4	80.4	17.6	2.0
					
Fringe Area					
No.					
1	6623.45	7087.12	97.1	1.9	1.0
2	9505.30	10239.05	92.5	6.3	1.2
3	7642.00	7960.00	87.7	0.3	11.9
4	2592.94	2612.22	99.6	0.4	0.0
5	2799.00	2799.00	100.00	0.0	0.0
6	2729.04	2720.04	100.00	0.0	0.0

Source : Housing and Environmental Research Cell, BUET.,
Survey for Landuse Traffic and Utility for Greater
Rajshahi, 1980.

3.5. TRANSPORTATION :

The importance of transport sector in urban development has many dimensions. Its basic functions are to provide essential linkages between residence and employment, and between producers and users of goods and services. Urban transport is complementary with a large number of other urban public services because the accessibility of an urban neighbourhood determines to a considerable extent whether or, at least, how easily, solid waste is collected, water, sewerage, drainage, electricity network are provided and maintained, schools and health care are within the reach of the inhabitants. Furthermore, since the transport system has an important impact on city's physical extension by determining population density, which in turn directly affects the cost of infrastructure provision. Urban transport policy may have a considerable impact on the cost of other urban services. The urban transportation is important in many other respects. It provides employment to a significant although varying proportion of the population. It also places a considerable financial burden on the public authorities in urban areas, although the proportion vary, it is not unusual for urban government to spend between 15 and 25 percent of their annual budgets on transport related investment and operation activities.¹

3.5.1. Mode of Transport :

Road transportation is the major type of transport in the study area. The second importance goes to the railway. The inland

1. World Bank staff working paper no. 342, July 1979.

waterways plays an insignificant role in carrying passengers and goods. Air service is very much undeveloped. Rajshahi is indirectly linked with the capital by air transport. Biman operates only one flight at Ishurdi per day, by Fokker F-27 which has a capacity of 40 passengers. Of those 40 seat 20 tickets are used from Rajshahi and the rest from Pabna and Ishwardi. Biman coach service operates between Rajshahi and the airport at Ishurdi at a distance of 65 miles.

3.5.2. Roads in RTDA Area :

The M.T. D.A. area is served by three types of road viz., pucca semi-pucca and kutcha. The total road mileage is 306.74 miles of which 65.24 miles are pucca, 37.5 miles are semi-pucca and 204 miles are kutcha. The Paurashava area has 68.87 miles of roads of which 31.24 miles are pucca, 9.24 miles are semi-pucca and 27.89 miles are kutcha roads.

There are three major roads by which RTDA area is linked with outside region. They are the Nawabganj road, the Nowhatta road and the Natore road. Besides these roads, there are few other important roads, most of them is in Paurashava area. Among them Nazrul Islam road, Enaduddin road, Greater road, station road are worth mentioning. There are few other roads outside the municipality like Mallapara - Bahra - Kulpara road Baya Tamore road, Kayerdara Baya road, Pabna road etc.

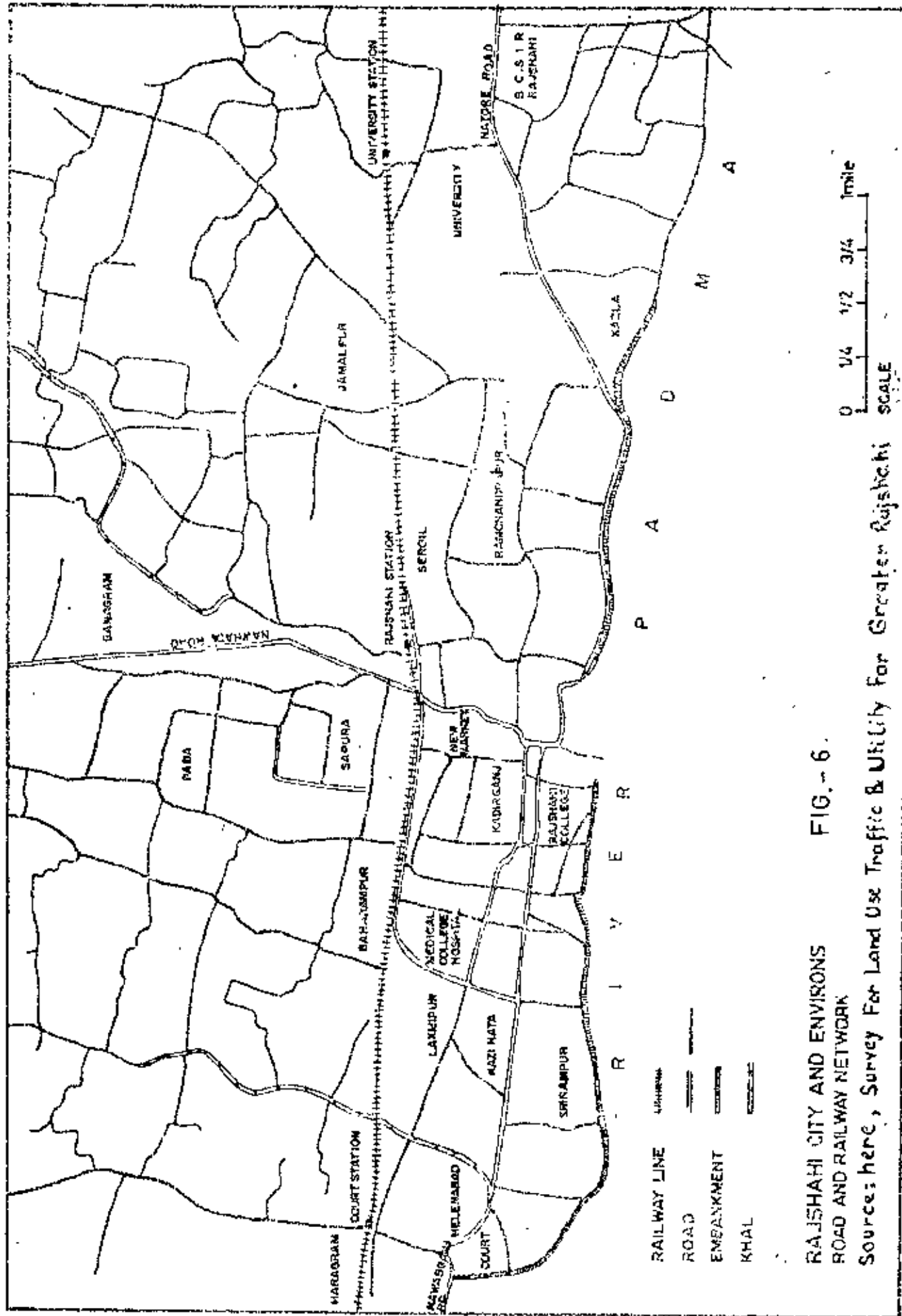


FIG.-6.

RAJSHAHI CITY AND ENVIRONS
ROAD AND RAILWAY NETWORK

Source: here, Survey For Land Use Traffic & Utility For Greater Rajshahi

Nazrul Islam road originates from Rajshahi court and terminates into Natore road at Shahab Bazar area; pavement width varies from 20' to 30'. Station road is another important and busiest road. It originates from Shahab Bazar and terminates into Railway Station to the north. So, it connects the two important places. The greater road originates at the CEB intersection and terminates to the railgate intersection. It is the only dwell carriage way of Rajshahi. Sir Enaduddin road originates from the old Jadar Hospital and terminates into station road near Shahab Bazar. Natore road is in the south, which originates from Shahab Bazar and passes through RTDA area towards Natore. Its length is about 5.5 miles within the RTDA area. Noahatta road is a part of Rajshahi-Noagaon road. The road originates from Rajshahi Railway station. Ribbon development is taking place throughout the six miles of this road.

Apart from the greater road, all other roads in the city are narrow and tortuous in nature. The capacity is not fully utilized due to many constriction points. It has been observed that because of the tortuous nature and sharp bends with poor horizontal sight distance and viewing obstructions capacity of the four major roads, such as Nazrul Islam roads, Station Road, Sir Enaduddin road and Natore road are much reduced. This has also been observed by the study conducted by HEAC, 1980.¹

1. Housing and Environmental Research Cell, BUET. Survey for Land use Traffic and Utility for Greater Rajshahi, 1980.

3.5.3. Nature of Traffic :

The urban traffic in RTDA area is heterogenous in character, consisting of slow moving bullock carts, tom tom, rickshaw, bicycle along with high speed, car and buses. These fast and slow moving vehicles use the same carriage way on the road in Rajshahi city. In the rural areas of the RTDA, bullock and buffalo-carts are the principal means of road transportation. The information of the number of registered vehicles are presented in Tables 3.7 and 3.8.

TABLE 3.7 : NO OF REGISTERED VEHICLES UNDER
RAJSHAHI PAURASHAVA

Type of Vehicles	Number*
1. Rickshaw	3850
2. Rickshaw (Private)	6
3. Rickshaw (Van type)	16
4. Tom Tom	247
5. Cart	220
6. Push cart	200

* Registered in the year 1978-1979.

Source : 'HERO' quoted from Rajshahi Paurashava.

TABLE 3.8 : NUMBER OF REGISTERED MECHANISED VEHICLES IN RAJSHAHI.

Type of vehicles	Year 1968	Year 1980
Truck	150	153
Bus	112	126
Car	85 (private only)	118
Jeep	44	72
Auto Rickshaw	110	71
Trailer	-	45
Tractor	-	53
Motor cycle	272	2098
Total	-	2736

Source : 'hore' survey for land use traffic and utility for greater Rajshahi, 1980.

It is understood that there are significant number of mechanised vehicles that are not sign registered in Rajshahi. It is also noted that mechanical vehicles which is registered in 1968 is almost same as 1980. Even auto-rickshaws are less in number in 1980 than that in 1968.

From Rajshahi city there are 16 bus routes leading to different parts of the country. These routes are classified into two type one is interdistrict route and the other is intra-district routes

Inter district routes are : -

Rajshahi - Dacca
 Rajshahi @ Khulna
 Rajshahi - Pabna and
 Rajshahi - Nagarbari

Table (3-9) presents the service frequency of the bus from Rajshahi to other places. It reveals the functional relationship between Rajshahi and other places. The maximum frequency of service is observed with Natore and the second highest frequency is between Rajshahi and Nawabganj. These two places are within Rajshahi district and have proved functional interdependency.

TABLE 3.9 : BUS ROUTES FROM RAJSHAHI WITH FREQUENCY OF TRIPS PER DAY (IN ONE DIRECTION)

Name of the Route	Frequency per day (in one direction)
Rajshahi - Dacca	7
Rajshahi - Natore	59
Rajshahi - Pabna	18
Rajshahi - Nagarbari	12
Rajshahi - Nawabganj	31
Rajshahi - Nawabata	4
Rajshahi - Mahanpur	2
Rajshahi - Gharghat	5
Rajshahi - Taherpur	2
Rajshahi - Durgapur	2
Rajshahi - Singra	1
Rajshahi - Doyarampur	3
Rajshahi - Gopalpur	2
Rajshahi - Rajapurhat	11
Rajshahi - Narayanpur	1
Rajshahi - Khulna	1

Source : Housing and Environmental Research Cell, BU-T, Survey for Land Use Traffic and Utility for Greater Rajshahi, 1980.

Table (3-10) present the truck frequency between Rajshahi and other places which carries the cargo of the study area. It seems that between Khulna and Rajshahi the goods movements are more frequent. Next frequent movements are between Nawabganj and Rajshahi. Rajshahi is also linked by truck with Dacca, Pabna and Natore.

TABLE 3.10 : ESTIMATED TRUCK FREQUENCY (BOTH DIRECTION)

Route	Frequency per day
Dacca - Rajshahi	30
Khulna - Rajshahi	50
Pabna - Rajshahi	30
Natore - Rajshahi	30
Nawabganj-Rajshahi	40

Source : Housing and Environmental Research Cell, BUET, Survey for Landuse Traffic and Utility for Greater Rajshahi, 1980.

3.5.4. Railway :

Since 1929 a broad gauge line is serving the RTDA area which is a branch of main Khulna-Parbatipur line. The line is branch off at Abdulpur which is 24 miles away from Rajshahi and crops the RTDA area and proceeds towards Annura and from Annura it is again divided into two lines, one goes to Nawabganj and another to Eohanpur. Between Nawabganj and Abdulpur there are 16 stations of which 4 stations are in RTDA area. They are, Harian, Rajshahi University, Rajshahi (Main) and Rajshahi Court the maximum speed limit is 35 mph (mile per hour).

Between Rajshahi and Abdulpur five up trains and five down trains run in a day, and between Rajshahi and Annura four up trains and four down train run in a day. It is observed that, the flow of local passengers from the environs is higher than the flow from other important places of origin. It is also observed that the inflow is higher than the outflows.

The average daily flows of goods traffic is very insignificant in RTDA area. The total outflow is only 6723 maunds and the total inflow is only 459 maunds. The major movement is between Khulna and Daulatpur. The major commodity which outflows is jute and jute products. A large volume of vegetables moves from RTDA area by passenger trains to Khulna.

3.5.5. Inland Waterways :

Any inland waterport facility failed to develop in Rajshahi due to various reasons. The river Padma is braided in character, so the distance from the main flow to the embankment varies from time to time. Because of the international border area, water transport is very much undeveloped in RTDA area. There is no regular mechanised water transport for passenger and goods. No terminal and berthing facilities are available, only seasonal launch services are in operation to some surrounding areas. Country boat carries the commodity and the movement is much in the wet season. They use any point favourable along the river bank to load and unload the goods.

CHAPTER - IV
DEMOGRAPHIC PATTERN AND SOCIO-ECONOMIC
CHARACTER OF THE STUDY AREA

4.1. POPULATION :

4.1.1. Population Growth and Size :

The invention of life saving drugs and the advancement of medical service during the last three decades, mortality rate throughout the world specially in the developing countries, has been reduced without similar changes in the birth rates. This has caused sudden acceleration in the natural growth of population.

The Table - 4.1 shows the inter-censal annual growth rate and the urban population size of Rajshahi and Bangladesh since 1872 to 1974. It appears that from 1872 to 1931, the annual urban population growth rate was very low but from 1931 to 1941 it suddenly rose from 1% to 4.2%. From 1941 to 1951 negative growth rate is observed what may be due to the out-migration of Hindus after the partition. After the 1951 and onwards the growth rate rises to 3.9 percent. But in case of Bangladesh the urban growth is much more rapid, almost double, that is 6.9 percent, during 1961 to 1974. So urbanization in Rajshahi is slower than at the national level.

Table (4.2) is presented to have a clear picture of the population distribution both by ward and union areas, in other words, by urban and rural areas. The annual growth rate during 1961-1974 is lower in the urban areas compared to the rural

areas, which is 3.9 percent and 6.1 percent, respectively. The total growth rate is 5.1 percent. All the wards seem to have more or less similar growth rates, i.e., variation is less pronounced in the rural area. So it is evident that population growth is higher in the rural areas than in the urban area.

TABLE 4.1. URBAN POPULATION GROWTH OF RAJSHAHI AND BANGLADESH 1872-1974

Census	Rajshahi		Bangladesh	
	Population (Urban)	Inter censal Annual growth (%)	Population (Urban)	Inter censal Annual growth (%)
1872	22,291	-	N.A.	-
1881	18,228	-17	N.A.	-
1891	21,407	1.1	N.A.	-
1901	21,589	0.0	702,000	-
1911	23,406	0.1	807,000	1.4
1921	24,598	0.5	878,000	0.8
1931	27,046	1.5	1076,000	2.1
1941	40,778	4.2	1537,000	3.6
1951	39,995	-0.2	1820,000	1.7
1961	53,430*	3.9	2641,000	3.8
1974	96,645	3.9	6274,000	6.9

* Population size adjusted in accordance with municipal boundaries of 1974.

Source : Sheikh, A.H. Some Aspects of Social Structure of Rajshahi Town 1976.

TABLE 4.2 : R.T.D.A. AREA POPULATION SIZE AND GROWTH
1961-74.

Ward/Unions	1961	1974	Annual growth rate (%)
Ward-1	7,299*	11,068	3.3
Ward-2	6,846	10,832	3.6
Ward-3	5,753	9,197	3.7
Ward-4	6,062	9,173	3.2
Ward-5	6,946	12,885	4.9
Ward-6	9,540	16,610	4.4
Ward-7	6,594	10,056	3.3
Ward-8	9,401	14,706	3.5
Jail		2,118	-
Sub Total	58,430	96,645	3.9
Union-I.	6,229	18,662	8.8
Union-II.	5,459	16,552	8.9
Union-III.	1,525	2,876	5.0
Union-IV.	3,213	6,164	5.1
Union-V.	5,503	21,943	6.8
Union-VI.	10,857	21,463	5.9
Union-VII.	2,602	5,602	4.3
Union-VIII.	7,540	13,050	4.3
Union-IX.	2,724	4,600	4.1
Union-X.	1,678	3,554	5.9
Union-XI.	9,056	17,739	5.3
Sub Total	55,891	121,000	6.1
Total	114,321	271,845	5.1

* Adjusted declination.

Source : People's Republic of Bangladesh, Department of Public Health Engineering DHU Consulting Engineers. Rajshahi Water Supply Project; Feasibility Study, Inception Report April 1980 (Quoted from different sources).

4.1.2. Population Distribution and Density :

It is apparent from the census that the gross population density in the Rajshahi Paurashava area has risen from 25.82 persons per acre in 1961 to 42.71 persons/acre in 1974. But within the Paurashava area net density varies among the wards, from 56 to 204 persons/acre. But outside the Paurashava area of the Rajshahi city density is very low. In the whole R.T.D.A. area the density was 3.62 persons/acre in 1961 to 8.63 persons/acre in 1974. It is quite natural that the core area of the city is densely populated than the other parts of the city. But even then the density seems to be quite low in case of Rajshahi city.

The major concentration of population is around the central area which is also the oldest part of the city. High density is also seen to extend eastward in a linear pattern through the middle of the city upto its eastern limit. The western half of the city is generally characterized by very low density. Though the density is highest in the inner part of the city, the proportion of larger houses as well as persons of higher socio-economic status is also comparatively high in the same area (Sheikh, 1976, P. 94).¹ It is because the higher income people prefer to live in the inner parts of the city due to the locational advantages or nearness of public amenities such as bazar, market, institutions, cinema hall etc. The east-ward linear extension of higher density area is due to the settlement of large number of immigrants

1. Sheikh, A.H.M. Some Aspects of Social Structure of Rajshahi Town 1976.

in Ramchandrapur. The low density of the western section of the city is explained by the fact that most of the Government offices and official residences have been developed in this area and a considerable part of the area still remain as open spaces.

