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Urbanization in North-Western Regions of Bangladesh

Islam, Sangida

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Urbanization in North-Western Regions of Bangladesh

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Geography and Environmental Studies

By

Sangida Islam

Supervised By

Professor M. Abdur Rahman

Department of Geography and Environmental Studies
University of Rajshahi, Rajshahi-6205, Bangladesh.
June, 2013

Dedicated

To

My Parents

Declaration

I, the undersigned hereby declare that this dissertation entitled **"Urbanization in North-Western Regions of Bangladesh"** is my original research work and submitted by me to Rajshahi University, Bangladesh for the award of the degree of Master of Philosophy in Geography and Environmental studies carried out under the supervision of Professor. M. Abdur Rahman, Department of Geography and Environmental studies, university of Rajshahi, Bangladesh.

To the best of my knowledge, this work neither in part nor in full has been submitted previously to any University or Institute for the award of any Degree, Diploma, Fellowship or any other similar purpose.

Dated: 30.06.2013

(Sangida Islam)
Researcher

M. Abdur Rahman
Professor
Department of Geography and
Environmental Studies
University of Rajshahi
Rajshahi-6205, Bangladesh.
Phone: 750041/4123 (office)

এম. আব্দুর রহমান
প্রফেসর
ভূগোল ও পরিবেশবিদ্যা বিভাগ
রাজশাহী বিশ্ববিদ্যালয়
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ফোন: ৭৫০০৪১/৪১২৩ (অফিস)

Certificate

I have the pleasure to certify that the dissertation entitled **"Urbanization in North-Western Regions of Bangladesh"** submitted by **Sangida Islam** to Rajshahi University, Bangladesh carried out under my direct supervision.

I also certify that I have gone through the entire dissertation and found it satisfactory for submission in fulfillment of the requirements for the award of degree of Masters in Philosophy in Geography and Environmental Studies and may be placed before the examiners for their consideration.

Dated: 30.06.2013

(M. Abdur Rahman)
Supervisor & Professor
Department of Geography and
Environmental Studies
University of Rajshahi
Rajshahi-6205, Bangladesh.

Abstract

Urbanization is one of the great discussion matter of the world in recent times. Bangladesh is considered to be in the primary stage of urbanization, The characteristic of Urbanization in Bangladesh is still low in terms of level, development and facilities or amenities are available in the country. But nature of overall growth is problematic and deserves much attention in all sectors of development authorities. Urbanization and development brings benefits to the urban society, it is an indicator of development and modernization, but when the urbanization becomes over, not uniform or uneven, uncontrolled and unpredictable, it creates various threats to the planners, development authorities and urban habitat for future development. Therefore, the study on **"Urbanization in North-Western Regions of Bangladesh"** is very much significant.

Basically, the main thirst of this study is to examine & provide the level of urbanization, spatial (inter districts) patterns and changing patterns in the level of urbanization, urban development and urban facilities or aminities are available in the country by and large focusing on the North-Western Regions of Bangladesh based on secondary data using Davidorich Model (Z-Score) to generate an understanding as its real urban characteristics of the study area. 16-variables have been chosen for the study. The main findings of the study is that urbanization of the study area is still low in respect of level and no remarkable changes have been found between 1991 to 2001.

Though Bangladesh is a very small country in the world Map but at present, the trend of urbanization is not least, i.e. more than 23% of the people are living in the urban areas by creating both paralytic and parasitic effect on the other places and on the national economy of Bangladesh. But the urbanization of Bangladesh is still low in terms of level among the developed countries & developing countries of the world. The characteristic features of urbanization in Bangladesh is excess

increase in urban population, largely due to natural growth, rural-urban migration and growing importance of local resources.

In the recent times, increase of urban population, problems of urban planning & development, changing & attitudes of the peoples, urbanization and development has become a national issue of Bangladesh and has gained wide attention of scholars among a number of disciplines. Urbanization and development is interrelated matter and as a developing country, much research is required on urbanization and development of Bangladesh. So, an in depth study on **"Urbanization in North-Western Regions of Bangladesh"** will contributes much to find out the actual problems and solutions for the national development planning and also urban scholars, planners, researcher for further study.

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I humbly express the first and foremost greatfullness to the supreme authority Almighty Allah for giving me strength, courage, sense and patience to accomplish this study.

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I like to express my special thanks to some authorities like: IBS (Institute of Bangladesh Studies), BIDS (Bangladesh Institute of Development Studies), Central Library of Rajshahi University, Seminar Library of the Department of Geography and Environment Studies, Public Library of Rajshahi for giving me opportunity to collect required information, which are used as the secondary data for the present study.

The Researcher

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Abbreviations

BBS   = Bangladesh Bureau of Statistics

BIDS   = Bangladesh Institute of Development Studies

GDP   = Gross Domestic Product

GOB   = Government of Bangladesh

UNDP   = United Nations Development Program

SPSS   = Statistical Package for Social Science

IBS   = Institue of Bangladesh Studies

LFS   = Labour Force Survey

Chapter One
Introduction to the Research

1.1   Introduction

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Chapter One
Introduction to the Research

1.1 Introduction

The word **"urban"** is usually placed against the term **"rural"**. **Geographically,** rural areas are considered as remote and politically powerless, while socially designated as traditional or indigenous. **On the contrary,** urban areas are seen as places of prosperity, innovation, dynamism, development, modernism, and located centrally in both the political and geographical senses (Islam, 2001). Moreover, the word **"urban"** refers to a particular type of place where the economic concentration of non-agricultural activities and the social concentration of a particular types of values, behaviour, organization and institutions are present (Carter, 1976; Nazem, 2001). **Urbanization means** an increasing modification from primary activities to industrial services or tertiary occupations and it is a process of continuous concentration of population into cities and metropolitan of a society. It is a dynamic process by which the population concentration increases involving a shift from agrarian to non-agrarian occupations (Mandal, 2000). From the above, the word **"urbanization"** characteristically refers to a particular process and place where infrastructural development, all kinds of non-agricultural activities, social, cultural, educational, transport and communicational, organizational and institutional, technological, informational, modern housing facilities, industrial and commercial, residential and administrative etc facilities are comparatively available.

The level of urbanization is usually associated with degrees of modernization or industrialization (ESCAP, 1981) and if industrialization can be said to have been the first great and continuing revolution in recent times, certainly urbanization is the next one (Breese, 1966).

However, the pattern of contemporary urbanization in developing countries differs substantially from those of Euro-American industrial urbanization and the forces of urbanization in developing countries are different from those in the west. A **'rural push'** because of economic stagnancy, natural hazards and poverty in the rural areas seems to be the dominating factor of urbanization in developing countries and the limited **'urban pull'** factors are however confined mainly to the capital cities like Dhaka, contributing to premature metropolitization & urban primacy and also creating enormous problems at the urban end. The case of rapid urbanization in Bangladesh clearly demonstrates this situation (Nazem, 2001).

In case of rapid urbanization of Bangladesh, both pull factor & push factor worked simultaneously resulting in unevenness in the development parameters of urbanization (BBS, 2003).

But it is evident that the level & process of urbanization, availability of urban amenities & urban development, non-agricultural activities, migration, infrastructural development, living standard as well as overall socio-economic changes are **not uniform** in the all urban areas of Bangladesh (Rahman, 2004).

Having considered the above, which has created a notion of high expectation to study on urban field of Bangladesh under the title of **"Urbanization in North-Western Regions of Bangladesh"** has been undertaken to examine mainly the level of urbanization, spatial variation of urban amenities and development parameters of the study area to the context of the national data based on secondary data of **Population Census of Bangladesh, 1991 & 2001**. Also a comparative study has been conducted between this two census years.

This study is based on basically published national data, published & unpublished literatures, which have been collected from the written materials such as books, journals, reports and softcopies of the internet.

To measure the **level of urbanization, spatial (inter-district) variations & changes of the urban amenities, only Standardized Model (Z-Score) for ranking the districts of North-Western Regions of Bangladesh based on Davidovich Model (1973)** has been followed.

In this chapter, introdcution to the research, problems under study have been identified, limitations, Justifications, aims & objectives and a brief literature review on the related field have been discussed.

1.1 Statement of the Research Problem

Urbanization is a very recent & most important issue of the world, a feature of the last one hundred & fifty years. Before the start of the nineteenth century, only 3% of the world's population lived in towns. Expressed in a different way, the world's population increased **three-fold** between 1800 & 1960, but the world's urban population increased **thirty-fold** between 1950 & 1950, i.e. from 28.20% to 38.60% (Carter, 1982). It is evident that with the current pace of urban population growth, **the world's urban population is increasing faster than the total population of the world** and it is also estimated that **65% of the total**

world population will be urban dwellers by the year of 2025 (Pacione, 2007) and almost 90% of urban population growth will be in Asia, Africa and Latin America (UN, 2000). On the other, **by the year 2015, 80% of the world's largest cities will be in this region** (Dhaliwal, 2000) and all these will be the history of mankind of the world (Shaik, 2006).

The process of urbanization in the developed countries (viz. USA, Japan, French, Netherlands and others) **is characterized with extreme unevenness in the development of individual cities** and the process of urban centres in such goes on by way of their territorial expansion, amalgamation and formation of gigantic urban territories-the so-called "Megalopolis" (Khan, 1981). On the other hand, **urbanization of this nation (Bangladesh)** started considerably **during the beginning of the 20th Century**. During those days, the British rulers decided to establish different institutions for administrative and revenue collection purpose which has started the bridge of urbanization. **After the conclusion of the British era in our nation,** it was evident that slowly but surely the urban society started to exert it s influence in charting the direction of the country's political, social and economic decisions (BBS, 1994, 1997, 1999, 2001, 2003). It is also evident that the percentage of urban population & number of urban centres were very small from 1901 to 1961 i.e. 2.43% to 5.19% and 48 to 78 in numbers but the higher rate of urban population & increasing trend of urban centres in Bangladesh was found between 1974 & 1981 i.e. 8.87% to 15.15% and 108 to 492 in numbers (ESCAP, 1981; BBS, 1994, 2003).

In Bangladesh, two major political changes (partition in 1947 & liberation in 1971) accelerated the process urbanization and the main reasons for growth of urban population in Bangladesh are; a) national increase of population, b) influx from rural areas, or urban to urban areas (migration), c) changes in urban boundary and changes in the delimitation & definition of urban areas (Shaik, 2006). All these factors (rural push & urban pull factors) are working behind the increasing or urban population in Bangladesh during 1901-2001 which are reflected in the censuses 1901-2001 (ESCAP, 1981; BBS, 2003).

Urbanization is an indicator of development and the proportion of urban population increases with socio-economic development of Bangladesh (BBS, 2003) and **the level of urbanization is usually associated with the degrees of modernization** or industrialization (ESCAP, 1981). But **it is observed from the all census years of Bangladesh that the level & extent of urbanization was not uniform** due to rural-urban migration, natural increase of population, expansion of urban areas where a large

number of urban people live in the urban slums and squatters where the amenities of life are very scarce (BBS, 2003). **In case of rapid urbanization** of Bangladesh, **both pull factor & push factor** worked simultaneously **resulting in unevenness in the development** parameters of urbanization (BBS, 2003).

But the above all true pictures indicate that there is a wide regional (inter-district) & intercensal variations and inequalities of urban population and urban amenities in Bangladesh. **This unevenness and uncontrolled urbanization process has stimulated to conduct such study & make imperative to study the extent & magnitude of urbanization and urban opportunities (amenities)** are available in Bangladesh.

With this end in view, an attempt has been drawn to assess the present state of affairs of Urbanization in North-Western Regions of Bangladesh that includes the intercensal & regional variations (inter-district) of urbanization process, urban amenities/opportunities and to suggest necessary remedies, which will represent the characteristic features of all urban areas of Bangladesh.

1.3   Research Questions

It is necessary to fix up some specific objectives for every researchers at the time of thinking & beginning of his/her research **to complete the work** smoothly in schedule time & plan. **But before fixing up the objectives, the researcher wants to search the following queries :**

    i)   in what degrees/levels of urbanization exists in the study area during the census years 1991 & 2001 ?

    ii)   is there any remarkable changes in the degrees of urbanization in the North-Western Regions of Bangladesh between the census years 1991 & 2001 and if yes, then what kind of it is ?

    iii)   is there any radical changes in the urban development indicators/parameters between the two census periods & if yes, how much ?

    iv)   is there any inter-districts variations & inequalities in the level of urbanization & urban amenities and if yes, how much ?

1.4 ˙   Aims and objectives of the Study

To find out the answers of the above questions, the following key goals & objectives of the study has been set up:

    i)   to examine the level of urbanization & spatial pattern of urbanization of the study area to the context of the country;

ii) to find out the spatial (inter-district) and decadal variations & inequalities of urbanization and urban development indicators, specially urban amenities between the census years 1991 & 2001 to the context of the country;

iii) to make some recommendations & valuable suggestions on the issue.

1.5 Literature Review & Conceptual Framework

The study of urbanization and spatial inequalities in economic development and social change in developing world has gained wide attention of scholars among a number of disciplines. **This interest has been stimulated both by problems of rapid population growth, unplanned urban development and even widening spatial inequalities between urban & rural areas in the Third World** (Barke & O'Hare, 1984; Geiger & Faissol 1982; Smith 1979; Gore 1984), and by several theoretical constructs explaining **urbanization & economic growth** (Todaro 1981; Lewis 1971; Wingo 1975; Boudeville 1966; Friedmann 1966; Williamson 1965, Hirschmann 1958; Myrdal 1958; Perroux 1950). **These theories focused on either urbanization or economic development process as the source of spatial inequalities.**

From the sheer **volume of contemporary literature** on **urbanization and spatial development, has primarily dealt with the balanced economic growth theme and the growth pole theme, a popular theory** (Marx 1954/1956; Harrold 1947; Domar 1957; Solow 1956; Swan 1956, Uzawa 1961; Lewis 1954), it is **agreed that no single theory of spatial economic development exists, but most theories link spatial development and inequality with urbanization** (Rahman, 2004). **It is also proved from the growth pole theory of Perrox** (1955) **later on that expansion of economic growth is not balanced and does not occur everywhere at the same time** (Rahman, 2004).

Urbanization is one of the most significant development issues in Bangladesh. While developing nations in Asia show rapid rate of urbanization, Bangladesh still remains less urbanized, although the absolute urban population as well as the number of cities and towns in the country has increased **manifold during the last few decades** (Islam 1996; BBS 1991). **Both the process of urbanization and the dynamics of growth of urban centres in Banglaesh are quite different from other developing countries in South and Southeast Asia** (Rahman, 2004).

In Bangladesh, urbanization takes the form of rapid growth of urban population, largely due to natural growth and rural-urban migration (Khan, 19820. But the hierarchy of urban system includes both induced

and spontaneous growth centres. Large number of spontaneous growth centres grows due to rapid population growth as well as growing importance of certain local resource that induces economic growth. Although the administrative and organizational decisions, capital investments, technological innovations generally originate in the primate city and induced growth centres such as divisional and district headquarters, however, trickle down effects are not uniformly speeded spatially perhaps because of the country. And there exists wide spatial inequalities in the rates of urbanization, economic growth & development and urban opportunities/amenities (Rahman, 2004).

Sheer volume of literature on urbanization and spatial development in Bangladesh has **primarily dealt with growth of urban population** (Elahi 1972; Khan 1982); **factors, process, and patterns of rural-urban migration** and urbanization (Alamgir 1973; Islam 1974, 1978; Saleheen et. Al. 1990); **urban spacing and regional packing** (Rahman 1994c); **urbanization and socio-economic development** (Hossain & Islam 1981; Khan 1981); **city size and urban growth patterns** (Patel 1970; Islam 1974; Rahman 1994a, 1994b, 1997a, 1997b, 1998; Rumi 1970; Sultana 1993; Eusuf & Khatun 1995); and **urbanization & rural development linkage** and policy implications (Rahman 1994a, 1994b; Islam 1996); and **regionalization of urbanization & spatial development under the growth pole theoretical framework** (Rahman 2004).

Some studies have been conducted simply on migration, causes of migration from rural to urban area, city to city and within the city, different aspects of migration and also gave some suggestions to stop rapid migration (Islam 1999; Khatun 2003; Sultana 2002; Farhana 2008).

The existing studies **vary widely in scope and scale of study areas; they have either focused on the urban problems of Dhaka city**, or assessed **the urban and regional development situations** on the basis of national data. **But they have not examined the spatial patterns of urbanization, changing of urbanization patterns, variations and inequalities in the development parameters and urban amenities in a broader aspects using Standardized Model (Z-Score) of Davidovich (1973)** , which may yield significant policy implications for national economic planning & urban development planning in Bangladesh as a whole.

After reviewing the aforesaid literatures, **we can point-out some important research gaps** which require further study & these are:

    i)   Maximum studies have been carried out on various aspects **separately and partially,** which happens in urban area. **None has made any**

study on the spatial level of urbanization, variations & changes (district-wise study to the context of the country) on urbanization on the North-Western Region of Bangladesh for the Census Period 1991-2001.

ii) Although, some studies have been conducted on socio-economic and environmental impacts on urbanization in urban area and **concentrated on partial aspects of urban issue** but **the level of urbanization, spatial patterns (inter-districts), variations & changes of urban amenities not studied**. An in depth study on the issue still to come.

iii) No intercensal or decadal (1991 & 2001) variations & changes are studied on level of urbanization and urban amenities in any study for the study area.

iv) No studies have been found on urbanization for the study area **separately**, i.e. North-Western Regions of Bangladesh.

From the foregoing information of the **above literature's & research gaps, it is presumed for the study** that **the level of urbanization** in the study area is **increasing & changing rapidly** between the census years 1991 & 2001 and **there is a wide spatial (inter-district) variations, inequalities & changes in the level of urbanization & urban amenities (urban socio-economic & infrastructural development indicators) in the study area.**

So, an in-depth study on **"Urbanization in North-Western Regions of Bangladesh"** as a step forward to the problem.

1.6 Scope of the Study

Urbanization is a vast subject, not least from the international perspective & it is at present very much relevant to the developing countries. There is an ample scope to study on urbanization because of various kinds of problems & issues are lying with urbanization (Rahman, 2004 ; Shaik, 2006). The scope of the present study confined to the **"Urbanization in North-Western Regions of Bangladesh"**. So, **the main concentration will be given to the urban people & their facilities are available** in the study area.

While making a summary concerning different aspects of urbanization & processes followed by the Government of Bangladesh, the following scope of the study has been found :

1) Characteristics of urbanization ;
2) Level & process of urbanization ;
3) Spatial pattern of urbanization ;
4) Spatial variations & changes of urban facilities ;
5) Special features of inequalities of urban development indicators/parameters etc.

1.7 Rationale of the Study

1. **Though Bangladesh** is a **very small country in the world map** but **at present** the trend of urbanization is not least, **i.e. more than 23% of the people are living in the urban areas (BBS, 2003) by creating both paralytic & parasitic effect** on the other places & on the national economy of Bangladesh **(Shaik, 2006).**

2. **Over, uneven, unplanned & unsystematic urbanization** is **creating various kinds of problems, viz. i) migration, ii) unemployment, iii)** squatting, **iv) absence of mass sanitary & water supply facilities, v) crowding, vi) lack of recreational facilities, vii)** break-down of social order, **viii)** high crime rate, **ix)** squalor, **x)** inadequate housing and so on **(AID, 1968), which are very much related** with the socio-economic, demographic and environmental conditions and **Bangladesh is not an exception to this fact** (Shaik, 2006), **which has created by and large a great attention to the all Governments of Bangladesh & also to** the urban planners, scholars & researchers (Rahman, 2004). So, to understand the above realities, the study on the subject mentioned earlier have been chosen.

3. **From the reviewed literature (stated in the later),** it is revealed that **no doubt,** various studies have been conducted on urbanization, **but no in-depth study was conducted earlier by focusing** level of urbanization and spatial variations & changes of the level of urbanization & urban development indicators. **Till, it is a neglected area of research in Bangladesh (Rahman, 2004 ; Shaik, 2006).** So, it is an another vital reason for choosing the subject for the study.

4. It is also observed from the literature review that **no study on the specific title & on that particular region was conducted earlier**. So, this is one of the important reason for choosing the subject for the study.

5. **On the other hand, the study is mainly based on Secondary data** to be collected and compiled from **Population Censuses of Bangladesh** (1991 & 2001), which are very much available & reliable source for the study. So, this is one of the reason for selection of the subject for study.

6. **To understand the real picture on urbanization issue** by Urban Planners, Urban Scholars, Geographers especially Urban Geographers, Policy Makers, Environmental Scientists, Sociologists & Social Workers, Economists and new Researchers, **it is obviously required to generate adequate and reliable data on the concerned field,** but it is still rare (Rahman, 2004 ; Sarwar & Chowdhury, 2008). **So, to create a sound data bank on the urban field especially on the issue,** the study has been selected which is another reason.

7. To develop any urban planning module & to formulate urban policy by the Urban Planners & by the government of Bangladesh for reducing regional variations & development, **it is necessary to generate required information. So, it is assumed that this study will help to the same.**

8. **Geography is concerned with time & space. The proposed study is basically a spatial study covering the census period from 1991 to 2001 with quantitative type in nature based on urban geographical aspects. So, the study is very much related to the geography and obviously, the study is geographical**

9. **Finally, to compare** the extent & magnitude of urbanization level and development facilities of the study area **with that of other regions of Bangladesh, it may be said that,** the researchers & urban planners will be immensely benefited from this study in future. **Such study can not of course, determine policy but it can** however, **bring into view a greater knowledge of the realities,** which policies must be dealt with and **which may help the urban researchers in future.**

1.8   Limitations of the Study

Every research has to face a number of obstacles and also the present research work is not out of the same. Though, a great care have been applied for selecting the study subject & study site since inception of the study, but there have been some limitations also faced directly or indirectly, are systematically depicted below

i)   The study completely based on the secondary data sources, i.e. especially Population Censuses of Bangladesh, 1991 & 2001 and also Banglapedia, 2004 and some other related publications. No primary data is used in this study.

ii)   Only 16-Variables are used in this study and many variables may used in this study but due to unavailability of required data in the urban field, it was not possible to include the maximum variables.

iii)   In most cases, district-wise data are unavailable. Maximum variables are available in 1991 but not available in 2001 and for this reason, the data has been used with the help of Banglapedia, 2004.

iv)   Due to unavailability of the required secondary data sources, comparative analysis using all parameters of urbanization, development & urban amenities/facilities was not easy.

v)   The study only includes the data of Bangladesh Population Census 1991 & 2001 due to unavailability of required information.

vi)   The study has been conducted only on the urbanization of North-Western Region of Bangladesh but not on the whole of the country due to limited time, lack of financial assistance (money), physical resources (manpower/labour) and unavailability of district-wise required information.

vii)   Though Bangladesh Population Census for the year 2011 has already been conducted but seperate data on the urban field not purblished on the 16-Variables chosen for the study. It is one of the vital limitations of the study.

viii)   Though the industry, migration, housing status, health centres, hospital beds, post office, hat-bazar etc are the important factors for urban development & urban opportuinities but due to unavailaiblity of the same are not included & discussed in the study as variables.

In spite of the above all limitations and disfavourable environment, the data & variables are used in the study to highlight the level of urbanization, spatial changing pattern & variations in urban amenities & development of the study area **will be able to represent the maximum real picture of the urban centres of Bangaldesh.**

1.9   Organization of the study

The whole study has been divided into six chapters. First two chapters ae introductory. The next three chapters, i.e. from three to six chapters are the main corpus of the study while the last chapter contains summary of the main findings and recoommendations of the study. In order to accomplish a meaningful representation of the present study is organized in six chapters are appended below:

Chapter One: Introdcution to the Research.

This chapter contains prelude to the research, the problems under study have been indentified, research questions and purposes of the study, a brief review of literature in the related field and research gaps, rationale of the study, limitations of the study etc.

Chapter Two: Research Design and Methodological Aspects

This chapter contains study methods and design, data base & collection procedure of the study, study area selection criteria, analytical tools and techniques of the study.

Chapter Tree: Spatial Pattern of Urbanizaton of the Study Area: 1991

A detailed discussion on the level of urbanization spatial patterns of socio-economic and demographic parameters of the study area for the census year 1991 to the context of the national data.

Chapter Four: Spatial Pattern of Urbanization of the Study Area: 2001

This chapter also discussed on the level of urbanization spatial patterns of socio-economic and demographic parameters of the study area for the census year 2001 to the context of the national data.

Chapter Five: Spatial Changing pattern of Urbanization of the study Area, 1991-2001.

This most important chapter focused and highlighted in discussion on the spatial changing pattern of urbanization and Urban development indicators of the study area between 1991 to 2001.

Chapter Six: Summary, Conclusion and Recommendation

In the concluding chapter, summary findings of the study and conclusion has been discussed and also tried to provide some meaningful suggestions or recommendations on the basis of the study.

1.10 Conclusion

The characteristic of urbanization in Bangladesh is still low in terms of level, and in countrywide perspective is steadily growing; but nature of overall growth is problematic & deserves much attention in all sectors of development activities (Rana, 2007). The high rate of urban growth characterized during the period 1961-1974 and the trend evidently continuous. In 1999, the annual urban growth rate of Bangladesh was 4.5% (ESCAP, 1999). Rural-urban migration increases the urban growth dominantly (Rana, 2007). **The efforts towards understanding the nature of urbanization of Bangladesh especially North-Western Region have not been adequate**. The properly planned and efficiently manage the urbanization can be important factor in the national development. **The researcher would feel satisfied** if the issues raised in this study can provoke new thoughts to a great extent. As such, choosing of the proposed study on **"Urbanization in North-Western Region of Bangladesh"** will be more helpful & effective for the urban thinkers & planners, researchers & Government of Bangladesh, and also it may help the presentation of actual urbanization of Bangladesh if it will prove by this study. We need an honest & democratic government with much patriotic vision for the smooth development of urban sector and civil society should come forward with high vision under this development umbrella. **Although international donors & NGOs are providing remarkable support to urban development in Bangladesh** (Rana, 2007), **but due to some special reasons & conditions imposed by the donor age**ncies, inefficiency of the governments, desired goal of development has not been achieved till now. **May Bangladesh be relieved from the curse of over & unplanned urbanization in right way in right direction.**

In the next chapter, methodological aspects and research design has been discussed.

Chapter Two
Research Design and Methodological Aspects

2.1   Introduction

2.2.   Research Design and Methodological Aspects

2.2.1   Research Design

2.2.2   Study Area: Selection Criteria and Description

2.2.3   Nature & Sources of Data

2.2.4   Data Collection Procedure

2.2.5   Data Processing and Analysis: Tools and Techniques

2.2.6   Geographical Tools

2.2.7   Statistical and Mathematical Tools

2.2.8   Computer Tools

2.3   Conclusion

Chapter Two
Research Design and Methodological Aspects

2.1 Introduction

The word **"Method"** means a way of doing something and **"Methodology"** means a set of methods used in a particular area of activities. A method involves a process or technique in which various stages or steps of collecting information are explained and the analytical tolls or techniques are defined.

In order to the necessary information as precisely as possible, the secondary data sources has been pursued and **purposive sampling method** is used for the present study based on secondary data because of vast sampling area and availability of required data.

2.2 Research Design and Methodological Aspects

It is necessary to follow some definite & scientific methods for every researcher. For the proposed study, the following step by step methodology have been followed:

2.2.1 Research Design

To complete the research work successfully and more accurately so far as possible from the researcher's part, the following research design has been designed and followed for the whole research work as shows in the **Fig.1**.

Fig. 2.1: Research Design

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┌─────────────────────────────────────────────┐
│         Selection of Research Topic          │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│           Selection of the Study Area        │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│     Literature Review & Conceptual Framework │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│    Unearth Aims and Objectives of the Study  │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│  Selection of Research Methodology and Sample│
│         (Purposive Sampling Method)          │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│   Data Collection from the Secondary Sources │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│     Data Processing through Computer Input   │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│       Data Analysis and Interpretation       │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│            Summary and Findings              │
└─────────────────────────────────────────────┘
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┌─────────────────────────────────────────────┐
│       Recommendations and Conclusion         │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│             Draft Report Writing             │
└─────────────────────────────────────────────┘
                      ↓
┌─────────────────────────────────────────────┐
│     Finalization of Report and Submission    │
└─────────────────────────────────────────────┘
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2.2.2 Study Area: Selection Criteria & Description

The site for the proposed study has been selected considering the following criteria:

i)   Like other urban areas of Bangladesh, **North-Western Region also bears** more or less **all the urban characteristics**.

ii)   It is one of the representative region of the country.

iii) The researcher is a permanent inhabitant of this region & so, it is assumed that the information are more reliable.

iv) The data will be collected from the secondary sources especially from **Bangladesh Population Censuses**, which are available at **Rajshahi University Central Library, even in the Department of Geography & Environmental Studies**.

v) The **Bangladesh Population Censuses** are available & for this reason, **collection of data has become easier** to the researcher.

vi) Due to **time constraints, volume of work, physical & financial resources are available**, it is not possible to study on the whole urban areas of Bangladesh.

vii) **No such specific study on the region** (North-Western Region of Bangladesh) has yet been conducted.

viii) **Finally,** the site has been selected **on the basis of the research objectives,** which is very much **related with urban geography**.

So, these are the main reasons why North-Western Regions of Bangladesh has been selected as the site of the proposed study which may be considered as very much appropriate & justified.

2.2.3 Nature & Sources of Data

Nevertheless, **there is no strict rule to define the type of study (Chowdhury, 2006)**. The nature of study can be classified from different points of views:

i) **on the basis of duration** (retrospective & prospective) ;

ii) **on the basis of information type** (qualitative & quantitative) ;

iii) **on the basis of relation of subject** (geographical, sociological, ecological etc).

The proposed study is **basically a quantitative study by nature based on urban geographical aspects**.

Only secondary data has been collected and used to meet & fulfillment of fundamental needs of the present study. The sources of data, which are used in this proposed study are mentioned below:

a) Publications of Bangladesh Bureau of Statistics

- Bangladesh Population Censuses.

- Bangladesh Statistical Pocket Books.

b) Publications of Asiatic Society of Bangladesh (Volumes of Banglapedia, 2004).

c) Publications & Reports of Bangladesh Urban Studies (BUS).

d) Publications & Reports of Bangladesh Institute of Development Studies (BIDS).

e) Different kinds of National & International published and unpublished reports or materials including Books, Newspapers, Journals, Magazines, Research reports, Official documents, Thesis and Dissertations etc.

f) **Internet based Websites.**

Map 2.1: Bangladesh Citing Study Area (North-Western Region)

Source : Based on BBS, 2004.

2.2.4 Data Collection Procedure

Any scientific investigation requires one or more research methods, which enable a researcher to conduct the study systematically. The present study is exclusively used **"Documentary Method" by compiling data from relevant documents published so far.** In other word, **"Library Work Method"** is used for data collection from the secondary sources.

Considering the objectives of the study, availability of date and reviewing the related literatures, some important variables (**16-variables**) are considered for the study and index of them with definition are depicted below :

Table-2.1: Selected Variables for the Study

Level of Urbanizaton	Urban Amenities/Facilities		
* Municipalities	*Primary School	*Semi-Metal Road	*GDP from Agriculture
* Urban Population	* High School	*Kutcha Road	*Sanitary Latrine Facilities
* Literacy Rate	* College	*Registered Rickshaw	*Sources of dirnking water (Tube well)
* Urban Literacy Rate	* Metal Road	*Bank Deposit	*Electricity Connection)

Table-2.2: Index & definition of the selected Variables for the Study

Sl. No.	Data Index	Definition of the Variables
1	URPOPU	Percent of Urban Population, 1991 & 2001, 1991-2001.
2	SANTOI	Househol having Sanitary Toilet Facilities in Percent, 1991 & 2001, 1991-2001.
3	ELECON	Electricity Connetion in per Lakh Population, 1991 & 2001, 1991-2001.
4	DRIWAT	Household having Drinking Water Sources from Tube-well in Percent, 1991 & 2001, 1991-2001.
5	GDPAGR	GDP from Agricultural Sector, 1991 & 2001, 1991-2001.
6	LETERA	Literacy Rate, 1991 & 2001, 1991-2001.
7	URBLIT	Urban Literacy Rate, 1991 & 2001, 1991-2001.
8	PRISCH	Number of Primary School in Per Lakh Population, 1991 & 2001, 1991-2001.
9	SECSCH	Number of Secondary School in Per Lakh Population, 1991 & 2001, 1991-2001.
10	COLLEG	Number of College in Per Lakh Population, 1991 & 2001, 1991-2001.
11	METROA	Length of Metal Road, 1991 & 2001, 1991-2001.
12	SMETROA	Length of Semi-Metal Road, 1991 & 2001, 1991-2001.
13	KUTROA	Length of Kutcha Road, 1991 & 2001, 1991-2001.
14	REGRIK	Number of Registered Rickshaws, 1991 & 2001, 1991-2001.
15	BANDEP	Bank Deposit, 1991 & 2001, 1991-2001.
16	MUNICI	Number of Municipalities, 1991 & 2001, 1991-2001.

The definition and interpretation of the variables are selected for the study are as under:

1. Urban Population : The population lived in the urban area is called urban population.

2. Literacy Rate : The total quantity of the population who can read and write, is called literarcy rate (At least 31.2%)

3. Urban Literacy Rate : The total population of an urban area can read and write, is called urban literacy rate (At least 37.9%)

4. Sanitary Latrine : The system having clean, healthy and developed environment for stooling, is called sanitary latrine.

5. Electricity Connection : The connection supplied for electricity for power generation is called electricity connection.

6. Tube-Well : Tube-well is used to withdraw drinking water from the under ground.

7. GDP from Agriculture : The contribution from agricultural sector to the GDP is called GDP from Agriculture.

8. Primary School : The educational institution having the class one to class five is called primary education. This is the 1st level of education in Bangladesh.

9. Secondary School : The educational institution having the class six to class ten is called secondary education. This is the 2nd level of education in Bangladesh.

10. College : The educational institution where the students are taught higher secondary class to above classes is called college education. This is the 3rd level of education in Bangladesh.

11. Bank Deposit : The money deposite by the depositor or client is called Bank Deposit.

12. Registered Rickshaw : Rickshaws are one of the important & popular transportation media in Bangladesh, especially widely used in urban area than rural area.

13. Metal Road : The important roads which are build up with Concrete or Bituminous Concrete are called Metal Road or Pucca Road. It is usually found in the urban area than rural area.

14. Semi-Metal Road : The roads which are made up with Brick and Stone are called Semi-metal Road or Semi-pucca Road. This kinds of roads are found in both the urban and rural area.

15. Kutcha Road : The roads which are made up with clay or soil or sand are called Kutcha Road.

16. Municipalities : The urban area which has a certain administrative boundary and which is directed by a specific law. In respect of Bangladesh, at least 5,000 people must have in this area.

2.2.5   Data Processing and Analysis: Tools & Techniques

2.2.5.1   Geographical Tools

Various **geographical tools** such as Tables, Percentage, Diagrams and also **GIS for preparing Maps** are used in this study.

2.2.5.2   Statistical & Mathematical Tools

Different statistical & mathematical tools, **viz. Mean, Standardized Model (Z-Score) etc.** are used for this study.

To measure level of urbanization and changing pattern of urbanization of the study area, **4 (four) Davidovich Models (1973)** are used in this study to analyze the selected variables, are as under:

Model-I: Quantitative Indicators of Change in Levels of Urbanization

$$Ue = \frac{100}{1 + Kr/Ku[100/Ub - 1]} \% ....Equation...2.1$$

Here,
Ub = Urbanization level at the beginning of the study period (1991)
    (Urban Population in proportion of the total in percentage)
Ue = Urbanization level at the end of the study period (2001)
        (Urban Population in proportion of the total in percentage)
        Ku = Co-efficient of change of Urban Population (which shows by so many times the Urban Population has increased during the period under consideration)
        Kr = Co-efficient of change of Rural Population (Which show by so many Times the Rural Population has increased during the period under consideration)

Model-II: Increase in level at urbanization

$$I = Ue - Ub ....Equation\ 2.2$$

Here,
    I = Increase in level at Urbanization can be found from the above formula.

Model-III: Quantitative Indicators of Change in the Share of Urban Population of the District in the Total Up of the Region

$$Ce = \frac{100}{1 + Ko/Ku[100/Cb - 1]} \% ....Equation...2.3$$

Here,
Ce = The same at the end of the period (2001)

        Cb = % of the "Variables" of the districts to total "Variables" of the country at the beginning of the Period (1991)
    · **Ku** = Growth Co-efficient of the variables of the district (1991-2001)
        Ko = Growth Co-efficient of the variables of all other district of the country (1991-2001)

Model-IV: Increase in Level of Urbanization in District

$$I = Ce - Cb ....Equation\ ...\ 2.4$$

Table-2.X District-wise Composite Ranking								
Districts	X_1	X_1	.....	.....	X_{16}	$\sum X$	x	Rank
1								
2								
3								
4								
64								

2.2.5.3 Computer Tools

Three renditions of computer, viz. i) MS Word, ii) MS Excel & iii) SPSS 16.0 Version has been used in the proposed study.

2.3 Conclusion

The research methodology is very important for any kinds of scientific research. This chapter highlighted the study methodology for doing a meaningful research have been followed for this research.

In the next chapter, spatial pattern of urbanization of the study area for 1991 will be discussed as a picture of the study area.

Chapter Three

Spatial Pattern of Urbanization of the study Area: 1991

3.1 Introduction

3.2 Spatial Pattern of Urbanization of the Study Area: 1991

3.2.1 Spatial Pattern of Urban Population of the Study Area: 1991

3.2.2 Spatial Pattern of Sanitary Latrine Facilities of the Study Area: 1991

3.2.3 Spatial Pattern of Electricity Connection of the Study Area: 1991

3.2.4 Spatial Pattern of the sources of drinking water (Tube-well) of the Study Area: 1991

3.2.5 Spatial Pattern of Agricultural contribution to the GDP of the Study Area: 1991

3.2.6 Spatial Pattern of literacy Rate of the Study Area: 1991

3.2.7 Spatial Pattern of urban Literacy Rate of the Study Area: 1991

3.2.8 Spatial Pattern of Primary School of this Study Area: 1991

3.2.9 Spatial Pattern of Secondary School of the Study Area: 1991

3.2.10 Spatial Pattern of Colleges of the Study Area: 1991

3.2.11 Spatial Pattern of Bank Deposit of the Study Area: 1991

3.2.12 Spatial Pattern of Registered Rickshaws of the Study Area: 1991

3.2.13 Spatial Pattern of Metal Road of the Study Area: 1991

3.2.14 Spatial Pattern of Semi-Metal Road of the Study Area: 1991

3.2.15 Spatial Pattern of Kutcha Road of the Study Area: 1991

3.2.16 Spatial Pattern of Municipalities of the Study Area: 1991

3.3 Conclusion

Chapter Three
Spatial Pattern of Urbanization of the study Area: 1991

3.1 Introduction

Bangladesh is one of the developing countries of the South Asia, even in the world. In the recent times, the population of Bangladesh is increasing alarmingly and this increase is very high from rural to urban areas due to rural urban migration. The people of rural area migrate to urban area due to natural increase of population, natural hazards, poverty and deficiency of various kinds of facilities.

Though the increase of urban population is very high but the level of urbanization is very low. In the present study, the spatial pattern of urbanization of the study area for 1991 to the context of the country has been discussed. 16-variables have been selected for this study which are very much related with the level of urbanization and urban facilities or amenities. This chapter, the spatial pattern of urbanization of the study area for 1991 have been focused & highlighted on the basis of the selected important 16-variables.

3.2 Spatial Pattern of Urbanization of the Study Area: 1991.

3.2.1 Spatial Pattern of Urban Population of the Study Area: 1991

The rate of the urban population is a very important indicator of urbanization in a region. The degrees of urbanization is assessed on the basis of rate of urban population. The urbanization is Bangladesh is not uniform and resultantly, except few districts of the country, very few of the total population lives in urban area. In fact, the rate of population is high in those districts where the educational and socio-economic facilities are available. The real picture of the study area in this regard has been shown below in the Table-3.2.1 and Map-3.1.

Table-3.2.1: Spatial Pattern of Urban Population of the Study Area to the context of the country based on Z- Score: 1991

Sl. No	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 4.02643	---(Country total 1)	------
2.	**High**	2.83322-4.02643	------	------
3.	**Medium**	1.64000-2.83321	---(Country total 3)	------
4.	**Low**	0.44678-1.63999	**4** (Country total 9)	Rajshahi, Nawabgonj, Pabna, Rangpur.
5.	**Very Low**	-0.74644-0.44677	**12** (Country total 51)	Kurigram, Nilphamari, Dinajpur, Natore, Sirajganj, Bogra, Joypurhat, Lalmonirhat, Thakurgaon, Panchagarh, Naogaon, Gaibandha.
		Total	**16**(Country total 64)	

Source: Based on Appendix-3.

From the Table-3.2.1 and Map-3.1, it is observed that no districts of the study area found in the very high, high and medium stages. On the other hand, 4-dirstricts like Rajshahi, Nawabgonj, Pabna, Rangpur found in low stage out of total 9-districts found in very low stage out of the country total 51 districts.

3.2.2 Spatial Pattern of Sanitary Latrine Facilities of the Study Area: 1991

Sanitary Latrine facilities is very important for sound health. But being a developing country, it is very difficult to ensure sanitary latrine for all peoples of Bangladesh. Like rural area, the number of sanitary latrine in the study area is not in satisfactory level. To assess the district-wise pattern of sanitary latrine use of the study-area shown in the following Table-3.2.2 and Map-3.2.

Table-3.2.2: Spatial Pattern of Sanitary Latrine of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 4.38492	--(Country total 1)	-------
2.	**High**	3.04126-4.38492	-------	-------
3.	**Medium**	1.69757-3.04125	---(Country total 3)	-------
4.	**Low**	0.35392-1.69758	---(Country total 9)	-------
5.	**Very Low**	-0.98975-0.35391	**16** (Country total 51)	Rajshahi, Bogra, Pabna, Joypurhat, Dinajpur, Rangpur, Natore, Nilphamari, Naogaon, Nawabganj, Thakurgaon, Sirajganj, Panchagarh, Kurigram, Lalmonirhat, Gaibandha.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.
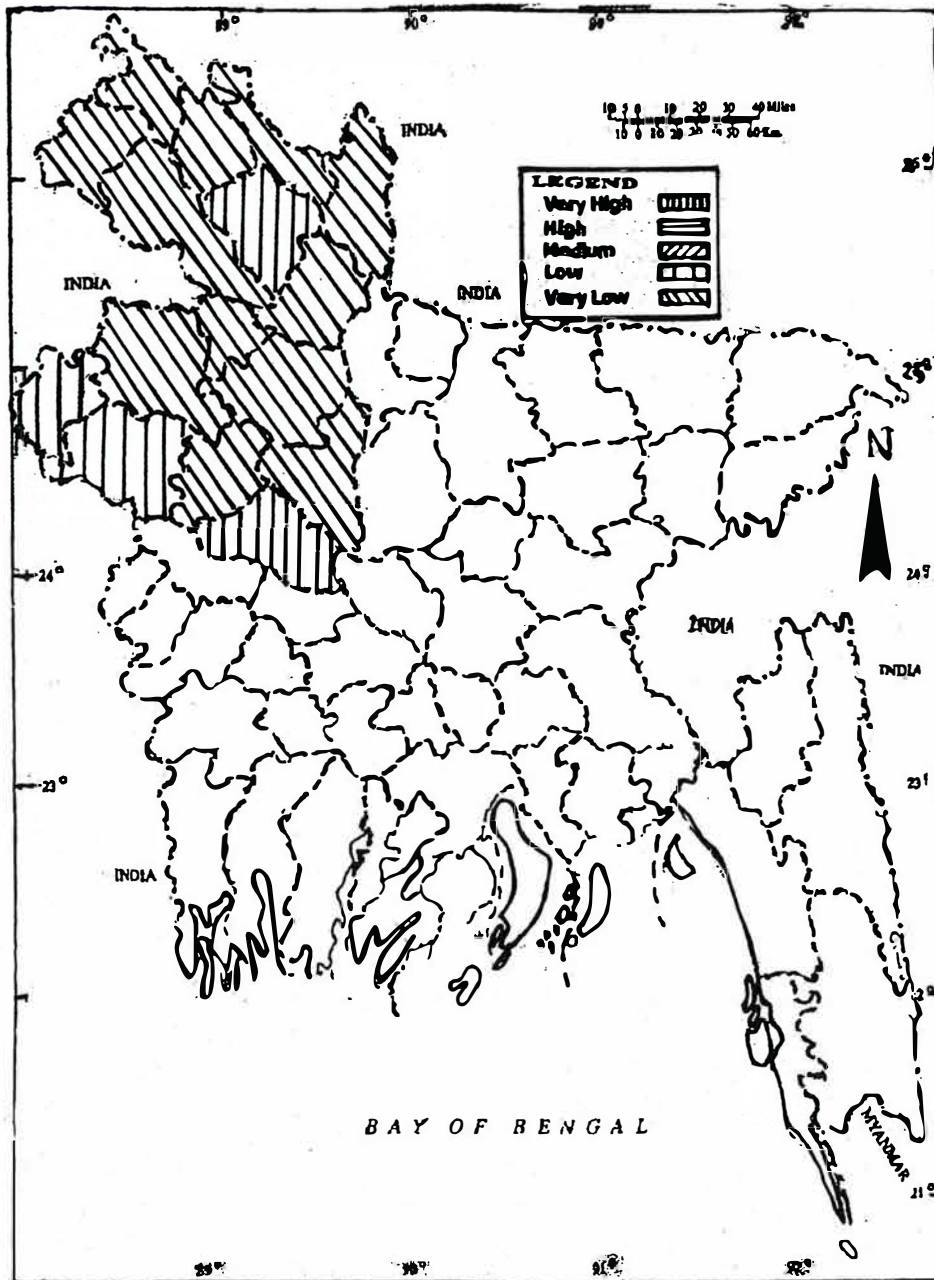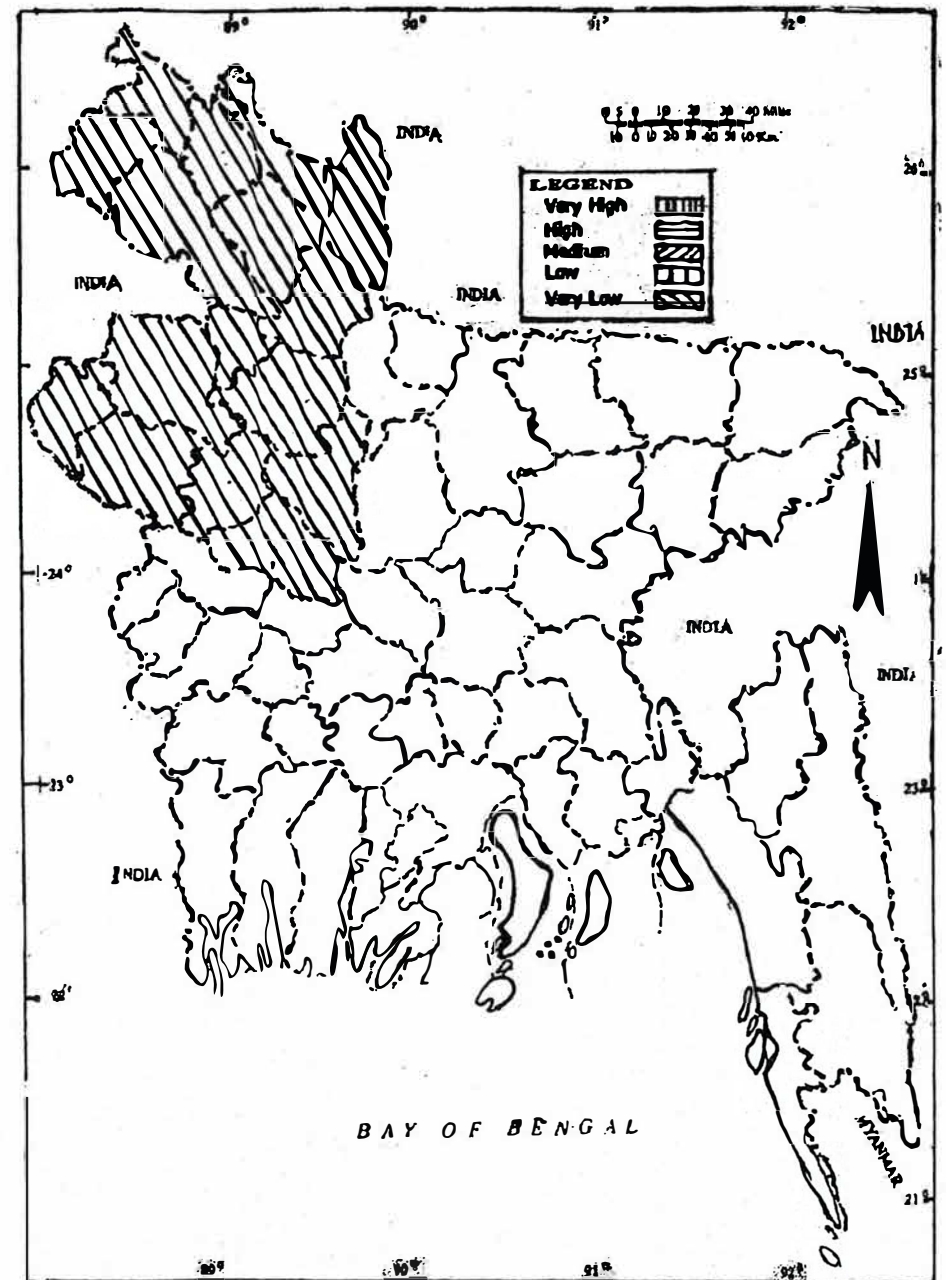
Source: Table-3.2.1.

Source: Table-3.2.2.

From the Table–3.2.2 and Map-3.2 it is revealed that 16-districts (Rajshahi, Bogra, Pabna, Joypurhat, Dinajpur, Rangpur, Natore, Nilphamari, Naogaon, Nawabganj, Thakurgaon, Sirajganj, Panchagarh, Kurigram, Lalmonirhat, Gaibandha.) of the study area in the very low stage in respect of sanitary latrine use where in country total 51 districts.

3.2.3 Spatial Pattern of Electricity Connection of the Study Area: 1991

Electricity connection is one of the most important indicator of urbanization and development. Electricity connection in similar scale found in the rural area of Bangladesh. This facility is available in the urban area of Bangladesh but not ensured for all. The production of electricity is low in quantity but demand is high. One the other hand, the required supply system is absent and for this reason, many people of urban area deprived from the electricity connections. The information regarding electricity connection facility of the study area has been shown in the following Table-3.2.3 and Map-3.3.

Table-3.2.3: Spatial Pattern of Electricity Connection of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 3.10921	---(Country total 1)	-------
2.	**High**	2.06926-3.10921	---(Country total 2)	-------
3.	**Medium**	1.01669-2.06295	---(Country total 5)	-------
4.	**Low**	-0.02958-1.01668	8 (Country total 20)	Pabna, Bogra, Rajshahi, Natore, Rangpur, Dinajpur, Joypurhat, Thakurgaon.
5.	**Very Low**	-1.07584- -0.02957	8 (Country total 36)	Sirajganj, Nilphamari, Nawabganj, Naogaon, Lalmonirhat, Gaibandha, Panchagarh, Kurigram.
		Total	16 (Country total 64)	

Source: Based on Appendix-3.

The Table-3.2.3 and Map-3.3 reveals that 8-districts like Pabna, Bogra, Rajshahi, Natore, Rangpur, Dinajpur, Joypurhat, Thakurgaon of the study area are in the low stage and 8-districts like Sirajganj, Nilphamari, Nawabganj, Naogaon, Lalmonirhat, Gaibandha, Panchagarh, Kurigram of the study area are in the very low stage out of country total 20-disctricts and 36-districts respectively.

3.2.4 Spatial Pattern of the Sources of Drinking Water (Tube-well) of the Study Area: 1991

As a source of drinking water, water supply connection in very urban house by the urban authority is very desired matter but it is not sufficient in the urban area of Bangladesh. So, tube-well is the main source of drinking water in the urban area of Bangladesh and the number of tube-well is high in the urban area. The district-wise (inter-district) pattern of tube-well use as a source of drinking water of the study area shown below in the Table--3.2.4 and Map--3.4 on the basis of Z-Score value.

Table-3.2.4: Spatial Pattern of Sources of Drinking Water (Tube-Well) of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 0.22108	12 (Country total 35)	Joypurhat, Natore, Bogra, Dinajpur, Sirajganj, Kurigram, Naogaon, Pabna, Gaibandha, Thakurgaon, Rajshahi, Nawabganj.
2.	**High**	-0.74077-0.22108	2 (Country total 16)	Rangpur, Lalmonirhat.
3.	**Medium**	-1.70261-0.74077	1 (Country total 3)	Nilphamari.
4.	**Low**	-2.66445- -1.70260	1 (Country total 8)	Panchagarh.
5.	**Very Low**	-3.62628- -2.6644	---(Country total 2)	
		Total	**16** (Country total 64)	-------

Source: Based on Appendix-3.

From the Table-3.2.4 and Map-3.4 it is found that 12-district like Sirajganj, Nilphamari, Nawabganj, Naogaon, Lalmonirhat, Gaibandha, Panchagarh, Kurigram of the study area are in the very high stage in respect of tube-well as a main sources of drinking water out of the country total 12-districts (same) and only 2-districts like Rangpur, Lalmonirhat are in the high stage out of country total 16-districts, only 1-district Niphamari in the medium stage and also only 1-district Panchagarh is in the very low stage out of country total 8-districts. So, the condition of the study area is satisfactory in respect of tube-well use as a source of drinking water.

3.3: Spatial Pattern of Electricity Connection of the Study Area: 1991
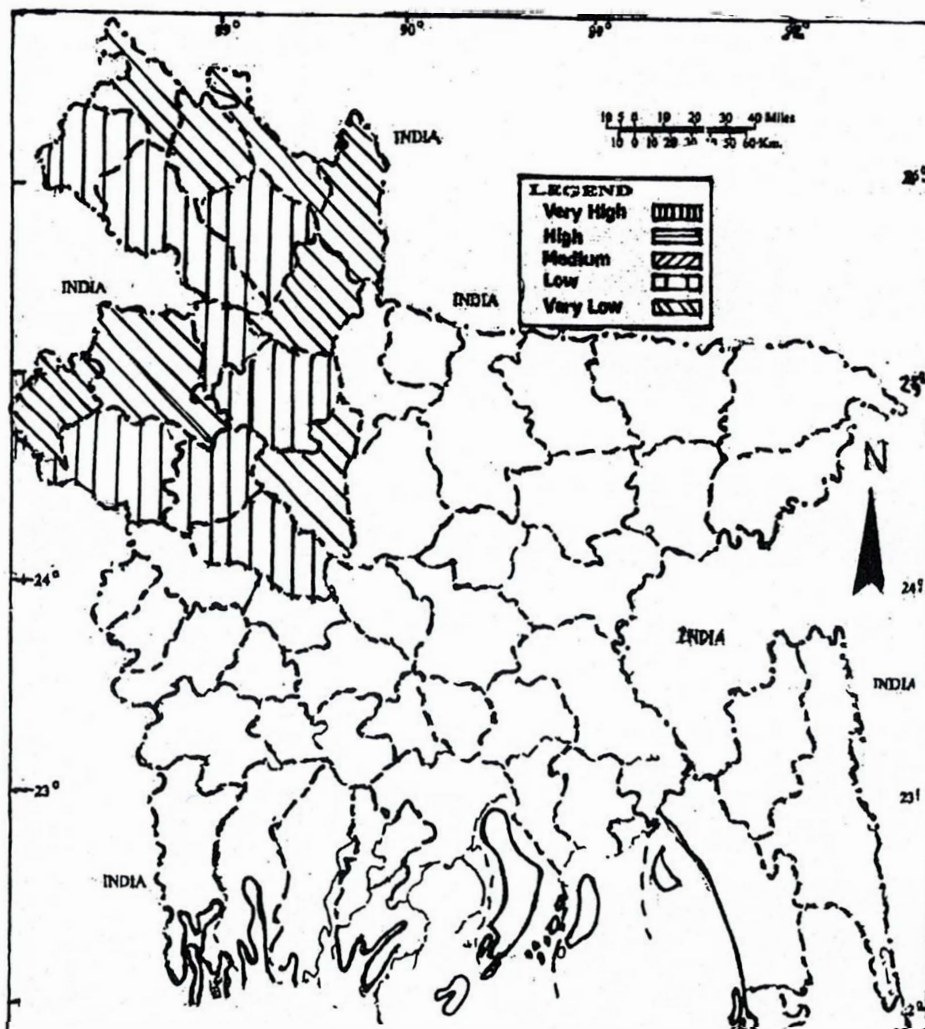
3.4: Spatial Pattern of Sources of Drinking Water (Tube-Well) of the Study Area: 1991
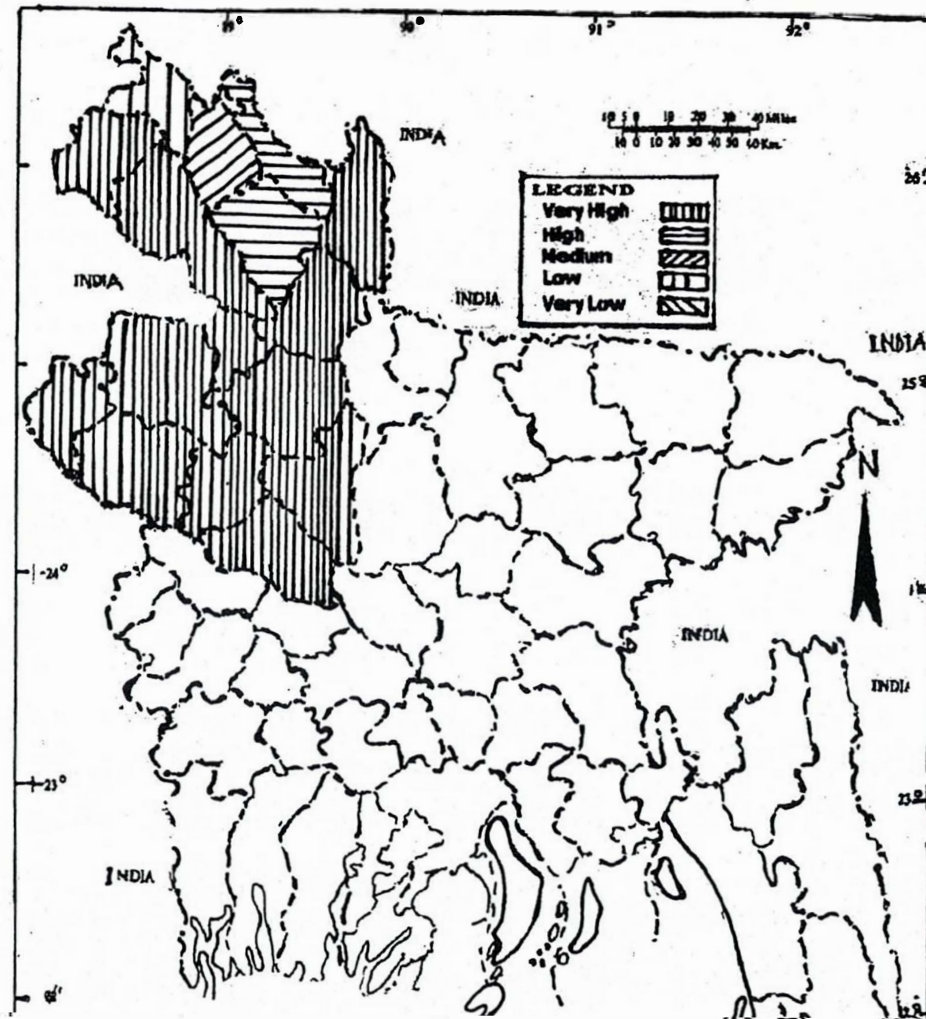
BAY OF BENGAL

BAY OF BENGAL

3.2.5 Spatial Pattern of Agricultural Contribution to the GDP of the Study Area: 1991

The contribution of the agro-Based districts to the economy of Bangladesh is remarkable agriculture is considered a primary type of economic activity and agricultural activities in small scale found in the urban area. Secondary activities and economic activities are mostly found in the urban area. The districts whose area contributing much to the agri-sector are called comparatively least urbanized area. The district-wise picture of the study area of the same has shown bellow in the Table-3.2.5 and Map-3.5.

Table-3.2.5: Spatial Pattern of Agricultural Contribution to the GDP of the Study Area to the context of the Country based on Z- Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.12702	---(Country total 1)	-------
2.	**High**	1.14737-2.12702	**3** (Country total 5)	Naogaon, Dinajpur, Bogra.
3.	**Medium**	0.16771-1.14736	**5** (Country total 22)	Rangpur, Gaibandha, Kurigram, Natore, Pabna.
4.	**Low**	-0.81194-1.16770	**7** (Country total 24)	Rajshahi, Sirajganj, Nilphamari, Thakurgaon, Nawabganj, Lalmonirhat, Joypurhat.
5.	**Very Low**	-1.7916- -0.81193	1 (Country total 13)	Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

The Table-3.2.5 and Map-3.5 reveals that 03-districts like Naogaon, Dinajpur, Bogra of the study area are in the high category out of country total 5-districts, 5-districts like Rangpur, Gaibandha, Kurigram, Natore, Pabna are in the medium category out of country total 22-districts, 7-districts like Rajshahi, Sirajganj, Nilphamari, Thakurgaon, Nawabganj, Lalmonirhat, Joypurhat are in the low category out of country total 24-districts and only 1-district like Panchagarh is in the very low category out of country total 13-districts in respect of Agricultural contribution to the GDP of the country indicates the poor level of urbanization of the study area.

3.2.6 Spatial Pattern of Literacy Rate of the Study Area: 1991

Education is one of the basic demand of the people. Development and education is very much related. Balanced development in literacy rate and the educational condition of Bangladesh is not satisfactory till now and major portion of the people deprived from the light of education. The spatial pattern of literacy rate has shown in the Table-3.2.6 and Map-3.6.

Table-3.2.6: Spatial Pattern of Literacy Rate of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.08888	---(Country total 3)	-------
2.	**High**	1.19399-2.08888	---(Country total 5)	-------
3.	**Medium**	0.29911-1.93980	---(Country total 13)	-------
4.	**Low**	-0.55957-0.29910	**11** (Country total 21)	Panchagarh, Rajshahi, Joypurhat, Dinajpur, Bogra, Naogaon, Thakurgaon, Sirajganj, Natore, Pabna, Rangpur.
5.	**Very Low**	-1.49068- -0.55956	**5** (Country total 23)	Nilphamari, Gaibandha, Nawabganj, Lalmonirhat, Kurigram.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.26 and Map-3.6, it is observed that 11-districts like Panchagarh, Rajshahi, Joypurhat, Dinajpur, Bogra, Naogaon, Thakurgaon, Sirajganj, Natore, Pabna, Rangpur are in the low stage out of country total 21-districts and 5-districts like Nilphamari, Gaibandha, Nawabganj, Lalmonirhat, Kurigram are in the very low stage out of country total 23-districts and no districts of the study area found in the very high, high and medium stage, indicates the lower condition of the study area in respect of literacy rate.