4.1.3. Composition of Age and Sex :

Table 4.3 explains the age distribution of the people of the study area. In urban area, the maximum population is in the age group of 10-14 years and in rural areas maximum population belong to 5-9 years. The minor age population in the urban area seems quite low, this may be due either to the under enumeration or the effect of the liberation war or the natural calamities occurred in 1970's. Old age population is also low in this area. Total R.T.D.A. area has 43.84 percent of 0-14 age group population which reflects a high dependancy rate. Results from the correlation analysis carried out by Sheikh (1976) revealed a positive correlation of household with a high proportion of children of 0-14 with unskilled manual occupation, katcha housing and low income and a negative association with literacy.

Due to non-availability of data, the age composition of male and female can not be ascertained. The Table given below show that 52.99 percent of population is male and 47.01 percent is female in the study area. It is evident that male population is dominant both in urban and rural areas.

TABLE 4.3. AGE COMPOSITION OF THE POPULATION OF THE STUDY AREA.

Age categories		Wards	% of total wards	Unions	% of total unions
Upto	4	231	9.20	394	14.63
5-	9	324	12.90	491	18.23
10-	14	423	16.86	418	15.52
15-	19	354	14.10	267	9.91
25-	29	209	8.33	222	8.24
30 -	34	119	4.79	150	5.57
35 -	39	138	5.50	140	5.20
40 -	44	93	3.70	78	2.90
45-	49	86	3.43	89	3.12
50-	54	74	2.96	71	2.64
55-	59	52	2.07	53	1.97
60 & above		94	3.79	77	2.86

Source : Department of Sociology, Rajshahi University, Demographic Survey of Rajshahi Town, 1980.

TABLE 4.4 : DISTRIBUTION OF POPULATION BY SEX AND BY WARDS/UNIONS

Sex	Wards		Unions		Total (R.T.D.A.)	(% of Total Population)
	No.	%	No.	(%)		
Male	1289	51.35	1483	54.50	2772	52.99
Female	1221	48.65	1238	45.50	2459	47.01
Total	2510	100%	2721	100%	5231	100%

Source : Department of Sociology, University of Rajshahi, Demographic Survey of Rajshahi Town 1980.

Average urban sex ratio of Bangladesh is 129¹. The recent survey observed that sex ratio is 113 for R.T.D.A. area, 106 for the Paurashava area and 120 for the unions. Compared to other large industrial and commercial towns, the urban sex ratio in Rajshahi is rather low. It may be due to the small number of large scale industries in urban areas which can attract single male population like other big towns. According to Seikh (1976)² sex ratio is highest among the age group 15-59, but after 60 this ratio drops suddenly.

TABLE 4.5 : AGE GROUPS AND SEX RATIO IN RAJSHAHI TOWN, 1976.

Age group	Sex ratio
0-4	98
5-14	99
15-59	133
60+	107

Source : Sheikh, Md. A.H., Some Aspects of Social Structure of Rajshahi Town, 1976.

4.1.4. Fertility, Mortality and Natural Growth :

The urban fertility rate is lower than the rural fertility rate in Rajshahi. The general fertility rate is defined as the number of birth per 1000 women in the reproductive Age of 15-45 years. In Rajshahi outside the municipal area, unions represent double

1. Bangladesh Bureau of Statistics, 1979 Statistical Year Book of Bangladesh.
2. Sheikh, A.H.H. Some Aspects of Social Structure of Rajshahi Town 1976.

the fertility rate 250/000 than that (124/000) of the Paurashava. The crude birth rate is 34/000 in Paurashava area and 55/000 in unions. Educational level affects the fertility rate, as can be seen from the Table below, for Bangladesh as a whole.

TABLE 4.6 : NUMBER OF CHILDREN BORN IN RELATION TO THE EDUCATIONAL LEVEL OF EVER MARRIED WOMEN

Educational Level	Mean number of children	
	Rural	Urban
All women	4.0	3.9
No schooling	4.2	4.2
Primary	3.4	4.0
Above primary	2.3	2.6

Source : Bangladesh Bureau of Statistics, Statistical Year Book 1979, (Quoted from Bangladesh fertility survey 1975).

The mortality rate of the study area is 16.24 persons per thousand population. In 11 unions crude death rate is 16.90 persons per thousand and in 8 wards the rate is 15.53 persons per thousand. It has in significant differences between the urban and rural death rates.

The natural growth rate of the RTDA area is observed to be 2.81 percent, and 1.79 percent annual growth rate in 8 wards or of Paurashava areas and 3.75 percent annual growth rate for unions.

4.1.5. Family size and Household :

There is a conceptual difference between family and household. Both are social units consisting of a married couple, children and sometimes parents, brothers and sisters but the household includes domestic servants who share the common food and other physical facilities like water supply, toilets, electricity etc. which is provided to the family. The average household size is 7.53 within the R.T.D.A. area which is higher from the national average of 6.3. The rural areas have a slightly large family size, that is 7.59 than the urban size of 7.55 members. From the data it is clear that the family size is not becoming smaller although a massive propaganda and programs of family planning has been launched by the government.

4.1.6. Migration Pattern and Causes of Migration :

There are several studies on different aspects of migration in Bangladesh. These studies reveal that till recently urbanisation and urban migrants are an insignificant component of the total population of the country. Urban population was 5.2% in 1961 and of the total population 13.65% came from rural areas.¹

But from 1961 onward it grew faster. In 1961-74 census, the urban population of Bangladesh grew at a rate (exponential) of 6.70 percent per annum and during 1961-74 urban population increased by 137.6 percent of which at least 39.36 percent came from the rural areas.²

1. Chowdhury R.H. "Management of immigrants to urban regions of Bangladesh". National Report on Human Settlement.

2. Chowdhury R.H. op.cit. pp. 16.

In the R.T.D.A. area migration type is the same as in other parts of the country. Of the total migrants, 76.74 percent came from the rural villages and 22.80 percent came from other towns. It would be clear from the Table given below :

TABLE 4.7 : DISTRIBUTION OF RESIDENTS ACCORDING TO THE PLACE OF THEIR PREVIOUS RESIDENCE

Wards/ Unions	Previous residence			
	Village		Town	
	No. of migrants	Percentage	No. of migrants	Percentage
Wards	117	25.4	153	22
Unions	357	51.70	6	0.80

Source : Department of Sociology Rajshahi University,
Demographic survey of Rajshahi town.

If we consider 11 unions of RTDA area as rural areas, then 51.70 percent of migrants came from rural villages to settle in other different villages. In that case rural to rural migration is quite high. The rural to urban migration in Rajshahi town (8 wards) is 25.4 percent and 22 percent is from other towns. But urban to rural migration is very low, only 8.87 percent.

The main reason of movement of people is economic. People come to the urban area on the hope that they will get job, because job opportunities are higher in urban areas. The per capita income is also high in the urban areas than in the rural areas.

TABLE 4.8 : MIGRATION STREAM IN THE R.T.D.A. AREA

Place of origin	Wards		Unions		Total	
	No.	Percent	No.	Percent	No.	Percent
Outside Bangladesh	85	25.68	61	16.62	146	20.92
Within Rajshahi District	202	61.03	272	74.11	474	67.91
Rangpur	6	1.81	1	0.27	7	1.00
Pabna	18	5.49	7	1.91	25	3.58
Bogra	5	1.51	2	0.54	7	1.00
Dinajpur	2	0.60	1	0.27	3	0.43
Dacca	4	1.21	3	0.82	7	1.00
Barisal	2	0.60	0	0	2	0.29
Mymensingh	1	0.30	1	0.27	2	0.29
Coxilla	0	-	8	2.18	8	1.15
Khulna	1	0.30	1	0.27	2	0.29
Patuakhali	0	-	1	0.27	1	0.14
Faridpur	1	0.30	5	1.36	6	0.85
Kushtia	2	0.60	1	0.27	3	0.43
Noakhali	1	0.30	3	0.82	4	0.57
Jessore	1	0.30	-	-	1	0.14
Total	331	100%	367	100%	698	100%

Table 4.8 shows the migration stream of the study area which explains the origin from where the people migrated to Rajshahi Paurashava and its surrounding areas. 21 percent of the sample population came outside the country which is mainly from India after partition. 68 percent of the population of the population came from within the Rajshahi district. So intradistrict movement of the people in Rajshahi is very prominent. The next large proportion came from Farna which is the neighbouring district of Rajshahi. Bogra, Mymensingh, Dacca, Patuakhali, Faridpur, Noakhali and Barisal all contribute small number of migrants. Those who came from outside the country, most of them settled in urban areas. But those who came within the Rajshahi district, large portion of them settled in the unions. The unions are rural in character. If 8 wards and 11 unions are taken together it seems, that 47.42 percent of the migrants are settled in 8 wards and 52.58 percent settled in unions.

TABLE 4.9 : REASONS FOR MIGRATION TO THE STUDY AREA

	Total Number	Percentage
Partition of India	106	25.18
Economic reasons	204	57.00
Education	34	8.00
Calamities	29	6.89
Case etc.	2	0.89
Eviction by court	3	0.71
Family Problem	7	1.66

Source : Sociology Department, Rajshahi University, Demographic Survey, 1980.

Economic reason is assumed to be the main cause of coming to the study area. This trend is seen in different places in Bangladesh. A study by Chowdhury (1975)¹ indicates that the majority of the out-migrants from the rural areas moved into urban areas in search of occupational opportunities. According to him traditional agricultural system, low cultivable land-man ratio,² inadequate non-agricultural activities in rural areas could not absorb the increasing labour force arising out of higher fertility in the rural areas and this may have resulted in the influx of people from rural to urban areas. 57 percent people come to the study area for economic reasons, to have a better job opportunities and better housing and other facilities. The second major portion of immigrants (26%) came due to the partition in 1947. 9 percent of the migrants came for educational purposes. Rajshahi is an educational seat of the northern region. The Rajshahi University, Rajshahi Medical College, Rajshahi Engineering College etc. attracts many students outside the study area. Besides these, there are many reasons, like natural calamities, case eviction by the Government, family problem etc. but these cause insignificant number of people to come to urban areas.

4.1.7. Present Population :

According to 1974 census the population size of Rajshahi municipality was 96,645 and the inter-censal annual increase was 3.9% during 1961-74. During the same period growth rate of

1. Chowdhury, R.H. op.cit. page 16.

2. Note, Culturable land man ratio is found to be 0.315 in 1971-72, see Govt. of Bangladesh, Ministry of Agriculture in Statistics 1973.

Rajshahi urban area was 5.3% annually. Assuming an overall intercensal natural growth of 2.8%, urban migration accounted 2.5% of the total growth. Considerable part of this migration was caused by influx from India which may be assumed negligible in the future.

According to the PHE study the densely populated residential fringes around the municipality presented a growth rate of 7 to 8%. These fringes can be found in particular immediately north of the railway and along the road to Noahatta. In 1980 the total population of Rajshahi municipality is estimated by PHE consultant in cooperation with local authority at 115,000. For Rajshahi urban area the estimate amounts to 200,000 people of which 175,000 are residing in the municipality and immediately surrounding residential areas and the remaining 25,000 in quarters of University and other institutional compounds within the delineation of the urban area.

4.1.8. Population Projection :

Several background studies for the preparation of a master plan of Rajshahi city has been made in and around 1980 for the Rajshahi Town Development Authority. These studies have been conducted by the Department of Sociology and the Department of Economics of Rajshahi University and by the Housing and Research Cell of BUET. All of them estimated the future population of Rajshahi. But the basis of their projections are not very clear. Besides these another study has been done by the Local Government Ministry's Department of Public Health

Engineering. The study has examined the feasibility of water supply project in Rajshahi. In this study the estimation of future population seems more reasonable and authentic and that is why this estimation is taken for the future population of the study area.

According to PBL study the population projection is based on 1980 population size of 175,000 for the Rajshahi Urban area minus (estimated) campus and hostel population. They justified the exclusion of the campus and hostel population on the ground that the growth of population of the education and training establishments in urban area is likely to differ from the growth of the total urban population. On the other hand growth in this sector is likely to be rather restricted because of policy objectives aiming qualitative improvement than physical expansion. Any minor growth assumed to be absorbed within compound boundaries.

The study analyses two situation viz., if there is a major achievement in economic development or a failure to achieve economic development. In the case of improvement in socio-economic conditions like employment, income, health care, educational facilities, then fertility is likely to fall progressively. Crude birth rate will drop from 45/000 in 1980 decade to 32/000 in 1990-2000. It is obvious that improved condition will decrease the death rate especially of children the decrease assumed to be 17/000 at present to 12/000 in 2000 A.D. Under these circumstances they assume the natural rate of increase, and migration such as stated below.

1. High Economic Development :

	<u>Natural</u>	<u>Migration</u>	<u>Growth Rate</u>
1980-1990	2.5%	3.5%	6.0%
1990-2000	1.9%	6.1%	8%

2. Low Economic Development :

1980-1990	2.5%	1.5%	4.0%
1990-2000	2.2%	2.8%	5.0%

Different growth rate is expected in different socio economic development activities.

If major economic development is achieved, the manufacturing and other industries will attract the people from the rural areas in addition to that of progressive push from the rural area and that will increase migration. So it is assumed that the migration rate will be 3.5 percent in 1980-1990 decade and 6.1 percent in 1990-2000 A.D.*

If economic development could not be achieved as expected, migration will be less than before. On the otherhand, due to the push factor small number of rural people will come to the urban areas. Under this condition, migration will be 1.5 percent for the period 1980-1990 and 2.8 percent for 1990-2000 decade.

For the rural areas 90,000 is taken as base population in the year 1980. No alternative assumption is made for the rural population and the growth rate is taken as 4 percent and 5 percent during the first and second decades, respectively.

Considering the two alternative assumptions, the low economic growth seems more realistic in case of Rajshahi city. Because there is little chance of high economic development in Rajshahi area (It is discussed in detail in chapter V). Moreover it is understood from different sources of information that in near future no large scale industries will be established rather some small scale industries will be set up, so the migration will not be so high as the high economic development assumption. Due to all these reasons low economic development assumption is accepted for the future population of Rajshahi urban area and the R.T.D.A. area.

TABLE 4.10 : PROJECTED POPULATION WITH PROPOSED GROWTH ALTERNATIVES

Alternative/ Area	Annual growth		1990 Inst. Population		2000 Inst. Population	
	1980-90	1990- 2000	Excl.	Incl.	Excl.	Incl.
<u>Alternative 1</u>						
Urban Area	6%	8%	315,000	340,000	675,000	700,000
Rural Area	4%	5%	133,000	133,000	217,000	217,000
				473,000		417,000
<u>Alternative 2</u>						
Urban Area	4%	5%	260,000	285,000	420,000	445,000
Rural Area	4%	5%	133,000	133,000	217,000	217,000
Total R.T.D.A.				418,000		662,000

Source : Ministry of Local Govt. Public Health Engineering DNV Consulting Engineers, Rajshahi Water Supply Project, Feasibility Study inception report 1980.

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4.2. EMPLOYMENT PATTERNS :

4.2.1. Workforce :

The labour force participation rate determines what portion of the working population actually offers its service to the labour market. This variable is again crucially linked to the demand for labour. The most important determinants of the labour force participation rate are economic ones, such as the opportunities for employment and the level of wages offered. Besides these, there are other considerations such as labour force participation rate of secondary income earner, because they think about the margin between the money wage they earn and the opportunity cost of staying at home, generally transportation costs over weigh the whole thing.

But appropriate landuse planning and rational transportation policy may effect the labour participation rate especially for poor income earner and thus increase their family income.

Table 4.11 shows the participation rate of the study area. The sample survey indicates that participation rate of the wards are less than the unions which are 25.07% and 26.86%, respectively. The total greater Rajshahi Town area has 26.86% of workforce in 1980.

According to the census report of 1974 the concept of labour force includes population of 10 years and above. Using that concept the participation of labour force of the district of Rajshahi is 43.39% and in Bangladesh it is 44.34%. The participation rate of labour force declines during 1961 to 1974.

TABLE 4.11 : DISTRIBUTION OF TOTAL POPULATION AND LABOUR FORCE OF THE SAMPLE POPULATION BY WARDS AND UNIONS

Wards/Unions	Total population	Total labour force	Participation rate (in %)
Ward-1	359	81	22.56
Ward-2	313	79	22.24
Ward-3	338	109	28.09
Ward-4	399	91	22.09
Ward-5	373	86	23.06
Ward-6	811	235	28.98
Ward-7	410	89	21.70
Ward-8	<u>337</u>	<u>77</u>	<u>20.42</u>
	(3390)	(850)	(25.07)
Baragachi	188	65	34.57
Dankura	48	15	31.25
Haragram	666	210	31.53
Harien	491	135	27.49
Haripur	564	137	24.29
Karla	650	159	24.46
Noahatta	704	205	29.12
Paba	583	145	24.87
Parila	350	79	21.14
Sapura	902	244	27.05
Yusufpur	<u>141</u>	<u>39</u>	<u>27.66</u>
	(8677)	(1420)	(26.86)
Aggregate for the greater Rajshahi Town	8677	2278	26.25%

Source : Economic Base Analysis and Employment Survey, Department of Economics, Rajshahi University.

Note : (Figure in parentheses shows the aggregate for wards and unions).

The only cause may be that in 1961 census, many of the housewives were included as CLF¹ instead of housewives and that might have increased the volume of labour force. (Table 4.12)

TABLE 4.12 : LABOUR PARTICIPATION RATE 1974 and 1961

Area	Rajshahi District		Increase + Decrease -	Bangladesh	
	1974	1961		1971	1961
All areas	43.39	47.89	(-)4.50	44.34	54.43
Rural Areas	43.90	47.97	(-)4.07	44.19	54.59
Urban area	35.72	46.13	(-)10.41	45.79	51.71

Source : Bangladesh Bureau of Statistics, District Census Report, Rajshahi 1974.

In the study area, rural participation rate is higher than the urban rate, this corresponds to the trend of Bangladesh i.e., in all other areas of Bangladesh rural participation rate is higher than the rate of urban areas.

4.2.2. Workforce Projection :

To estimate future development requirements of the city it is important to know her future population and labourforce.

To project labourforce, the past trend of participation rate should be taken into account but due to lack of data it is not possible. So the participation rate is suggested by observing different places participation rate and projected to the future.

1. Note: CLF = Civilian labour force.

A comparison can be found from the labour force participation rate given below :

** Rajshahi RTDA area in 1980	26.25%
* Rajshahi District in 1974	43.39%
* Bangladesh in 1974	49.39%

It appears from the above Table that labour force participation rate of the study area is lower than the Rajshahi District and Bangladesh. It is expected that in future the participation rate will increase atleast upto 35% in the year 2000 A.D. Therefore it would increase 4% per decade. So, if the participation rate of the R.T.D.A. area is taken in round figure, it would be 27%. So in 1990 urban participation will be 31% and in 2000 it would be below the national level. Labour will increase very slowly because it is expected that primary and secondary education will expand and will tend to decline labour force participation rate. But on the other hand, it is expected that women participation rate will increase. Because with the advancement of education more and more women will come to work. Also it is expected that labour participation rate will increase upto the above mentioned level if not more in the year 2000. All projections are based on assumptions and may not be fully correct but they give approximations to reality. The table given below shows the future labour force of the study area under two alternative assumptions.

* Rajshahi District Census 1974, Bangladesh Bureau of Statistics.

TABLE 4.13 : PROJECTION OF TOTAL WORKFORCE OF RTDA AREA UNDER ALTERNATIVE ASSUMPTIONS.

	1990		2000	
	Inst. excl.	Pop. Incl.	Inst. excl.	Pop. Incl.
Alternative-1				
Urban areas	97650	105400	229950	245000
Rural areas	41230	41230	75950	75950
Total RTDA		146630		320950
Alternative-2				
Urban Area	80600	88350	147000	155750
Rural Area	41230	4130	75950	75950
Total RTDA		129580		231700

Source : Here Alternative 1 & 2 means High Economic Development and Low economic Development as in Population projections See chapter-II.

4.2.3. Employment Characteristics :

According to the Second Five Year Plan, in the recent past trend of employed labourforce in Bangladesh shows sharp decline from 34 percent in 1961 to 28 percent in 1974. Although the first Five Year Plan expressed the intension of reducing poverty and improving the income distribution through expansion of employment opportunities, due to large falls in investment in major sector, the employment targets could not be achieved.

For the study area, past data is not available about the employed population. From the census of 1974 it is observed that Rajshahi district has 42.88% of her total population employed, of which 34.42 percent were in urban and 43.77 percent were in rural areas. It seems that employment situation in rural areas was better than the corresponding national figure.¹

It is evident from Table 4.14 that the dependency rate in the study area is quite high. It varies from 68.62 percent to 79.14 percent in the unions and 71.91 percent to 78.01 percent in the wards or in the urban areas. On the other hand the employment ratio is quite low. In urban areas it varies from 21.99 percent to 26.09 percent and shows more or less uniform picture. It can not be said from the dependency ratio that unemployment is high because it includes unemployable persons too. On the other hand employment ratio also includes under-employed persons.

Table 4.15 shows the distribution of labour force employed and unemployed in the study area. There is very narrow difference between wards and unions about employed persons. Unemployment is 11.81 percent in RTDA area. A significant number of active population is out of job.

1. Bangladesh Bureau of Statistics, District Census Report Rajshahi, 1974.

TABLE 4.14 : DEPENDENCY AND EMPLOYMENT RATIO
BY WARD/UNION

Ward/Union	Dependency Ratio (Non working Members as % of total members)	Employment ratio (Employed persons as % of total population)
Ward-1	74.09	25.91
Ward-2	74.76	25.24
Ward-3	71.91	28.09
Ward-4	77.94	22.06
Ward-5	78.01	21.99
Ward-6	76.33	23.27
Ward-7	77.07	22.93
Ward-8	77.42	22.58
Bangachi	68.62	31.38
Dankura	68.73	31.25
Haragrur	68.32	31.68
Harien	73.73	26.27
Haripur	75.89	24.11
Kazla	75.85	24.15
Nowhatta	72.73	27.27
Paba	75.30	24.70
Parila	79.14	20.86
Sapura	74.28	25.72
Yusufpur	72.34	27.66

Source : Department of Economics, University of Rajshahi
Economic Base Analysis and Employment Survey of
Greater Rajshahi Town, 1980.

TABLE 4.15 : DISTRIBUTION OF LABOUR FORCE BETWEEN EMPLOYED AND UNEMPLOYED.

Wards/Unions	Total labour force	Employed (No)	Unemployed (No.)	Employed (percentage)	Unemployed (Percentage)
Ward total	850	740	110	87.06	12.94
Unions	1428	1269	159	88.87	11.13
Aggregate for the greater Rajshahi town	2278	2009	269	88.19	11.81

Source : Department of Economics University of Rajshahi, Economic Base Analysis and Employment survey of Greater Rajshahi Town.

The labour market can be divided into formal and informal sectors. These sectors are taken to be largely without linkages to each other and are expected to possess a number of characteristics, which are enumerated in Table 4.16.

TABLE 4.16 : THE "CONVENTIONAL" VIEW OF THE URBAN LABOUR MARKET

Formal Sector High and middle income	Informal sector Poor and very poor
Low unemployment	High unemployment
Industry, business, government large scale operations, wage employment high skill employment.	Artisans, services, petty trade small scale operations self and family employment, low skill employment.
Restricted entry	Easy entry
Regulated	Unregulated
Taxed	Untaxed
Native population	Recent migrants
Production employment	Residual (unproductive) employment
Mainstream	Marginal

Source : World Bank Staff working paper No. 342. July 1979, policies for efficient and equitable growth of cities in developing countries.

In the RTDA area both types of employment are available, formal and informal. The informal sector employment in this area means the informal enterprises which signify informal organization, informal non-existent business records and informal responses to official regulations and laws etc. Thus according to this definition usual or day to day work with a major construction firm or government is treated as formal while rickshawpuller, daily market teacher or very small-scale farming activities etc. are included in informal sector. Sector wise working force distribution of RTDA area is given below:

TABLE 4.17 : PERCENTAGE DISTRIBUTION OF WORKFORCE BY
SECTOR WARDS/UNIONS

SECTOR	WARDS		UNIONS		AGGREGATE	
	1968	1978	1968	1978	1968	1978
Informal	1.09	3.24	18.26	19.86	12.22	13.74
Formal	98.91	96.76	81.74	80.14	87.79	86.26

Source : Economics Department, University of Rajshahi, Economic Base Analysis and Employment survey of greater Rajshahi Town 1980.

From the above Table it is apparent that the informal sector employment in the RTDA area has increased by 1.52 percent from 1968 to 1979 and the formal sector employment has decreased by 1.48 percent in the same period. So there is a little shift from formal to informal employment. The people in RTDA area are engaged in informal sector more in unions or rural areas than in the urban area.

The urban poor cannot afford to remain without some form of employment, since they do not have any alternative source of subsistence. In countries like Bangladesh relatively well-educated younger members of the urban middle class and higher income groups sometimes remain unemployed because they can have support from their family while they search for suitable jobs. But the poor people can not afford to look for jobs upto expectation due to his necessity.

The principal income earners of the households are found in virtually all types of employment. In large, medium and small scale farms in wage employment as well as self or family employment, in the government and in the private sector, and across all major types of urban activities. Table 3.9 provides a good illustration of diversity of employment in the study area.

TABLE 4.18 : RELATIVE IMPORTANCE OF THE SECTOR OF EMPLOYMENT MEASURED IN TERMS OF THE SAMPLE POPULATION BY WARDS AND UNIONS

Sector	(IN PERCENT)	
	Wards	Unions
Agriculture	5.45	42.13
Manufacturing	2.37	4.72
Trade and commerce	33.24	33.72
Services	51.40	23.52
Construction	1.82	2.46
Transport	4.47	2.46
Others	1.26	0.89

Source : Same as Table 4.17.

It is evident from Table 4.18 above that the relative proportion of the people working in the different sector in the formal occupation is 42.13 percent, people worked in the agricultural sector in unions which is rural in character, whereas only 5.45 percent do the same in urban areas. Service sector is the most important sector of employment in the RTDA area. The urban employment distribution is comparable to the Dacca conurbation workforce given in Table below :

Dacca conurbation workforce in 1975

Agriculture	5 percent
Manufacturing	26 percent
Utilities construction and transport	19 percent
Services	50 percent

Source : Dacca Metropolitan Area, Integrated Urban Development Project Interim Report.

The distribution of employment between the urban wards of RTDA area and the Dacca conurbation seems quite similar in the service sector which employ 50% people, the most important sector of employment in both the cases. Only 5% to 5.4 percent people are employed in the agricultural sector. But in case of manufacturing the situation differs. A high percentage of people (26%) are engaged in manufacturing in Dacca but in case of Rajshahi urban areas it is only 2.37 percent.

But if the whole RTDA area employment sectors are combined, it would become slightly different; this is presented in the following table.

The RTDA area employment distribution in 1980*

Agriculture	26.96	Percent
Manufacturing	3.75	"
Trade and Commerce	27.75	"
Service	35.05	"
Construction	2.19	"
Transport	3.35	"
Others	1.09	"

In the RTDA area, 26.96 percent is employed in agricultural sector, the percentage is high because it includes the rural areas. Service sector is still predominant sector, but the percentage is relative lower in the Rajshahi urban area than in Dacca. From the historic period Rajshahi was an important commercial and trading centre. But after the British period it lost its activities but still it has some importance in trade and commerce which is explained by 27 percent employed in trade and commerce sector. The manufacturing sector is still weak. Only 3.75 percent works in manufacturing; construction sector is not developed, only 2.19 percent work in construction sector.

4.2.4. Important sector of employment :

Service Sector : The service sector is the most important sector of employment in RTDA area. It includes educational and public institutions, banks, financial institutions, civil administration etc. Rajshahi is the district and the divisional headquarter

* Deptt. of Economics, University of Rajshahi, Economic Base Analysis & Employment Survey of Greater Rajshahi Town 1980

and a seat of education in the northern region of Bangladesh. These account for the employment in service sector as compared with other sectors. The breakdown of service sector is presented in Table 4.19.

TABLE 4.19 : SERVICE SECTOR EMPLOYMENT IN THE RTDA AREA BY WARDS AND UNIONS

(In percent)		
	Wards	Unions
Educational Institutions	31.52	33.05
Public Administration and defence	33.42	42.26
Building and Insurance	8.42	4.18
Professional and miscellaneous	17.12	12.13
Private concern	9.51	8.37

Source : Department of Economics, University of Rajshahi, Economic Base Analysis and Employment Survey of Greater Rajshahi Town 1980.

Trade and commerce : This is the next important employment source to the service sector. From the past Rajshahi plays an important role in trade and commerce. It exports, silk, rice, jute, indigo, etc. and imported cloth, cotton, goods, sugar, etc. But now-a-days the export items have changed and include sugar, molasses, jute products, mangoes, lichis, silk products etc. With the development of silk industry Rajshahi

exports silk products to Dacca, Chittagong and even abroad. Rajshahi city is known as the biggest clearing house for mangoes and lichis. Rajshahi imports petroleum, cosmetics, automobiles parts, electric goods, mustard oil industrial articles etc. The trade and commerce activities mainly take place through the hats and bazars located in different parts of the District.

According to the Agricultural Marketing Directorate, there are 329 hats and bazars in Rajshahi district and among them 268 are primary markets, 47 assembling markets and 8 melas, 6 are retailed market.

The Shahab Bazar shopping centre is the most important shopping centre in the city and is situated in the heart of the city. It has many permanent shops such as cloth, grocery, stationeries, hardware etc. The principal trading and commercial centres are in Shahab Bazar and Hanibazar. New market is also an important shopping centre. Some other markets are Haragram, Talaimary, Binodpur, Katakhal and many other scattered markets which serve as the local shopping centres.

Transport and communication sector : The transport sector account for 3.35 percent employment in RTDA area. It has importance after the service, trade and commerce and agriculture. This sector includes the road and railway transport and the post and telegraph communication. There are three most important roads in RTDA. These are Rajshahi-Natore road, Rajshahi-Jawabganj road and Rajshahi-Nowahata road. Roads are maintained by

different agencies. 200 miles of roads are controlled by the Roads and High ways division, these are mainly the above mentioned three major roads. The zilla parishad maintains 25 miles of metalled and 186 miles of unmetalled roads. The paurashava committee maintains 28 miles of metalled and 60 miles of unmetalled road, and union parishads maintain a large mileage of unmetalled roads in their respective areas. The means of transport consists of bus, truck, jeep-car, rickshaw, tantom and bullock cart. There are intra-and inter-district bus services in the city.

A branch of the main Broad-gauge line Khulna-Chilahati runs from Abdulpur junction to Annura passing through Rajshahi city. The railway carries both passengers and goods. Water transport is insignificant in the area. The Padma lost its earlier importance in providing water transportation in the area.

4.3. Socio Economic Characteristics of the Study Area :

To a considerable extent the character of a city economy is related to its size and there is normally a significant distinction in the economy of a large metropolitan centre and that of a small city or a town. The larger the city, the more varied are the services which it renders and the larger is the hinterland over which it exerts some kind of economic influence. Rajshahi is a city of more than a lakh population at present. Due to the Divisional Headquarter the service sector employment is very high. The large scale industry is very few; only manufacturing and small scale industries are found mostly near the city centre. The average family size is 7.53 as

observed by the Sociology Department, Rajshahi University in 1980. This is higher than the national family size average in 1981 (5.74).

The Table below presents the sources of income in RTDA area. The main source of income is agriculture which accounts 31.83 percent. Business and service sources have almost the same percentage. Small percent of income is contributed by house rent. So Agriculture is the major activity in R.T.D.A. area, because RTDA area includes 11 unions which are rural in character. Very small part of those 11 unions which are situated in the periphery of Paurashava area have urban characteristics.

SOURCES OF INCOME IN RTDA AREA

Agriculture	31.83 percent
Service	26.18 "
Business	26.70 "
Day labourer	10.47 "
House rent	4.83 "

In the RTDA area secondary occupation is very important among the union population. A large number of people have secondary occupation. These people are mainly agriculturists but they have some secondary occupations mostly in agro-based cottage industries, small shops etc.

But in the urban area, very insignificant number of people have secondary occupations. This situation strongly supports that rural people earn less money than the urban people. Economic condition is better and percapita income is higher in the urban areas than in the rural areas in almost every where

in Bangladesh including Rajshahi. The Table below shows the distribution of employed population having secondary occupation.

TABLE 4.20 : DISTRIBUTION OF EMPLOYED POPULATION HAVING SECONDARY OCCUPATION (WARDS/UNIONS WISE)

	<u>Secondary occupation</u> (In percent)	<u>No secondary occupation</u>	<u>Total</u> (in percent)
Wards	7.48	92.52	100
Unions	55.39	44.61	100

Source : Department of Sociology, Rajshahi University, Demographic survey of Rajshahi Town, 1980.

Rajshahi Division is considered as a 'Priority development areas of first category'¹, which will enjoy concessional rate of import duty. This policy measure have been initiated to better utilization of private sector potentiality in the field of industrial development.

4.3.1. Household Income and Expenditure :

The household income-expenditure pattern in the RTDA area is identical to that in other areas of Bangladesh. In the study area average per capita income is high in the urban area than in the rural area.

1. Planning Commission, Govt. of Peoples Republic of Bangladesh May 1980. The Second Five Year Plan 1980-85.

The average annual household income varies from Tk. 11,683 to Tk. 40,700 in the rural areas. But the variation in the urban areas are not wide. It varies from Tk. 20,738 to Tk. 30,351 in general. The rural people are poor, their per capita income is less than the urban area which ultimately results in the migration from rural to urban areas. The average annual household income and the average per capita income is given in Table 4.21. Due to non-availability of data, the average household expenditure is not known, only the consumption pattern is known. The household size and therefore expenditure per capita is important because there is a tendency for household expenditure to increase with household size. A relatively prosperous household often attracts many relations as long term guests.

The Table 4.22 shows the household income and expenditure of 1976-77 in all urban areas of Bangladesh. It appears that per capita expenditure of 50 percent urban households is less than Tk. 85 per month. The bottom 10 percent households have monthly per capita expenditure of Tk. 70 and the bottom 70 percent households have monthly per capita expenditure of less than Tk. 96. Only the top 10 percent household have per capita monthly expenditure more than Tk. 130 and 5 percent households have expenditure above Tk. 155.

TABLE 4.21 : AVERAGE HOUSEHOLD INCOME AND AVERAGE PERCAPITA INCOME OF THE RTDA AREA BY WARDS/UNIONS

Wards/Unions	In Taka	
	Average Household income	Average per capita income
Ward-1	23,506	3,274
Ward-2	23,387	4,055
Ward-3	25,469	3,411
Ward-4	20,738	2,599
Ward-5	22,640	3,035
Ward-6	23,339	3,310
Ward-7	23,669	2,944
Ward-8	30,351	4,503
Baragachi Union	14,106	2,101
Dankura Union	11,683	1,460
Naragram union	18,916	2,963
Narian Union	12,911	1,998
Naripur union	13,406	1,783
Kazla union	19,056	2,409
Nowhatta Union	39,870	2,520
Paba Union	13,830	2,040
Pariala Union	35,365	2,324
Sapura Union	40,700	2,798
Yusufpur Union	13,945	1,879

Source : Economics Department, University of Rajshahi, Economic Base Analysis and Employment Survey of Greater Rajshahi Town, 1980.

TABLE 4.22. HOUSEHOLD EXPENDITURE ALL URBAN AREAS OF BANGLADESH

Household Income per month (Tk.)	Expenditure per household per month (Tk.)	Average household size	Average household expenditure per month 1976-77 price (Tk.)	Percentage of household	Cumulative percentage of household
Less than 50	22	2.2	10	0.4	0.4
50-99	79	2.6	28	0.4	0.8
100-149	177	2.7	43	1.0	1.8
150-199	165	3.1	53	1.7	3.5
200-249	211	3.4	62	3.7	7.2
250-299	245	3.4	72	5.4	12.6
300-399	312	4.1	76	16.1	28.7
400-499	501	4.8	83	14.8	43.5
500-749	539	5.7	94	23.9	67.4
750-999	758	6.7	113	11.7	79.1
1000-1499	995	7.6	130	10.9	90.0
1500-1999	1300	8.4	155	4.5	99.5
2000 +	1960	9.7	202	5.6	100.0
Average	628	5.7	110	-	-

Source : Govt. of Bangladesh, A.D.B. and U.N.D.P. Dacca Metropolitan Integrated Urban Development Project, Interim Report 1979.

Table 4.13 reveals the expenditure pattern of the study area. Large portion of the household income is spent on food. The lowest income group spend maximum amount (81.35 percent) for food. There is a trend that when income rises the percentage of expenditure on food decreases. Only 21.22 percent are spent on food by the highest income group of Tk. 100,000. Other items that follow are housing, clothing, transport, education and others. The low income group who earn Tk. 5000 to Tk. 15000 per year spend more on clothing than in housing, that is 5.89 percent and 2.80 percent, respectively (Maximum households fall in this income groups; 24.17 percent household belong to Tk. 5000 to 10,000 income group and 19.33 percent household belong to income group of Tk. 10,000 to Tk. 15,000 per year).