3.5: Spatial Pattern of Agricultural Contribution to the GDP of the Study Area: 1991

3.6: Spatial Pattern of Literacy Rate of the Study Area: 1991
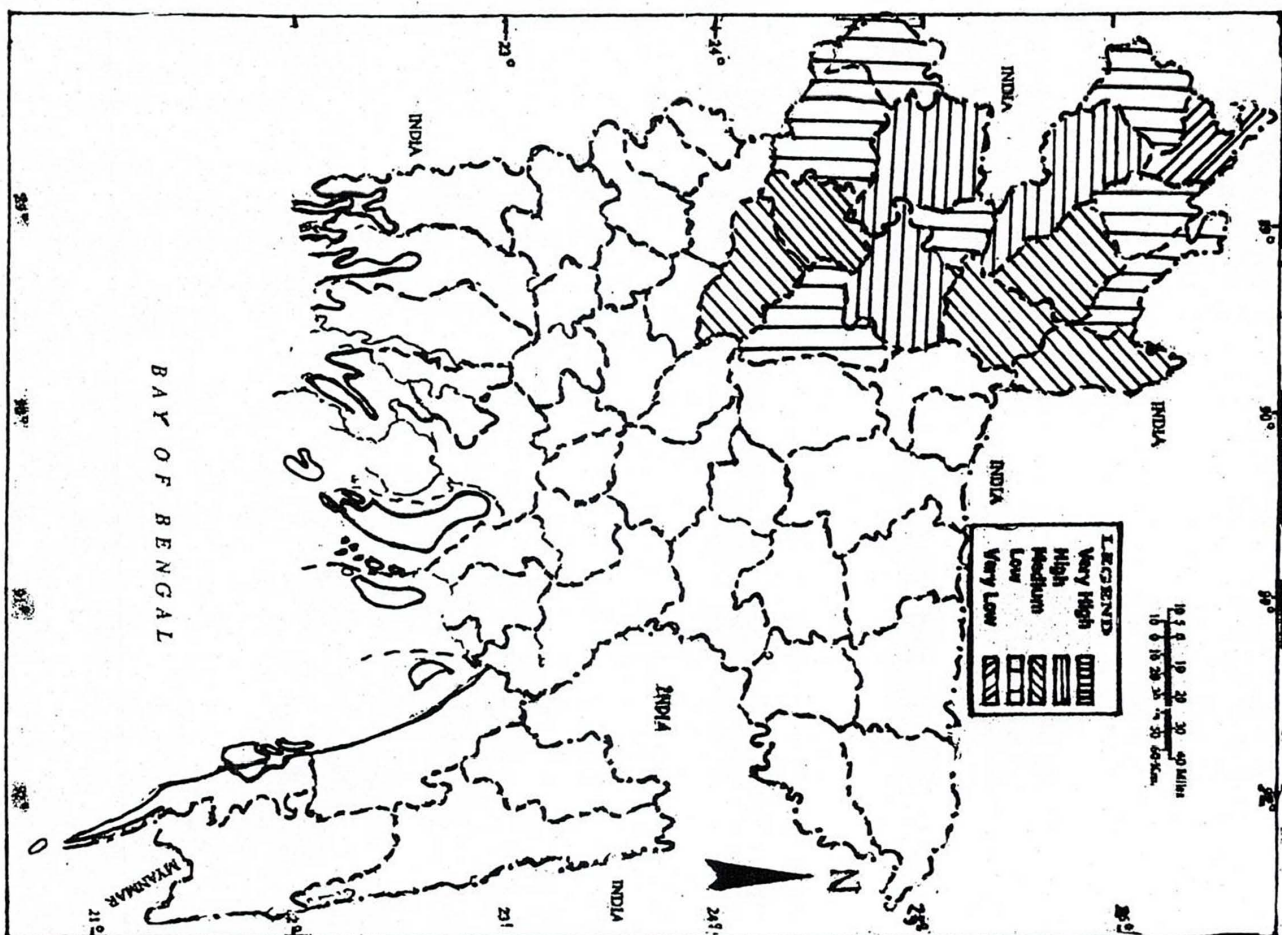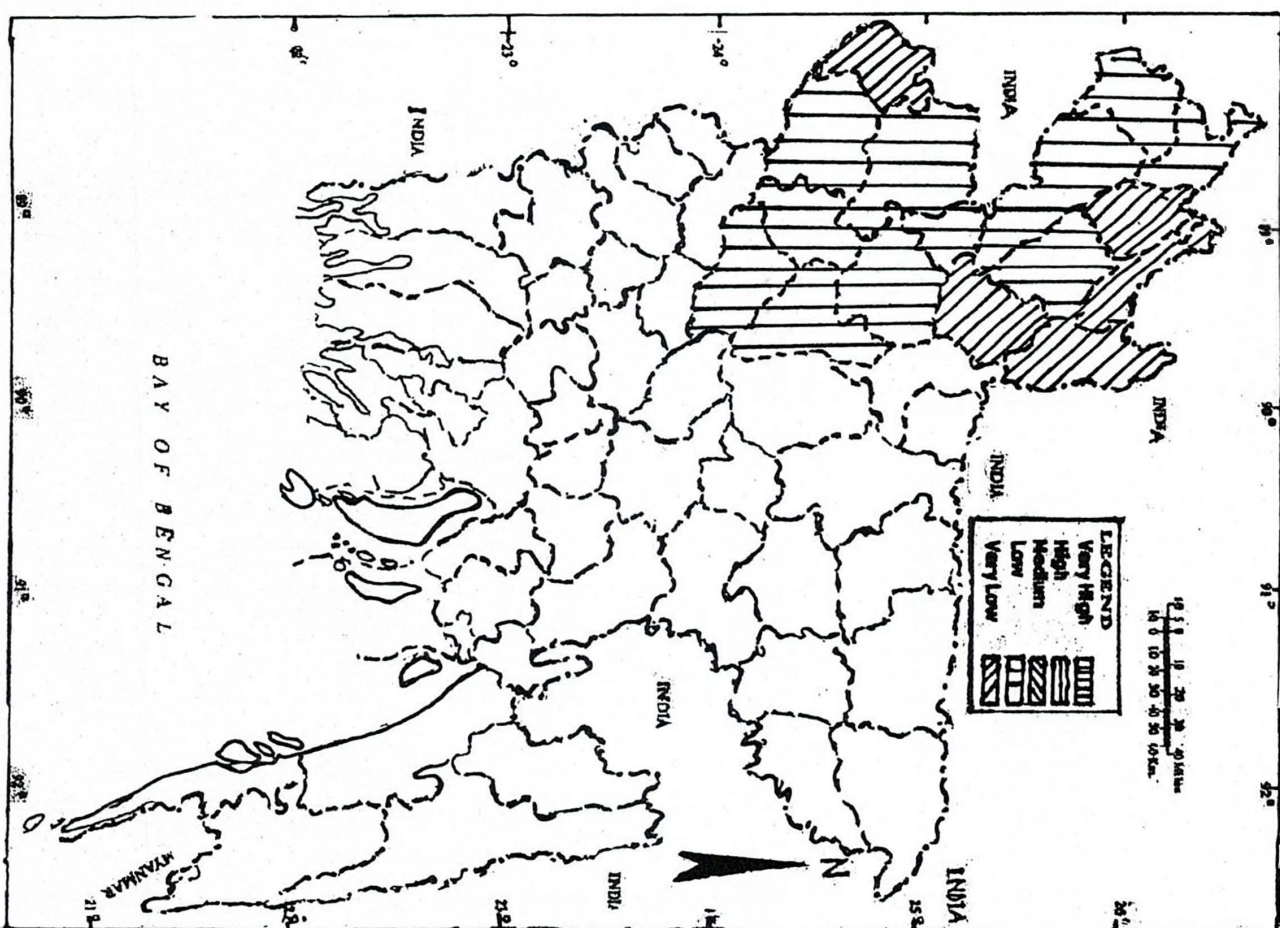
Source: Table-3.2.5.

Source: Table-3.2.6.

3.2.7 Spatial Pattern of Urban Literacy Rate of the Study Area: 1991

Generally the educational and environmental facilities are available in the urban area than that of the rural area due to infrastructural development. The urban literary rate is higher than rural literary rate and the literacy rate found high in the developed districts.

The district-wise urban literacy rate of the study area has shown in the following Table-3.2.7 and Map-3.7.

Table-3.2.7: Spatial Pattern of Urban Literacy Rate of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 1.34255	---(Country total 5)	-------
2.	**High**	0.46640-1.34255	2 (Country total 19)	Bogra, Panchagarh.
3.	**Medium**	-0.40977-0.46639	9 (Country total 20)	Dinajpur, Joypurhat, Pabna, Naogaon, Nilphamari, Natore, Rajshahi, Rangpur, Thakurgaon.
4.	**Low**	-1.28591- -0.40976	2 (Country total 12)	Gaibandha, Sirajganj.
5.	**Very Low**	-2.16208- -1.28590	3 (Country total 8)	Nawabganj, Lalmonirhat, Kurigram.
		Total	16 (Country total 64)	

Source: Based on Appendix-3.

From the above Table-3.2.7 and. Map-3.7, it is formed that only 02-districts like Bogra and Phachagarh are in the high stage out of country total 19-districts, 9-districts like Dinajpur, Joypurhat, Pabna, Naogaon, Nilphamari, Natore, Rajshahi, Rangpur, Thakurgaon in medium stage out of country total 20-districts, 2-districts like Gaibandha, Sirajgonj are in the low stage out of the country total 12-districts, 3-districts like Nawabganj, Lalmonirhat, Kurigram are in the very low stage out of country total 18-districts, indicates for literacy rate of the study area.

3.2.8 Spatial Pattern of Primary School of this Study Area: 1991

To the expansion of education, Primary schools are in the 1st level. For the introduction of primary education for al in Bangladesh, the villagers have been started to establish Primary School. Educational condition of a region can be realized by calculation of number of Primary schools in per lak population. The information regarding primary schools of the study area shown below.

Table-3.2.8: Spatial Pattern of Primary School of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.33400	---(Country total 3)	-------
2.	**High**	1.18127-2.33400	---(Country total 1)	-------
3.	**Medium**	0.02817-0.18126	3 (Country total 16)	Panchagarh, Thakurgaon, Dinajpur.
4.	**Low**	-1.12491- -0.02816	4 (Country total 11)	Sirajganj, Bogra, Nilphamari, Gaibandha.
5.	**Very Low**	-2.27803- -1.12490	9 (Country total 33)	Rangpur, Nawabganj, Rajshahi, Lalmonirhat, Pabna, Naogaon, Kurigram, Joypurhat, Natore.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.2.8 and Map-3.8 found that only 3-districts like Panchagarh, Thakurgaon, Dinajpur of the study area are in the medium stage out of country total 16-districts, 4-districts like Sirajganj, Bogra, Nilphamari, Gaibandha are in the low stage out of country total 11-districts and 9-districts like Rangpur, Nawabganj, Rajshahi, Lalmonirhat, Pabna, Naogaon, Kurigram, Joypurhat, Natore are in the very low stage out of country total 33-districts and no district of the study area found in the very high and high stage in reject of number of Primary schools.

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

Source: Table - 3.7.7.

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

Source: Table - 3.8.8.
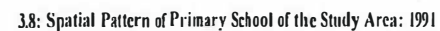
3.2.9 Spatial Pattern of Secondary School of the Study Area: 1991

The secondary school are in the 2nd level o f education in Bangladesh. The number of Secondary Schools are less than Primary schools. The numbers of Secondary Schools are not satisfactory in all districts of the country, which is shown below in the Table- 3.29 and Map- 3.9.

Table-3.2.9: Spatial Pattern of Secondary School of the Study Area to the context of the Countr based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.23579	---(Country total 1)	
2.	**High**	1.09302-2.23579	1 (Country total 7)	Panchagarh.
3.	**Medium**	-0.04978- -1.09301	8 (Country total 21)	Dinajpur, Nawabganj, Rajshahi, Naogaon, Thakur aon, Jo urhat, Bo ra, Gaibandha.
4.	**Low**	-1.19256- -0.04977	7 (Country total 31)	Rangpur, Natore, Lalmonirhat, Nilphamari, Sira anj, Kurioram, Pabna.
5.	**Very Low**	-2.33534- -1.19255	---(Country total 3)	
	Total		**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.29 and Map-3.9 found that only 1-district like Panchagarh of the study area is in the high stage out of the country total 7-districts, 8-districts like Dinajpur, Nawabganj, Rajshahi, Naogaon, Thakurgaon, Joypurhat, Bogra, Gaibandha are in the medium stage out of country total 21-districts and 7-districts like Rangpur, Natore, Lalmonirhat, Nilphamari, Sirajganj, Kurigram, Pabna are in the low stage out of country total 31-districts and no districts of the study area have been found in the very high (satisfactory) stage.

3.2.10   Spatial Pattern of Colleges of the Study Area: 1991

According to the demand of higher education of the country, very few institutions are have been found & established. The number of colleges shown in the Table-3.2.10 and Map-3.10.

Table-3.2.10: Spatial Pattern of Colleges of the Study Area to the context of the Countr based on Z-Score: 1991

Sl. No.	Z-Score Cate or	Z-Score Ran e	No. of Districts of the Stud Area	Name of the Districts of the Stud Area
1.	**Very High**	+ 5.98132	---(Country total 1)	
2.	**High**	4.38608-5.98132		
3.	**Medium**	2.79082-4.38607		
4.	**Low**	1.19557-2.79081		
5.	**Very Low**	-0.39969-1.19556	16 (Country total 63)	Rajshahi, Natore, Dinajpur, Panchagarh, Nawabganj, Thakurgaon, Rangpur, Bogra, Joypurhat, Kurigram, Pabna, Nilphamari, Lalmonirhat Gaibandha, Sira anj, Naogaon.
	Total		**16** (Country total 64)	

Source: Based on Appendix-3.

3.9: Spatial Pattern of Secondary School of the Study Area: 1991

Source: Table – 3.2.9.

3.10: Spatial Pattern of Colleges of the Study Area: 1991

Source: Table – 3.2.10

From the Table-3.2.10 and Map-3.10 found that no district of the study area is in the very high, high, medium, low stage and 16-districts like Rajshahi, Natore, Dinajpur, Panchagarh, Nawabganj, Thakurgaon, Rangpur, Bogra, Joypurhat, Kurigram, Pabna, Nilphamari, Lalmonirhat, Gaibandha, Sirajganj, Naogaon of the study area are in the very low stage out of country total 63-districts which indicates that number of colleges in the study area are very little.

3.2.11 Spatial Pattern of Bank Deposit of the Study Area: 1991

Deposit status of Bangladesh is not satisfactory. The impact of savings to build up capital is significant. District-wise Bank Deposit pattern of the study area has shown in the following Table- 3.2.11 and Map- 3.11.

Table-3.2.11: Spatial Pattern of Bank Deposit of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 5.96863	---(Country total 1)	-------
2.	High	4.41516-5.596863	-------	-------
3.	Medium	2.86169-4.41515	---(Country total 1)	-------
4.	Low	1.30821-2.86168	-------	-------
5.	Very Low	-0.24527-1.30820	16 (Country total 62)	Rajshahi, Bogra, Pabna, Rangpur, Dinajpur, Sirajganj, Nawabganj, Natore, Naogaon, Nilphamari, Gaibandha, Thakurgaon, Joypurhat, Kurigram, Panchagarh, Lalmonirhat.
		Total	**16** (Country total 64)	

Source: Based on Appendix- 3.

From the Table-3.2.11 and Map-3.11 found that 16-districts of like Rajshahi, Bogra, Pabna, Rangpur, Dinajpur, Sirajganj, Nawabganj, Natore, Naogaon, Nilphamari, Gaibandha, Thakurgaon, Joypurhat, Kurigram, Panchagarh, Lalmonirhat of the study area are in the very low stage in respect of Bank deposits out of country total 62-districts.

3.2.12 Spatial Pattern of Registered Rickshaws of the Study Area: 1991

Rickshaws are the main transportation media of the people of Bangladesh. It is used much in the country to go to the near district area and the record of Bangladesh is high in the world. Majority Rickshaws are used in the urban area which has created the employment

opportunities to the urban area. The spatial pattern of registered rickshaws has shown in the following Table-3.2.12 and Map-3.12.

Table-3.2.12: Spatial Pattern of Registered Rickshaws of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 4.48221	---(Country total 1)	--------
2.	**High**	3.36293-4.84221	--------	--------
3.	**Medium**	1.88243-3.36232	---(Country total 1)	--------
4.	**Low**	0.40254-1.88242	**4** (Country total 7)	Rangpur, Bogra, Rajshahi, Nilphamari.
5.	**Very Low**	-1.07736-0.40253	**12** (Country total 55)	Gaibandha, Pabna, Natore, Dinajpur, Joypurhat, Sirajganj, Thakurgaon, Lalmonirhat, Nawabganj, Kurigram, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.2.12 and Map-3.12 found that only 4-districts like Rangpur, Bogra, Rajshahi, Nilphamari are in the low stage in respect of number of registered rickshaws out of the country total 7-districts and rest 12-districts of the study area Gaibandha, Pabna, Natore, Dinajpur, Joypurhat, Sirajganj, Thakurgaon, Lalmonirhat, Nawabganj, Kurigram, Panchagarh are in the very low stage out of country total 55-districts and no districts of the study area found in the very high, high & medium stage.
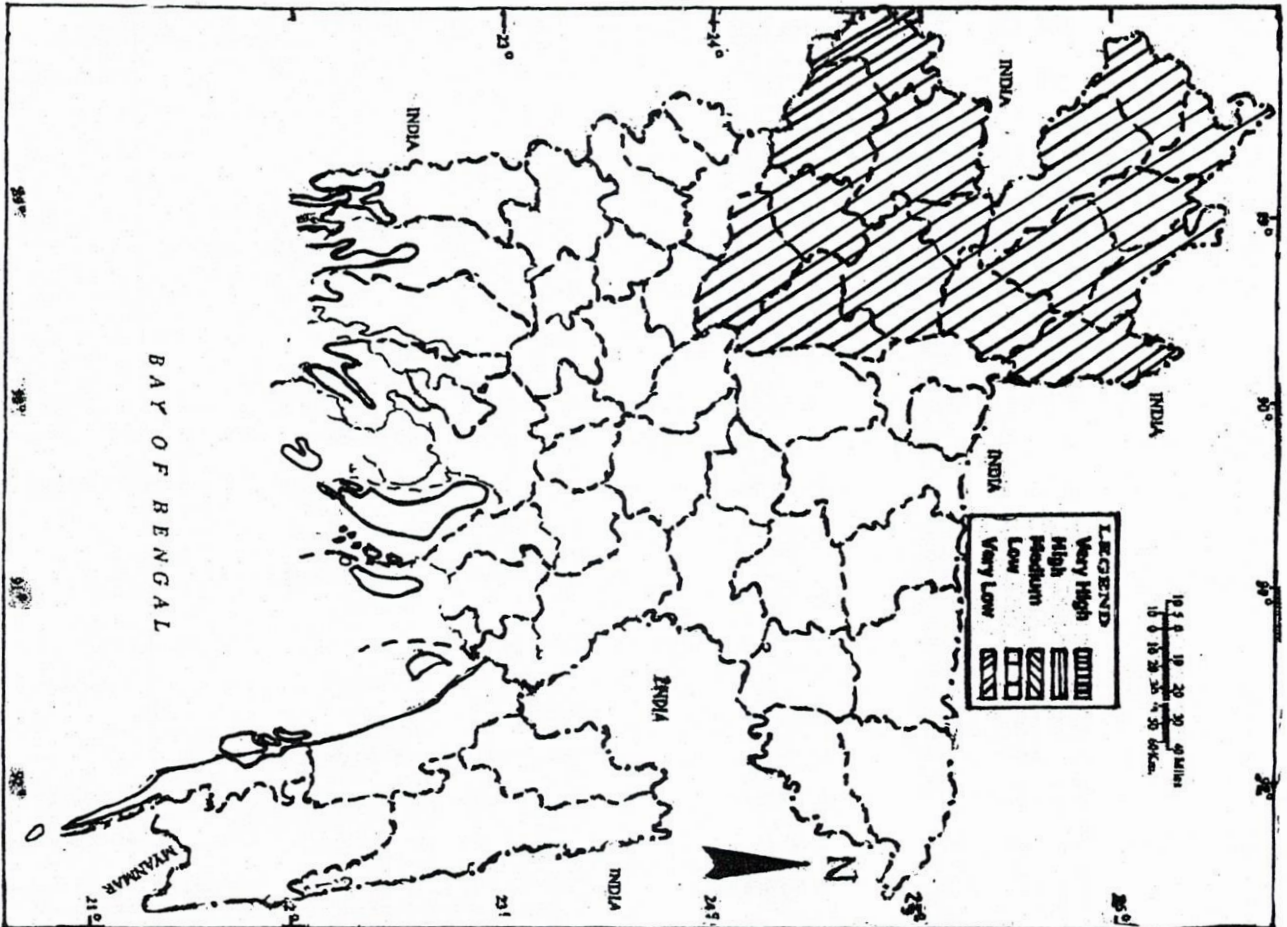
3.11: Spatial Pattern of Bank Deposit of the Study Area: 1991

3.12: Spatial Pattern of Registered Rickshaws of the Study Area: 1991
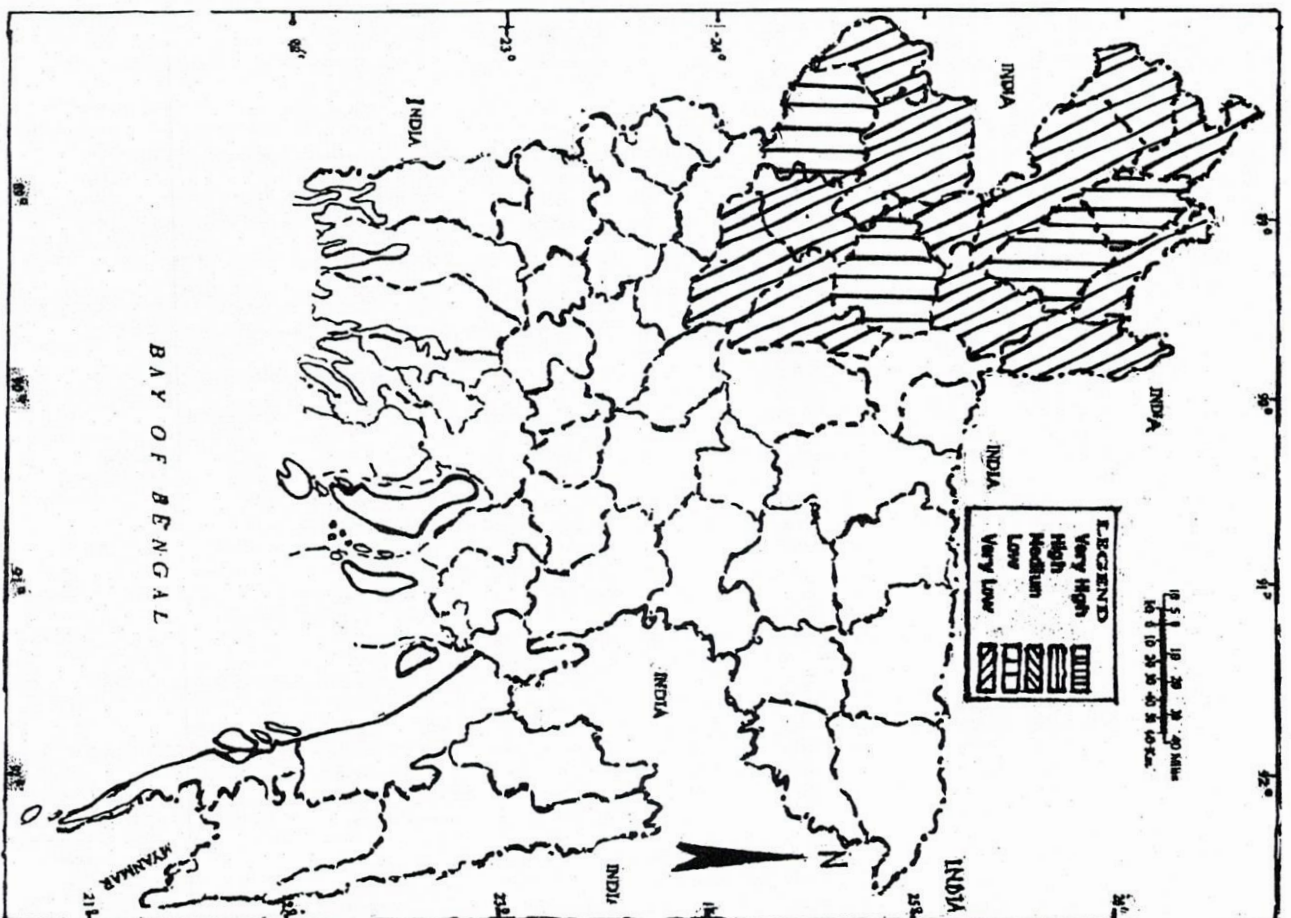
Source: Table-3.2.11

Source: Table-3.2.12

3.2.13 Spatial Pattern of Metal Road of the Study Area: 1991

Road is the principal communication system of Bangladesh. Metal Road, Semi-Metal Road and Kutcha Road are the communication system of Bangladesh. District-wise pattern of Metal Road shown in the following Table-3.2.13 and Map-3.13.

Table-3.2.13: Spatial Pattern of Metal Road of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 3.41954	1 (Country total 2)	Rajshahi.
2.	**High**	2.30937-3.41954	---(Country total 1)	-------
3.	**Medium**	1.199157-2.30936	---(Country total 1)	-------
4.	**Low**	0.08901-1.99186	4 (Country total 10)	Dinajpur, Pabna, Rangpur, Kurigram.
5.	**Very Low**	-1.02117-0.08900	11 (Country total 51)	Bogra, Naogaon, Thakurgaon, Natore, Nilphamari, Sirajganj, Panchagarh, Gaibandha, Nawabganj, Lalmonirhat, Joypurhat.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.2.13 and Map-3.13 it is observed that the status of Rajshahi district in respect of length of Metal Road is in the very stage (1st stage) out of country total 2-districts, 4-districts of in low stage out of country total 10-districts, 11-districts in the very low stage out of country total 51-districts.

3.2.14 Spatial Pattern of Semi-Metal Road of the Study Area: 1991

Semi-Metal Road is the connecting road and it has the great impact for connecting the rural area to the urban area. Semi-metal Road transformed into the metal Road after a period of time. The district-wise pattern of Semi-metal Road of the study area shown in the Table-3.2.14 and Map-3.14.

Table-3.2.14: Spatial Pattern of Semi-Metal Road of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 4.61972	---(Country total 1)	
2.	**High**	3.25588-4.61972	-------	
3.	**Medium**	1.89203-3.25587	---(Country total 1)	
4.	**Low**	0.52816-1.89202	1 (Country total 9)	Rajshahi.
5.	**Very Low**	-0.83568-0.52815	15 (Country total 53)	Bogra, Pabna, Rangpur, Sirajganj, Naogaon, Gaibandha, Kurigram, Joypurhat, Natore, Nilphamari, Dinajpur, Lalmonirhat, Nawabganj, Thakurgaon, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

3.13: Spatial Pattern of Metal Road of the Study Area: 1991

3.14: Spatial Pattern of Semi-Metal Road of the Study Area: 1991
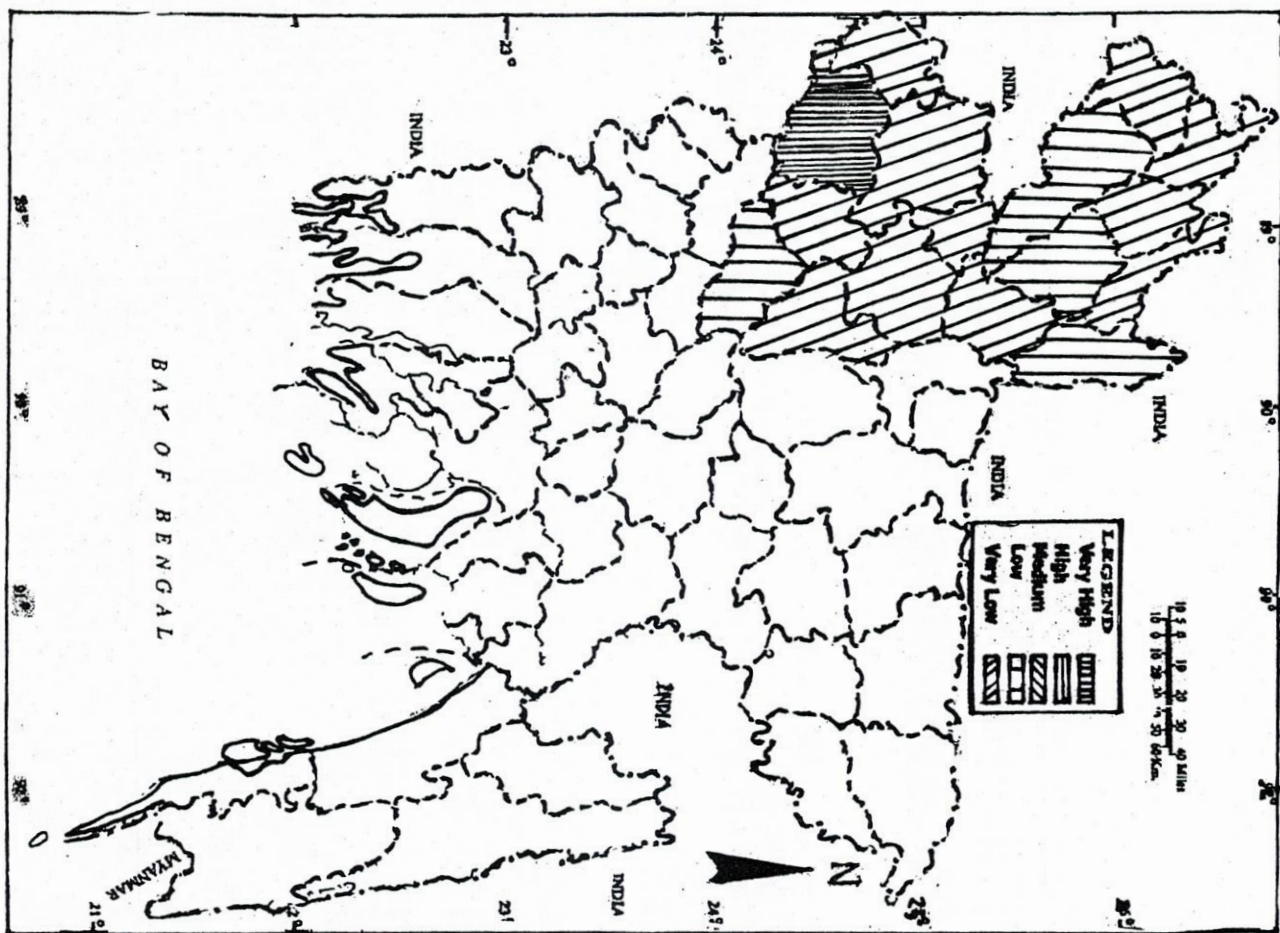
From the Table- 3.2.14 and Map- 3.14 found that only Rajshahi district in the low stage (4th stage) in respect of semi-metal Road out of country total 19-districts and the rest 15-districts of like Bogra, Pabna, Rangpur, Sirajganj, Naogaon, Gaibandha, Kurigram, Joypurhat, Natore, Nilphamari, Dinajpur, Lalmonirhat, Nawabganj, Thakurgaon, Panchagarh of the study area are in the last stage (very low) out of country total 53-districts.

3.2.15 Spatial pattern of Kutcha Road of the Study Area : 1991

Kutcha Road is the main communication system of the rural people. It takes time to convert into Metal & Semi-Metal Road. The district-wise pattern of Kutcha Road shown in the following Table-3.2.15 and Map-3.15.

Table-3.2.15: Spatial Pattern of Kutcha Road of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 3.55361	1 (Country total 1)	Rajshahi.
2.	High	2.38070-3.55361	---(Country total 1)	-------
3.	Medium	1.20778-2.38069	1 (Country total 5)	Dinajpur.
4.	Low	0.03486-1.20777	7(Country total 16)	Rangpur, Naogaon, Bogra, Kurigram, Thakurgaon, Pabna, Lalmonirhat.
5.	Very Low	-1.13806-0.03485	7 (Country total 41)	Gaibandha, Nilphamari, Sirajganj, Natore, Panchagarh, Nawabganj, Joypurhat.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.2.15 and Map-3.15 found that only 1-district namely Rajshahi is in the very high stage (1st stage) out of country total 1-district, only 1-district namely Dinajpur in the medium stage out of the country total 5-districts, 7-districts like Rangpur, Naogaon, Bogra, Kurigram, Thakurgaon, Pabna, Lalmonirhat are in the low stage out of country total 16-districts and 7-districts like Gaibandha, Nilphamari, Sirajganj, Natore, Panchagarh, Nawabganj, Joypurhat are in the very low stage (last stage) in respect of Kutcha Road.

3.2.16 Spatial Pattern of Municipalities of the Study Area : 1991

In the urbanization of Bangladesh, some unions have been improved into the Pourosava in addiction to the existing districts. The district-wise pattern of Municipalities of the Study area shown in the following Table-3.2.16 and Map- 3.16.

Table-3.2.16: Spatial Pattern of Municipalities of the Study Area to the context of the Country based on Z-Score: 1991

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.5417	---(Country total 1)	-------
2.	**High**	1.64918-2.54174	---(Country total 1)	-------
3.	**Medium**	0.75660-1.64917	**5** (Country total 14)	Bogra, Dinajpur, Pabna, Sirajganj, Nawabganj.
4.	**Low**	-0.13598-0.75659	**5** (Country total 24)	Thakurgaon, Rajshahi, Natore, Rangpur, Nilphamari.
5.	**Very Low**	-1.02855- -0.13597	**6** (Country total 24)	Joypurhat, Panchagarh, Naogaon, Gaibandha, Kurigram, Lalmonirhat.
		Total	**16** (Country total 64)	

Source: Based on Appendix-3.

From the Table-3.2.16 and Map-3.16 observed that 5-districts like Bogra, Dinajpur, Pabna, Sirajganj, Nawabganj of the study area are in the 3rd stage (medium category) out country total 14-districts, 5-districts like Thakurgaon, Rajshahi, Natore, Rangpur, Nilphamari are in the 4th stage (low category) out of the country total 24-districts and the rest 6-districts like Joypurhat, Panchagarh, Naogaon, Gaibandha, Kurigram, Lalmonirhat are in the last stage (very low category) out of country total 24-districts.