The consumption pattern is identical to the other part of the country. Low income people in our country live in a poor shelter or poor housing condition and they suffer from many diseases so they have to spend considerable amount of money for health. Sometimes it exceeds other expenses. In the study area too, lowest income group spend 3.13% of their income, on health. On the other hand, highest income group spend only 1.33 percent. Transport expenditure is less among the highest and lowest income groups of people. In case of poor people it may be due to the nearness of the working place from the residence. The high income groups always enjoy some benefits of their job. Sometimes they can use the official transport, and most probably they have small family size than the middle class people so their transport

TABLE 4.23 : EXPENDITURE PATTERN OF VARIOUS INCOME GROUPS
(Shown as percentage of total expenditure)
- GREATER RAJSHAHI TOWN

Income group*	Food	Fuel	Clothing	Housing	Housing	Education	Trans- port	Enter- tain- ment	Dura- bles	Others	Savings Invest- ment
0-5	81.35	4.01	5.89	2.80	3.13	0.32	0.16	0.64	0.28	0.49	0.98
5-10	74.38	5.29	6.47	4.69	3.55	0.79	0.82	0.81	0.36	1.57	1.27
10-15	69.05	5.18	5.23	4.87	4.12	1.28	1.52	1.24	0.64	1.77	3.10
15-20	60.04	4.98	7.08	7.22	4.93	2.66	2.34	1.24	1.04	3.65	4.03
20-25	59.65	5.11	6.83	7.86	4.91	2.78	2.22	1.03	0.95	3.44	5.22
25-30	53.81	5.22	6.63	7.22	5.59	4.10	3.77	1.26	1.15	3.69	7.56
30-40	51.50	3.90	6.45	8.23	5.59	3.70	3.03	1.56	1.68	4.08	10.28
40-50	45.42	3.58	6.17	11.66	4.03	2.37	2.06	0.88	0.71	6.44	16.68
50-75	37.03	2.38	4.99	10.54	3.90	2.22	2.44	0.95	1.30	9.20	29.05
75-100	22.86	2.08	5.99	23.75	2.91	2.01	1.66	0.43	0.99	1.74	35.78
Over 100	21.22	1.95	2.24	13.31	1.33	1.26	1.76	0.38	0.56	3.68	52.31

(000) Tk. Source : Department of Economics, University of Rajshahi, Economic Base Analysis and Employment Survey of Greater Rajshahi Town 1980.

cost is less than the latter. The middle class people are the most sufferer and have to spend more money on transport, because they do not get job near to their residence. Their average family size is also large.

The better planning of the city can alter the expenditure pattern of the inhabitants. Good housing facilities, efficient transport network can improve the peoples' life and can help to create a more equitable standard of life.

One thing is very interesting in the expenditure pattern of the study area, that is savings. In all income groups there are savings from the lowest to the highest. The high income group save more than 50 percent of their earnings. The savings pattern is different in urban and rural areas in the RTDA area. This appears from Table 4.24, which shows the saving/investment pattern by income groups.

TABLE 4.24 : SAVINGS/INVESTMENT IN RTDA AREA

Income group	Wards	Unions	(In percent)
1-5	-	1.24	
5-10	0.55	1.54	
10-15	2.23	3.52	
15-20	4.02	4.04	
20-25	4.95	5.26	
25-30	7.61	7.52	
30-40	10.52	10.03	
40-50	22.17	10.39	
50-75	35.35	16.37	
75-100	39.05	30.15	
Over 100	63.31	28.17	
*(000 Tk.)	63.31	28.17	

Source : Same as Table 4.23.

In the urban area attitude to savings is high and the highest income group saves 63.31 percent whereas the same income group saves only 28.17 percent of their income in the rural areas. On the other hand the lowest income group in the urban area can not save but the lowest income group of the rural area can save 1.24 percent of their income. So it is encouraging to note that there is some savings which can be used for future local investment for development purpose in the study area.

4.3.2. Land Ownership Pattern :

In the R.T.D.A. area the percentage of landless people is very high and more than the national average. Only 12.37 percent people have more than 25 bigha of land. The actual land distribution lies in between the two extremes. Table below gives the land distribution of the area.

SIZE OF HOLDING IN RTDA AREA

Landless	56.55	Percent
Below 1 bigha	0.58	"
1 to 3 bigha	5.32	"
4 to 6 bigha	6.47	"
7 to 9 bigha	4.32	"
10 to 12 bigha	5.89	"
13 to 15 bigha	3.95	"
16 to 18 bigha	1.88	"
19 to 21 bigha	2.59	"
22 to 24 bigha	0.58	"
25 and above	12.37	"

Source : Department of Sociology, University of Rajshahi,
Demographic Survey of Rajshahi Town 1980.

In RTDA area, people have different types of properties like house, land, orchards, shops, small and cottage industries, vehicles etc.

4.3.3. Location of Past investment :

In case of public sector resource allocation no breakdown is available at the district level or the city level, only some projects can be distinguished based on which sectoral allocation can be identified at the spatial level.

The first five year plan allocated Tk. 315 crore for the physical planning and housing sector which accounts for about 3 percent of the total public sector allocation. Among the major targets Rajshahi city or district did not receive any special attention, only one scheme was taken which was the augmentation of urban water supply in Rajshahi, Khulna and other 21 municipalities and improvement of sanitation. Progress has been assessed and it is found that only preliminary surveys have been completed.

In the two year plan (1978-80) to ease the accommodation problem for Government offices, a program was undertaken to construct a multistoried office complex at Khulna, Rajshahi and Chittagong. The water supply and sanitation will significantly improve with completion of the piped drinking water supply project in Rajshahi district.

An allocation of Tk. 50.00 crore has been earmarked for the different Development Boards for implementation of schemes in various sectors during the two year plan period. Out of 50.00 crore Tk. Rajshahi Division Development Board was allocated 10.00 crore Tk. which was more than all other Development Boards. This indicates that government is giving incentives for the

regional development of Rajshahi Division. According to Rafiqul Huda Chowdhury (1980) the northern region is least developed region in Bangladesh.¹

The allocation of the Rajshahi Division Development Board on different projects can be seen from the table below. It is to be noted that the study area had a major share of this allocation.

TABLE 4.25 : ALLOCATION FOR PROJECTS/SCHEMES TO BE UNDERTAKEN BY THE DEVELOPMENT BOARD DURING 1978-80.

RAJSHAHI DIVISION DEVELOPMENT BOARD

	(IN CRORE TK)
Industry	0.47(29)
Communication and transport	7.05(39)
Education	0.75(32)
Agriculture and Irrigation	0.56(10)
Health	0.93(10)
Building construction	0.24(4)
Total Allocation	10.00(14)

Note : Fig. in parenthesis indicates the total of scheme.

Source : Two year plan 1978-80.

1. Chowdhury, R.H. op.cit. pp. 29.

In the revised ADP for 1978-79 an amount of Tk. 32.15 crore including a foreign exchange component of Tk. 13.56 crore was allocated for 20 on-going projects under B.J.M.C. Among the on-going projects Rajshahi jute mills was one and was expected to complete during that year.

Tk. 43.43 crore was allocated for 20 on-going and 6 new projects under BTTC. Among the new mills Rajshahi textiles mills was commissioned during 1978-79. In 1978-79 Bangladesh Sericulture Board was established under the Ministry of Textiles to further the development of sericulture industry in the area. The board started continuing the three on-going projects, these are silk factory at Rajshahi, Development of Sericulture, and Silk Research and training Institutes. In addition it has taken up a crash programme for the development of sericulture in northern districts. In the revised ADP 1978-79 Tk. 138 Lakh including a foreign exchange component of Tk. 28.90 lakh was allocated for the said board.

Bangladesh Small and Cottage Industries Corporation is responsible for the development and growth of small, cottage and rural industries in the country. In conformity with the national goal of achieving rapid industrialization and creating employment opportunities for the unemployed rural masses through the disposal of economic activities and giving priorities to the development of less developed areas, an allocation of Tk. 3.42 crore was made for development schemes under BSCIC. Out of 16 industrial estates, Rajshahi industrial estate was expected to be completed during 1978-79. Rajshahi has a share of allocation

of 2.22 crore Tk. for the projects of BGSIR laboratories at Rajshahi. The programme mainly consists of staff housing and ancillary building, development of experimental plantation and procurement of scientific equipments.

Due to resource constraints, the original allocation for public housing was reduced to Tk. 927.25 lakh in the revised ADP. Rajshahi has a share in low cost multistoried apartment scheme. Rajshahi was expected to have 156 flats. The staff quarters for low paid Government employees at Rajshahi started in 1970 and was nearing completion in 1978-79.

Rajshahi Town Development Authority was created in March 8, 1976 for the development of Rajshahi town. An amount of Tk. 84.00 Lakh was allocated in the revised ADP for implementation of 4 on-going and one new schemes.

Allocation under Second Five Year Plan :

In the Second Year Plan, priority has been given to sectors that have a significant impact on reduction of poverty by providing basic needs. Sectors offering the maximum employment opportunities received priority while growth aspects have not been overlooked, social development and related services are to be provided adequately.

A total public sector allocation of Tk. 1220.0 crores have been made for physical planning and housing in the second five year plan. The allocation by major field of activities has been shown in Table 4.26.

TABLE 4.26 : SECOND FIVE YEAR PLAN ALLOCATIONS BY MAJOR FIELDS.

<u>ITEMS</u>	(IN CRORE TAKA)
	<u>ALLOCATION</u>
Housing	344.00
Office and Institutional Building	235.00
City Development	67.00
Physical Planning	15.00
Rural Water supply and sanitation	180.00
Urban Water supply and sanitation	215.00
Tourism Development	38.00
Fire prevention	25.00
Environmental Improvement	101.00
	1220.00

These allocation are made for different agencies. Among them ICDA has an allocation of 10.00 crore taka for the second five year plan in Physical Planning and Housing sector.

During the second five year plan period, the major responsibility of the city development agencies will be to prepare detailed landuse plans of the remaining areas and try to correct the undesirable land use pattern that has already been taking place. To this end the existing Town Improvement Act (1953) will have to be modified to give stronger legal power at the hand of these agencies for the strict implementation of land use plans.

A list of new development schemes of Rajshahi Town Development Authority is given below. It states the probable future development of the RTDA area.

TABLE 4.27. NEW SCHEMES WITHIN RTDA AREA UNDER SECOND FIVE YEAR PLAN

	Estimated cost (Lakh Tk.)
1. Development of land for residential area at Rajshahi (2nd phase)	500.00
2. Development of land for commercial area at Rajshahi (2nd phase)	100.00
3. Development of land for park at Rajshahi (2nd phase)	25.00
4. Extension of greater road	300.00
5. Construction of Road connecting extending greater road near Rajshahi engineering college with nowhata road through prepared residential area	200.00
6. Construction of office building cum shopping complex of Rajshahi Town Development Authority of Rajshahi	200.00
7. Construction of staff quarter for Rajshahi Town Development Authority	100.00
8. Establishment of Bus terminal near railway station at Rajshahi	50.00
	Total : 1675.00

Source : Department of Economics, University of Rajshahi, Economic Base Analysis and Employment survey of Greater Rajshahi Town, 1980.

4.4. SOCIAL SERVICES :

4.4.1. Education :

Education is one of the basic needs of the community. Rajshahi is regarded as a seat of education for the northern region. But even then her educational level is not keeping pace with the country as a whole. Table 4.28 and 4.29 present a comparative picture of the level of education in the study area, Rajshahi district and Bangladesh.

TABLE - 4.28 DISTRIBUTION OF POPULATION OF EDUCATION
IN PEDA AREA (8 WARDS AND 11 UNIONS)

Level of Education	No	Percentage
Primary	1130	38.71
Secondary	882	30.22
S.S.C. Pass	341	11.69
H.S.C. Pass	314	10.76
Graduate	152	5.20
Post Graduate	68	2.33
Technical	18	0.62
Religious	14	6.47
Total	1919	100%

Source : Rajshahi University, Demographic Survey of Rajshahi Town 1980.

TABLE 4.9 : LITERACY RATES OF RAJSHAHI DISTRICT AND BANGLADESH BY LEVEL OF EDUCATION 1974.

Level of Education	Rajshahi District	Bangladesh
All Grades	100%	100%
No Grades	16.2%	14.9%
Primary	51.3	52.5%
Secondary	27.3	27.7%
Higher Secondary	3.2	2.9%
Graduate and over	2.0	2.0%

Source : B.C., District Census Report, Rajshahi, 1974.

It is clear that in the study area percent of children in primary education is lower than the Rajshahi district and of Bangladesh, it is only 38.71 percent in RTDA area whereas in Rajshahi district it is 51.3 percent and in Bangladesh 52.5 percent. But after primary stage, secondary, higher secondary, Graduate and post-graduate levels are close to the figure of Rajshahi district and Bangladesh.

It has been observed by Chowdhury (1980)¹ that the poor economic position of the northern region is also indirectly reflected in highest dependency ratio and education is one of the strongest correlates of economic development. In this respect also the north scored lowest and the central region scored the highest.

1. Chowdhury R.H., Urbanization in Bangladesh 1980.

In RTDA area existing major educational institutions are following :

<u>INSTITUTIONS</u>	<u>NUMBER</u>
University	1
General College	6
Medical	1
Engineering College	1
Teachers Training College	1
Technical Institute	1
Technical schools	4
Weaving School	1
High school	14
Deaf and Dumb school	1
Vocational school	3
Commercial Institute	1
Primary Training Institute	1
Primary Schools and Madrasahs	-

Source : Department of Economics, University of Rajshahi, Economic Base Analysis and Employment Survey of Greater Rajshahi Town, 1980.

4.4.2. Health facilities :

Due to lack of data, much about the health situation in Rajshahi are not known. The Table 4.30 presented below explains the cause of death of the population in 1977 and 1978 which are registered in the Rajshahi municipality. It shows that maximum people died in those two years was from fever. The common diseases are fever, chronic disease, heart failure, dysentery, tetanus, diarrhoea, asthma etc. like other parts of Bangladesh.

TABLE 4.30 : CAUSE OF DEATH RAJSHARI MUNICIPALITY

Causes of death	1977 Male	Female	Total Abs.	Percentage	Causes of death	1978 Male	Female	Total Abs.	Percentage
Fever	108	88	196	23.1	Fever	93	65	158	18.4
Tetanus	34	21	55	6.5	Chronic disease	36	31	67	7.8
Heart failure	36	15	51	6.0	Desentry	30	29	59	6.9
Chronic disease	17	31	48	5.7	Natural death	34	18	52	6.1
Liver disease	23	18	41	4.8	Liver disease	33	17	50	5.8
Astma	24	10	34	4.0	Tetanus	23	16	39	4.5
Dysentry	20	9	29	3.4	Pneumonia	20	18	38	4.4
Blood pressure	12	14	26	3.1	Heart failure	22	16	38	4.4
Natural death	15	10	25	3.0	Astma	23	7	30	3.5
Pneumonia	12	11	23	2.7	Blood pressure	21	9	30	3.5
Diarrhea	10	12	22	2.6	Diarrhea	15	14	29	3.4
Accident	10	11	21	2.5	Neo-natal death	14	10	24	2.8
Other diseases					Or the disease				
1)	82	80	162	19.1	2)	86	60	146	17.0
Unknown	69	45	114	13.5	Unknown	66	33	99	11.0

1. Less than 20 cases, 23 diseases mentioned

2. Less than 20 cases, 23 diseases mentioned.

Source : Deptt. of Public Health Engineering, Govt. of Bangladesh, Rajshahi Water Supply Project Feasibility Study (Quoted from Municipal Civil Registration Record).

Health Institutions in Rajshahi :

There are some general hospitals in RTDA area like Rajshahi Medical College Hospital, located in the western part of the city, Christian Mission Hospital Police Hospital, University Medical Centre etc. Besides these general hospital, there are some special hospitals like T.B. Hospital, B.A.V.S. clinic at Raninagar, and family planning clinic.

In addition to those there are some private clinics in different parts of the city. In RTDA area there are some public dispensaries. The table below shows the name of the hospital, dispensaries and private clinics of the RTDA area.

TABLE 4.31 : HOSPITALS, CLINICS AND DISPENSARIES IN RTDA AREA

Name	No. of Beds
A. HOSPITALS	
1. Rajshahi Medical College Hospital	512
2. Christian Mission Hospital	110
3. T.B. Hospital	100
4. Police Hospital	26
5. Jail Hospital	88
6. University Medical Centre	25
7. B.A.V.S. Clinics, Raninagar	10
8. Family Planning Clinic	10
B. PRIVATE CLINICS	
1. Poly clinic, Laxmipur	4
2. Mukti Clinic	16
3. Jobeda Begum Clinic	5
4. Golam Mowla Clinic	15

Table Contd..

Name	No. of Beds
Contd.. Table	
<u>C. DISPENSARIES (PUBLIC)</u>	
1. T.B. Control Centre Hossainiganj	
2. Leprosy mobile unit, Hatenkhan	
3. Mobile medical unit No. VIII.	
4. Govt. outdoor dispensary, Haninagar	
5. Govt. Outdoor dispensary, Sorioil	
6. Rajshahi Sugar Mills medical unit	
7. Rajshahi Jute Mills Medical Unit	
8. Textile Mills medical unit	
9. Govt. Outdoor dispensary Nawbata	
10. Model Family Planning Clinic RMCH	

Source : 'harc' study for landuse, traffic and utility for greater Rajshahi 1980.

4.4.3. Recreational Facilities :

Recreational facilities are poorly developed in the RTDA area. The stadium is located at the north of the railway line. There is a few organised spaces which can be used as recreational purposes. There are a few cinema halls located away from the city centre. There are a few clubs in the city. There is no community centre in Rajshahi.

4.5. UTILITY SERVICES :

In the past Rampur Boalia dispensary provided the health facility in Rajshahi city. After the establishment of Rajshahi in 1876, public utility services were introduced in the study area.

In the past the inhabitants of Rajshahi were very often the victims of many water-borne diseases. Sometimes these disease had broken in a very serious scale. Considering these factors everybody felt the necessity of water supply for the town. With the financial assistance from the Maharani Hemanta Kumari, few other persons and by Government assistance, Rajshahi Municipality and District board, Rajshahi water works was established in 1937.¹ The water works was named after Maharani to recognise the considerable donation made by her. After that 'Dhop Khal' was constructed and became the major source of water supply. Dhop Khal is a public water hydrant with a cylindrically shaped concrete reservoir of 300 gallon capacity, located along the main throughfare and old areas of the city. Water is supplied by the pipe line from the water works. There are 99 dhopkhals, still operating in the city.