3.15: Spatial Pattern of Kutcha Road of the Study Area: 1991
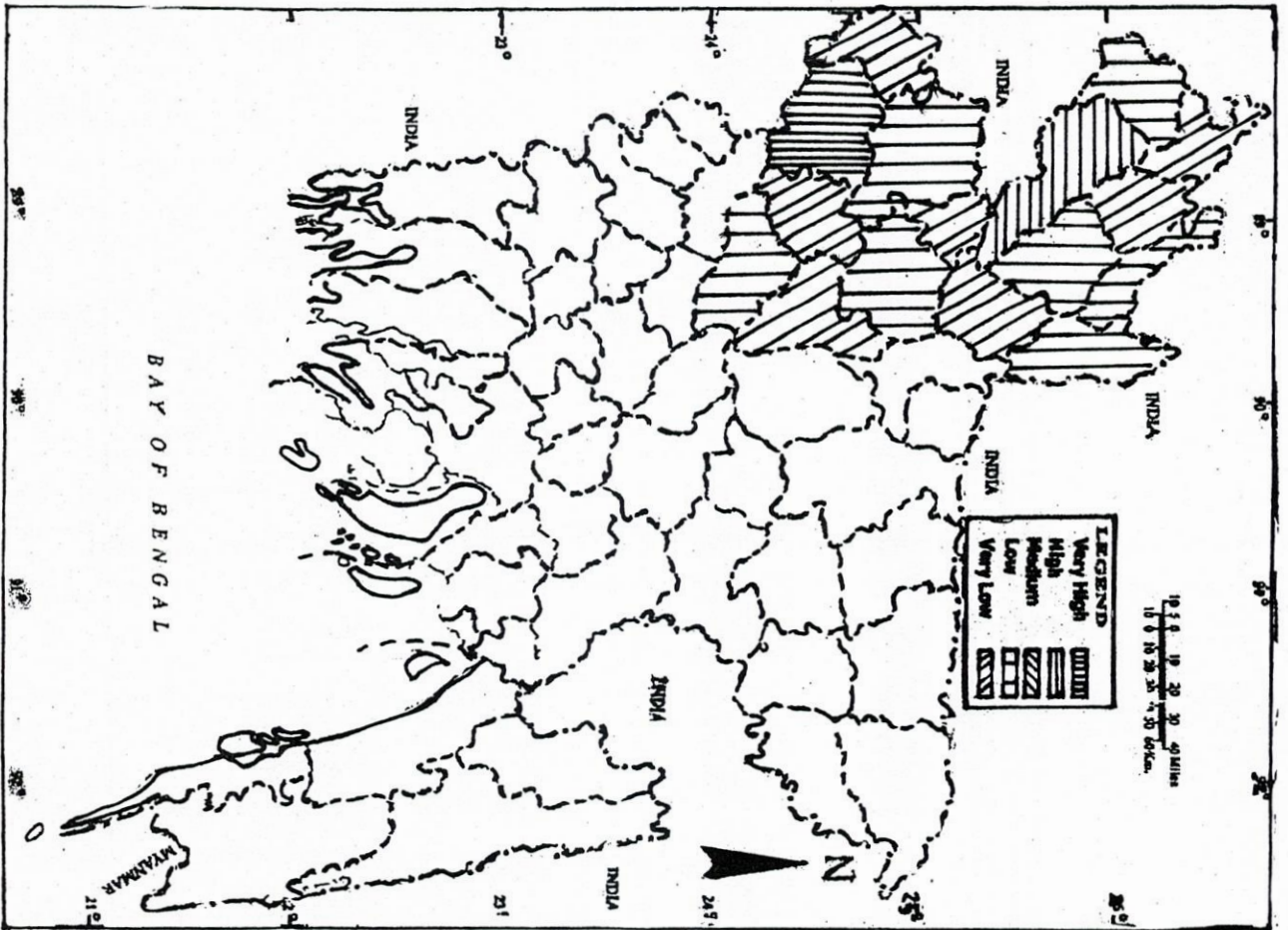
Source: Table-3.2.15

3.16: Spatial Pattern of Municipalities of the Study Area: 1991
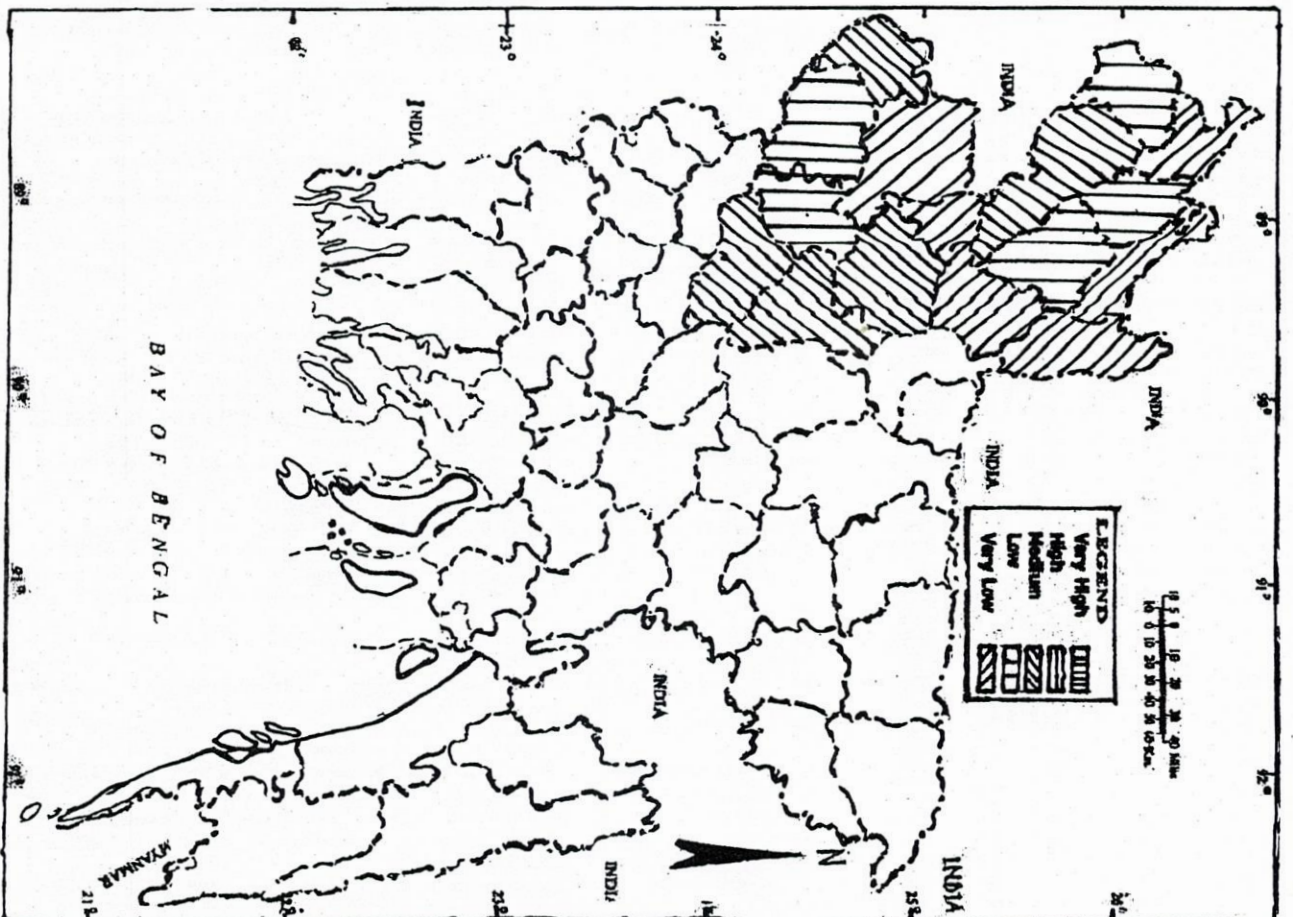
Source: Table-3.2.16

3.3 Conclusion

Selected variables of the study has been discussed on the basis of spatial aspect ans have been found that the urbanization pattern of the study area is not uniform. Some new munipalities or pourosavas has been increased day by day but this picture is not even or uniform in urban development. This chapter highlighted the spatial feature of urbanization in 1991.

In the following chapter, spatial pattern of urbanization of the study area for 2001 has been discussed.

Chapter Four
Spatial Pattern of Urbanization of the Study Area: 2001

4.1   Introduction

4.2   Spatial Pattern of Urbanization of the Study Area: 2001

4.2.1   Spatial Pattern of Urban Population of the Study Area: 2001

4.2.2   Spatial Pattern of Sanitary Latrine Facilities of the Study Area: 2001

4.2.3   Spatial Pattern of Electricity Connection of the Study Area: 2001

4.2.4   Spatial Pattern of the Sources of Drinking Water (Tube-well) of the Study Area: 2001

4.2.5   Spatial Pattern of Agricultural Contribution to the GDP of the Study Area: 2001

4.2.6   Spatial Pattern of Literacy Rate of the Study Area: 2001.

4.2.7   Spatial Pattern of Urban Literacy Rate of the Study Area: 2001

4.2.8   Spatial Pattern of Primary School of this Study Area: 2001

4.2.9   Spatial Pattern of Secondary School of the Study Area: 2001

4.2.10 Spatial Pattern of Colleges of the Study Area: 2001

4.2.11 Spatial Pattern of Bank Deposit of the Study Area: 2001

4.2.12 Spatial Pattern of Registered Rickshaws of the Study Area: 2001

4.2.13 Spatial Pattern of Metal Road of the Study Area: 2001

4.2.14 Spatial Pattern of Semi-Metal Road of the Study Area: 2001

4.2.15 Spatial Pattern of Kutcha Road of the Study Area: 2001

4.2.16 Spatial Pattern of Municipalities of the Study Area: 2001

4.3   Conclusion

Chapter Four
Spatial Pattern of Urbanization of the study Area: 2001

4.1 Introduction

Bangladesh is the 8th country of the world in respect of population in size. According to the Bangladesh census report 2001. 23.39%

(BBS, 2001) peoples lives in the urban area, where as 19.68%

was in 1991 and the annual urban population growth rate was 3.80% between 1991 to 2001. Despite of high rate of urban population growth, the level of urbanization is very low. To show spatial pattern of urbanization of the study area in 2001, the variables which are related with the urbanization discussed in this chapter.

From the reviewing of urbanization patter of the study area, it is found that factors which are related with urbanization has been changed from time to time. The spatial pattern of variables of the study area are depicted below:

4.2 Spatial Pattern of Urbanization of the Study Area: 2001

Spatial features of the urbanization of the study area in 2001 on the basis of selected variables are highlighted below:

4.2.1 Spatial Pattern of Urban population the Study Area: 2001.

Urban population are the prime indicator to measure urbanization. The rate of urban population in 2001 in percentage of the study are shown in the following Table- 4.2.1 and Map- 4.1.

Table-4.2.1: Spatial Pattern of Urban Population of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 3.99070	--- (Country total 1)	-------
2.	**High**	2.80786-3.99070	-------	-------
3.	**Medium**	1.62501-2.80785	--- (Country total 4)	-------
4.	**Low**	0.44216-1.62500	1 (Country total 5)	Rajshahi.
5.	**Very Low**	-0.74069-0.44215	15 (Country total 54)	Nawabganj, Pabna, Rangpur, Kurigram, Natore, Dinajpur, Bogra, Lalmonirhat, Nilphamari, Sirajganj, Panchagarh, Joypurhat, Gaibandha,.Naogaon, Thakurgaon.
	Total		16 (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.1 and Map-4.1. observed that only 1-district like Rajshahi is in the low (4th) stage out of country total 5-districts and 15-districts like Nawabganj, Pabna, Rangpur, Kurigram, Natore, Dinajpur, Bogra, Lalmonirhat, Nilphamari, Sirajganj, Panchagarh, Joypurhat, Gaibandha,.Naogaon, Thakurgaon of the study area in the very low (last) stage out of country total 52-districts in respect of urban population rate. The overall situation of the study area is very low (poor), in respect of the rate of living of urban population.

4.2.2 Spatial Pattern of Sanitary Latrine of the Study Area: 2001

Sanitary Latrine using pattern indicates the standard of living on an area. District-wise sanitary latrine use pattern of the study area in 2001 based on Z-score has shown in the following Table- 4.2.2 and Map- 4.2.

Table-4.2.2: Spatial Pattern of Sanitary Latrines of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.87666	--- (Country total 10)	-------
2.	High	0.08897-0.87666	-------	-------
3.	Medium	-0.69875-0.08896	2 (Country total 24)	Bogra, Panchagarh.
4.	Low	-1.48645- -0.69874	14 (Country total 28)	Nilphamari, Thakurgaon, Rajshahi, Natore, Rangpur, Dinajpur, Pabna, Sirajganj, Joypurhat, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Nawabganj.
5.	Very Low	-2.27414- -1.48644	--- (Country total 2)	-------
		Total	16 (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.2 and Map-4.2 found that only 2-districts like Bogra & Panchagarh of the study area out of country total 24-districts are in the medium (3rd) stage in respect of sanitary latrine use and the rest 14-districts like Nilphamari, Thakurgaon, Rajshahi, Natore, Rangpur, Dinajpur, Pabna, Sirajganj, Joypurhat, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Nawabganj of the study area out of country total 28-districts are in the low (4th) stage.

4.1: Spatial Pattern of Urban Population of the Study Area: 2001

LEGEND
Very High
High
Medium
Low
Very Low

N

INDIA

BAY OF BENGAL

MYANMAR

Source: Table - 4.2.1.

4.2: Spatial Pattern of Sanitary Latrines of the Study Area: 2001

LEGEND
Very High
High
Medium
Low
Very Low

N

INDIA

BAY OF BENGAL

MYANMAR
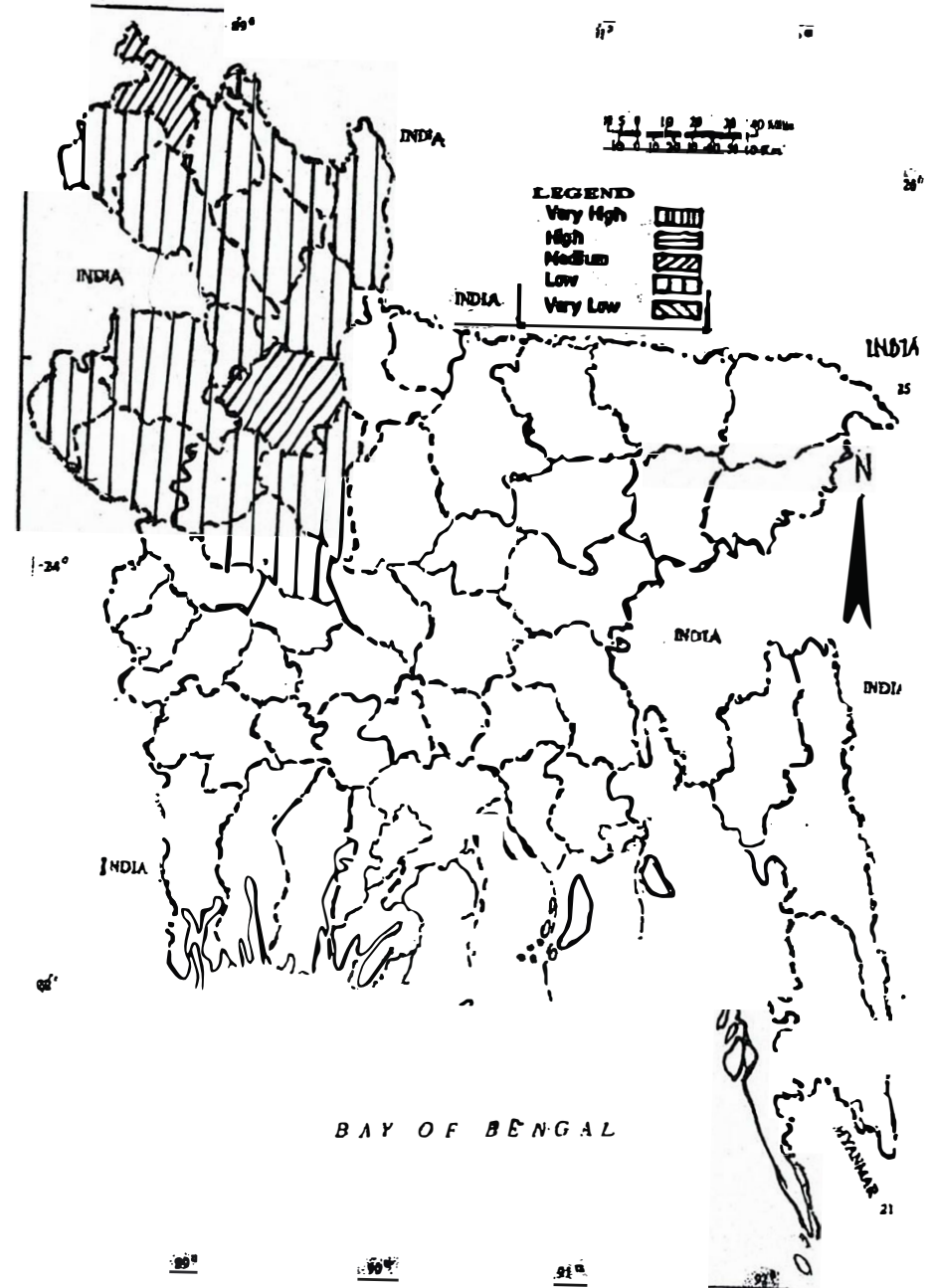
Source: Table - 4.2.2.

4.2.3 Spatial Pattern of Electricity Connection Facilities of the Study Area: 2001

Electricity is the key driver of the modern life. Electricity connection is most important for the developed or urban areas. Household having electricity connection of the study area in 2001 are shown below based on z-score in the Table - 4.2.3 and Map-4.3.

Table-4.2.3: Spatial Pattern of Electricity Connection of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 4.15015	--- (Country total 2)	-------
2.	High	2.98925-4.15015	-------	-------
3.	Medium	1.82834-2.98924	--- (Country total 1)	-------
4.	Low	0.66743-1.82833	--- (Country total 1)	-------
5.	Very Low	-0.49349-0.66743	16 (Country total 60)	Rajshahi, Bogra, Dinajpur, Pabna, Sirajganj, Nawabganj, Thakurgaon, Natore, Rangpur, Nilphamari, Joypurhat, Panchagarh, Naogaon, Gaibandha, Kurigram, Lalmonirhat.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the above Table-4.2.3 and Map-4.3 found that the entire 16-districts like Rajshahi, Bogra, Dinajpur, Pabna, Sirajganj, Nawabganj, Thakurgaon, Natore, Rangpur, Nilphamari, Joypurhat, Panchagarh, Naogaon, Gaibandha, Kurigram, Lalmonirhat of the study area are in the very low (last) stage in respect of electricity connection facilities out of country total 60-districts and the overall status of the study area in electricity connection bears very poor level.

4.2.4 Spatial Pattern of Sources of Drinking Water (Tube-well) the Study Area: 2001

The use of Tube-well as a source of drinking water is good for health. Due to the availability of ground water based on level of the use of tube-well as a main source of drinking water is very high in Bangladesh but Taps are largely used in the urban area than tube-well. The following Table-4.24 and Map- 4.4 shows the pattern of tube-well use in the study area in 2001.

Table-4.2.4: Spatial Pattern of Source of Drinking Water (Tube-Well) of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.28932	15 (Country total 34)	Pabna, Bogra, Dinajpur, Sirajganj, Nawabganj, Thakurgaon, Rajshahi, Natore, Rangpur, Nilphamari, Joypurhat, Panchagarh, Kurigram, Lalmonirhat, Gaibandha.
2.	High	-0.41756-0.28932	1 (Country total 14)	Naogaon.
3.	Medium	-1.12443- -0.41755	--- (Country total 6)	-------
4.	Low	-1.83131- -1.14420	--- (Country total 2)	-------
5.	Very Low	-2.53818- -1.83130	--- (Country total 8)	-------
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.4 and Map-4.4 reveals that the use of tube-well as a source of drinking water in 2001 found among the 15-districts like Pabna, Bogra, Dinajpur, Sirajganj, Nawabganj, Thakurgaon, Rajshahi, Natore, Rangpur, Nilphamari, Joypurhat, Panchagarh, Kurigram, Lalmonirhat, Gaibandha of the study area out of country total 34-districts, i.e. the study area is in the very high stage (1st stage) in respect of tube-well use as a source of drinking water.

LEGEND
Very High
High
Medium
Low
Very Low

BAY OF BENGAL

Source: Table - 4.2.3.

Source: Table - 4.2.4.

4.2.5 Spatial Pattern of Agricultural Contribution to the GDP of the Study Area: 2001

Bangladesh is an agro-based country and agro-based districts area are contributing much in the GDP as well as in the overall economy of Bangladesh. In the following Table- 4.2.5 and Map- 4.5, the district-wise contribution pattern of agri-sector in the GDP of Bangladesh are shown.

Table-4.2.5: Spatial Pattern of Agricultural Contribution to the GDP of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 3.38153	--- (Country total 1)	
2.	High	2.20633-3.38153	--- (Country total 1)	
3.	Medium	1.03112-2.20632	3 (Country total 5)	Naogaon, Bogra, Dinajpur.
4.	Low	-0.14409-1.03111	7 (Country total 25)	Rangpur, Gaibandha, Kurigram, Pabna, Rajshahi, Natore, Sirajganj.
5.	Very Low	-1.31930- -0.14408	6 (Country total 32)	Nilphamari, Thakurgaon, Joypurhat, Lalmonirhat, Nawabgan', Panchagarh.
	Total		16 (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.5 and Map-4.5 found that only 03-districts like Naogaon, Bogra, Dinajpur of the Study area are in the medium (3rd), stage, 7-districts like Rangpur, Gaibandha, Kurigram, Pabna, Rajshahi, Natore, Sirajganj are in the low (4th) stage and the rest 6-districts like Nilphamari, Thakurgaon, Joypurhat, Lalmonirhat. Nawabganj, Panchagarh are in the very low (last) stage out of country total 5-districts, 25-districts and 32-districts respectively. So, the overall contribution of the agri-sector to the GDP of the study area to the nation is in the low stage.

4.2.6 Spatial Pattern of Literacy Rate of the Study Area: 2001

Education is the basic need of people and it is said that education is the backbone of a nation. An idea can be generate easily on the basis of rate literacy rate. Generally, very literate areas are have been found developed and urbanized. So education can be identified as the main indicator of urbanization, Inter-district Pattern of literacy rate of the-study area for the census year 2001 of Bangladesh shown in the Table-4.2.6 and Map-4.6

Table-4.2.6: Spatial Pattern of Literacy Rate of the Study Area to the context of the Countr based on Z-Score: 2001

Sl. No.	Z-Score Cate or ↓	Z-Score Ran e	No. of Districts of the Stud Area	Name of the Districts of the Study Area
1.	**Very High**	+ 1.59718	--- (Country total 4)	
2.	**High**	0.73077-1.59718	--- (Country total 11)	
3.	**Medium**	-0.13567-0.73076	**5** (Country total 14)	Joypurhat, Rajshahi, Dinajpur, Naogaon, Pancha arh.
4.	**Low**	-1.00209—0.13566	**8** (Country total 27)	Thakurgaon, Bogra, Pabna, Lalmonirhat, Natore, Ran our, Sirajgan', Nil hamari.
5.	**Very Low**	-1.8685- -1.00208	**3** (Country total 8)	Nawabganj, Gaibandha, Kurigram.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.6 and Map-4.6 found that only 05-districts of the study area like Joypurhat, Rajshahi, Dinajpur, Naogaon, Panchagarh.are in the medium (3rd) stage, 08-districts like Thakurgaon, Bogra, Pabna, Lalmonirhat, Natore, Rangpur, Sirajganj, Nilphamari are in the medium (4th) stage, and the rest 03-districts like Nawabganj, Gaibandha, Kurigram are in the very low (last) stage in respect of literacy rate out of country total 14-districts, 27-districts and 8-districts respectively.

4.5: Spatial Pattern of Agricultural Contribution to the GDP of the Study Area: 2001

BAY OF BENGAL

LEGEND
Very High
High
Medium
Low
Very Low
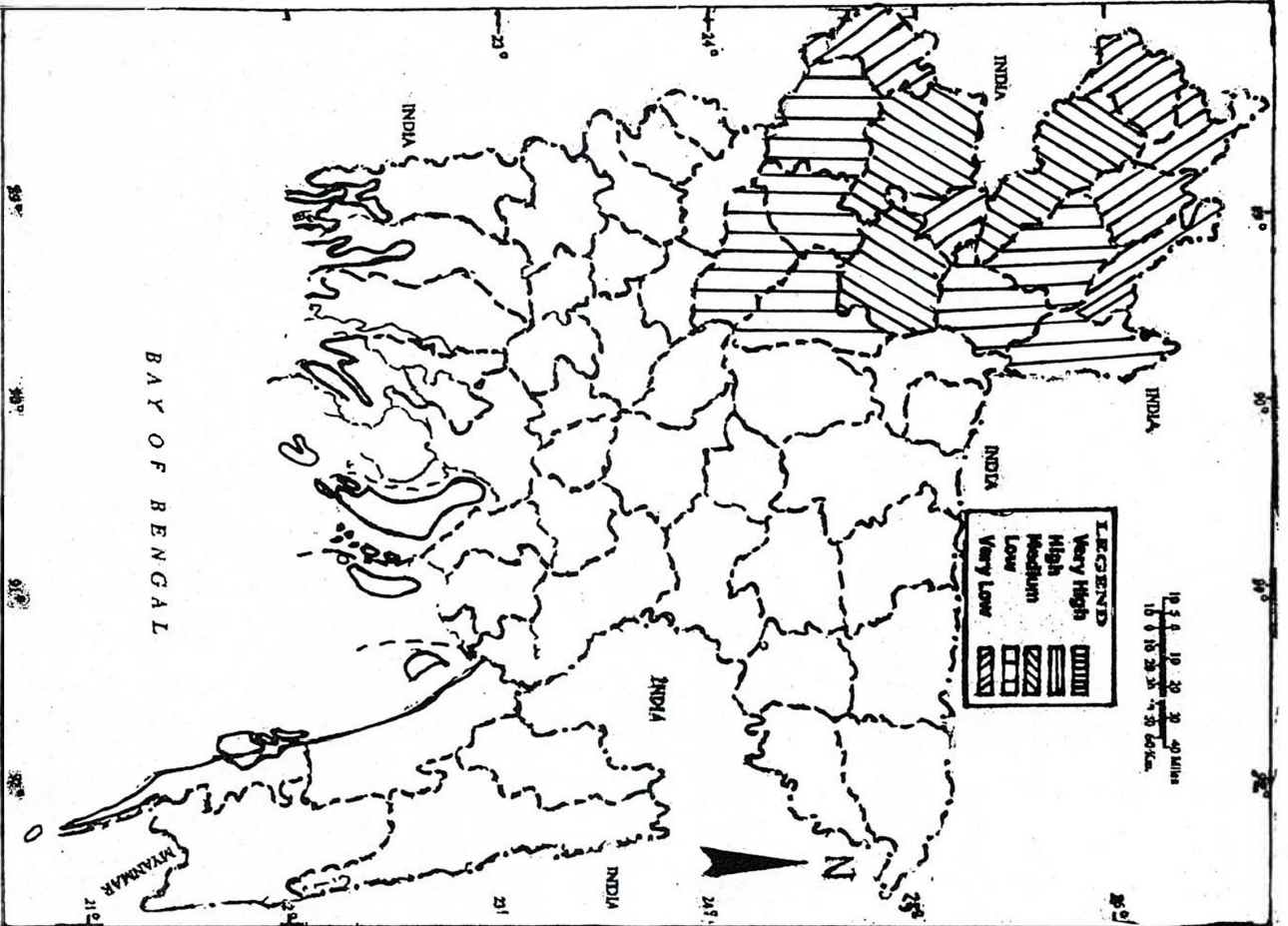
Source: Table-4.2.5.

4.6: Spatial Pattern of Literacy Rate of the Study Area: 2001

BAY OF BENGAL

LEGEND
Very High
High
Medium
Low
Very Low
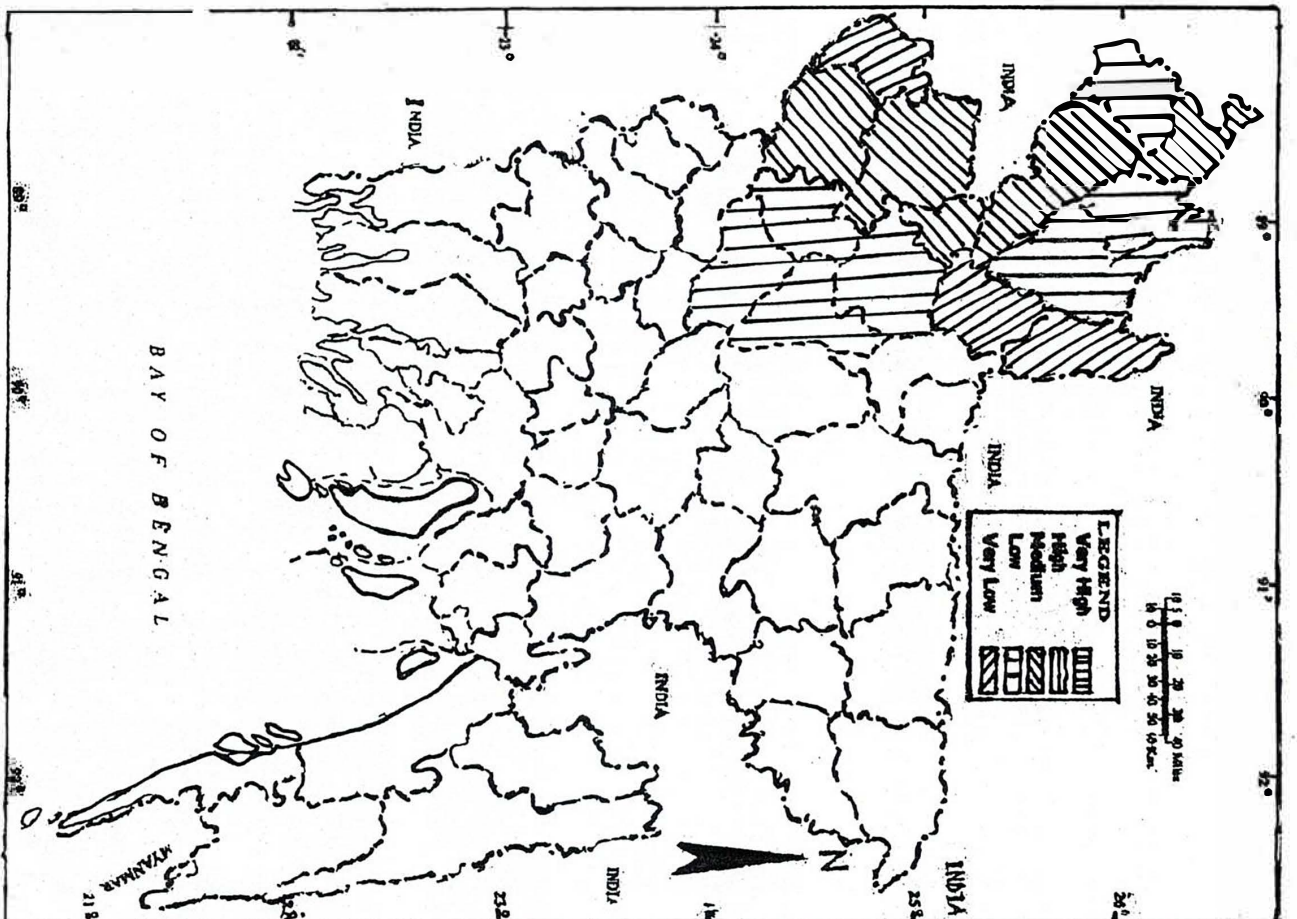
Source: Table-4.2.6.

4.2.7 Spatial Pattern of Urban Literacy Rate of the Study Area: 2001

Due to available facilities for the education in the urban area than rural area, the urban literacy rate becomes higher than rural area and the student migrates to the urban area from the rural area. The inter-district pattern of urban literacy rate shown in the Table- 4.2.7 & Map- 4.7.

Table-4.2.7: Spatial Pattern of Urban Literacy Rate of the Study Area to the context of the Countr based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 1.03069	1 (Country total 10)	Bogra.
2.	High	0.20598-1.03069	3 (Country total 18)	Gaibandha, Pabna, Thakurgaon.
3.	Medium	-0.61875-0.20599	4 (Country total 18)	Rangpur, Dinajpur, Natore, Panchagarh.
4.	Low	-1.44347—0.61874	5 (Country total 13)	Joypurhat, Rajshahi, Naogaon, Sirajganj, Lalmonirhat.
5.	Very Low	-2.26819- -1.44346	3 (Country total 5)	Nilphamari, Nawabganj, Kurigram.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.7 and Map-4.7 found that only 01-district of the study are like Bogra is in the very high (1st stage) stage, 03-districts like Gaibandha, Pabna, Thakurgaon are in the high (2nd) stage, 4-districts like Rangpur, Dinajpur, Natore, Panchagarh are in the medium (3rd) stage, 05-districts like Joypurhat, Rajshahi, Naogaon, Sirajganj, Lalmonirhat are in the low (4th) stage and the rest 03-districts like Nilphamari, Nawabganj, Kurigram are in the very low (last) stage out of country total 10-districts, 18-districts, 13-districts, 05-districts respectively. So, the condition is medium.