Public utility services in the study area are as follows :

- Water supply
- Drainage
- Electricity supply
- Others

4.5.1. Water Supply :

It is estimated that 20.5 miles of pipe lines are there in the Paurashava area, while 3.6 miles have been proposed to be laid down by the 1970-80 period. The pipe line network is well-laid. The size of the lines varies from 4" to 10" in diameter. However 4" diameter pipes occupy the major length of the pipe line network.

1. Deptt. of Economics, University of Rajshahi, op.cit.pp.50.1980.

There are six pumping stations out of which one is located outside the Paurashava area. These pumps pressurize drinking water into central supply to meet the demand for various localities. They all belong to the Public Health Engineering Department. There are only 3 overhead tanks out of which two are within the municipal area. Beside these, there are 12 other organizations both within and outside the municipal area and have their own sources of water supply. They are not centrally located. Outside the Paurashava and its fringe, hand tubewells and ponds are the main source of water supply for both drinking and cooking purposes. In the urban area sources of water supply for drinking and cooking are:

Drinking and Cooking

20 percent	from Tap
70 "	" Tubewell
6 "	" Well
2 "	" Pond
1 "	" River

Washing and bathing

13 Percent
18 "
13 "
50 "
6 "

Only 20% of household who use the tap water are the middle and upper middle class people, who lived in the outer zone of central area. Hand Tube-well is equally common both in the city centre and fringe area.

In the fringe area, sources of water supply for drinking cooking washing and bathing are :

<u>Use type</u>	<u>Tap</u>	<u>Hand tubewell</u>	<u>Well</u>	<u>Pond</u>	<u>River</u>	<u>Total</u>
Drinking water	22%	69%	10%	1.50%	1.50%	100%
Washing and bathing	22%	10%	9%	50%	9%	100%

4.5.2. Drainage :

In RTDA area kutchha surface drains are predominant along the major road sides. These drains are about 3 feet wide and 3 feet deep having reasonable slopes for self-cleansing velocity. In many places they are merged with ditches and ponds.

The underground drainages system of nine lines run from south to north has been proposed by the Paurashava. These lines will run mainly along important roads of Paurashava. Western most line run along the court station road and eastern road run near Kabarpura road at Ramchandrapur.

There are many ponds related to overall drainage system in the RTDA area. Most of the ponds provides waste disposal facilities for untreated domestic liquid waste and surface run-off. There are many canals in the rural areas of RTDA but not much in the Paurashava area.

Distribution of drainage facilities in the urban area are as follows :

No facility	- 54 percent
Kutchha drain	- 21 percent
Pucca drain	- 25 percent
Total	- 100 percent

Table 4.32 shows the human and domestic waste disposal in the area. Highest disposal is collected by service latrin (29%) and septic tank, (25%). In the fringe area, pit system has the highest percentage. 31% is septic tank and other 20% throw in the open space.

TABLE 4.32: HUMAN AND DOMESTIC WASTE DISPOSAL FACILITIES
(IN PERCENT WITHIN RTDA AREA.)

Type of waste	Septic tank	PIT	Collection/ service latrine	Drain	Others shows in the open	Total
<u>URBAN AREA</u>						
Human waste	25.00	27.00	29.00	-	18.00	100.00
Domestic waste	12.00	23.00	-	18.00	46.00	100.00
<u>FRINGE AREA</u>						
Human waste	31.00	47.00	-	2.00	20.00	100.00
Domestic waste	-	39.00	14.00	3.00	44.00	100.00

Source: 'here' study for landuse, traffic/utility for greater Rajshahi 1980.

4.5.3. Electricity :

There are two categories of high voltage lines that pass through the RTDA area. 11 KV and 33 KV lines approach the RTDA area from Bheranara, and enters the area at Sucharn and runs along the railway line upto Kashidanga where the line leave the RTDA area towards Nawabganj. One branch of 11 KV line passes along Nowahata road and move towards north following the road alignment. In RTDA area there are very nominal under cable lines, only a portion in Bakerabad mouza following the alignment of Natore road has cable line under the earth. There are 75 substations in RTDA area having various capacities ranging from 50 KVA to 600 KVA.

The table 4.33 shows the number of connections in the RTDA area. Major electricity connections are for the residential use and the second highest connections are for the commercial use. Industries have the third position.

TABLE 4.33 : NUMBER OF ELECTRIC CONNECTION

Industrial	659
Residential	7129
Commercial	3485
Agriculture	2
Street light	19

Source : Same as table 4.32

4.5.4. Others :

This includes services such as post office, telegraph office, telephone exchange etc. most of the services are located in the urban area. The Rajshahi telephone exchange have the capacity of 2000 telephone lines, but only 1475 telephone lines exist mainly for official use. The Rajshahi University FBI also have 108 connections

There are two tolograph offices in Rajshahi -- one is in Ranibazar near Aloka Cinema Hall and the other is at Haragram, which is a post-cum-tolograph office. There are a number of post offices in the E.T.D.A. area.

CHAPTER - V
FUTURE GROWTH POTENTIALITY OF THE RAJSHAHI CITY

5.1. INTRODUCTION :

Rajshahi is a large urban centre of over 1,00,000 population. According to the hierarchical order, it is not spatially located within the central position of its hinterland. For this reason it has lost its centrality of function to a great extent, and the growth which might have happened for its hierarchical order has not occurred. The city is geographically located near the national boundary in an eccentric position within its hinterland. Moreover, the city is not connected with its hinterland by an efficient system of transportation.

Moreover, in the past Rajshahi has been affected by various political factors. It has been cut off from large part of its natural hinterland by changes in national boundaries, and it was bypassed to a certain extent in national plan allocation of public investments. These factors seriously impeded industrial growth in the city, while migratory flows to the city continued because of the push factor in the rural areas.

Because of these depressing factors it has not acted as a pole of attraction for new investment and job creation and for that it can not be treated as a successful urban labour absorption centre. Moreover one may conclude that regional economic endowments and growth, national public investment patterns, and changes in the transportation network are among the more important exogenous factors explaining the differences in economic growth

and labour absorption of different cities of similar sizes within the country. Beside these factors there are also other indigenous factors within the city itself which may be the important determinants of urban growth and labour absorption. In particular the quality of management by the urban authorities may be an important factor determining whether and how city grows.

To assess the future growth potentiality, some physical and socio-economic aspects of the study area need to be discussed in detail.

5.2. RAJSHAHI CITY: AS A CENTRAL PLACE AND ITS POTENTIALITY AS AN ADMINISTRATIVE AND COMMERCIAL CENTRE :

Of all the models of spatial structure, central-place theory is probably the most researched and well known. The theory seeks to relate central places to their hinterlands and defines central place as a settlement providing services for the population of its hinterland.

Christallers' concern was with the size, number and distribution of central places, conceived as places which provide services of some sort, such as retail shopping facilities, banks etc. A large central place is one that has many service outlets and perform a wide range of function.¹ His approach was to devise a spatial arrangements of central places which would minimize the travel costs of the population in gaining access to the services they require. His objective therefore was to minimize consumer travel costs.

1. Chisholm Michael, Human Geography : Evaluation or Revolution? 1978. Pp. 143.

Central place theory conceives hierarchy of service activities ranging from low order services found in every centres — city, town or village to high order services found only in the major centres. Thus major towns and cities are likely to have most services, with smaller towns and villages having a more limited number of them. The service activities have a threshold population and market range.

There are a few studies about the urban centres and their rural hinterlands and the hierarchy of the urban centres of Bangladesh. These studies reveal the hierarchical position of Rajshahi as a central place. According to N. Islam and H. Hossain (1976)¹ and S. Jahan² (1978) there is an obvious correlation between the hierarchy of administrative regions and the size of the urban centres, showing incidence of large centres for headquarters of higher order administrative regions. The hierarchical order of administrative units in Bangladesh in descending order are the following — The state (1); Divisions (4); District (21); Subdivisions (62); Thana (420). However it may be noted that most of the thana headquarters are not urban centres, while there are some urban centres, even with 50,000 population which are not administrative headquarters. They are usually industrial, commercial or transport centres.

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1. Islam N. and Hossain H. The Relationship of urban centres with their rural Hinterlands, National report on Human Settlement Government of Bangladesh 1976.
 2. Jahan Sarwar, Strategy for Integrated Rural Development in Bangladesh : A growth point approach, A Case Study of Southern Mirsarai thana. An unpublished M.U.R.P. Thesis, BUET., 1978.

HIERARCHY AND NUMBER OF URBAN AND RURAL CENTRAL PLACES
IN BANGLADESH, 1974.

Hierarchy order (high-low)	Settlement form	Population	Number of by hierarchy	Cumulative
Urban 1st (Highest)	National Capital	1.6 Million	1	1
2nd	Divisional headquarters and industrial commercial centre.	100,000 to 1 million	5	6
3rd	District quarter	50,000 to 100,000	14	20
4th	Subdivisional headquarter	20,000 to 50,000	40	60
5th	Subdivisional% Thana headquarter	10,000 to 20000	34	94
6th	Thana headquarter/trading centre	Below 10,000	25	119
Rural 7th (Lowest)	Rural market centre	Either below 5,000 or non residential (periodic)	Over 5,000 centres in whole country.	

Source : N. Islam and H. Hossain, "The relationship of urban centres with their Rural Hinterland", National Report on Human Settlement: Bangladesh, Government of Bangladesh 1976, (Slightly modified).

It is evident that according to the hierarchical order Rajshahi city has its place in the 2nd order with population more than 100,000. Rajshahi division have 30 urban centres with 15.58 percent of the urban population.¹ The pattern of spatial distribution of urban centres are found statistically random for Bangladesh as a whole, as well as for all the four regional divisions of the country in year 1961. But only in 1951 it was approaching uniform.² It can be explained by the fact that Bangladesh then was very little urbanized and the few points (62) were mostly administrative centres deliberately located regionally. After 1951 new urban centres developed as a result of expansion of Industrial and Commercial activities. Clustering took place at several economically more strategic points, while some areas could not attract many new urban centres, thus creating a random pattern.

From the table given below the revised rank and population size of the Rajshahi city is evident.

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1. Islam N., Urbanization in Bangladesh, Patterns, Problems and Policies, Opening paper in the South Asian Regional Seminar, Kathmandu. "Small and Medium Sized Towns in Regional Development 1978, Nepal.
 2. Islam N. Spacing of Urban Centres in Bangladesh, Oriental Geographer, Vol. XIX and XX Nos. 1 & 2, 1975-76.

REVISED RANKING OF THE TENTH LARGEST CITIES OF BANGLADESH, 1974

Revised rank	Urban area	Revised population	Census Population	Census Rank
1	Dacca	2,449,000	1,680,000	1
2	Chittagong	1,002,000	890,000	2
3	Khulna	573,000	437,000	3
4	Rajshahi	190,000*	133,000	6
5	Comilla	157,000	86,000	9
6	Mymensingh	132,000	182,000	5
7	Barisal	117,000	98,000	7
8	Jessore	109,000	76,000	10
9	Saidpur	96,000	90,000	8
10	Bogra	88,000	47,000	21

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Although Rajshahi is placed under higher order service centre as a divisional headquarter, it has not offered that much specialized services as it might do, because of its location. It has been explained before that due to its location in the border area of its hinterland and its poor transport link with the service area many specialized services are not offered in Rajshahi. For example, many Regional Head offices have been

* Source : Working paper; long term perspective of urbanization in Bangladesh Ranksize distribution of urban population in the year 2000. Oct 1980. (Bangladesh National Physical Planning Project).

* Note : Area Development Planning Programme for Rajshahi city Region "An attempt to Delineate the urban population of Rajshahi city". National Physical Planning Project UDD Nov. 1980.

located in Bogra instead of Rajshahi only because the later occupies a better central location. There are many other specialised services which are established in different urban centres instead of Rajshahi because of its locational disadvantages. Rafiqul H. Chowdhury (1980)¹ remarks that the north is the least developed region of Bangladesh. Northern region is least developed economically and industrially than other region of the country.

Since, future growth of Rajshahi is likely to be retarded by her locational factor, it is necessary that the transport network should be well distributed and well connected with her hinterland. If it is compared with Dacca, the national capital, it becomes clear that beside the large amount of national investment, locational factor also helps to develop Dacca city as a metropolitan area with all specialised services. It is centrally located and connected by rail, roads, waterways and air routes with the rest of the country. So the locational factors, helps for the growth of the city.

5.3. RAJSHAHI CITY : AS A NODE OF TRANSPORT :

Within cities transportation facilities constitute important elements of the landuse and functional pattern and they serve as nuclei around which other functional differentiations within urban areas takes place.

1. Centre for Urban Studies, Chowdhury R.H. Urbanization in Bangladesh, 1980.

In case of Rajshahi due to the physiographic condition, road is the principal mode of transportation. But, as a mode of transportation, Rajshahi is poorly linked with its hinterland. The R.T.D.A. area comprising eight urban wards and eleven unions are not well served with roads. The major roads in Rajshahi city are the station road, Hazrul Islam road, greater road, Natore road Dargapara road, Ghoramara road, Enaduddin road, Capt. Shamsul Ihaq roads, Vatopara road. Three major roads namely the Noahatta road, Natore road and Nawabganj road connect Rajshahi city with the outside areas. Only the urban or Paurasava area is well connected by roads but outside the urban boundary road network is very poor. That's why the development is slow and the hinterland of the service centre is not well served. Most of the roads were built in the later part of the 19th century or early part of the 20th century. The total road mileage of the study area is 306.74 of which 65.24 miles are pucca, 37.5 miles semipucca and the rest 204 miles are kutcha. In general all roads except the Greater road are narrow and tortuous in nature.

The railway transport is not very significant in this area. Only a broadgauge line runs east-west and have 4 stations within RTDA area. It does not connect any industrial location so that the cheap means of transport can be used for carrying the raw materials and the finished goods. The broadgauge line is a branch of Khulna-Parbatipur main broad gauge line; it branches off at Abdulpur which is 24 miles far from Rajshahi. This line passes through the RTDA area and from Amara it again branches off to Nawabganj which is 33 miles from Rajshahi, and to Rohanpur

60 miles from Rajshahi. The 4 stations within RTDA area are Harien, Rajshahi University, Rajshahi and Rajshahi court. There is no railway connection between Rajshahi city and the northern part of the RTDA area. It connects with Ichurdi, Santahar, Parbatipur, Ullapara, Sarda, Abdulpur, Rohanpur, Kakenhat, Nawabganj, Amnura and Nandagachi. Inflows of local passengers are much higher than the outflows. The goods traffic outflow is much higher than the total inflow.

Although in the past Rajshahi was an important river port connecting Calcutta, Murshidabad and Dacca but at present no regular mechanised inland water transport is available for the transportation of goods and passengers. There is no terminal facilities or berthing facilities. The flow of the river Padma along the city is not stable. Due to the braided nature of the river Padma and nearness of the international border, inland water transport facilities in the private sector have failed to grow. Only seasonal launch services operate and boat ply along the river carrying different commodities. Rajshahi is linked indirectly with Dacca city by air service.

Rajshahi is not a node of transport. There is no break in the means of transportation in this area. So her development will not get any incentive from transportation nodality. Moreover, all the hinterlands are not well connected with service centres by the transport network

5.4. INDUSTRIAL POTENTIALITY OF RAJSHAHI CITY :

Industrially Rajshahi is backward in relation to other part of Bangladesh. It has a few large scale industries, others are mainly small scale manufacturing industries. Most of them were established in the sixties and early seventies.

From the Mughal period silk industry was famous in Rajshahi. It bears a tradition for silk and silk products. The Rajshahi silk factory along with other private agencies produced 12679 lbs. of silk yarn and 49269 yards of silk fabrics during 1977-78 which is expected to rise to 24000 lbs of silk yarn and 1,20,000 yards of silk fabrics during the year 1979-80.

Among the large scale industries, the study area has three industries, one sugar mill, one jute mill and a textile mill. Rajshahi textile mill was established at Noadapara in 1974, Rajshahi sugar mill was established at Harian in 1965, and Rajshahi Jute mill has been established very recently in the study area. The textile mill provides employment for 900 persons and the sugar mill employs 294 including 61 skilled seasonal workers and 30 unskilled seasonal workers. All these mills use local raw materials. Sugar mill at Harian also has its own sugarcane farm of 105 acres. The annual production capacity of the mill is 15,000 tons of sugar per year. There are different industrial and commercial establishments in the Rajshahi city. They provide jobs to the local people. In the study area, 2.37% of total employment is in manufacturing sector in urban areas and 4.72% is in the manufacturing sector in rural area.

According to the two year Plan 1979-80 the growth strategy in Industry was concentrated largely to the better utilization of existing capacity and increased operation efficiency to be achieved through balancing, modernisation and rationalisation measures¹. It is in the national context, that the private sector investment is very important for the development of Bangladesh. In the two year plan proposed investment in private sector is only indication and depends on governmental policies. So the industrial sector allocation is not very significant in public or in private sector. Some incentive has been given by recognizing the Rajshahi division as a "Priority Development Area" with liberal tariff on the import of capital machineries.

The potentiality for establishment of large scale manufacturing industries in Rajshahi city is not very bright but there are possibilities of small and medium scale manufacturing industries to be established in the Greater Rajshahi area in the near future. It is expected that due to the establishment and growth of these manufacturing industries some new jobs will be created which will absorb a portion of the unemployed persons of Rajshahi city and its surrounding areas, and will attract people from the rural areas. Ultimately there will be a demand for the housing, public utilities and recreational and other facilities, and the need for planned development of the city.

1. Government of Peoples Republic of Bangladesh, Two year plan 1979-80.

Table 5.1 to 5.4 (Appendix) shows the list of the future industries which will be established in and around the Rajshahi city. The locations of these industries will be concentrated mainly in Shapura, Faba, Nonbata and near the city centre of Rajshahi. The maximum employment will be 478 in the Fashion wear Ltd. and no other industries will create employment of that large number. These industries will be completed in the near future. But there is a little chance of the establishment of the large scale industries. So the small and medium scale industries are expected to grow in future in the study area.

5/5. AGRICULTURAL POTENTIALITY OF THE SURROUNDING REGION OF THE CITY :

The economy of the Rajshahi district is mainly agricultural. Agriculture is the principal source of earnings and employment for the majority of the people. Agricultural labour in 1961 constituted about 26 percent of the total population and 88 percent of the total labour force. There has not occurred any shift of labour from agriculture to industry. Whereas the total population over ten years between 1951 and 1961, increased by 27.4 percent, agricultural labour force increased by 33.6 percent, which shows that pressure exerted by labourers for employment in agriculture was higher than before.