4.2.8 Spatial Pattern of Primary Schools of the Study Area: 2001

The primary school is the first stage or level of education of Bangladesh Primary education is mandatory for all. District-wise pattern of Primary school of the study area for the census year 2001 to the context of the country shown in the following Table- 4.2.8 and Map-4.8.

Table-4.2.8: Spatial Pattern of Primary Schools of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 2.33156	--- (Country total 2)	-------
2.	High	1.12430-2.33156	--- (Country total 5)	-------
3.	Medium	0.0830-1.12429	10 (Country total 23)	Panchagarh, Thakurgaon, Pabna, Kurigram, Gaibandha, Dinajpur, Rangpur, Naogaon, Nilphamari, Lalmonirhat.
4.	Low	-1.29025—0.0829	6 (Country total 31)	Sirajganj, Bogra, Nawabganj, Rajshahi, Natore, Joypurhat.
5.	Very Low	-2.49751- -1.29024	--- (Country total 3)	-------
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

Forth the Table-4.2.8 and Map-4.8 focused that 10-districts like Panchagarh, Thakurgaon, Pabna, Kurigram, Gaibandha, Dinajpur, Rangpur, Naogaon, Nilphamari, Lalmonirhat of the study area are in the medium (3rd) stage 6 districts like Sirajganj, Bogra, Nawabganj. Rajshahi, Natore, Joypurhat are in the low (4th) stage our of the country total 23-Districts and 31- Districts respectively.

4.7: Spatial Pattern of Urban Literacy Rate of the Study Area: 2001
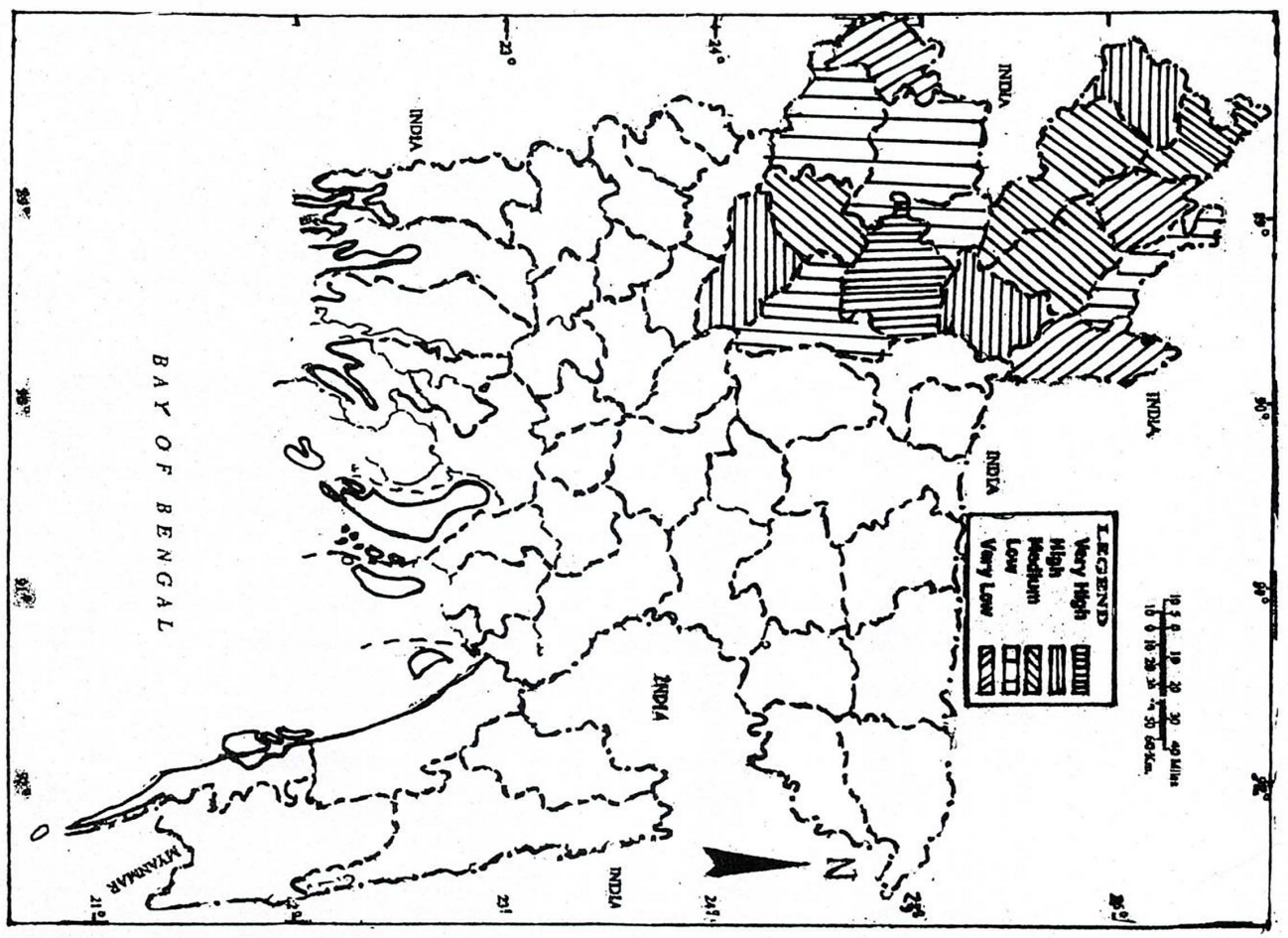
4.8: Spatial Pattern of Primary Schools of the Study Area: 2001
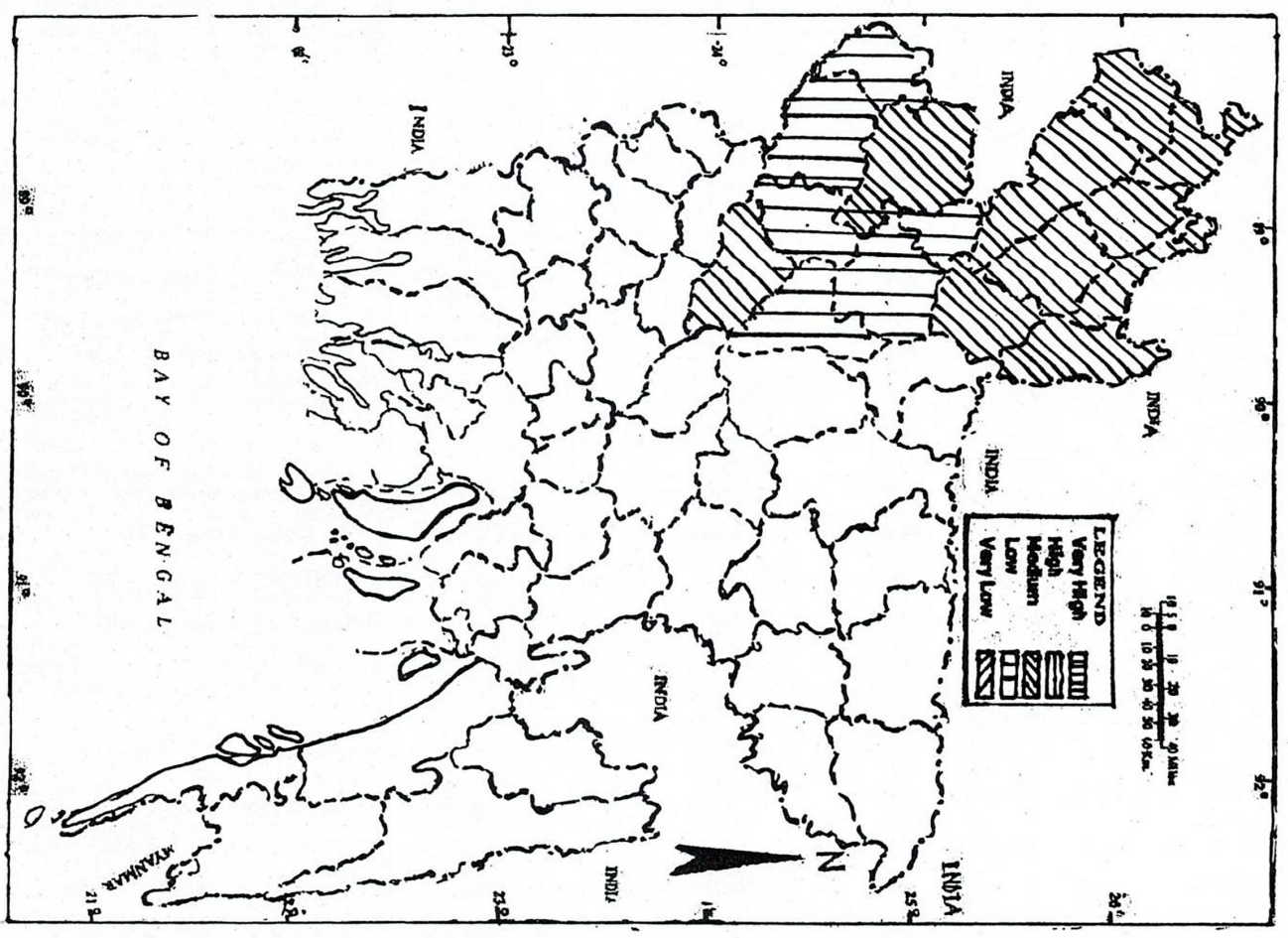
Source: Table - 4.2.7.

Source: Table - 4.2.8.

4.2.9 Spatial Pattern of Secondary Schools of the Study Area: 2001

The 2nd stage of education is the Secondary level education and the District-wise pattern of Secondary Schools of the study area show in the following Table-4.29 and Map- 4.2.
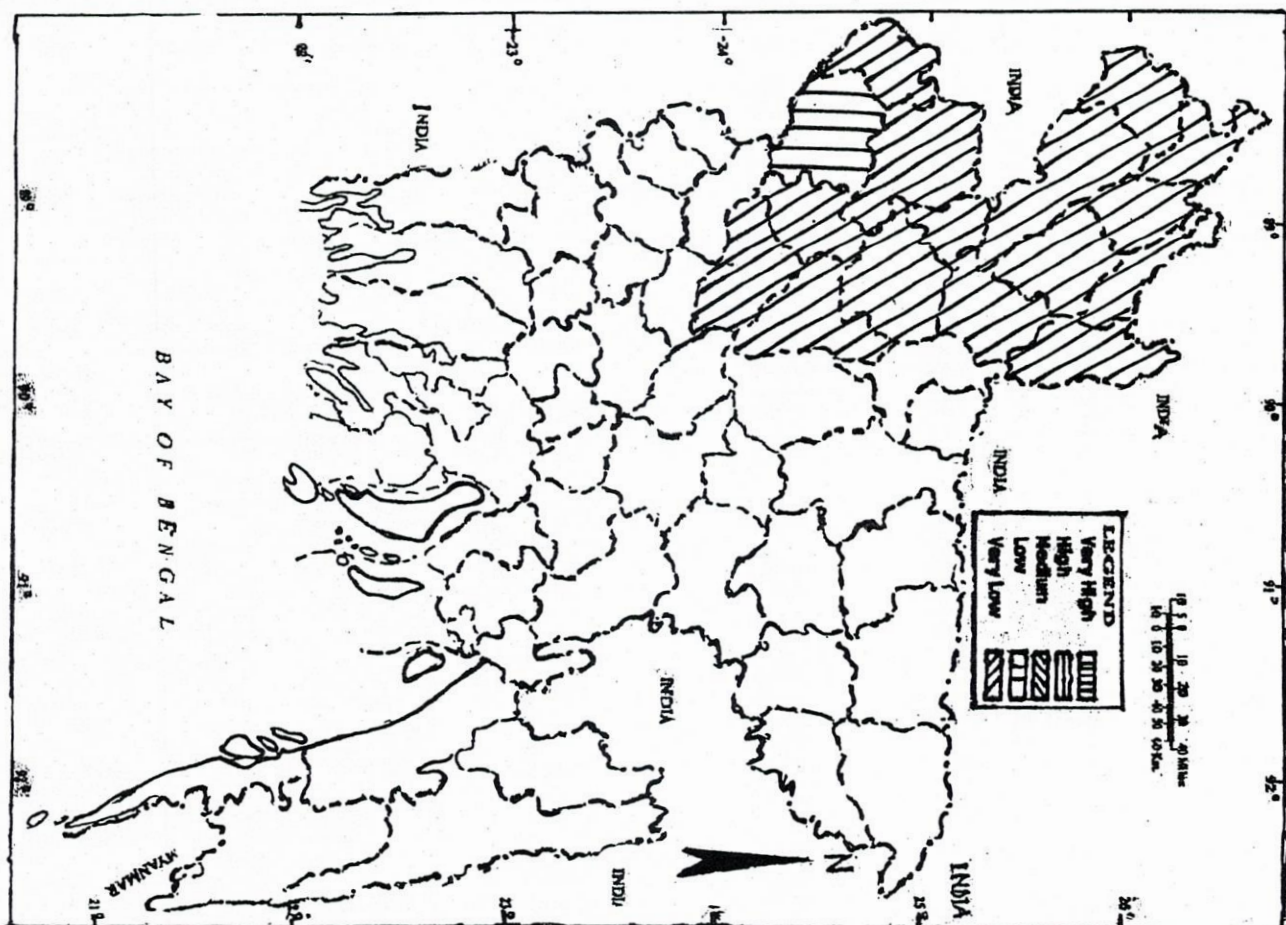
Table-4.2.9: Spatial Pattern of Secondary Schools of the Study Area to the context of the Countr based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 2.57674	1 (Country total 2)	Panchagarh.
2.	High	1.42216-2.57674	2 (Country total 2)	Thakurgaon, Rajshahi.
3.	Medium	0.26756-1.42215	6 (Country total 19)	Dinajpur, Natore, Gaibandha, Naogaon, Nawabranj, Nilphamari.
4.	Low	-0.88704-0.26755	7 (Country total 28)	Rangpur, Bogra, Pabna, Joypurhat, Kurigram, Lalmonirhat, Sirajganj.
5.	Very Low	-2.04162- -0.88703	--- (Country total 3)	
	Total		**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.9 and Map-4.9 found that only 1-district like Parchagarh of the study area is in the first Category (very high), 2-districts like Thakargoan, Rajshahi are in the 2nd Category (medium), 7-districts like Rangpur, Bogra, Pabna, Joypurhat, Kurigram, Lalmonirhat, Sirajganj are in the 4th Category (low) in respect of number of Secondary schools out of country total 2-districts, 2-districts, 19-districts & 28-districts respectively.

4.2.10 Spatial Pattern of Colleges of the Study Area: 2001

College is the 3rd level of education in Bangladesh. District-wise numbers of colleges in percentage of the study based on z-score for the census year 2001 shown in the following Table-4.2.10 and Map-4.10.

Table-4.2.10: Spatial Pattern of Colleges of the Study Area to the context of the Countr based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 4.57378	--- (Country total 1)	
2.	High	3.07392-4.57378		
3.	Medium	1.57409-3.07392	1 (Country total 1)	Rajshahi.
4.	Low	0.07426-1.57408	9 (Country total 20)	Dinajpur, Nawabganj, Sirajganj, Panchagarh, Rangpur, Thakurgaon, Gaibandha, Joypurhat, Naogaon.
5.	Very Low	-1.4258-0.07425	6 (Country total 42)	Lalmonirhat, Kurigram, Bogra, Pabna, Nilphamari, Natore.
	Total		**16** (Country total 64)	

Source: Based on Appendix-4.

4.9: Spatial Pattern of Secondary Schools of the Study Area: 2001

Source: Table-4.2.9.

4.10: Spatial Pattern of Colleges of the Study Area: 2001
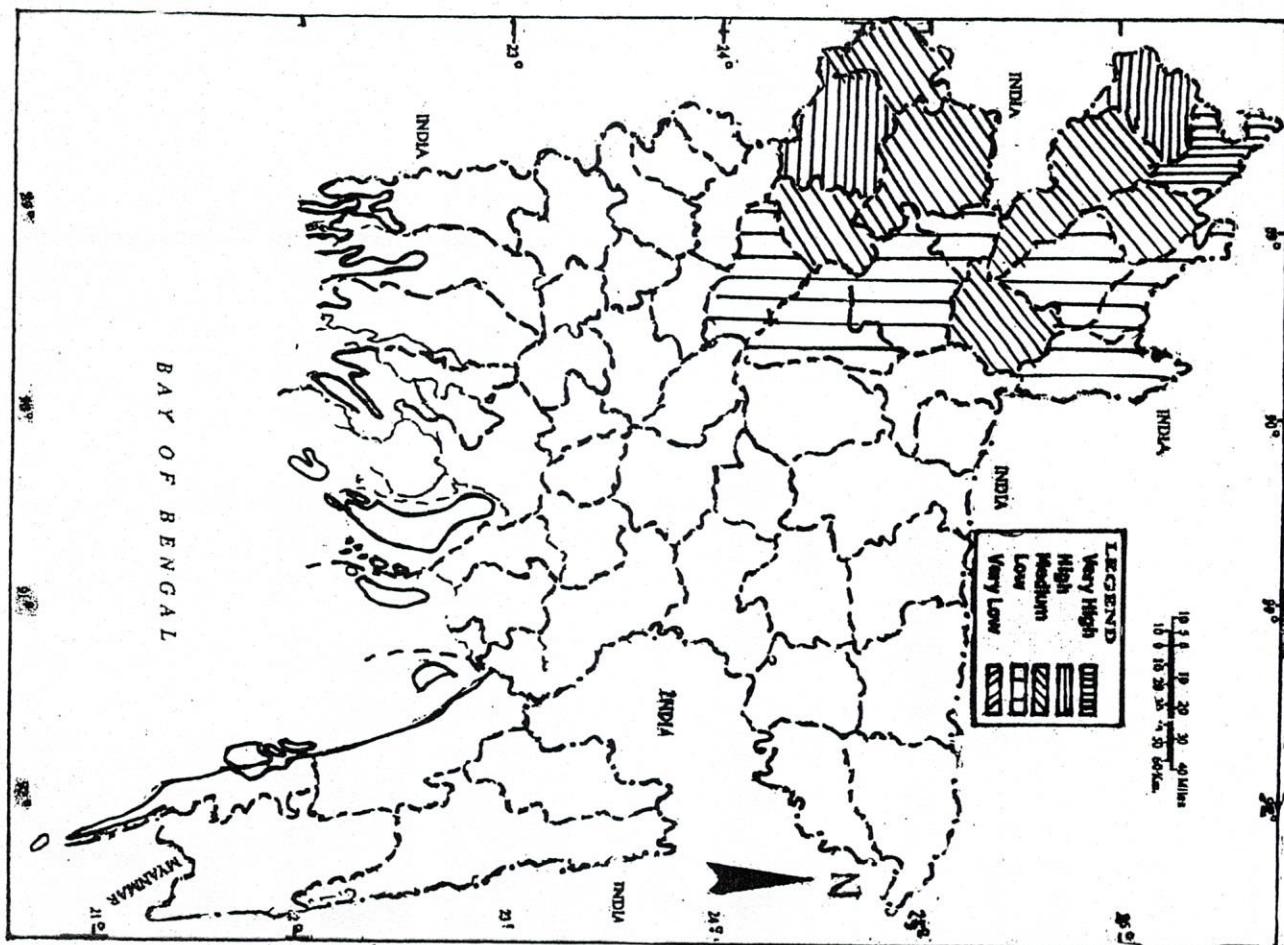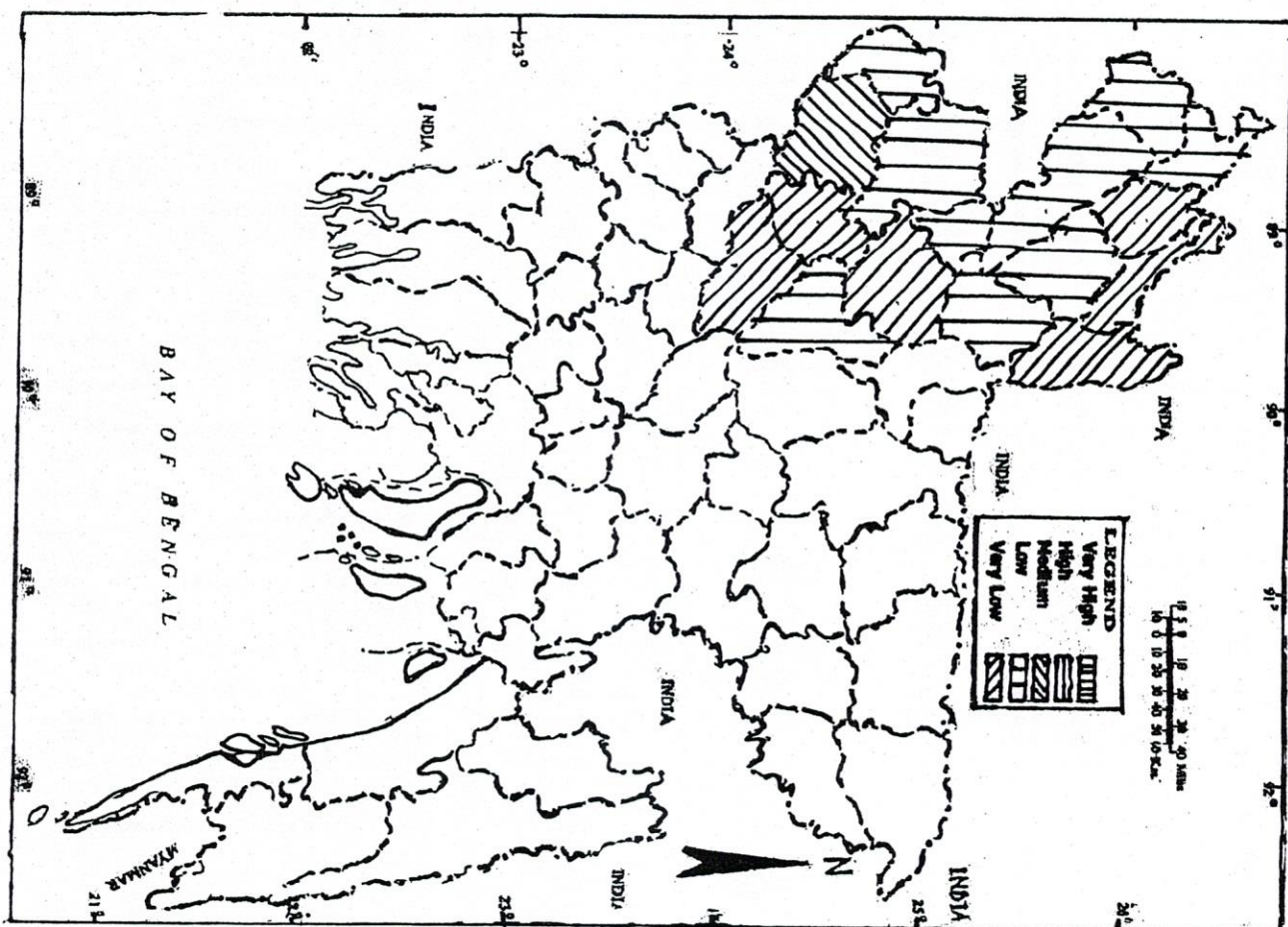
Source: Table-4.2.10.

From the Table-4.2.10 and Map-4.10 found that only1-district like Rajshahi is in the medium level (3rd category), 9-districts like Dinajpur, Nawabganj, Sirajganj, Panchagarh, Rangpur, Thakurgaon, Gaibandha, Joypurhat, Naogaon are i the low level (4th category), 6-districts like Lalmonirhat, Kurigram, Bogra, Pabna, Nilphamari, Natore are in the very low level (5th category) of the study area in respect of number of college based on Z-score out of country total 1- district, 20- districts, 42-distrticts and 6-districts respectively.

4.2.11 Spatial Pattern of Metal Road of the Study Area: 2001

Metal Road indicates the developed system of communication. The length of Metal Road in Bangladesh is not in satisfactory level. Generally, the metal Roads are found in the city or urban area of Bangladesh. Districts-wise statistics of Metal Road in length of the study area shown in the following Table- 4.2.111 and Map- 4.11.

Table-4.2.11: Spatial Pattern of Metal Road of the Study Area to the context of the Countr based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very Hi h	+ 2.30067	---(Country total 2)	
2.	High	1.46354-2.30067	1 (Country total 5)	Rajshahi.
3.	Medium	0.62641-1.46353	3 (Country total 8)	Pabna, Dinajpur, Rangpur.
4.	Low	-0.21074-0.62640	3 (Country total 12)	Nilphamari, Naogaon, Gaibandha.
5.	Very Low	-1.04787- -0.21073	9 (Country total 37)	Bogra, Sirajganj, Joypurhat, Panchagarh, Kurigram, Lalmonirhat, Natore, Nawab an', Thakurgaon.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.11 and Map-4.11 found that only 1-district like Rajshahi is in the 2nd Category (high level), 3-districts like Nilphamari, Naogaon, Gaibandha are in the 4th category (low level) and 9-districts like Bogra, Sirajganj, Joypurhat, Panchagarh, Kurigram, Lalmonirhat, Natore, Nawabganj. Thakurgaon are in the 5th category (very low level) in respect of length of Metal Road out of country total 5-districts, 8-districts, 12-districts and 37-districts respectively.

4.2.12 Spatial Pattern of Semi-Metal Road of the Study Area: 2001

Semi-Metal Road is very important for the communication system of Bangladesh. Semi-Metal Roads are found in rural area in line with urban area. District-wise statistics of Semi-Metal road of study area shown in the following Table-- 4.2.12 and Map- 4.12.

Table-4.2.12: Spatial Pattern of Semi-Metal Road of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.85835	---(Country total 2)	-------
2.	**High**	1.89410-2.85835	1 (Country total 1)	Rajshahi.
3.	**Medium**	0.92983-1.89409	---(Country total 6)	-------
4.	**Low**	-0.03444-0.92982	3 (Country total 21)	Bogra, Nawabganj, Dinajpur.
5.	**Very Low**	-0.99870- -0.03443	12 (Country total 34)	Rangpur, Joypurhat, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Rajshahi, Natore, Nilphamari, Pabna, Sirajganj, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.12 and Map-4.12 found that only 1-district like Rajshahi of the study area is in the high level (2nd category), 3-districts like Bogra, Nawabganj, Dinajpur are in the low level (4th category) and 12-districts like Rangpur, Joypurhat, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Rajshahi, Natore, Nilphamari, Pabna, Sirajganj, Panchagarh are in the very low level (5th or last category) out of country total 1-district, 21-district & 34-district respectively.

4.11 : Spatial Pattern of Metal Road of the Study Area: 2001
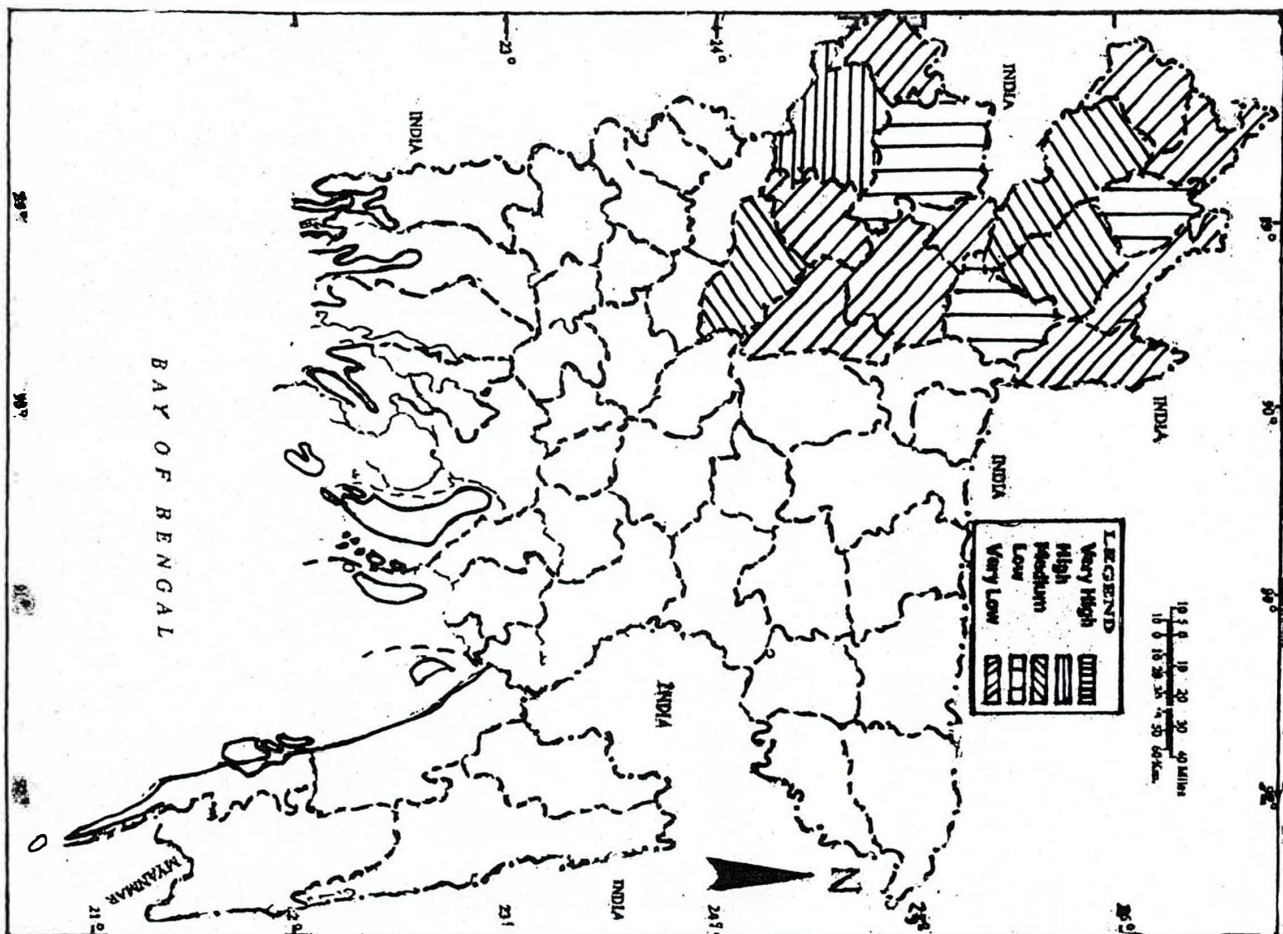
Source : Table-4.2.11.