According to 1961 census the density of Rajshahi district was 769 person per square mile as against 603 in 1951. Unlike other districts of Bangladesh, pressure of population on land is not high in Rajshahi. The average size of the farm area and cultivated area in 1960 was 5 acres and 4.4 acres respectively. (The average in the country being 3.5 and 3.1 acres).

The rates of wages have increased manifold in the present time because of increased demand for labourer and higher costs of living. The wages of agricultural labourers are influenced by the regional variation and productivity of the soil of the district. The demand for agricultural labourer and their wages are higher in the area where the yield of the land is higher. In Sadar Subdivision Feb. - March is the high time for sugarcane cultivation and the daily wage of a labourer was taka 2.50 with food and Tk. 3.50 without food.¹ The daily wages for the labourers doing transportation of paddy varied from taka 2 to taka 3.²

The income disparity between urban and rural labourer is very prominent all over Bangladesh and particularly in the study area, which leads to the demand of non agricultural land. The table given below shows the disparity.

Daily wages in Agricultural labour (without food) in Rajshahi District (in Taka per day)		Annual average daily wage rates of construction labour by type of labour at Rajshahi towns (Tk. per day)		
1975-76	8.08	Mason	Helper (Jogali)	Carpenter
		16.08	10.00	18.00
1976-77	7.29	16.33	9.71	18.00
1977-78	8.00	22.42	10.48	19.99

Source : D.E.S. 1979 Statistical year book of Bangladesh PP. 384 and 386.

1 & 2. Government of the Peoples Republic of Bangladesh, District Gazettters Rajshahi, 1976.

Wages in agricultural activities are usually less than that in non-agricultural activities. In Bangladesh per capita income in agricultural sector declined by 16.4 percent in the last decade where as per capita income in non-agricultural sector in the same period increased by 12.6 percent. This trend may cause some disincentive for agriculture in the peripheral areas of the city.

5.5.1. Pattern of land utilization of the study area in context of Bangladesh : The pattern of land utilization in Bangladesh are categorised under the following headings:

1. Forests
2. Riverine Areas
3. Area not available for cultivation
4. Cultivable waste
5. Current fallow and
6. Cropped area.

The forest is preserved and protected by the government. Riverine areas remain under the water throughout the year. The area which is not used for agricultural purposes explain the third category. The fourth category is cultivable waste which is the area suitable for cultivation but remain fallow more than one year. Current fallow is the cultivable land but remain fallow only in the current year. The last category refers to the area which is cultivable at least once a year.

Within the RTDA area five categories of land is prominent except forest. A comparison of the share of different categories of land in Bangladesh, Rajshahi District and R.T.D.A. area has been shown in the following Table.

A COMPARISON OF THE SHARE OF DIFFERENT CATEGORIES OF LAND IN BANGLADESH, RAJSHAHI DISTRICT AND RTDA AREA

Area	Year	Forests	Not available for cultivation	Culturable waste	Current fallow	Not cropped area
Bangladesh	1974-75	15.49	18.64	1.9	5.69	58.27
	1975-76	15.41	18.77	1.88	4.51	59.43
	1976-77	15.49	18.78	1.87	5.95	57.95
Rajshahi dist.	1974-75	0.3	21.38	3.16	3.68	71.49
	1975-76	0.3	21.47	3.08	3.38	71.79
	1976-77	0.3	21.50	3.08	2.52	72.60
RTDA area :						
Boalia	1972-73	Nil	97.98	0.09	0.79	1.19
Paba Thana	1972-73	Nil	18.78	10.60	0.02	70.61

Source : B.S.S. Statistical Year book of Bangladesh 1979*
 Ministry of Agriculture, Basic Statistics of
 Bangladesh Agriculture, series 2, 1975.

* Complete data of R.T.D.A. area is not available, Paba Thana includes 12 unions but the R.T.D.A. area comprises 10 unions of Paba thana and another one union of charghat thana.

It is apparent that the acreage under forest and riverine areas do not change much in short run. But the area of cultivable waste is slowly decreasing as revealed from 1974-75 and 1976-77 figures. The size of the current fallow is determined by weather condition, so the acreage of the fallow fluctuates from year to year.

There is slight increase in land of non-agricultural use; from 1974-75 to 1976-77, there is 0.14 percent increase in Bangladesh and 0.12 percent increase in Rajshahi District. Bangladesh itself focus the prospects of supporting an expanding population from shrinking cultivated area.¹ In the study area, Boalia thana is an urban area; 97.98% of her land is used for non agricultural purpose; so in these 8 wards there is little room left for further utilization of land for non-agricultural purpose. But in Paba thana the non-agricultural acreage of land can be increased by changing agricultural land and from land under culturable waste. So there is a prospect of getting more land for non-agricultural use.

5.5.2. Types of Agricultural Products :

The important agricultural crops grown in the Greater Rajshahi Town area are paddy, jute, different variety of pulses, oilseeds, sugarcane, vegetable etc. The silk industry of Rajshahi is linked with mulberry cultivation which was introduced during the early part of the eighteenth century when the East India Company established a silk factory at Rajshahi. Cultivation is

1. Dacca Metropolitan Area, Integrated Urban Development Project, working paper on land issues.

carried on at Seroil in a plot of 22 bighas of land. Other orchards and gardens are also well distributed at Paba and Nowahata unions. There are four nurseries at Rajshahi court compound, Kashidanga mango garden, and horticulture nurseries at Harian and Noadapara. In 1969 an Agricultural Development estate was established at Paba to supplement fresh vegetables, fish, meat, milk and poultry products to meet the increasing demand of the population of the city.

In order to improve fish culture the Directorate of Fisheries has established fish seed multiplication farms in the Rajshahi city area, these farms have six nurseries and two rearings ponds with a water area of 10 bighas. The field staff of the directorate of fisheries consists of District Fisheries Development officer, eight thana fisheries officers. Two fish culture Assistants and four fieldman. There is one artificial Insemination in Rajshahi city. There is also Agricultural Research sub-station at Shyampur, seven miles far from Rajshahi city.

The future growth potentiality in agriculture is quite hopeful and the agricultural development is taking place by improved seeds and by increasing production. The city provides different facilities to improve the agricultural production and to experiment the improvement for the better yield.

CHAPTER - VI
PLANNING CRITERIA AND STANDARD FOR DEVELOPMENT

6.1. CONCEPTUAL FRAMEWORK FOR THE DEVELOPMENT PLAN

To give a thought on future development of any city, town or urban area, one should realize what is development for. To answer this question Boundevilles' distinction of three concepts of growth, development and progress is important to recall. Growth, he stated, is nearly a sort of increase in quantities produced, development is growth plus a favourable change in production techniques and in consumer behavior, progress is development plus a diminution of social tensions between groups within a city (Boundevilles 1976).¹ Planning for growth and progress is mainly concerned with economic aspects but planning for development has emphasis on spatial aspects.

The future development of a city should be guided by different planning process like the master plan, or the strategy plan or a development plan. The master plan is the complete proposals designating urban form for some rather distant data in the future are clearly a mistake for rapidly growing urban areas. Because growth brings many unexpected crises and opportunities which change the values attached to particular sites so that their rational development is then very much out of line with the plan. The proper decision, then is to revise the plan.

1. B.S. Hoyle, Spatial Analysis and Less Developed Countries, Spatial aspects of Development Edited by B.S. Hoyle.

According to the report of Dacca Metropolitan Area : Integrated urban development Project, "An urban development strategy consists of a comprehensive package of economic and physical policies which deal in principle only, with all aspects of urban development over a relatively long period of time. The most important policy areas are usually employment, land, infrastructure, transport, housing and social needs. The strategy does not attempt to be precise but seeks to establish the general principles that should be adopted in order to guide the general content, form and location of development and the methods by which it might be financed and implemented".

In this study a conceptual framework of a development plan is made for the study area, which is expected to guide the future development and establish general principles which should guide the general content, form and location of development. It would not explain the detail physical layout like master plan, and it is not possible to define the methods by which it might be financed or implemented like strategy plan because of the narrow scope and the short time of the study.

For a long time, many believed that the alternative to the present way of shaping cities was better planning. But planning came to mean an uneven match between high finance, local authorities and the lonely city planner genius. So, one should be very careful about development which sometimes happens not in human scale. According to the character, city should not be altogether centric or altogether linear.

In many cities the landuse pattern is built not around a single centre but around several discrete nuclei. In some cities these nuclei have existed from the very origins of the city; in other they have developed as the growth of the city. This multiple Nuclei concept is first suggested by McKenzia. In expanding on this concept Harris and Ullman observed that some times these were distinct centres in the origin of the metropolitan area, persisting as centres as growth has filled in the areas between them, and sometimes they have emerged as new centres as urbanization has proceeded.

6.1.1. Site and Form of Future Rajshahi City :

The Rajshahi city which is rapidly expanding should have a definite plan and programme of development. At present Rajshahi city has 175,000 (1980) population excluding the institutional population (explained in Chapter IV). In future the population will be more than double in 20 years. It is estimated that in 1990 the future population will be 260,000 and in 2000 A.D. it would be 420,000. This size of population will be provided in future and will require land outside the present municipal boundaries.

Industrial potentiality of Rajshahi city is not very bright, but agriculturally it has got potentiality. The productivity of agriculture can be raised in the future. So it would not be very wise to plan the city in such a way that it will cause damage to fertile agricultural land. The economy of Rajshahi is based on agriculture; so one should be very careful about the future urban expansion.

The density of municipal area and the urban fringe seems quite low in Rajshahi city. But it is a controversial question that how much will be the future density. The feasibility study report of the Rajshahi Water Supply Project (1980) estimated the future population for Rajshahi as 250/ha or 100 persons/acre for residential use. This is in agreement with RTDA and Urban Development Directorate standards. They assume that variation will occur mainly between 150/ha (60/acre) in newly occupied areas and 375/ha (150/acre) in central area.

According to Professor John R. James' (1973)¹ comment on residential densities of urbanized areas and Dacca in particular, we realize that the density standard below 100 persons/acre is not appropriate for our country. Because such standards might result in an ultimate loss of large amount of fertile agricultural land. In his words, "This whole question of standards must be looked at carefully and although an overall urban density of 100 persons per acre would be at least five times higher than those obtaining in the large cities of Europe. This figure or something approaching it, must be the objective of the planning authorities. Anything else, is little short of suicide".²

Although the density standard of 100 persons/acre is suggested by Urban Development Directorate, R.T.D.A. and Professor James, it may not be feasible in near future to ensure this density





1. James John. R., Some Aspects of Town and Country Planning in Bangladesh. The Ford Foundation 1973.

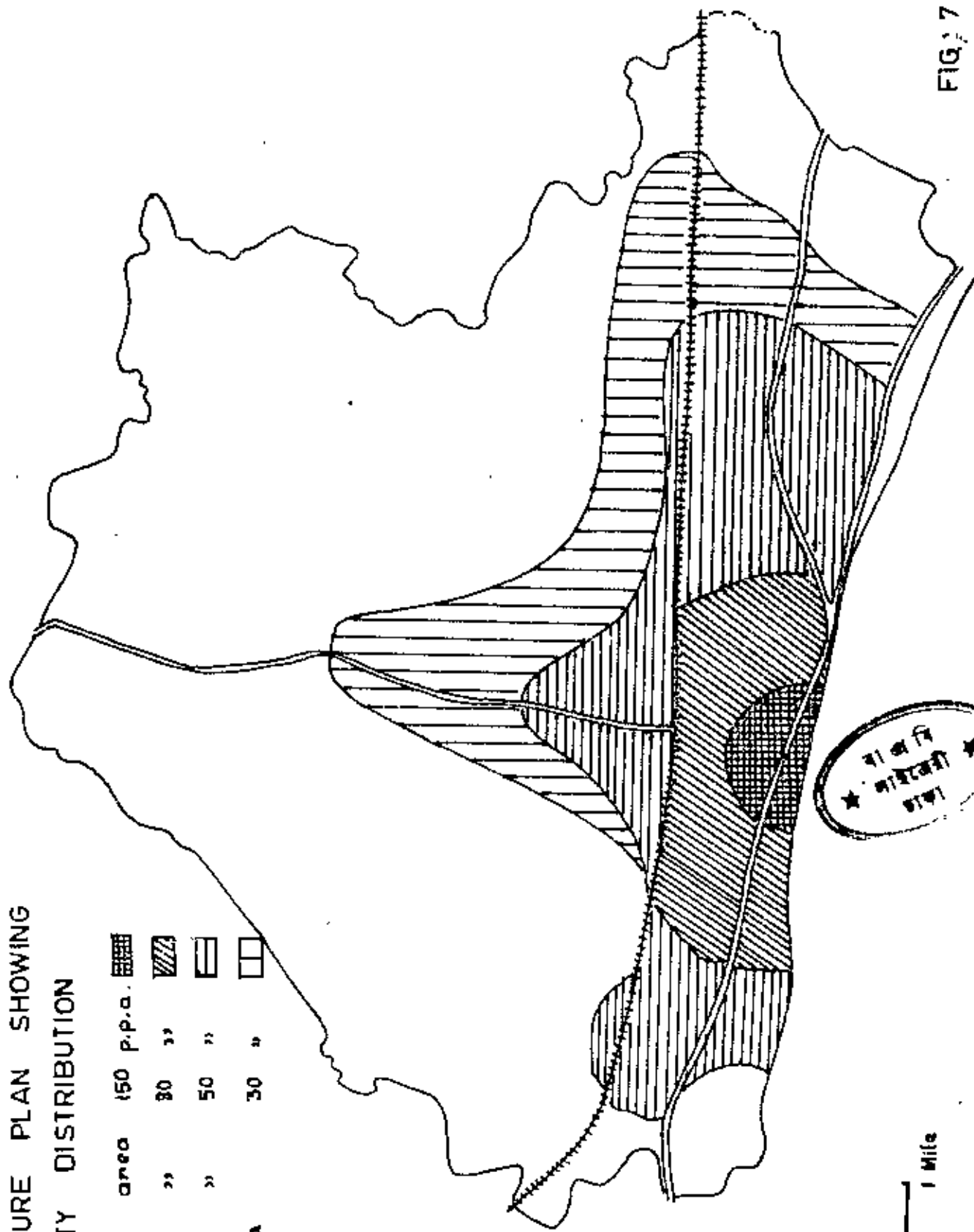
2. James John. R.; 1973. op.cit. pp.

standard in case of Rajshahi city. Rajshahi urban area has already developed 11 square miles with the density of 42.71 persons/acre in municipal area and 8.63 persons/acre in R.T.D.A. area. So, if the density standard of 100 persons/acre is suggested, then only about 7 square miles are needed for a population of 420,000 in 2000 A.D. But the city has already developed 11 square miles and it is not feasible to bring down the city size to 7 square miles. Moreover, in Bangladesh the whole planning machineries, trained planners and resources are not adequate to guide and control development in such a way that the gross average density of 100 persons/acre may be easily achievable. So, at least for some years the development process will continue with limited planning control and guidance.

In the process of development different parts of the city, from core area to periphery, attain different density standards and this is desirable from planning point of view. Hence, a varying density standard ranging from 150 persons/acre to 30 persons/acre has been assumed for different parts of the future Rajshahi city (see map.) The core area or high density area with 150 persons/acre will cover about $\frac{1}{2}$ square mile. The medium density area with 80 persons/acre will be about 3 square miles and cover most of the municipal area. The low density area will cover 5 square miles with 50 persons/acre and the fringe area will be $4\frac{1}{2}$ square miles with 30 persons/acre. The average gross density is suggested to be 50 persons/acre which will require the city area to expand to a total of 13 square miles and will accommodate 420,000 population in 2000 A.D. Considering

STRUCTURE PLAN SHOWING
DENSITY DISTRIBUTION

High density area	150 p.p.a.	
Medium	80	
Low	50	
Fringe area	30	



Scale  1 Mile



FIG. 7

Source Drawn By Author

above density variation, it is suggested that there is no need to allow the expansion of the city beyond 13 square miles. This will save the potential agricultural land around the city. On the other hand the functional activities should be planned very carefully so that maximum benefit can be achieved and also the purpose of future population can be served. Every city has a general over all shape or form. It may be a star shape a circular shape, a linear shape, an irregular shape, a finger pattern, satellite form a Corridor development, a Galaxy form etc. All the shapes or forms develop due to different factors. The most common forms are star shape which is a radiocentric form with openspaces between outstretching corridors of development. The galaxy is a series of cores arranged in the landscape at functional distances from one another. The satellite is a variation of galaxy with a predominant central core. In most cases the older cities that are spreading out and developing township represent satellite forms. The finger pattern which develops along the rapid transit lines radiates from the loop and take shape like fingers of the hand. Another is corridor development, which is parallel development like corridor along the major transport link. The irregular shape has no definite form or shape. The linear shape is usually the result of natural topography which restricts growth or the result of a transportation link.

Considering all these forms and shapes, the present shape of Rajshahi city can be recognized and the possible future shape can be assumed. At present Rajshahi city is linear in shape and extends in the east-west direction. The reason of the linear

development is mainly because of the river Padma and the Ishardi-Ammara railway line. Very recently another linear development has started along the Noahatta road, north of the railway line. But for the socio-economic reason the city should not be allowed to grow further in a linear pattern especially in east-west direction. Because it will be very expensive to provide the service facilities in this type of city form.

So, in future the east-west linear development should be checked and further development should be directed to the north of the railway line. It is expected that around 2000 A.D. the development will take place along the Noahatta road upto Baya and further east and west of the Noahatta road, and on the north of the University Campus, beyond the railway line upto Harian. Another patch of land south of the Natore road and along the River is also expected to be developed. The suggested developments will help the city to take a regular pattern in future, but the linear shape will remain.

6.1.2. Basic concept for city Structure :

"Nothing could be further from the truth, for however broad the plan may be it is the structure upon which all future development is to take place, and it is a structure which, even though it can be seen in its entirety only from the air, can be sensed on the ground. It is a structure which integrates an existing topography with its own inherent beauty, and it is a structure which decides such large scale aesthetic effects,

the juxtaposition of a built-up area with natural landscape, the swing of an arterial road, or a distant prospect. Above all it is a structure which gives the town an over all character and unity".¹

The above comments are from Frederic Gibberd (1967) about the city structure. Without knowing the structure of a city, her future development can not be suggested. Rajshahi city or urban area consist of Paurashava and the urban fringe (see Fig No. 8). It expanded in the east-west direction with linear form. Another strip of linear development took place very recently on the north. The city structure is guided by river Padma, and Icharfi-Amnura railway.

Traffic circulation system is not very good in Rajshahi city. There are three arterial roads viz., Natore road, Nawabganj road and the Moahatta road which connect the city with the outside area of M.T.D.A. Inside the Paurashava area there are few other roads.

The city does not have well-defined landuse, most of the areas have mixed landuses. Even then the landuse variation can be recognized. The residential density varies from core of the city to the peripheral area. Western part of the city is low density area and the eastern part of the city has high density area.

1. Gibberd, Frederic. Town Design, New York, 1967.





The city has only one central core that is shahab bazar area. The infrastructure like schools, colleges are not located in particular zone, it is mixed with other land use, most of them are situated in and around city centre and west of the city centre. The University and the Engineering College are situated in the fringe area east of the Paurashava boundary.

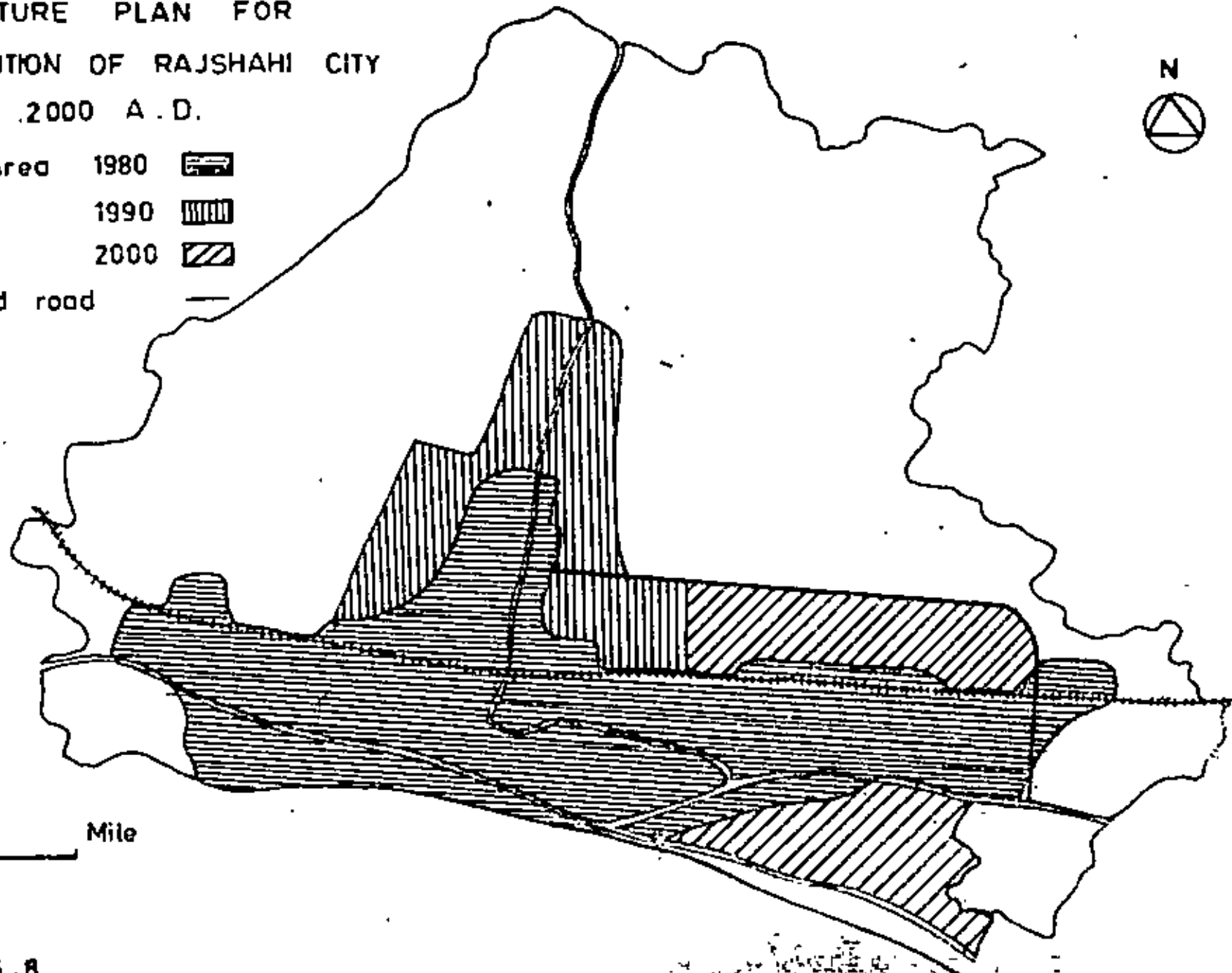
The industrial area is located at Sapura Industrial estate outside the Paurashava area, north of the railway line. This area consists only of small scale industries. The two large scale industries are established, one is jute mill at Katakhalia and the other is Jugar Mill at Harijan. Both are located east of the university.

This is the over all structure of the present Rajshahi city. But in future population will rise and their social needs will create the need for future development. In 2000 A.D. the population of Rajshahi will be more than double and more areas will be required outside the present pourashava boundary. Considering the present structure of the city it is expected that the future development will follow the present trend (See Fig. 3).

Upto 1990 the development is expected to follow the present trend and will occur on both sides of the Noabatta road. But after that the development should be expected on the north of university, beyond the railway line, and south of the Hatore road. Such development can be justified if we consider the

STRUCTURE PLAN FOR
EXPANTION OF RAJSHAHI CITY
UPTO 2000 A . D.

Urban Area 1980 
" 1990 
" 2000 
Proposed road 



Scale  Mile

FIG . 8 .

Source : Author

buildable land of the R.T.D.A. area (map no. 9). The highest level land is in the south along the river Padma, spread from east to west. It is 50' above the mean sea level. It covers most of Paurashava area of Rajshahi. The second highest level is 54'-58' high above the mean sea level and the third level is below 54' high which is western part of Noahatta road. So the development will be easier on the eastern side of Noahatta road than on the western side.

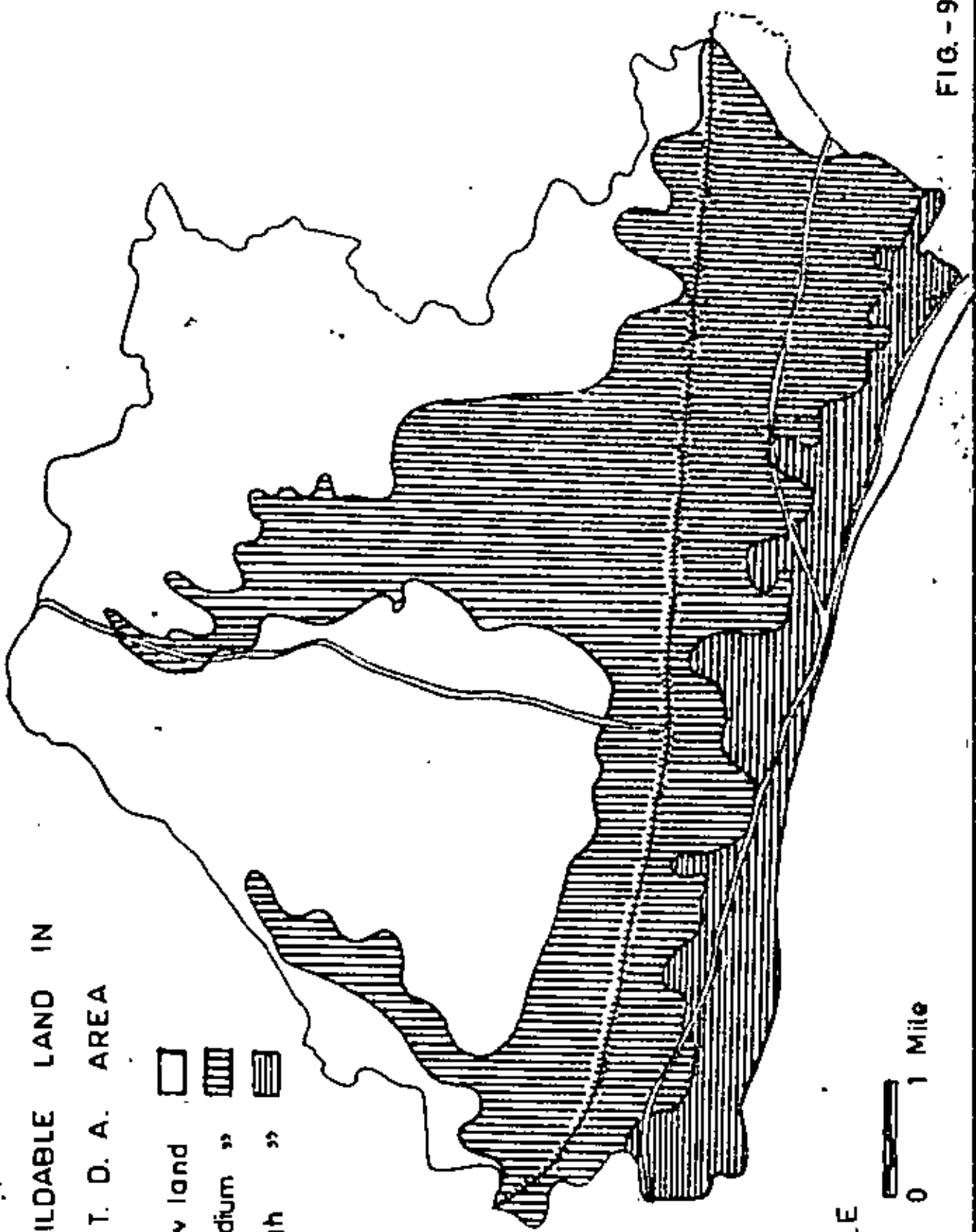
It is proposed that a new arterial road will be developed in future in Rajshahi. It will connect Noahatta road with Natore road (see map 8). This road will act as a diversion road for the traffic from Natore Road to the Greater Road which leads to Chapai Nawabganj Road. It is expected that the road will accelerate the growth of the surrounding area.

Rajshahi city had a linear development in the past with one centre. But in future the city will expand and with it, the need of the people will rise. To cope with the future demand a few nuclei can be suggested to develop which will provide the service facilities within the city area. These nuclei will further help to develop the surrounding areas.

The future industries can be located near the large scale industries on the eastern part of the university. The area beyond railway line can be used as industrial area which can use railway transportation for movement of raw materials and goods. There are buildable land available in Noahatta. So in

BUILDABLE LAND IN
R. T. D. A. AREA

- Low land
- Medium "
- High "



SCALE

0 1 Mile

FIG.-9

Source Author (with the help of contour map)

future industries can be located in Noohatta as well outside the city area, where the industries can use the water-stream for transport of goods and raw material. The city will remain uncongested, and clean.

6.2. THE NEIGHBOURHOOD AND STANDARD FOR RESIDENTIAL DEVELOPMENT :

So far in Bangladesh there is no space standard fixed and followed as a guiding principle. Planners work on the basis of whatever is suitable for the particular area and environment.

There are some general principles which is required to follow for the development and efficient functioning of the community.

At present 32.76 percent of the total Paurashava area is under residential use which is 741.46 acres and the density is 42.71 persons per acre. But the total RTDA area has 4329.44 acres under residential use which is 13.74 percent of the total land, and the density is 8.63 persons per acre. It has been mentioned earlier that the density is low in the study area.

Rajshahi city has no master plan so the density is not yet fixed. The Master Plan of Dacca City narrated a neighbourhood unit of 100 acres allowing 50% of the area, i.e. 50 acres for dwelling and 50 acres for ancillary services. This resembles landuse budget of the Housing Estate of Rajshahi.

Landuse Budget Rajshahi Housing Estate :

Housing	50 Percent
School	5 "
Ponds	5 "
Commercial	2 "
Recreational/Religion	2 "
Offices	7 "
Road, openspace etc.	30 "

Total : 100%

Quoted from : Feasibility study, Rajshahi water supply project
April, 1980.

In view of economic constraints and scarcity of land, neighbourhood can be less than 100 acres. Land value has gone up considerably during last few years. It has increased from Tk. 20,000/- per acre in 1972 to Tk. 100,000/- per acre in 1980 (with the municipal area, See Fig. 10).

So the distribution^{of} population and the direction of urban expansion should be regulated from now. The future neighbourhood and community will develop around different nuclei with other social and utility services. Ultimately neighbourhood unit would be --

- (a) Small enough to retain its physical identity,
- (b) Large enough to provide diversity of population and
- (c) Large enough to provide for a full range of local recreational and educational facilities.

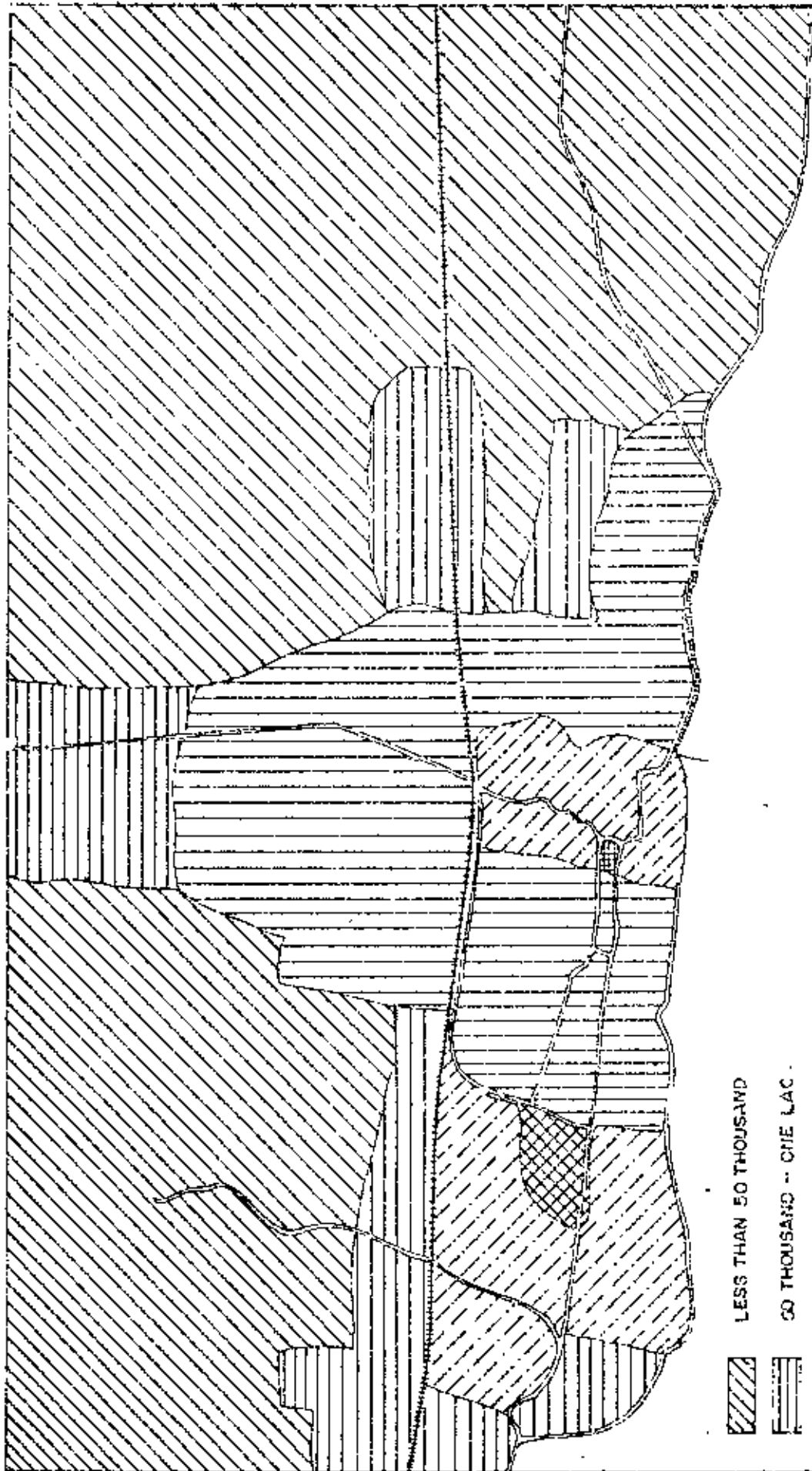
6.3. SITE OF INDUSTRIES AND COMMERCIAL ACTIVITIES :

Industrial development must be so located that it becomes economically feasible to operate, it must provide all necessary raw materials, service and employment in an environment that is attractive, convenient and safe, utilities and good access should as a far as possible be encouraged along the river.

Rajshahi is an industrially backward area. There is a possibility for the development of small scale and cottage industries. It is expected that various small and medium size industries will be established in near future. But large scale industries are not very eminent.

Trade and Industries generally seek to locate near transportation facilities. But, Rajshahi though it is located on the river bank of Padma, the river transportation has failed to develop and is not favourable to trade and industrial growth. The railway transportation is also very insignificant, it passes through east-west direction and at the north of the Paurashava area. The present industrial estate at Shapura is not a very suitable location for industries. From different sources of information it is known that small scale industries which is expected to grow in the near future will mostly be located at Shapura industrial estate.

It is suggested that sufficient land can be available in the north near Noahatta. In future the industries can be located there. It would be far away from the city centre and congestion can be avoided. The place has a small river which can be used



- LESS THAN 50 THOUSAND
- 50 THOUSAND - ONE LAC
- ONE LAC - TWO LAC
- TWO LAC - THREE LAC
- THREE LAC - FOUR LAC
- FOUR LAC AND ABOVE

0 1/4 1/2 3/4 1 Mile
SCALE.

FIG. - 10

RAJSHAH AND ENVIRONS
LAND VALUE PER SIKHA
Source : henc,
Survey For Land Use Traffic & Utility For Greater Rajshahi

for industrial waste disposal and transportation of raw materials and finished goods. The industrial area can be provided with service and utilities.

There is a recognized need to separate most industries from residential development for they are heavy generators of traffic and incompatible with the environment of housing areas. Economies of scale are also gained through the agglomeration of industrial uses; when services, transport and other facilities are shared, the cost for use is generally less than if they are individually provided.

"For convenience of employees industrial estates should be close as possible to homes; and to satisfy the requirements of most industries be sited with good access to the national road system".¹

6.4. BASIC PRINCIPLES FOR TRANSPORT NETWORK SYSTEM :

The primary aim in designing public transport system is that it should give a good alternative to provide transport in terms of safety, convenience, comfort and cost, and at the same time it should not be detrimental to the urban environment, in terms of noise, fumes, smog and vibration.

1. Hancock and Hakes - Architects and Planners - Greater Peterborough (For City Council of Peterborough) London : Trial House Dec. 1, 1967.

In general, the road network should be designed in such a way that it can be modified according to the need in the future. Moreover it should be flexible so that the capacity can be increased to the future demand.