4.12 : Spatial Pattern of Semi-Metal Road of the Study Area: 2001
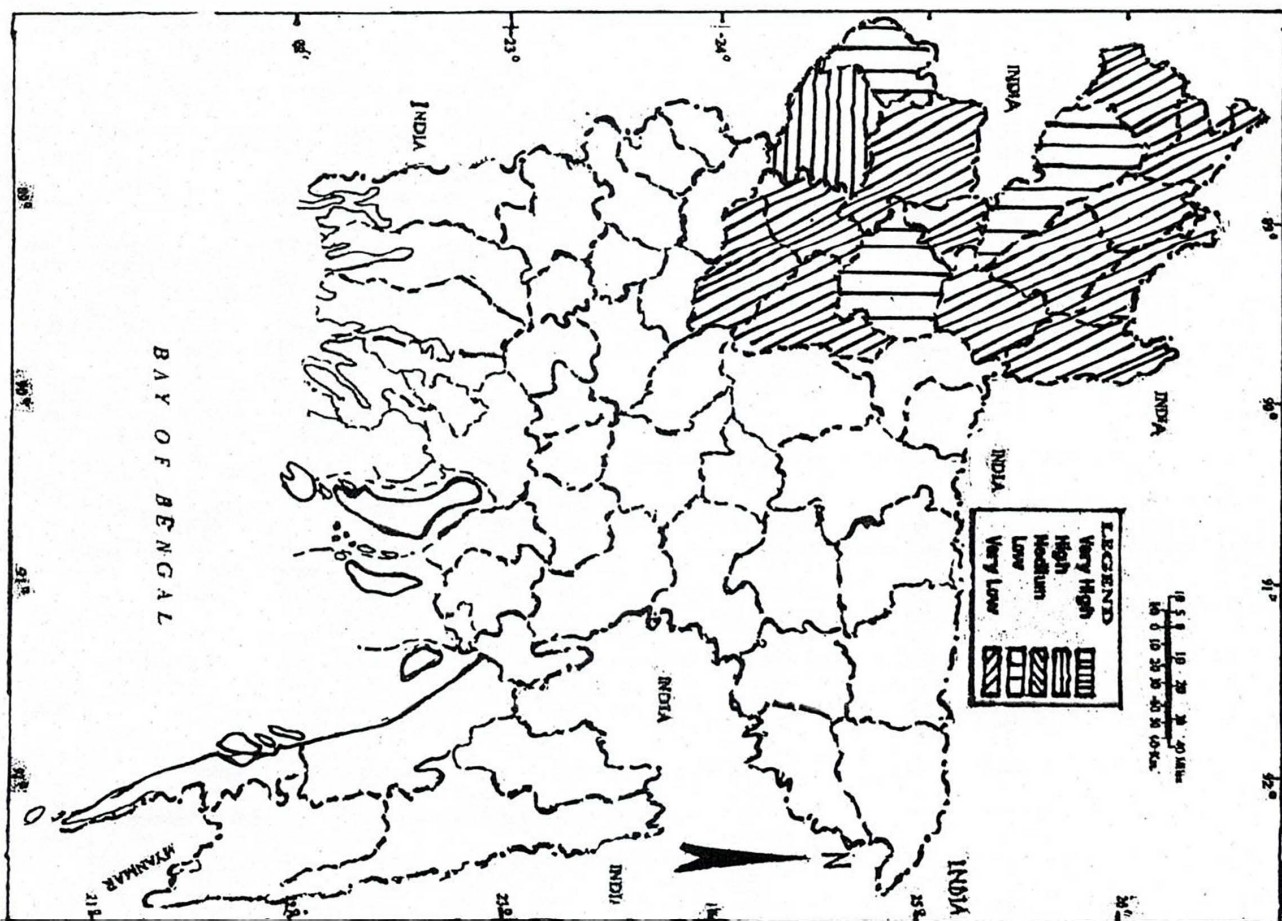
Source : Table-4.2.12.

4.2.13 Spatial Pattern of Kutcha Road of the Study Area: 2001

Kutcha Road are generally found in the rural areas. Generally, there is no alternative of Kutcha Road in the rural area. District-wise statistics of the study area based on Z-score value shown in the Table-4.2.134 and Map-4.13.

Table-4.2.13: Spatial Pattern of Kutcha Road of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 1.94597	--- (Country total 3)	-------
2.	High	1.07261-1.94597	2 (Country total 5)	Rajshahi, Kurigram.
3.	Medium	0.19925-1.07260	7 (Country total 19)	Bogra, Rangpur, Gaibandha, Naogaon, Dinajpur, Nilphamari, Pabna.
4.	Low	-0.67413-1.09924	7 (Country total 22)	Panchagarh, Sirajganj, Thakurgaon, Nilphamari, Nawabganj, Joypurhat, Naogaon, Lalmonirhat, Natore.
5.	Very Low	-1.54749- -0.67412	--- (Country total 15)	-------
		Total	16 (Country total 64)	

Source: Based on Appendix-4.

From the Table- 4.2.13 and Map-4.13 focused that only 2-districts like Rajshahi, Kurigram are in the high category (2nd level), 7-districts like Bogra, Rangpur, Gaibandha, Naogaon, Dinajpur, Nilphamari, Pabna are in the medium category (3rd level), 7-districts like Panchagarh, Sirajganj, Thakurgaon, Nilphamari, Nawabganj, Joypurhat, Naogaon, Lalmonirhat, Natore are in the low category (4th level) of the study area in respect of Kutcha Road out of the country total 5-districts, 19-districts & 22 districts respectively.

4.2.14 Spatial Pattern of Bank Deposit of the Study Area: 2001

Banks are one of the service oriented financial institution of Bangladesh. Bank deposition indicates the economic status & development of a particular area or a region. District-wise statistics of Bank deposits of the study area for the census year-2001 is shown in the following Table-4.2.14 and Map- 4.14.

Table-4.2.14: Spatial Pattern of Bank Deposit of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 5.99270	--- (Country total 1)	
2.	**High**	4.43399-5.99270		
3.	**Medium**	2.87528-4.43398	--- (Country total 1)	
4.	**Low**	1.31656-2.87527		
5.	**Very Low**	-0.24216-1.31655	**16** (Country total 62)	Rajshahi, Bogra, Joypurhat, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Dinajpur, Pabna, Sirajganj, Nawabganj, Thakurgaon, Natore, Rangpur, Nilphamari, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.14 and Map-4.14 found that all districts of North-western regions of Bangladesh are in the very low category (5th level) out of country total 62-districts in respect of Bank deposits and it also indicates that the economic condition of this region (north-western) is not satisfactory.

4.13: Spatial Pattern of Kutcha Road of the Study Area: 2001

BAY OF BENGAL

LEGEND
Very High
High
Medium
Low
Very Low

Source: Table—4.2.13.

4.14: Spatial Pattern of Bank Deposit of the Study Area: 2001

BAY OF BENGAL

LEGEND
Very High
High
Medium
Low
Very Low
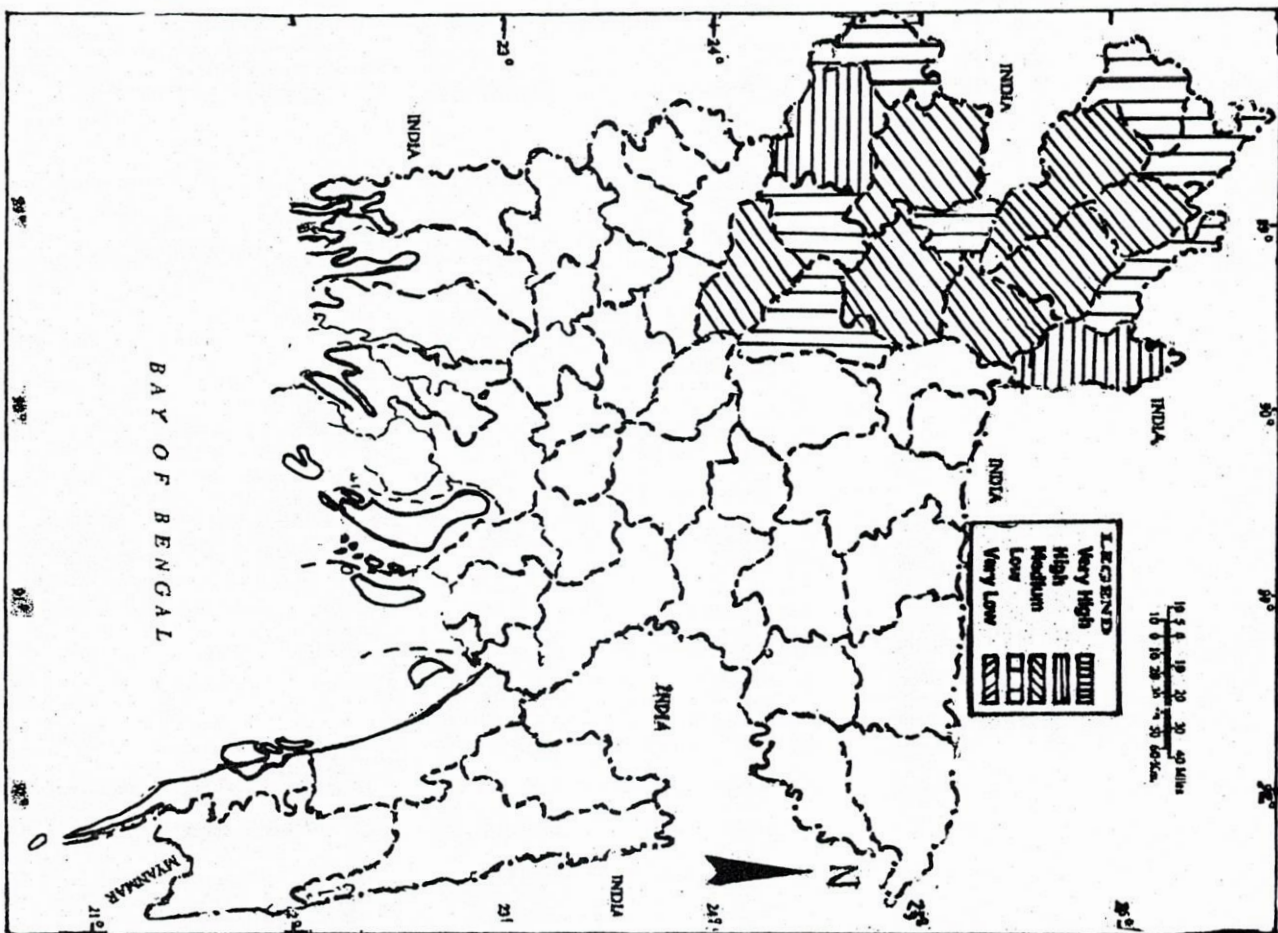
Source: Table—4.2.14.

4.2.15 Spatial Pattern of Registered Rickshaws of the Study Area: 2001

Rickshaws are the main transportation media or system of Bangladesh. But the rickshaws are mostly shown in the urban area. District-wise statistics of Registered Rickshaws of the study area are shown in the following Table- 2.15 and Map- 4.15.
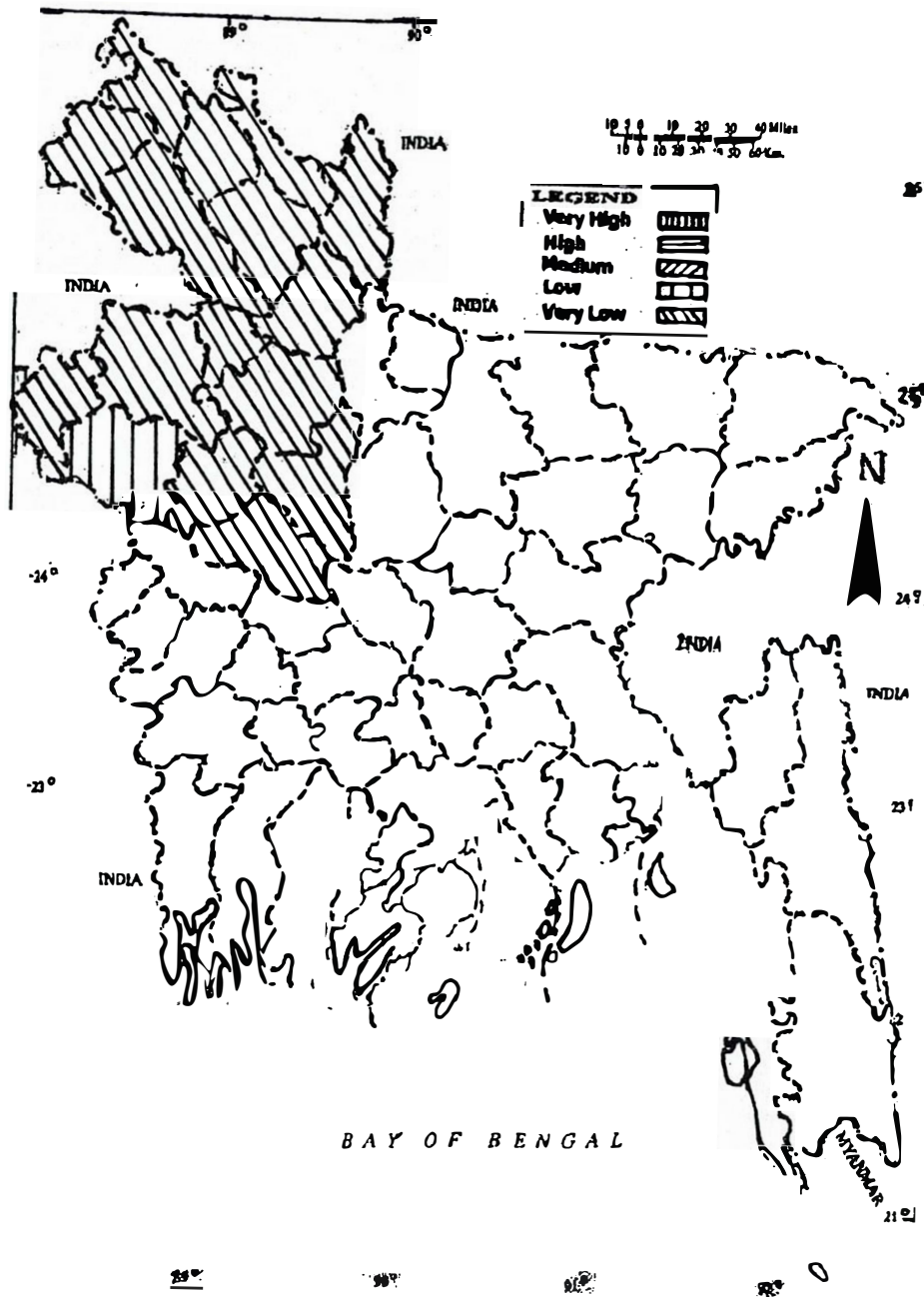
Table-4.2.15: Spatial Pattern of Registered Rickshaws of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 5.59625	--- (Country total 1)	
2.	High	4.08957-5.59625		
3.	Medium	2.58288-4.08956	--- (Country total 1)	
4.	Low	1.07619-2.58287		
5.	Very Low	-0.43351-1.07618	16 (Country total 62)	Rajshahi, Bogra, Joypurhat, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Dinajpur, Pabna, Sirajganj, Nawabganj, Thakurgaon, Natore, Rangpur, Nilphamari, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

From the Table-4.2.15 and Map-4.15 found that all districts of the study area are in the very low category (last level) out of country total 62-districts in respect of Rickshaws Registration and it also indicates that the Rickshaw puller of this region (North-western Region of Bangladesh) are not respecting the law and order of the country properly.

4.2.16 Spatial Pattern of Municipalities of the Study Area: 2001

As a part of urbanization, the important places of Bangladesh are transformed into the Municipality. District-wise pattern of Municipalities in number of the study area are shown in the Table- 4.2.16 and Map- 4.16

Table-4.2.16: Spatial Pattern of Municipalities of the Study Area to the context of the Country based on Z-Score: 2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1. .	Very High	+ 1.73123	2 (Country total 5)	Pabna, Rajshahi.
2.	High	0.94939-1.73123	1 (Country total 3)	Dinajpur.
3.	Medium	0.16754-0.94938	1 (Country total 7)	Bogra.
4.	Low	-0.61432-0.16753	2 (Country total 14)	Sirajganj, Natore.
5.	Very Low	-1.39616-0.94937	10 (Country total 35)	Joypurhat, Nawabganj, Rangpur, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Nilphamari, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-4.

4.15: Spatial Pattern of Registered Rickshaws of the Study Area: 2001
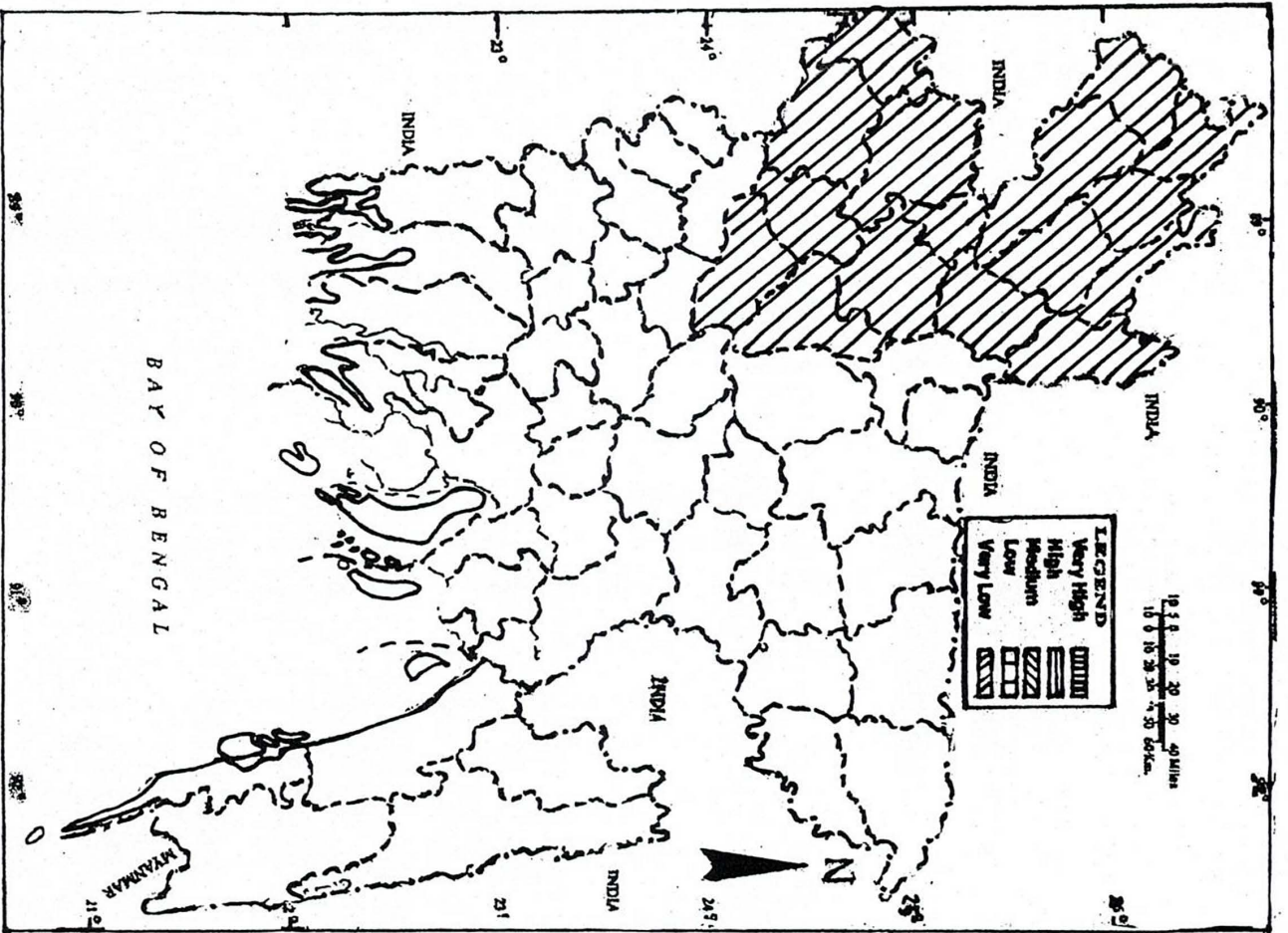
Source: Table – 4.2.15

4.16: Spatial Pattern of Municipalities of the Study Area: 2001

Source: Table – 4.2.16.

65
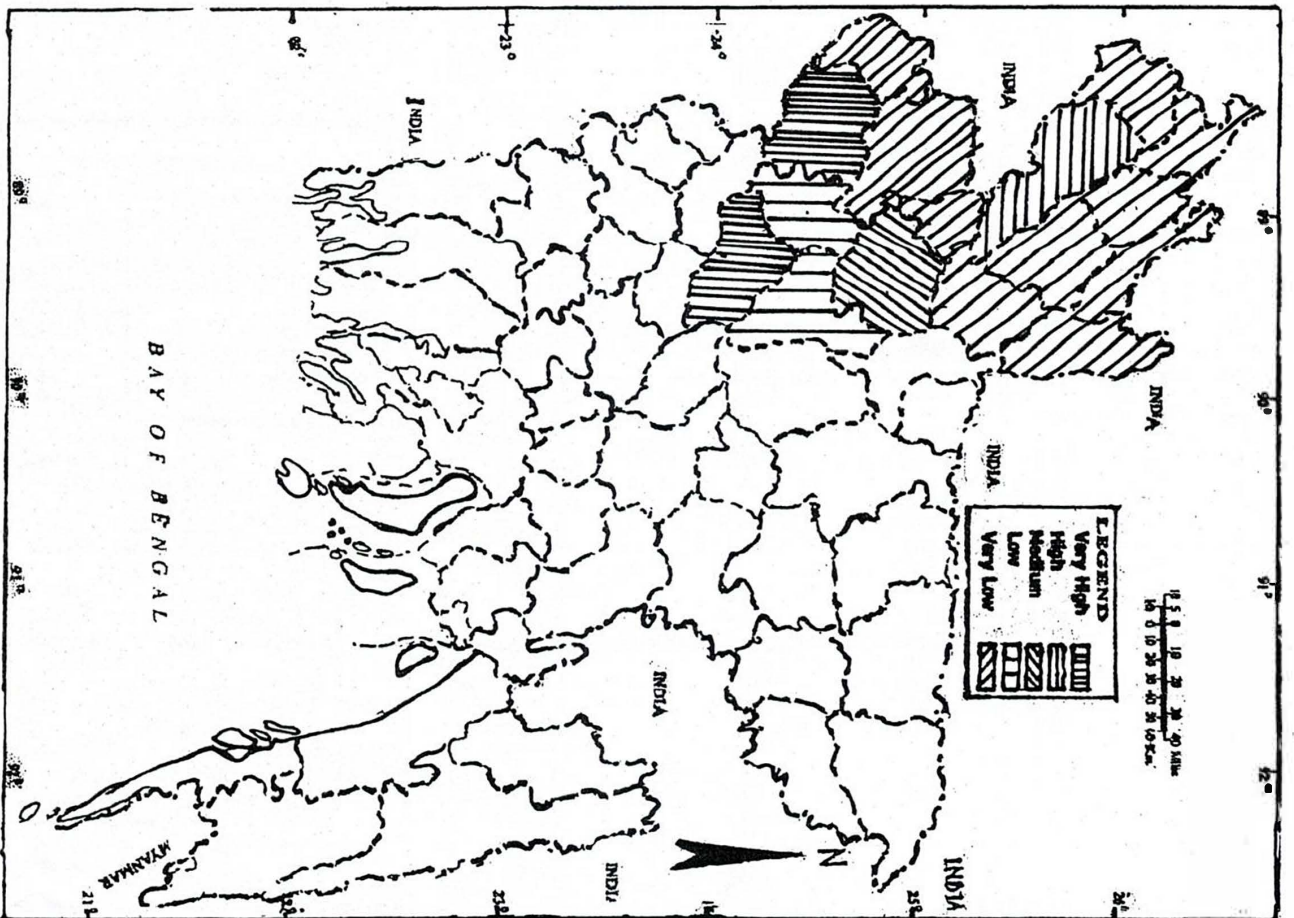
From the Table- 4.2.16 and Map- 4.16 observed only 2-districts like Pabna, Rajshahi are in the very high category (1st level), only 1-district like Dinajpur is in the high category (2nd level), only 1-district like Bogra is in the medium category (3rd level), 2-districts like Sirajgonj, Natore are in the low category (4th level) and 10-district like Joypurhat, Nawabganj, Rangpur, Naogaon, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Nilphamari, Panchagarh are in the very low category (last level) of the study area in respect of number of Municipalities out of country total 5-districts, 3-districts, 7-districts, 14-districts and 10-districts respective. All these indicates that the study area is in the very low stage in respect of having minimum municipalities.

4.3 Conclusion

This chapter contains the spatial pattern of urbanization of the study area to the context of the country (national data) for the census year 1991.

In the next chapter five, spatial changing pattern of urbanization of the study area on the basis of Bangladesh Population Census data for the year 1991 & 2001.

Chapter Five

Spatial Changing Pattern of Urbanization of the Study Area: 1991-2001

5.1   Introduction

5.2   Spatial Changing Pattern of Urbanization of the Study Area: 1991-2001

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5.2.4   Spatial Changing Pattern of Electricity Connection of the Study Area: 1991-2001

5.2.5   Spatial Changing Pattern of Sources of Drinking Water (Tub-well) of the Study Area: 1991-2001

5.2.6   Spatial Changing Pattern of Literacy Rate of the Study Area: 1991-2001

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5.2.8   Spatial Changing Pattern of Primary Schools of the Study Area: 1991-2001

5.2.9   Spatial Changing Pattern of Secondary Schools of the Study Area: 1991-2001

5.2.10 Spatial Changing Pattern of Colleges of the Study Area: 1991-2001

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5.2.12 Spatial Changing Pattern of Semi-Metal Road of the Study Area: 1991-2001

5.2.13 Spatial Changing Pattern of Kutcha Road of the Study Area: 1991-2001

5.2.14 Spatial Changing Pattern of Bank Deposit of the Study Area: 1991-2001

5.2.15 Spatial Change of Registered Rickshaws of the Study Area: 1991-2001

5.2.16 Spatial Changing Pattern of Municipalities of the Study Area: 1991-2001

5.2.17 Spatial Changing Pattern of GDP from Agricultural Sector of the Study Area: 1991-2001

5.2.18 Ranking in Spatial Changes in Levels of Urbanization of the Study Area: 1991-2001

5.3   Conclusion

Chapter Five

Spatial Changing Pattern of Urbanization of the Study Area: 1991-2001

5.1   Introduction

The concept of urbanization is vast, not least. Urbanization is a process by which vigorous changes have been made on an area or a region. Basically, urbanization is a process of population centralization. The level of urbanization has been increased since 60th century. From the liberation to 1991, the rate of urbanization was very high than that of any period.

In this study, the pattern & changes of urbanization in North-Western Regions of Bangladesh from 1991 to 2001 have been examined. To examine, analysis and interpretation of the pattern and changes of urbanization in North-Western Regions of Bangladesh, 16-variables have been used. An overall idea of the country may be generated & also possible by meaning the changing rate of urbanization in North-Western Regions of Bangladesh. The ranking has been made on the basis of degrees of the changing of the variables. This ranking indicates the level of urbanization of a district.

To measure the spatial change in levels of urbanization of the study area, variable analysis model 1 & 2 and to measure changing pattern of the related variables, variable analysis mode 3 & 4 are used.

5.2 Spatial Changing Pattern of Urbanization of the Study Area: 1991-2001

5.2.1 Spatial Change in Levels of Urbanization of the Study Area: 1991-2001

Urbanization in Bangladesh is a weak geographical process. Though the rate of urbanization of Bangladesh in creased in like with the increase of population, but this increasing trend of urbanization is very low compared to the other country of the world, even in the south Asia. From the study, it is observed that the changing rate in levels of urbanization is not satisfactory & not in the desired level. The spatial (Inter-district) change in levels of urbanization of the study area to the context of the country based on the census years data 1991 and 2001 has shown in the following Table- 5.2.1, Map- 5.1 and also in the Appendix-5.

Table-5.2.1: Spatial Change in Levels of Urbanization of the Study Area to the context of the Countr based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Cate ory	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Stud Area
1.	Very High	+ 1.54	--- (Country total 1)	
2.	High	1.17-1.54	--- (Country total 1)	
3.	Medium	0.81-1.17	--- (Country total 2)	
4.	Low	0.44-0.80	8 (Country total 20)	Bogra, Sirajganj, Dinajpur, Rangpur, Nao aon, Ra shahi, Pabna, Gaibandha.
5.	Very Low	0.06-0.43	8 (Country total 39)	Kurigram, Natore, Nilphamari, Thakurgaon, Lalmonirhat, Nawabganj, Jo urhat, Panchagarh.
		Total	**16** (Country total 64)	

Source: Based on Appendix-5.

From the Table- 5.2.1 and Map- 5.1, it is observed that the changing, levels in urbanization of the study area is in the low category (08-districts like Bogra, Sirajganj, Dinajpur, Rangpur, Naogaon, Rajshahi, Pabna, Gaibandha of the study area out of country total 20-districts) and also in the very low category (08-districts of the study area like Kurigram, Natore, Nilphamari. Thakurgaon, Lalmonirhat, Nawabganj, Joypurhat, Panchagarh out of country total 39-districts) which indicates the poor changing levels in urbanization of the study area, i;e the changing rate in levels of urbanization was very low.

5.2.2 Spatial Change of Urban Population of the Study Area: 19991-2001

Urban population is the best way to represent the real picture of urbanization. The urban population of Bangladesh was 19.63% & 23.39% in 1991 & 2001 respectively. The spatial pattern & change of urban population of the study area to the context of the country shown in the following Table- 5.2.2 and Map- 5.2.

Table-5.2.2: Spatial Change of Urban Population of the Study Area to the context of the Countr based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Cate ory	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.39344	--- (Country total 1)	
2.	High	0.29609-0.39344	--- (Country total 1)	
3.	Medium	0.19873-0.29608		
4.	Low	0.10137-0.19872	5 (Country total 13)	Sirajganj, Rajshahi, Rangpur, Dinajpur, Bo ra.
5.	Very Low	0.004-0.10136	11 (Country total 49)	Nawabganj, Naogaon, Pabna, Nilphamari, Panchagarh, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Natore, Jo urhat.
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.1.

5.1: Spatial Change in Levels of Urbanization of the Study Area: 1991-2001
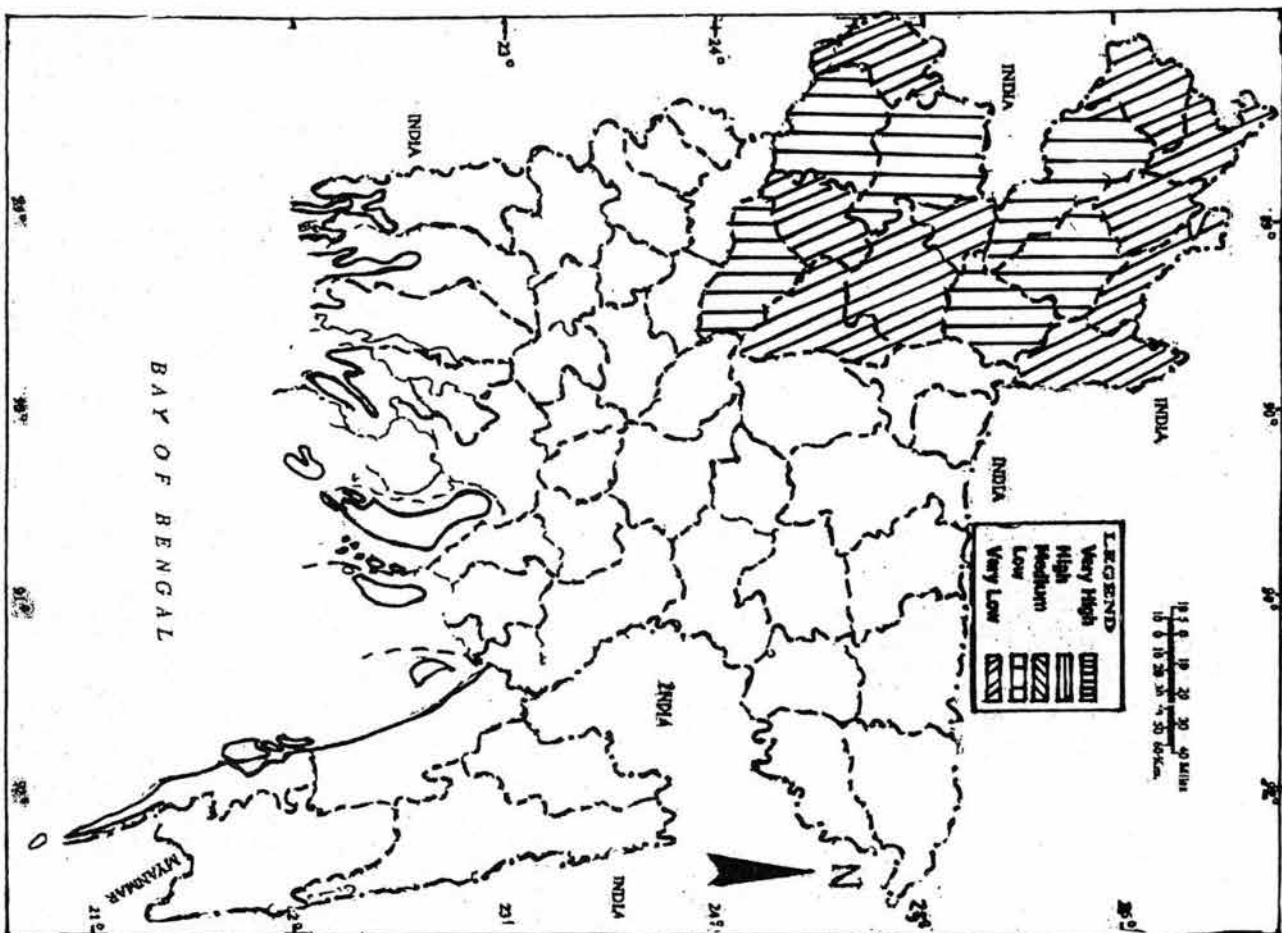
Source : Table-5.2.1.