The main flow through, intertownship and the industrial traffic should be the major or primary roads. This will form the highest level of the road hierarchy dividing the town into series of environmental areas. Secondary distributors and the local roads would then distribute the local traffic in the districts and neighbourhoods.

Segregation of vehicular and pedestrian traffic will be emphasized at all levels. The major arterial road should be of dual carriage-way. The network necessary to carry the expected flows at the end of expansion should be based on two lane dual carriage-ways. This would allow upgrading to three lanes at a later date to allow for greater vehicle usage and further population growth of the region.

It is suggested that high priority be given to the proposed east-west road of the Rajshahi. Because with the completion of this road the growth and development is expected to be rapid. It is also expected that in the Paurashava area of Rajshahi, few existing roads can increase its efficiency by removing constriction points, by guiding directional flows in the peak hours so that the traffic can run smoothly.

The individual access points to the main roads should be restricted to the minimum, because they are usually potential collision points. To protect passenger against possible traffic accidents, footways (with trees along side) may be constructed within and between the residential and commercial areas. The road design depends on the speed and volume of the traffic and origin and destination of the traffic.

6.5. STANDARD FOR RECREATION AND OPENSOURCE :

In Britain the standard recommended for playing fields by the National Flying Fields Association is 6 acres per 1,000 population, made upto 4 acres of public and 2 acres of private playing fields, in addition, 1 acre per 1,000 persons should be provided for parks and 3 acres for school playing fields, giving a total of 10 acres of open space per 1,000 population. This standard is achieved by many towns but this standard is too luxurious for the cities of ours. We can not afford such a vast land under recreation and open spaces.

The county of London, which has an acute shortage of open space in the central areas is aiming at a total figure of 2.5 acres per 1,000 population. The Singapore city of extremely high population density, which have short of building land propose a standard not exceeding 2.5 acres per 1,000. On the other hand, Karachi where ample land is available, is aiming at 4 acres per 1,000 population.

At present Rajshahi Paurashava has only 209.56 acres of land under recreation and open spaces which is about 9.25% of the total land use of the Paurashava and serving about 1,75,000 people. But in future say about 2000 years the population will be about 420,000 and the more space should be required for them. So it is suggested that total open space of about 4 acres per 1000 persons can be provided in the form of parks and neighbourhood open spaces mostly for playing fields.

6.6. OTHER ANCILLARY FACILITIES :

In western countries there are standards for ancillary facilities like, elementary school, High School, Colleges, Hospitals, market centre, parking space etc. But in our country the space standard is not being strictly followed or there is no fixed standard which can be followed. So the standards are yet to be calculated for our country which will be different from the western type. But this is out of the scope of this study.

Rajshahi is economically backward in comparison to other places of the country and the scarcity of land is acute like rest of the country. So in future when the population will rise at a high rate then there will be pressure on land and social facilities. Therefore it is suggested that the minimum requirement should be set at lower space standard to develop the ancillary facilities. According to the Delhi Master Plan lower space standards for community facilities have been adopted in view of extreme difficulty of finding adequate land for those

purposes. This space standard can be followed for Rajshahi city. (Table 6-1).

TABLE 6.1. SPACE STANDARDS FOR WALLED CITY AND AREAS
REQUIRED POPULATION 4 LAKE

Description	Standard for first stage	Standard for ultimate stage	Total requirement in acres
Higher Secondary School	0.5 acres (one school for 15,000 popn.)	1 acres (per school)	27
Primary School	0.26 acres (4 school for 15,000 popn.)	0.75 acres (per school)	54
Health Centres	300 yds. per 22,00 popn.	Same as First stage	1.1
Police Station	1.5 acres for 75,000 popn.	-do-	8.0
Fire station	1.5 acres for 100,000 popn.	-do-	6.0

Source : Work Studies, Master Plan for Delhi, Delhi Development Authority.

CHAPTER - VII
POLICY RECOMMENDATIONS AND CONCLUSION

7.1. SUMMARY FINDINGS AND POLICY RECOMMENDATION :

1. Upto the middle of this century Rajshahi city has very low growth rate of population. But after that the rate of increase is quite fast. From 1961 to 1974 Rajshahi Pourashava area has an annual growth rate of 3.9 percent and R.T.D.A. area has 5.1 percent, in both cases it is higher than the national level (2.70%). But the urbanization trend is lower in comparison to that of Bangladesh; urban population growth rate for Rajshahi city is almost half of the growth rate of Bangladesh which was 6.9 percent between the year 1961 to 1974. Even then the growth rate is quite high. In 2000 A.D. the future population size is expected to be 420,000 in Rajshahi urban areas. So to accommodate that large number of urban population one should be very careful about the spatial expansion. There is need to take special care and precaution in framing development policies so that the urban growth can take place in future without any major damage to fertile agricultural land.

2. Rajshahi city developed in a linear form, extending in the east-west direction, between river Padma and Ishurdi - Amura railway line. Another recent trend of development started along the Howhatta road, north of the railway line. Both the development axis follows the established communication line. The development is not compact either. Dispersed development occurred in many places; in the east there are

buildable land in Ranchandrapur area which is not fully developed; on the other hand its eastern part which has university and Engineering college is already developed. There are significant amount of land under agriculture and horticulture within the built-up areas. But this type of unplanned and haphazard development should not be allowed. The urban growth and expansion should be regulated and controlled from now and the development should be guided to the north beyond the railway line. Because, to allow further linear development will be uneconomic, it would be very costly to provide social facilities and public utility services. The empty spaces of the urban area should be developed, particularly in Ranchandrapur area. There is also many vacant plot in the municipal area and an uneconomic use is made of Government owned land within the municipal boundary leaving much land unused. So it should be brought under effective utilization. It is proposed that upto 1990 the urban expansion should be allowed upto Dava on the north and some area east along the Neahattu road. But after that upto 2000 A.D. the expansion will be on the north of the university, beyond the railway line and south of the Hatore road. So in future Rajshahi city is expected to remain linear in shape but with a more regular pattern of development.

3. The average gross density seems quite low in Rajshahi. An average gross density of 100 p.p.a. is suggested by experts as the standard density for urban area of Bangladesh. But it will be very difficult to achieve this density standards for Rajshahi.

Because, Rajshahi city has already developed covering an area of 11 square miles and if the high density is proposed then it will be needed to bring down the city size less than at present to accommodate the population of 2000 A.D. It is not feasible. Moreover, the density will not be uniform throughout the city, rather it will have varying densities from high to low in different parts of the city. An average gross density of 50 p.p.a. has been suggested for future Rajshahi and this will bring the city size to 13 square miles. So it is suggested that there is no need to expand the city beyond 13 square miles upto 2000 A.D. This can also save the fertile agricultural land from damage because of future urban expansion.

4. Rajshahi is the largest city in the northern Region of Bangladesh. But being situated in the north-west corner of the country it is not well connected with other centres. Because of this eccentric location of Rajshahi it is important to develop the communication network to give the hinterland more efficient services and by that it will overcome the disadvantages of the eccentric location.

5. According to the western thought the central area of the city is obvious the place that should give the greatest feeling of urbanity its place should be the most highly organized, the most architectural, and generally those which give the greatest impression of the town environment; it should be the busiest and lively area in the city. But in case of Rajshahi, city

centre is not developed in a planned way. The study reveals that the centre has become over crowded and congested. So it is suggested that two other sub centres should be developed in the north of the railway line to release the congestion of the present city centre. These two centres can initiate the growth and development of the surrounding areas.

Hierarchically these two centres may be less important than the original ones.

6. Transportation link of Rajshahi is not very good with the surrounding areas. In Paurashava area most of the roads are pucca, but beyond the railway line, outside the Paurashava area kutcha roads are predominant. There are three major roads by which the city is connected with the outside area. In the Paurashava area, except Greater road almost all other roads are tortuous in nature and have constriction point which cause traffic congestion specially in the city centre. There are four railway stations in R.T.D.A. area and only a branch line pass through Rajshahi from east to west. Daily flow of goods and traffic is very insignificant. Inland water transport failed to develop in Rajshahi. There is no regular mechanized water transport for passengers and goods which hampers the development of the city.

To direct the through traffic out of the central area road is proposed which will connect Natore and Noabatta road. This road will run parallel to the railway line and pass through eastern side of the university. Ranchandrapur area has buildable

land, but no road network has been developed to serve the area. So, it is suggested that in future there will be a road network which will be a part of the original road network of the city. It is expected that this road network will give impetus to the development of the proposed new urban expansions. There are constrictions points in the major roads in the city area, so to make these roads more accessible, these constriction points should be removed wherever necessary. To increase the overall efficiency of roads especially in the city centre, directional flow may be introduced in the peak hour. The road connecting the city with surrounding area should be improved to give free movement of goods and passengers so that food products and raw materials can come to the city more easily, and also the people of the rural areas can have share to the facilities offered by the city.

7. In Rajshahi urban area, large number of people are engaged in the service sector employment. Agricultural sector employment is dominant in R.T.D.A. area. A large number of people is also unemployed in Rajshahi Paurashava area which is about 13 percent. In future this figure will rise. So in future the development policy should absorb these unemployed persons with creation of new job opportunities. Construction employment is very low in the urban areas. There should be a scope of construction job if the new construction project can be created and it is expected that with the population rise the construction activity will increase and government should

take initiative to construct infrastructure and service facilities which will partly absorb the unemployed persons of the area.

The banking and insurance services of Rajshahi should be geared up for effective mobilization of savings and channeling of these savings into production investment in public and private sectors of production, which will create new job opportunities.

8. There is a prospect of food processing industries in Rajshahi, because surrounding areas have rich agricultural land, capable of producing tropical fruits, vegetables and spices, which can be processed to prepare food drinks and delicacies. So incentive should be given by the government to establish more food processing industries, which will partly solve the unemployment problem.

The economic activities should be geared up to improve the household income. The land is suitable for pisciculture, sericulture, dairy and poultry farming and these can support several agro-based industries, so it is suggested that these activities should be expanded, with working provision for secondary occupation.

The future manufacturing industries should be located in such a place in urban areas which should be advantageous to the surrounding people too, so that they can have access to the new job. It will diminish number of unemployed in land and

will utilise the surplus labour to more productive employment. Considering the growth potentiality, Rajshahi is industrially backward and in future there is a possibility for the establishment of small manufacturing industries, only. There are only 3 large scale industries in R.T.D.A. area. The existing industries are not utilizing their full capacities because of some major constraints, such as irregular power supply, shortage of working capital, lack of spares, shortage of raw material, problem of transport and communication, inadequate marketing facilities, lack of abundant water supply etc. So it is expected that the capacities of industries should be fully utilised by removing the major constraints. Bangladesh Power Development Board has undertaken 230 k.v. double circuit overhead line of approximately 94 miles from Tungi to Ishardi. It is expected that this east-west electrical interconnector will help to improve the power supplies in Rajshahi region when it is completed.

9. The housing situation is not good in Rajshahi like other cities in Bangladesh. There is no housing for a large number of people in the city area. The low income settlement as slum and squatters are found in the city, both in Paurashava area and the fringe area. Building structures are mainly kutcha type. In Paurashava are only 41.04 percent structures are pucca and mostly one storey. Two and three storey buildings are found but very few in numbers. Most of the houses are privately owned and public ownership is very insignificant. Building coverage varies widely. So it is suggested that incentive should be given to higher-rise buildings in the

urban area. It could rise upto 3 or 4 storey in some place to accommodate the proposed, high density. In order to achieve this, different policies and strategies, such as direct construction, sites and services schemes, nucleus housing, slum improvement, squatter upgrading, house building loan schemes, material subsidy, tax relief, rent control etc. may be adopted.

10. The existing utility services are not at all satisfactory. Most of the household depends on conventional sources of water supply like ponds, tubewell and river. More than half of the household have no electricity. Nearly 20 percent of household have no human and domestic disposal facilities. Situation seems very grave. It is expected that at least paurashava area will get better public utility services, but in case of Rajshahi it is far away from that expectation. So to cope with the future population growth of the area, Paurashava authority should try hard and invest more to improve the poor service in the city area. In that case it can raise tax to bear its expenses.

11. Rajshahi is regarded as a seat of education for the northern region. Even though the facilities are not adequate and the region is educationally backward from other parts of the country. The same condition prevails for health facilities; there are some general hospitals and private clinics, but the beds are very few in numbers to cope with population pressure.

So it is suggested that these social facilities should be provided according to the standard which is suitable for our country.

Policy proposals are useless unless its is properly implemented by the urban authority. In our country the problem faced by the authorities are monumental while the resources to deal with them are exceedingly scarce. So, the investment proposals should be specific and selective.

CONCLUSION :

In conclusion it can be said that although Rajshahi is an urban centre of large size over 100,000 of population, hierarchically it is not spatially located within its hinterland in a position which is desirable. That is why it has lost its centrality to a great extent and the growth which might happen for its hierarchical order has not occurred. It is neither centrally located within its hinterland nor it is connected with the hinterland by an efficient system of transport network, rather it is eccentrically located at the boundary of its hinterland with a very poor transport links. Hence some specialized services which should have been located in Rajshahi because of her higher order functions as a District and Divisional Headquarter, is not located in the area, instead those are located in Bogra because of its central location and transportation links with other centres. So, it can be said that in future Rajshahi will not grow as it should be as a District and Divisional Headquarter only because of its location.

Through out the study some important aspects were discussed which were related to the development of the area. Many other things such as urban renewal or redevelopment problem, exact requirement of different facilities and infrastructure, implementation process of the development plan etc. could not be discussed and no specific recommendation could be made for the future development.

The time and resources available for the purpose was very limited, not to mention the inexperience of the researcher herself. Obviously it was not possible to achieve all that could be desired in the work. But despite its many limitations it is hoped that this study could give some guidelines for future planning of the area.

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APPENDIX

TABLE- 5.1
THE INDUSTRIES TO BE ESTABLISHED IN AND
AROUND RAJSHAHI CITY

Name of the Industry	Location	Emp- loy ment	Area occu- pied by the Industry	Tentative time of finishing
Adcco (Bangladesh) Ltd.	BSCIC Indus- trial Estate	128	1.017 Acres	January 1981
Lucky Transport Co. Ltd.	Rajshahi	18	0.5 "	July 1981
Fashion wear Ltd.	BSCIC Indus- trial Estate, Ghopura	478	2.00 "	January 1982
Sarker ICE & Cold Storage Ltd.	BSCIC, Estate Rajshahi	27	1.5 "	July 1981
Soniya Scientific Victuals Ltd.	BSCIC, Estate, Rajshahi	27	5.45 "	July 1981
Shah Mukhadun silk Industries Ltd.	BSCIC Estate Rajshahi	66	2.00 "	January 1982
Mofiz Minagar Ltd.	PABA Rajshahi	33	1.5 "	July 1981
Rose-Benz-Distil- laries Ltd.	BSCIC, Estate Ghopura	85	3.5 "	January 1982
Uttara ICE & Cold Storage Ltd.	Noahata	32	1.5 "	The loan applications are under considerations
RANA Transport Co.	Rajshahi	34	½ "	"
North Bengal Printers and Packages (Pvt.) Ltd.	BSCIC Estate Ghopura	36	1 Bigha	"

Source : Bangladesh Shilpa Rin Sangstha.

TABLE 5.2
THE INDUSTRIES TO BE ESTABLISHED IN
AND AROUND RAJSHAHI CITY

Name of the Industry	Location	Employment	Area occupied by the industry	Remarks
JEM Rice Mills Ltd.	BSCIC I/E	98	100 decimal	The project is under construction.
Uttar Rice Mills Ltd.	Nawhata	40	100 "	The projects is under construction
Mostaque Hossain and Co. (PVT) Ltd.	Serail	16	4.50 "	-do-
M/S. H.E. Automatic Rice Mills Ltd.	Santashpur Baya, Rajshahi	40	200 "	Loan sanctioned by the Bank is yet to be utilised
Himalaya Ltd.	Noahatta	43	200 "	-do-
Uttara Cold Storage Ltd.	Noahatta	45	100 "	-do-
Lucky ICE Cream factory Ltd.	Nabinagar Paba	12	3 "	-do-
Agro products (Pvt.) Ltd.	BSCIC 1/E Shopura	37	4 "	-do-
Garib Nawaz Rice Mills Ltd.	-do-	35	100 "	-do-
Padma Textile Ltd.	Ghoramara	23	5 "	Loan has withdrawn
RAJ Garments Industry	BSCIC 1/E Rajshahi	127	50 "	The project under construction
Padma Silk Ltd.	BSIC 1/E Shopura	215	100 "	Loan sanctioned by the Bank yet to be utilised

Source : Bangladesh Shilpa Bank.

TABLE 5.3
THE INDUSTRIES TO BE ESTABLISHED
IN AND AROUND RAJSHAHI CITY

Name of the Industry	Location	Employment	Area occupied by the industry	Remarks
M/S Hatibanda Saw Mills (PVT.) Ltd.	Nawahatta	16	15 Decimal	The project is under construction
M/S Rahmania Chemicals and Pharmaceutical Ltd.	Ghoramara Rajshahi	34	3 "	"
Noorjahan & Co.Ltd.	Shahab Bazar	24	9 "	"
Natun Cinema	Katakanali	13	29 "	"
M.F. Workshop Ltd.	BSCIC 1/E Rajshahi	34	9 "	"
Rajshahi Engineering Complex	Sopura	74	45 "	"
Hotel Amravati (PVT). Ltd.	Shahab Bazar	33	11½ "	"

Source : Bangladesh Chitpa Bank : Research and Statistics Department.

TABLE 5.4.
PENDING LOAN APPLICATION FOR INDUSTRIES
IN AND AROUND RAJSHAHI CITY AS ON 30.4.81

Name of the Industry	Location	Type of Products
1. Delico Food Industry Ltd.	BSCIC 1/E Sopura	Biscuit Bread
2. Agro Products Industry Ltd.	Sopura	Spices Processing and crushing
3. S.R. Automatic Rice Mill Ltd.	Nowdupara	Rice milling
4. Minery Silk Industries Ltd.	BSCIC 1/E Rajshahi	Silk yarn drilling and testing.
5. Donali Traders (Pvt)	BSCIC 1/E Sopura	New offset Printing Press
6. M/S. Rahman Metal Products Ltd.	Nowdupara Paba	Agr. Tools and equipment
7. M/S. Shikha, Industry Ltd.	Sopura	Electric Fan
8. M/S. Hena Agr. Implements and Foundry Workshop	Nowhata	Agri. implements
9. M/S. Rajshahi Bone Mills Ltd.	BSCIC 1/E Sopura	Bone crushing bone chips bone dust.

Source : Bangladesh Shilpo Bank Research and Statistics Department

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