5.2: Spatial Change of Urbanization Population of the Study Area: 1991-2001
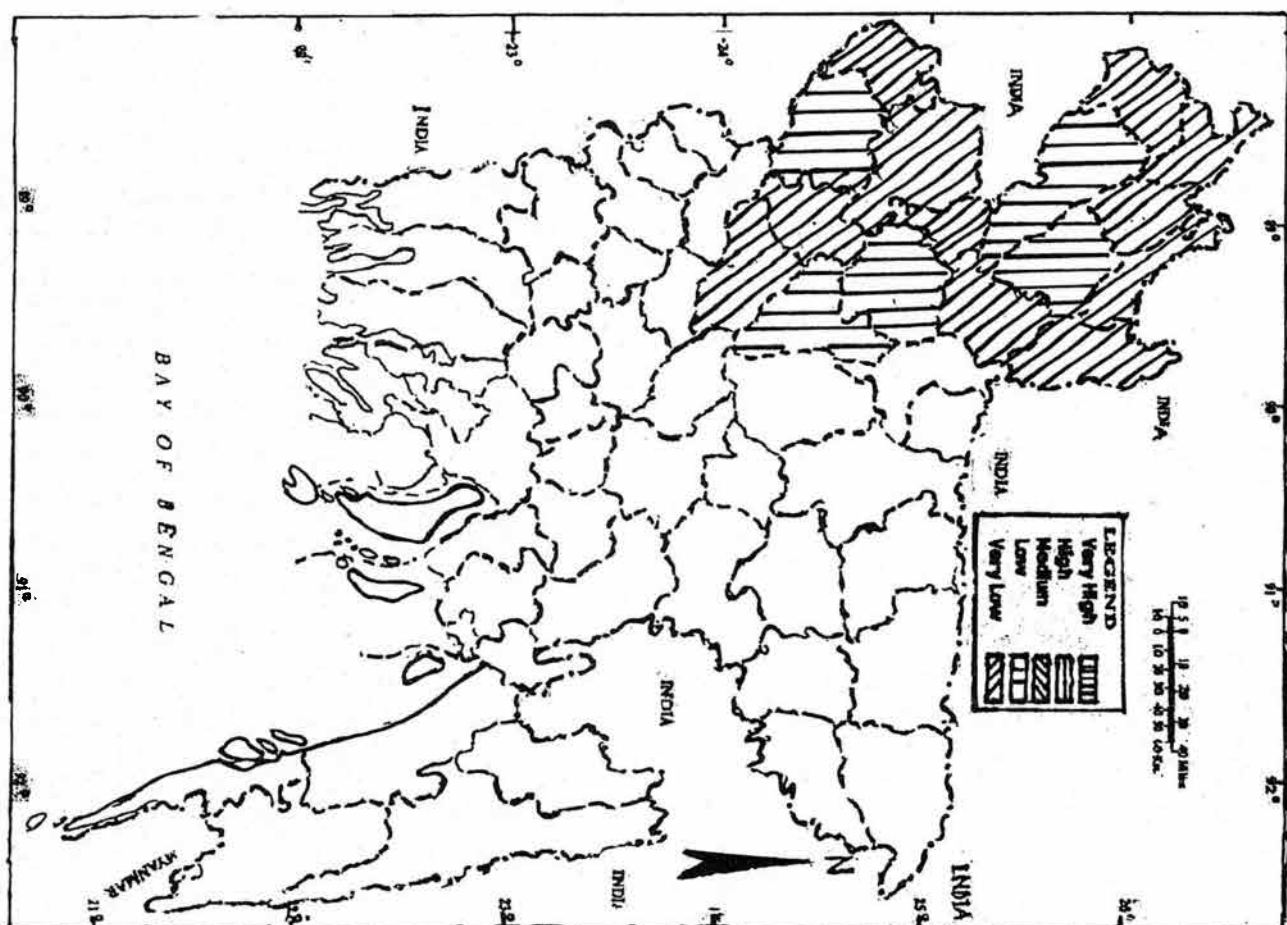
Source : Table—5.2.2.

From the Table-5.2.2. and Map-5.2 reveals that only 5-districts like Sirajganj, Rajshahi, Rangpur, Dinajpur, Bogra of the study area are in the low level (4th Category) in respect of the changing rate of urban population from the census year 1991 to 2001 and the rest 11- districts like Nawabganj, Naogaon, Pabna, Nilphamari, Panchagarh, Gaibandha, Kurigram, Lalmonirhat. Thakurgaon, Natore, Joypurhat of the study area in the very low level (last category) out of country total 13- districts and 49- districts respectively. So, the data reveals that the status of the study area in respect of urban population changing is not I the expected level compared to the country.

5.2.3 Spatial Changing Pattern of Sanitary Latrine Facilities of the Study Area: 1991-2001

Sanitary Latrine or Toilet facilitiy is one of the important mediator of living standard. The spatial changing pattern of sanitary latrine facilities in each households of the study area from 1991 to 2001 shown below in the Table-5.2.3 and Map-5.3 to the context of the country.

Table-5.2.3: Spatial Change of Sanitary Latrine Facilities of the Study Area to the context of the Country based on Davidovich Model (1973) 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 2.6252	--- (Country total 1)	-------
2.	**High**	1.977-2.6252	-------	-------
3.	**Medium**	1.3309-1.976	--- (Country total 3)	-------
4.	**Low**	0.6836-1.3308	1 (Country total 14)	Bogra.
5.	**Very Low**		15 (Country total 46)	Dinajpur, Naogaon, Sirajganj, Pabna, Rajshahi, Natore, Rangpur, Nilphamari, Panchagarh, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Joypurhat, Nawabganj.
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.2.

From the Table-5.2.3 and Map-5.3 observe that only 1-district like Bogra is in the low category (4th level) of the study area and the rest 15- districts like Dinajpur, Naogaon, Sirajganj, Pabna, Rajshahi, Natore, Rangpur, Nilphamari, Panchagarh, Gaibandha, Kurigram, Lalmonirhat, Thakurgaon, Joypurhat, Nawabganj area the very low category total 14-

districts and 46- districts respectively. These indicates that the changing level of sanitary latrine use is very low.

5.2.4   Spatial Changing Pattern of Electricity Connection of the Study Area: 1991

Electricity is the key driver of modern life and one of the most powerful indicator of urban development. The electricity connection is increasing day by day in urban area of Bangladesh due to changing the level of urbanization but this changes are not uniform in districts. District-wise changing pattern of electricity connection of the study area shown in the Table- 5.2.4 and Map- 5.4 to the context of the country statistics.

Table-5.2.4:   Spatial Change of Electricity Connection of the Study Area to the context of the Countr   based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Cate or	Z-Score Ran e	No. of Districts of the Stud Area	Name of the Districts of the Study Area
1.	**Very High**	+ 0.70809	--- (Country total 1)	
2.	**High**	0.52523-0.70809		
3.	**Medium**	0.34469-0.52522		
4.	**Low**	0.16415-0.34468	--- (Country total 1)	
5.	**Very Low**	-0.0164-0.16414	16 (Country total 62)	Rajshahi, Pabna, Sirajganj, Nawabganj, Bogra, Natore, Rangpur, Nilphamari, Joypurhat, Panchagarh, Naogaon, Gaibandha, Kurigram, Lalmonirhat Thakur aon, Dina ur.
	Total		**16** (Country total 64)	

Source: Based on Appendix-6.3.

From the Table-5.2.4 and Map-5.4 found that all districts of the study area (16- districts like Rajshahi, Pabna, Sirajganj, Nawabganj, Bogra, Natore, Rangpur, Nilphamari, Joypurhat, Panchagarh, Naogaon, Gaibandha, Kurigram, Lalmonirhat Thakurgaon, Dinajpur) are in the very low category in respect of changing of electricity connection from 1991 to 2001 out of country total 46- districts i.e. no remarkable changes have been found in the study area in respect of electricity connection from 1991 to 2001 and the changing status in very low.

5.3: Spatial Change of Sanitary Latrine Facilities of the Study Area: 1991-2001

Source: Table-5.2.3.

5.4: Spatial Change of Electricity Connection of the Study Area: 1991-2001
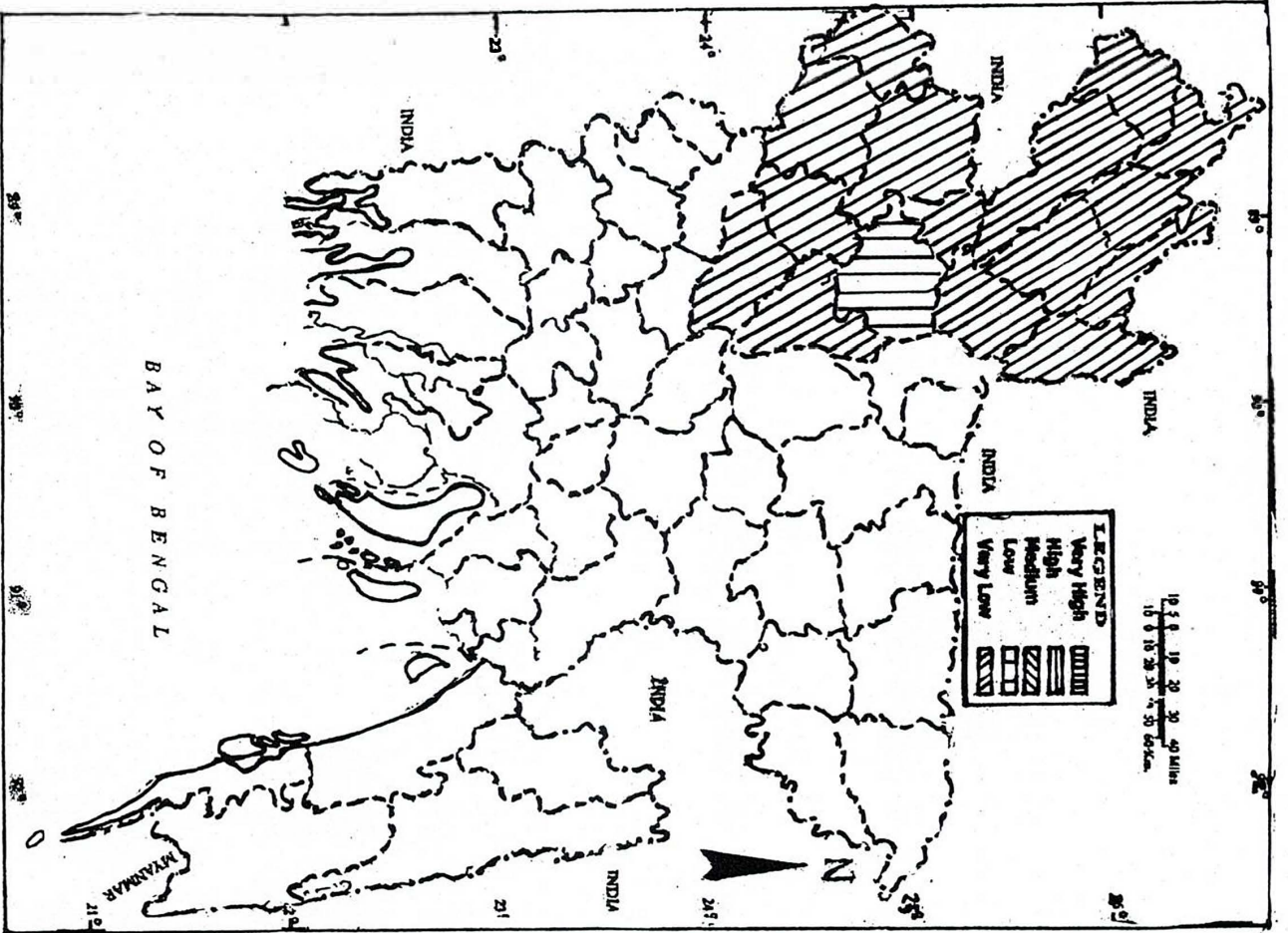
Source: Table-5.2.4.

5.2.5 Spatial Changing Pattern of Sources of Drinking Water (Tub-well) of the Study Area: 1991-2001

The main source of pure drinking water is tube-well in Bangladesh. Though the use of tube-well is limited in the urban area, but it is widely used in the rural area in Bangladesh. District-wise use and changing pattern of tube-well use by household in the study area Map- 5.6 to the context of the country for better understanding on the issue.

Table-5.2.5: Spatial Change of Tube-Well use of the Study Area to the context of the Country based on Davidovich Model (1973) 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 1.02042	--- (Country total 1)	-------
2.	High	0.72045-1.02042	-------	-------
3.	Medium	0.42047-0.72044	-------	-------
4.	Low	0.12049-0.42046	--- (Country total 1)	-------
5.	Very Low	-0.1795-1.20480	16 (Country total 62)	Sirajganj, Rajshahi, Rangpur, Naogaon, Nawabganj, Pabna, Bogra, Dinajpur, Joypurhat, Gaibandha, Natore, Kurigram, Thakurgaon, Lalmonirhat, Panchagarh, Nilphamari.
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.4.

From the Table-5.2.5 and Map-5.5 observed that all the districts of the study area (16-districts like Sirajganj, Rajshahi, Rangpur, Naogaon, Nawabganj, Pabna, Bogra, Dinajpur, Joypurhat, Gaibandha, Natore, Kurigram, Thakurgaon, Lalmonirhat, Panchagarh, Nilphamari) are in the very low level in respect of tube-well use changing from 19991 to 2001 out of country total 62-districts. This statistics also indicates that the overall tube-well use changing pattern of the urban area of Bangladesh is sTable- & duties avoidable from 1991 to 2001 and taps are taken place is stead of Tube-well use.

5.2.6 Spatial Changing Pattern of Literacy Rate of the Study Area: 1991-2001

Education is one of the basic need of the people. In live with the urbanization, the changing pattern of literacy rate has been changed. District-wise changing literacy rate of the study area from 1991 to 2001 as shown in the following Table- 5.2.6 and Map- 5.6 to the context of the country.

Table-5.2.6: Spatial Change of Literacy Rate of the Study Area to the context of the Countr based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Category	Z-Score Ran e	No. of Districts of the Stud Area	Name of the Districts of the Study Area
1.	**Very High**	+ 0.71228	--- (Country total 1)	
2.	**High**	0.53687-0.71228		
3.	**Medium**	0.36145-0.53688	--- (Country total 1)	
4.	**Low**	0.18603-0.36146	**7** (Country total 12)	Bogra, Rangpur, Sirajganj, Dinajpur, Nao aon, Ra shahi, Gaibandha.
5.	**Very Low**	0.01060-0.18602	**9** (Country total 49)	Pabna, Kurigram, Natore, Nilphamari, Nawabganj, Thakurgaon, Lalmonirhat, Jo urhat, Panchagarh.
	Total		**16** (Country total 64)	

Source: Based on Appendix-6.5.

From the Table-5.2.6 and Map-5.6 found that only 7-districts like Bogra, Rangpur, Sirajganj, Dinajpur, Naogaon, Rajshahi, Gaibandha of the study area are in the low category (4th level) and the rest 9-districts like Pabna, Kurigram, Natore, Nilphamari, Nawabganj, Thakurgaon, Lalmonirhat, Joypurhat, Panchagarh are in the very low category (last level) in respect of changing o literacy rate from 1991 to 2001 out of country total 12-districts and 49- districts respectively. This statistics indicates that very minimum changes have been mad in the study area, even in the country.

5.5: Spatial Change of Tube-Well use of the Study Area: 1991-2001

5.6: Spatial Change of Literacy Rate of the Study Area: 1991-2001

75

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

MYANMAR
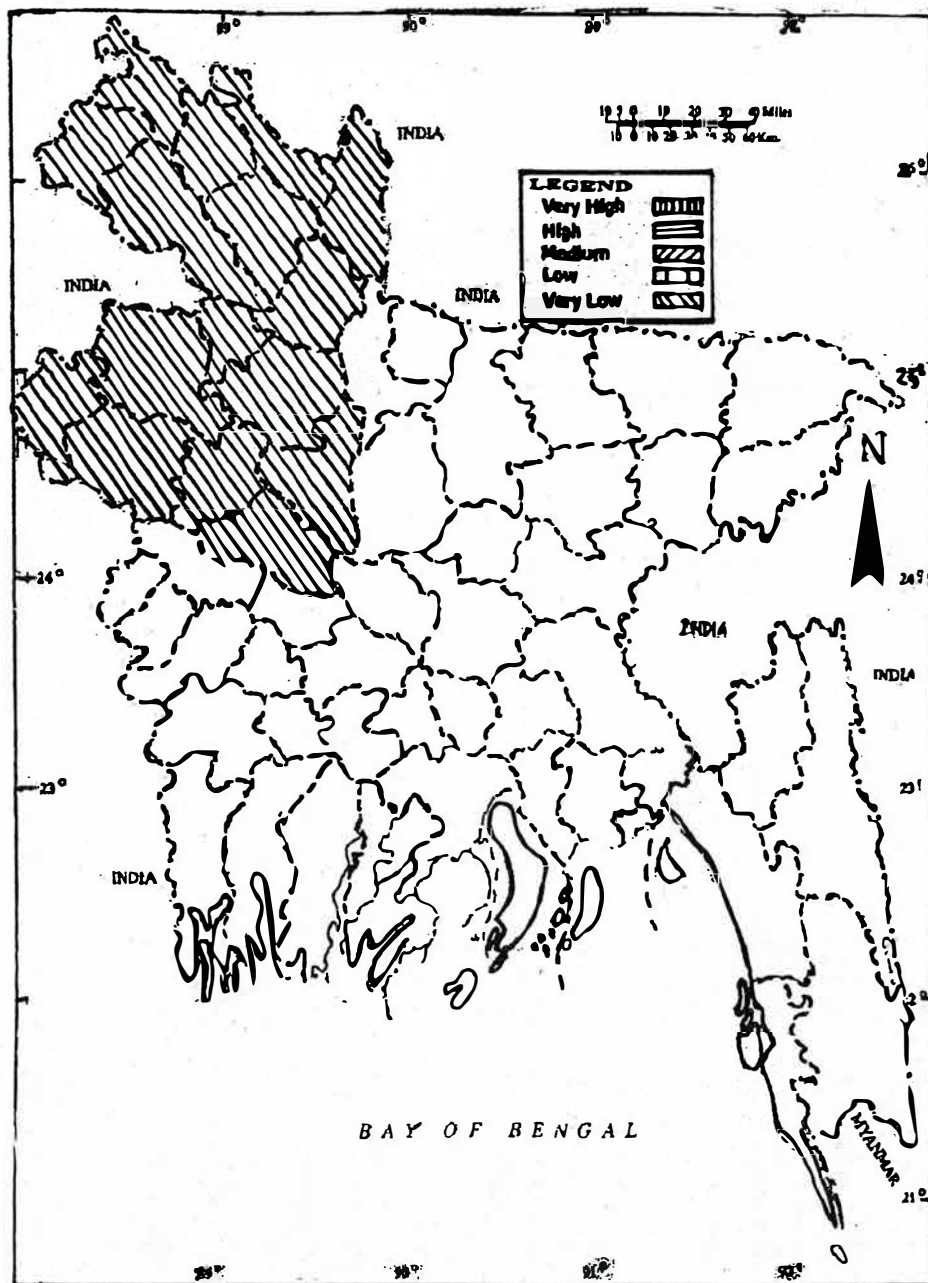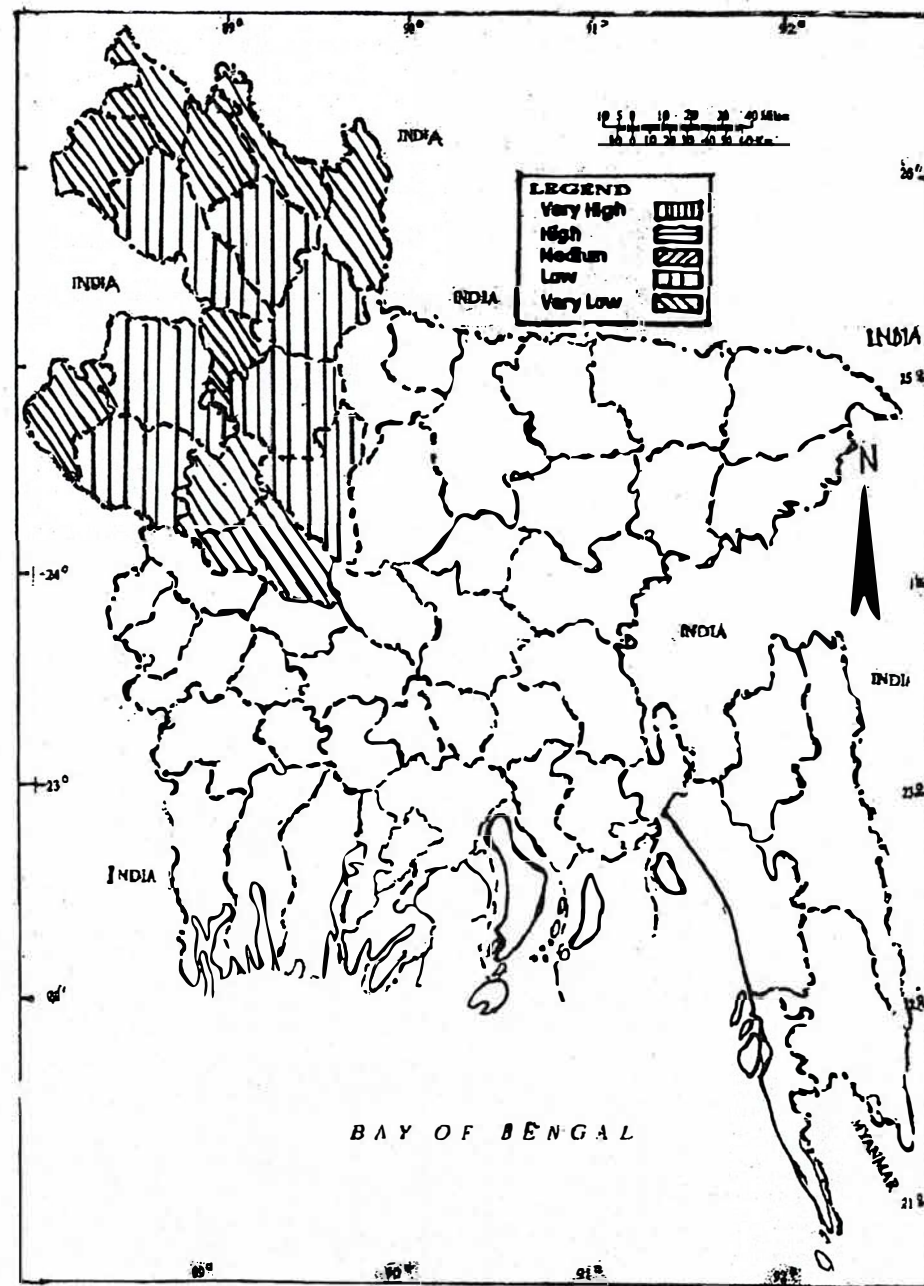
Source: Table-5.2.5.

Source: Table-5.2.6.

5.2.7 Spatial Changing Pattern of Urban Literacy Rate of the Study Area: 1991-2001

Urbanization is measured on the basis of urban literacy rate. Urban literacy rate is higher than rural literacy rate of Bangladesh. District-wise changing pattern of urban literacy rate form 1991 to 2001 are mentioned below in the Table-5.2.7 and Map-5.7 to the context of the country.

Table-5.2.7: Spatial Change of Urban Literacy Rate of the Study Area to the context of the Countr based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score	Z-Score Ran e	No. of Districts of the Stud Area	Name of the Districts of the Stud Area
	Very High	+ 0.71228	--- (Country total 1)	
	High	0.53687-0.71228	--- (Country total 3)	
	Medium	0.36145-0.53688	--- (Country total 2)	
	Low	0.18603-0.36146	3 (Country total 23)	Bogra, Gaibandha, Rangpur.
5.	Very Low	0.01060-0.18602	13 (Country total 36)	Sirajganj, Pabna, Dinajpur, Thakurgaon, Rajshahi, Nawabganj, Natore, Naogaon, Kurigram, Lalmonirhat, Panchagarh, Jo urhat, Nil hamari.
	Total		16 (Country total 64)	

Source: Based on Appendix-6.6.

From the Table-5.2.7 and Map-5.7 observed that only 3-districts like Bogra, Gaibanda, Rangpur of the Study area are in the low category (4th level) in respect of changing of urban literacy rate and the rest 13-districts like Sirajganj, Pabna, Dinajpur, Thakurgaon, Rajshahi, Nawabganj, Natore, Naogaon, Kurigram, Lalmonirhat, Panchagarh, Joypurhat, Nilphamari are in the very low category (last level) out of country total 23-districts and 36-districts respectively. This statistics indicates that the level or urban literacy rate of the study area has been changed very little from 1991 to 2001, even in the country.

5.2.8 Spatial Changing Pattern of Primary Schools of the Study Area: 1991-2001

Primary education is the first level of education in Bangladesh. The number of primary schools are increasing in line with the increase of population of the country. District-wise statistics of the changing pattern

of the primary schools of the study area from 1991 to 2001 are shown in the following Table-5.2.8 and Map-5.8.

Table-5.2.8: Spatial Change of Primary Schools of the Study Area to the context of the Countr based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Category	Z-Score Ran e	No. of Districts of the Stud Area	Name of the Districts of the Stud Area
1.	Very High	+ 0.332	--- (Country total 1)	
2.	High	`-0.027-0.332	2 (Country total 2)	Pabna, Kurigram.
3.	Medium	-0.385- -0.026	4 (Country total 10)	Naogaon, Rangpur, Lalmonirhat, Gaibandha.
4.	Low	-0.743- -0.386	5 (Country total 28)	Nilphamari, Natore, Nawabganj, Rajshahi, Pancha arh.
5.	Very Low	-1.100- -0.742	5 (Country total 24)	Sirajganj, Joypurhat, Thakurgaon, Dinajpur, Bo ra.
		Total	16 (Country total 64)	

Source: Based on Appendix-6.7.

From the Table-5.2.8 and Map-5.8 observed that only 2-districts like pabna, Kurigram are in the high category (2nd level), 4-districts like Naogaon, Rangpur, Lalmonirhat, Gaibandha are in the medium category (3rd level), 5-districts like Nilphamari, Natore, Nawabganj, Rajshahi, Panchagarh are in the low category (4th level) and the rest 5-districts like Sirajganj, Joypurhat, Thakurgaon, Dinajpur, Bogra of the study area are in the very low category (last level) in respect of changing in number of primary school out of country total 2-districts, 10-districts, 28-districts and 24-districts respectively from 1991 to 2001. This statistics indicates that a number of primary schools increased from 1991 to 2001 in the study area, even in the country.

5.7: Spatial Change of Urban Literacy Rate of the Study Area: 1991-2001
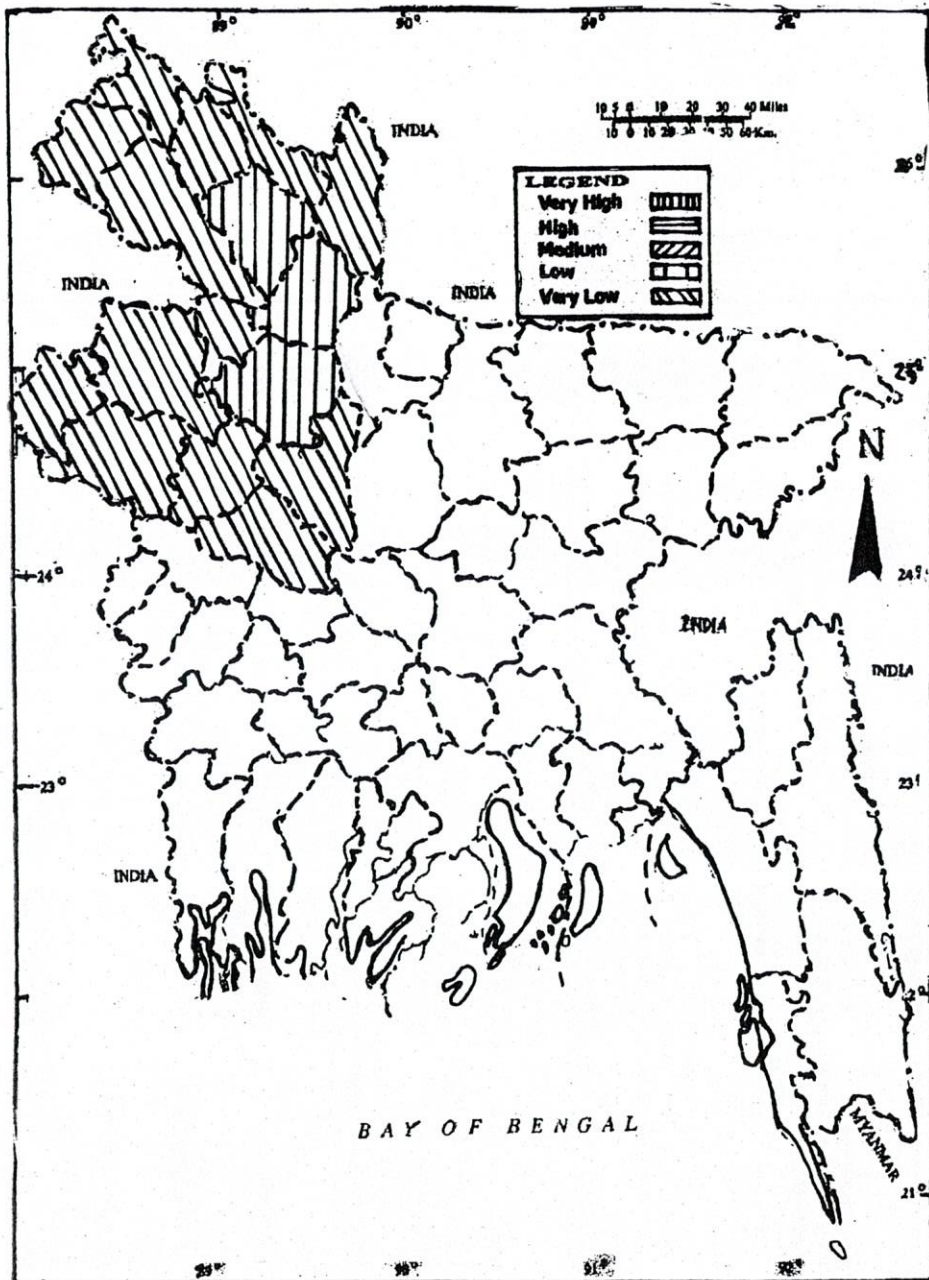
5.8: Spatial Change of Primary Schools of the Study Area: 1991-2001

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

MYANMAR

Source: Table-5.2.7.

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

MYANMAR
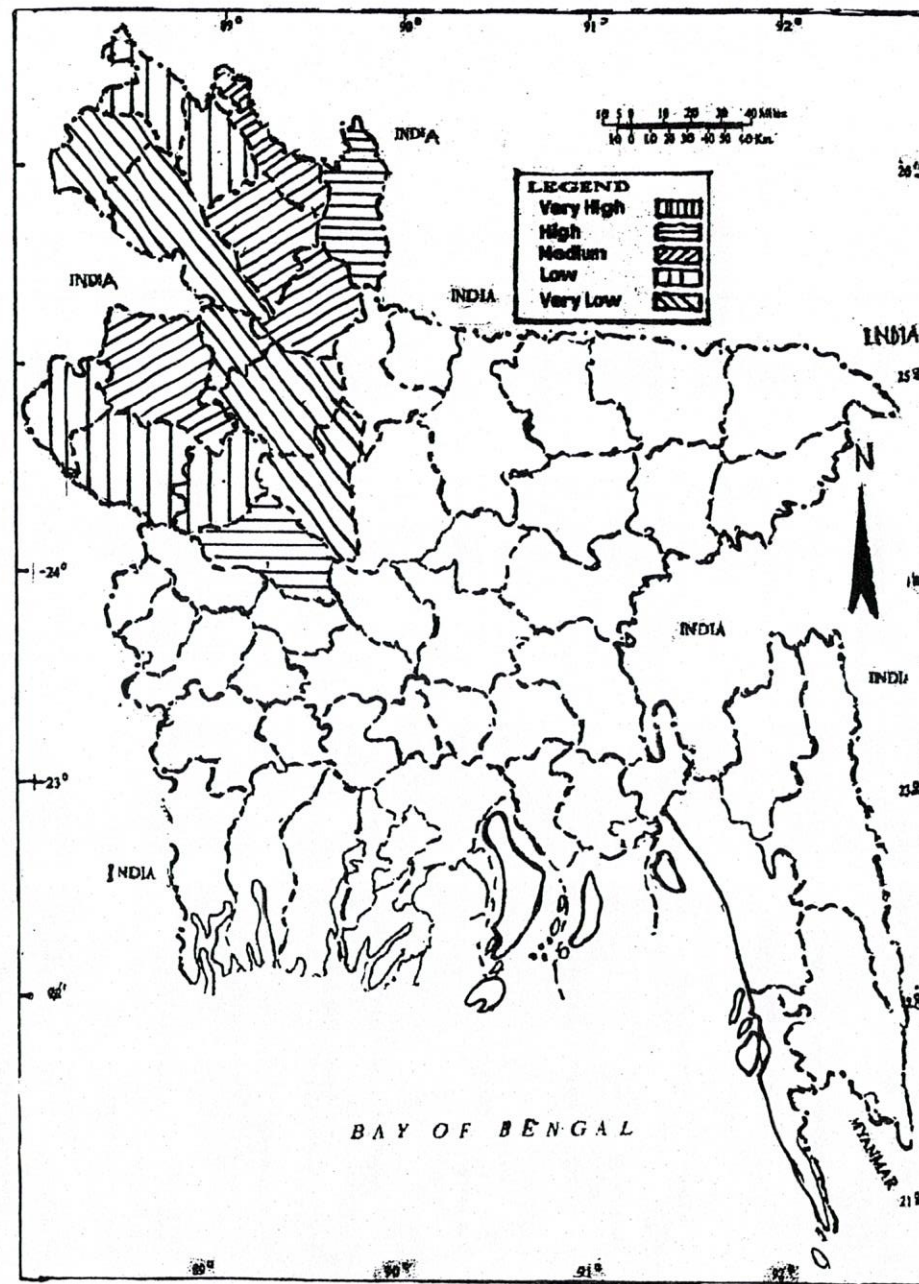
Source: Table-5.2.8.

5.2.9 Spatial Changing Pattern of Secondary Schools of the Study Area: 1991-2001

Secondary education is in the 2nd level of education in Bangladesh. District-wise statistics regarding changing pattern of secondary school of the study area from 1991 to 2001 are shown in the Table- 5.2.9 and Map-5.9 to the context of the country.

Table-5.2.9: Spatial Change of Secondary Schools of the Study Area to the context of the Country based on Davidovich Model (1973): 1991-2001

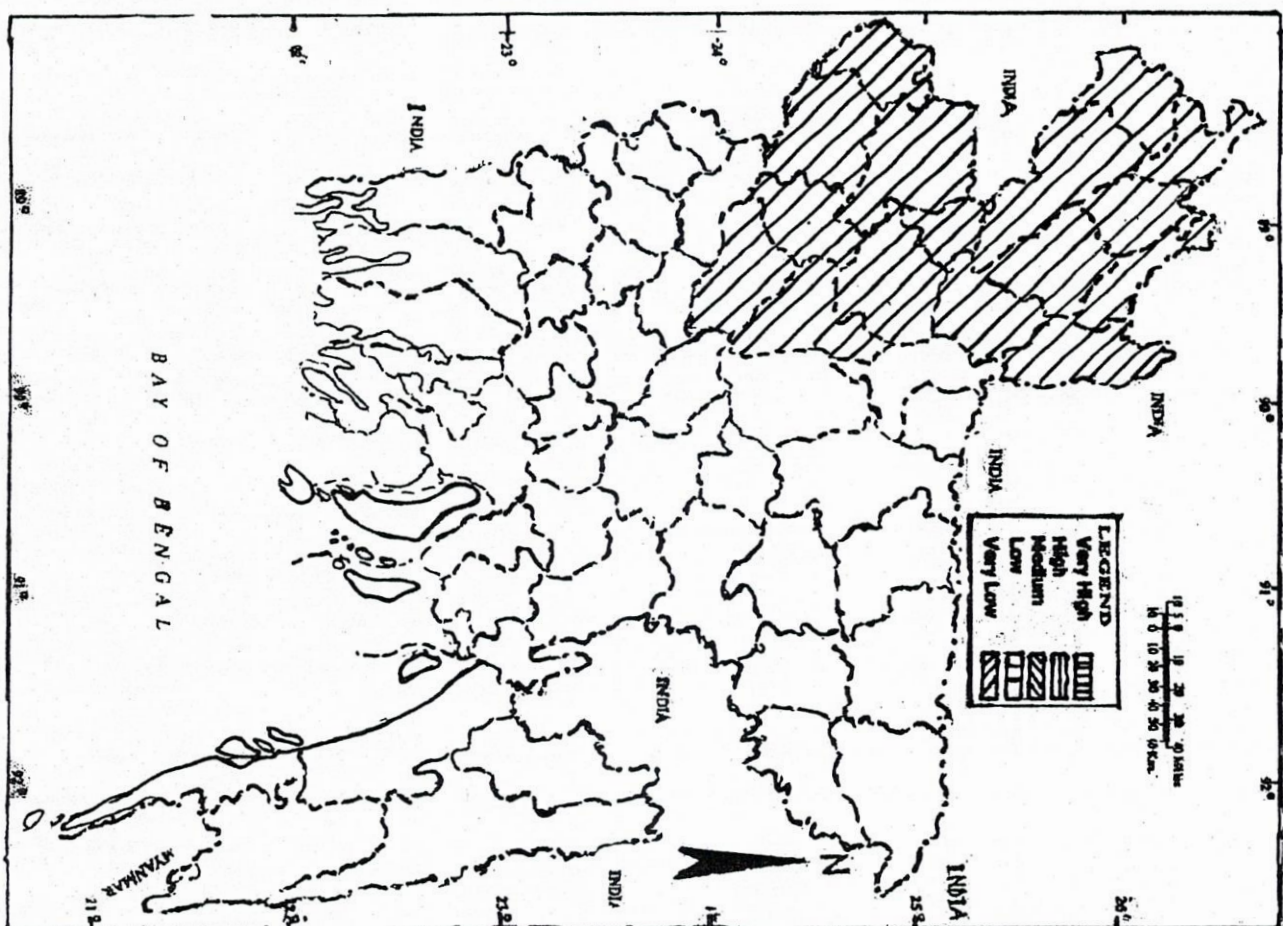| Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.09142	2 (Country total 3)	Rajshahi, Panchagarh.
2.	High	0.01585-0.09142	10 (Country total 24)	Thakurgaon, Gaibandha, Natore, Nilphamari, Dinajpur, Rangpur, Pabna, Sirajganj, Kurigram, Naogaon.
3.	Medium	-0.05975-0.01584	4 (Country total 35)	Nawabganj, Lalmonirhat, Bogra, Joypurhat.
4.	Low	-0.13533- -0.05974	-------	-------
5.	Very Low	-0.2109- -0.13532	--- (Country total 2)	-------
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.8.

From the Table-5.2.9 and Map-5.9 found that only 2-districts like Rajshahi, Panchagarh of the study area are in the very high category (1st level), 10-districts like Thakurgaon, Gaibandha, Natore, Nilphamari, Dinajpur, Rangpur, Pabna, Sirajganj, Kurigram, Naogaon are in the high category (2nd level) and the rest 4-districts like Nawabganj, Lalmonirhat, Bogra, Joypurhat are in the medium category (3rd level) of the study area in respect of changing in number of secondary schools from 1991 to 2001 out of country total 3-districts, 24-districts and 35-districts respectively. This statistics proves that the changing rate in number of secondary schools of the study area has remarkably changed, even in the country, i.e. number of secondary school has increased from 1991 to 2001 in a considerable rate but not uniformly.

5.2.10 Spatial Changing Pattern of Colleges of the Study Area: 1991-2001

College is the 3rd level of education in Bangladesh. District-wise statistics of changing in number of colleges from 1991 to 2001 of the study area are mentioned below in the Table-5.2.10 and Map-5.10 to the context of the country.

Table-5.2.10: Spatial Change of Colleges of the Study Area to the context of the Country based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.96360	--- (Country total 1)	-------
2.	High	0.02713-0.96360	2 (Country total 2)	Sirajganj, Rajshahi.
3.	Medium	-0.04213-0.02712	14 (Country total 60)	Naogaon, Rangpur, Gaibandha, Dinajpur, Nawabganj, Lalmonirhat, Nilphamari, Panchagarh, Kurigram, Thakurgaon, Joypurhat, Pabna, Bogra, Natore.
4.	Low	-0.11137- -0.04213	-------	-------
5.	Very Low	-0.18060- -0.11136	--- (Country total 1)	-------
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.9.

From the Table-5.2.10 and Map-5.10 found that 14-districts like Naogaon, Rangpur, Gaibandha, Dinajpur, Nawabganj, Lalmonirhat, Nilphamari, Panchagarh, Kurigram, Thakurgaon, Joypurhat, Pabna, Bogra, Natore are in the medium category (3rd level) and only 1-district like Rajshahi is in the very low category (last level) of the study area in respect of changing in number of colleges out of country total 28-districts, 22-districts and 4-districts respectively. This statistics indicates that the rate of increasing in number of colleges is slow-form 1991 to 2001 in the study area and Rajshahi district having divisional town has more or less zero level increase in the number of colleges from 1991 to 2001 is questionable to the urbanization.

5.9: Spatial Change of Secondary Schools of the Study Area: 1991-2001
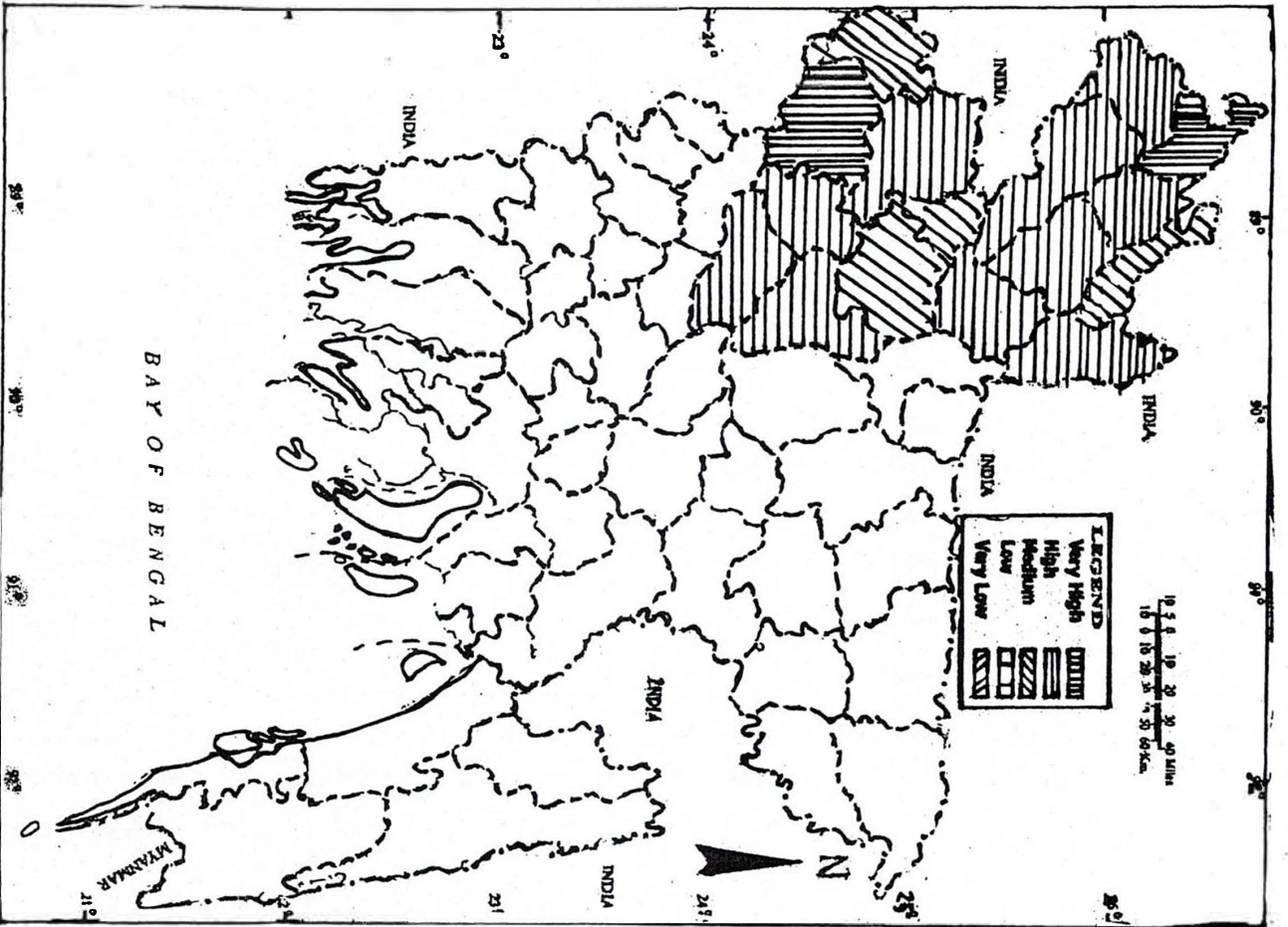
Source: Table - 5.2.9.

5.10: Spatial Change of Colleges of the Study Area: 1991-2001
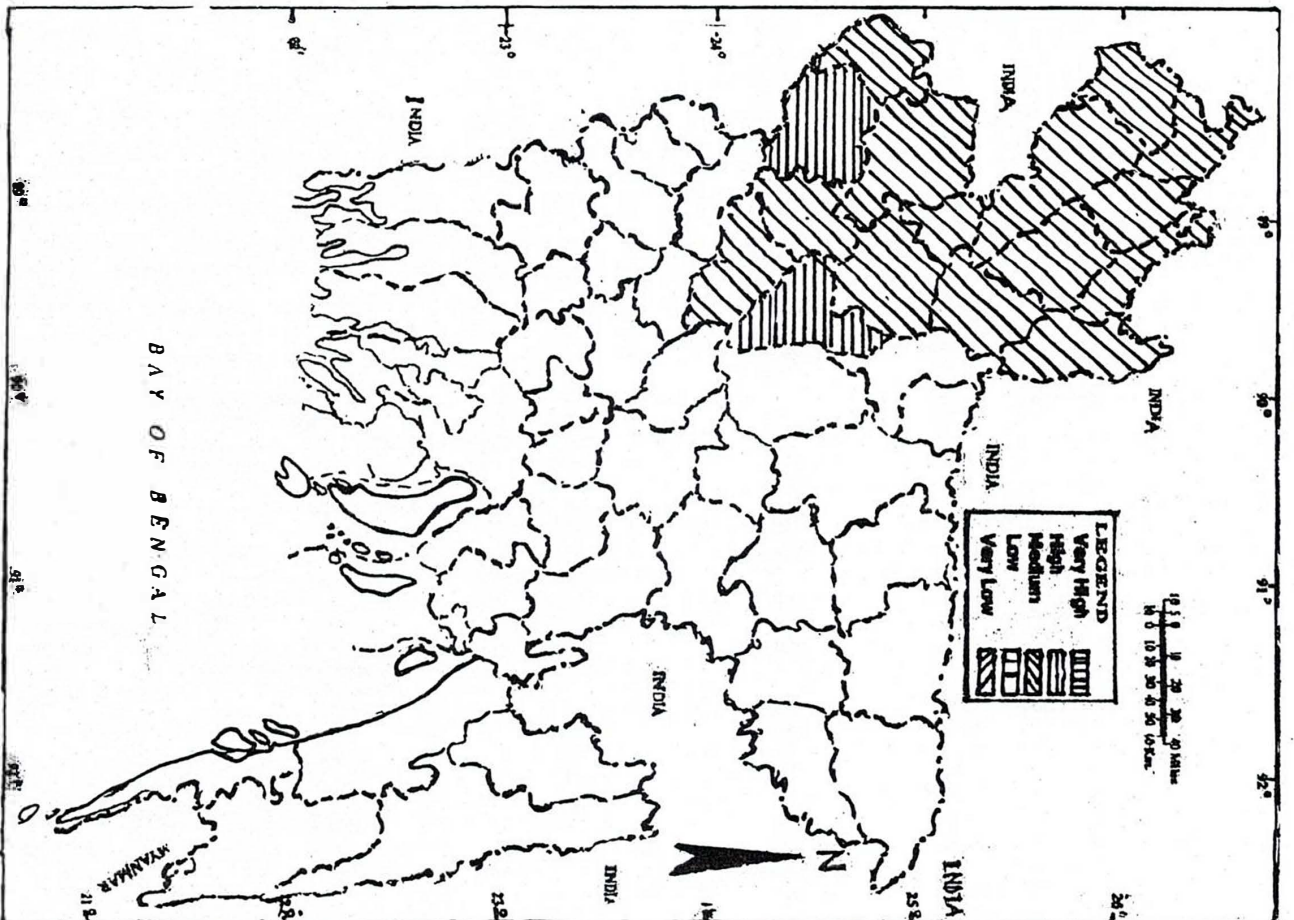
Source: Table - 5.2.10.

5.2.11 Spatial Changing Pattern of Metal Road of the Study Area: 1991-2001

The good communication system is the pre-condition of economic development. The contribution of Road way is important for the communication system of Bangladesh. District-wise change pattern of Metal Road from 1991 to 2001 of the study area to the context of the country has shown in the following Table- 5.2.11 and Map- 5.11.

Table-5.2.11: Spatial Change of Metal Road of the Study Area to the context of the Country based on Davidovich Model (1973) 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 2.7254	--- (Country total 2)	-------
2.	High	1.5525-2.7254	--- (Country total 8)	-------
3.	Medium	0.3797-0.5524	9 (Country total 28)	Rangpur, Gaibandha, Pabna, Nilphamari, Joypurhat, Nawabganj, Sirajganj, Panchagarh, Naogaon.
4.	Low	-0.7934-0.3796	6 (Country total 22)	Lalmonirhat, Bogra, Natore, Dinajpur, Kurigram, Thakurgaon.
5.	Very Low	-1.9662- -0.7933	1 (Country total 4)	Rajshahi.
		Total	16 (Country total 64)	

Source: Based on Appendix-6.10.

From the Table- 5.2.11 and Map- 5.11 found that 9-districts like Rangpur, Gaibandha, Pabna, Nilphamari, Joypurhat, Nawabganj, Sirajganj, Panchagarh, Naogaon of the study area has been increased Metal Road from 1991 to 2001 in the medium category, 6-districts like Lalmonirhat, Bogra, Natore, Dinajpur, Kurigram, Thakurgaon has been increased Metal Road from 1991 to 2001 in the low category (minimum rate) and only 1-district like Rajshahi has been increased Metal Road form 1991 to 2001 in the very low category (very minimum rate) out of country total 28-districts, 22-districts and 4-districts respectively.

5.2.12 Spatial Changing Pattern of Semi-Metal Road of the Study Area: 1991-2001

The importance of Semi-Metal Road in Bangladesh is unlimited. District-wise statistics of the changing in the length of semi-Metal Road of the study area from 1991 to 2001 to the context of the country are shown in the Table- 5.2.12 and Map-5.12.

Table-5.2.12: Spatial Change of Semi-Metal Road of the Study Area to the context of the Country based on Davidovich Model (1973) 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 17.46678	--- (Country total 2)	-------
2.	High	13.11377-17.46678	-------	-------
3.	Medium	8.76075-13.11376	--- (Country total 2)	-------
4.	Low	4.40773-8.76074	--- (Country total 3)	-------
5.	Very Low	0.05470-4.40772	16 (Country total 57)	Rajshahi, Natore, Pabna, Naogaon, Kurigram, Nilphamari, Joypurhat, Sirajganj, Gaibandha, Bogra, Rangpur, Dinajpur, Lalmonirhat, Nawabganj, Panchagarh, Thakurgaon.
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.11.

From the Table-5.2.12 and Map-5.12 found that all districts (16- districts like Rajshahi, Natore, Pabna, Naogaon, Kurigram, Nilphamari, Joypurhat, Sirajganj, Gaibandha, Bogra, Rangpur, Dinajpur, Lalmonirhat, Nawabganj, Panchagarh, Thakurgaon) of the study area has been changed very minimum and changing pattern is in the very low category in respect of length of semi-Metal Road from 1991 to 2001 out of country total 57-districts.

5.11: Spatial Change of Metal Road of the Study Area: 1991-2001

Source: Table-5.2.11.
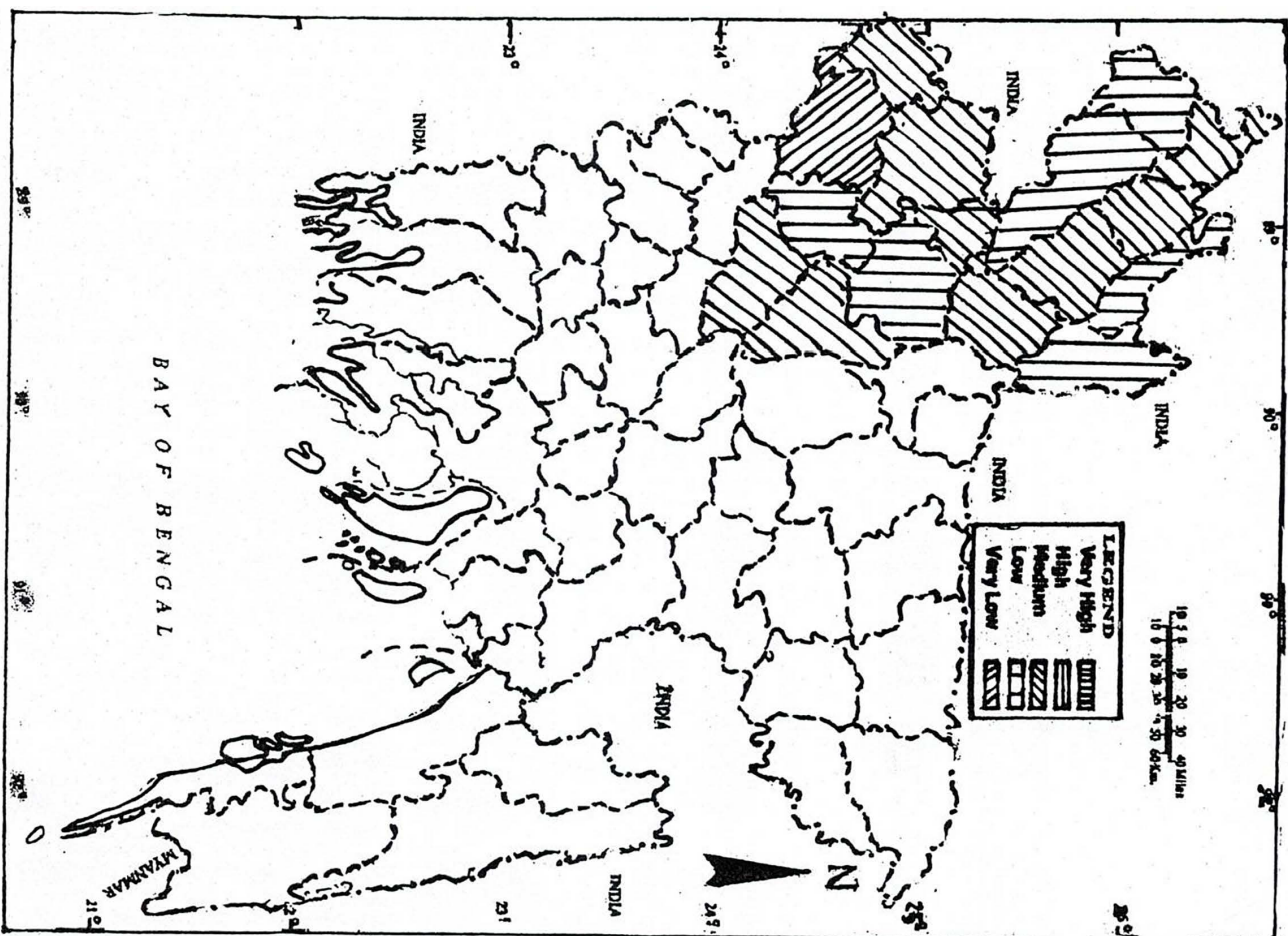
5. 2 Spatial Change of Semi-Metal Road o the Study Area: 1991-2001
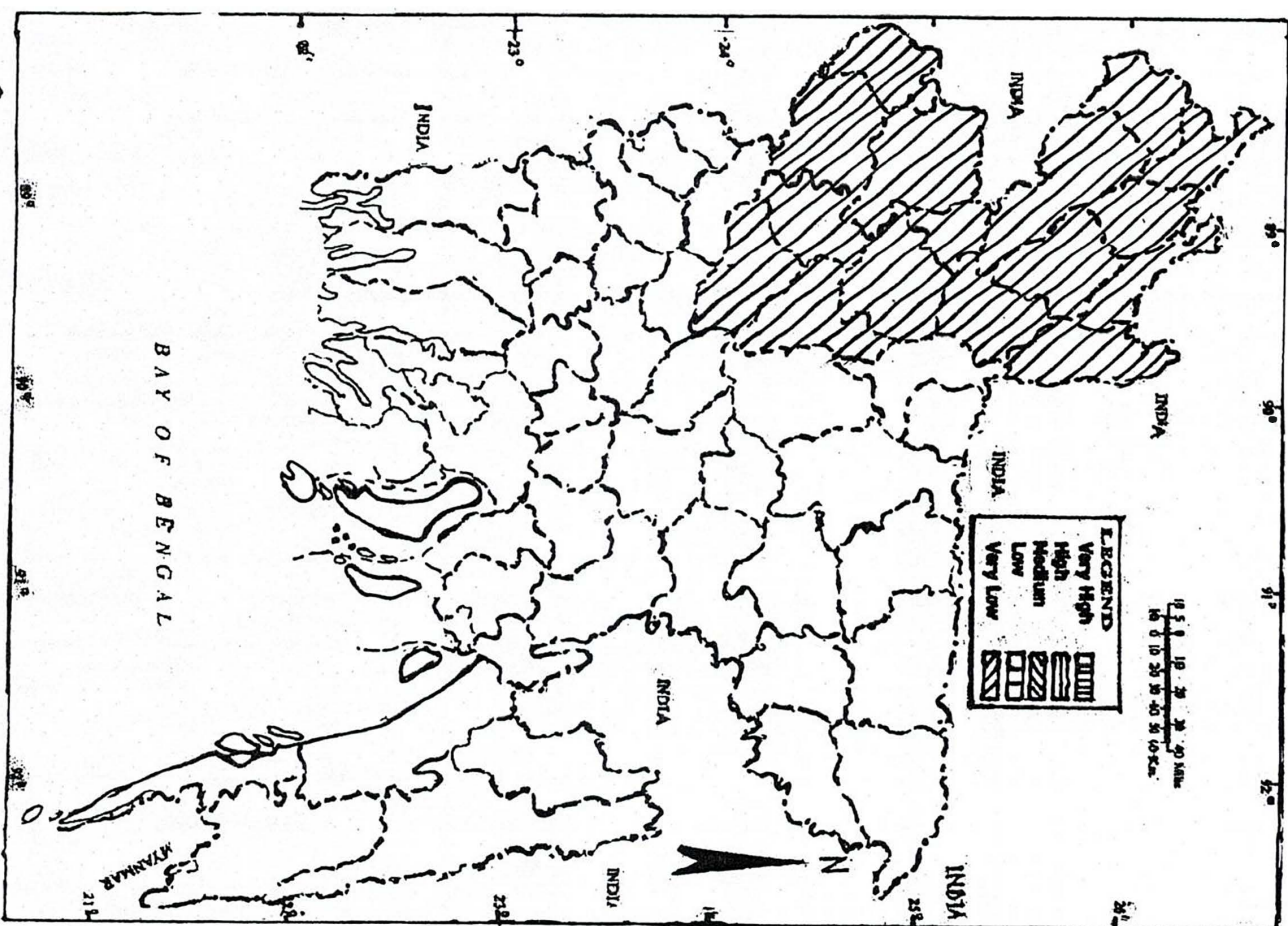
Source: table-5.2.12.

5.2.13 Spatial Changing Pattern of Kutcha Road of the Study Area: 1991-2001

Kutcha road (made by only soil) is very important in rural area of Bangladesh but in the urban area, the length of Kutcha road is less than rural area. District-wise changing pattern of Kutcha Road of the study area from 1991 to 2001 to the context of the country is shown below in the Table- 5.2.13 and Map- 5.13.

Table-5.2.13: Spatial Change of Kutcha Road of the Study Area to the context of the Country based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.38794	--- (Country total 1)	-------
2.	High	0.15719-0.38794	--- (Country total 2)	-------
3.	Medium	-0.07359-0.15718	13 (Country total 51)	Kurigram, Gaibandha, Lalmonirhat, Nawabganj, Joypurhat, Thakurgaon, Sirajganj, Panchagarh, Natore, Naogaon, Dinajpur, Pabna, Bogra.
4.	Low	-0.30434- -0.07358	3 (Country total 6)	Nilphamari, Rajshahi, Rangpur.
5.	Very Low	-0.53510- -0.30433	--- (Country total 2)	-------
		Total	16 (Country total 64)	

Source: Based on Appendix-6.12.

From the Table-5.2.13 and Map-5.13. found that the increase of Kutcha road of only 1-district like Rajshahi is very low due to transform into semi-Metal Road and into Metal Road, indicates the negative change out of country 2-districts and 13-districts like Kurigram, Gaibandha, Lalmonirhat, Nawabganj, Joypurhat, Thakurgaon, Sirajganj, Panchagarh, Natore, Naogaon, Dinajpur, Pabna Bogra of the study area are in the low category out of country total 57- districts.

5.2.14 Spatial Changing Pattern of Bank Deposit of the Study Area: 1991-2001

Bank is an important phenomenon of the economy. How much money is deposited to the Bank in the specific period of time of an year under the surroundings of the Bank is measured the picture of the area. District-wise picture of Bank deposit changing pattern from 1991 to 2001 of the study area to the context of the country is shown in the Table- 5.2.14 and Map- 5.14.

Table-5.2.14: Spatial Change of Bank Deposits of the Study Area to the context of the Country based on Davidovich Model (1973): 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.38794	--- (Country total 1)	-------
2.	High	0.15719-0.38794	--- (Country total 2)	-------
3.	Medium	-0.07359-0.15718	--- (Country total 3)	
4.	Low	-0.30434- -0.07358	15 (Country total 56)	Kurigram, Gaibandha, Lalmonirhat, Nawabganj, Joypurhat, Thakurgaon, Sirajganj, Panchagarh, Natore, Naogaon, Dinajpur, Pabna, Bogra, Nilphamari, Rangpur.
5.	Very Low	-0.53510- -0.30433	--- (Country total 2)	Rajshahi
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.13.

From the Table- 5.2.14 and Map- 5.14 found that the Bank deposit of the 15-districts like Kurigram, Gaibandha, Lalmonirhat, Nawabganj, Joypurhat, Thakurgaon, Sirajganj, Panchagarh, Natore, Naogaon, Dinajpur, Pabna, Bogra, Nilphamari, Rangpur of the study area has increased in medium category (3rd level) and Bank deposit of only 3-districts like Nilphamari, Rajshahi, Rangpur of the study area increased in low category or rate (4th level) out of country total 51- districts and 6-districts respectively from 1991 to 2001, i.e. no remarkable increases have been found in the study area from 1991 to 2001.

5.2.15: Spatial Change of Registered Rickshaws of the Study Area: 1991-2001

Rickshaw in one of the important transportation system of Bangladesh. The importance of Rickshaw in the urban area is higher than rural area. Districts-wise changing pattern of Register Rickshaws of the study area from 1991 to 2001 to the context of the country are shown in the Table-5.2.15 and Map- 5.15.

Table-5.2.15: Spatial Change of Registered Rickshaws of the Study Area to the context of the Country based on Davidovich Model (1973) 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	**Very High**	+ 0.00582	--- (Country total 1)	-------
2.	**High**	0.00425-0.00582	-------	-------
3.	**Medium**	0.00267-0.00424	-------	-------
4.	**Low**	0.00109-0.00266	3 (Country total 25)	Bogra, Pabna, Natore.
5.	**Very Low**	-0.0005-0.00109	13 (Country total 38)	Rajshahi, Nawabganj, Rangpur, Gaibandha, Lalmonirhat, Dinajpur, Thakurgaon, Naogaon, Joypurhat, Kurigram, Nilphamari, Sirajganj, Panchagarh.
		Total	16 (Country total 64)	

Source: Based on Appendix-6.14.

From the Table-5.2.15 and Map-5.15 found that the registered rickshaws has been increased of 3-districts like Bogra, Pabna, Natore of the study are in low rate out country total 25-districts and also the registered rickshaws has been increased in a very minimum (low) rate of the 13-districts like Rajshahi, Nawabganj, Rangpur, Gaibandha, Lalmonirhat, Dinajpur, Thakurgaon, Naogaon, Joypurhat, Kurigram, Nilphamari, Sirajganj, Panchagarh of the study area out of country total 38- districts from 1991 to 2001.

5.2.16 Spatial Changing Pattern of Municipalities of the Study Area: 1991-2001

Counting of District Sadar other important areas of Bangladesh, the number of Municipalities has been increased remarkably, District-wise changing pattern of Municipalities in number of the study area has been shown in the Table-5.2.16 and Map-5.16 to the context of the country from 1991 to 2001.

5.13: Spatial Change of Kutcha Road of the Study Area: 1991-2001
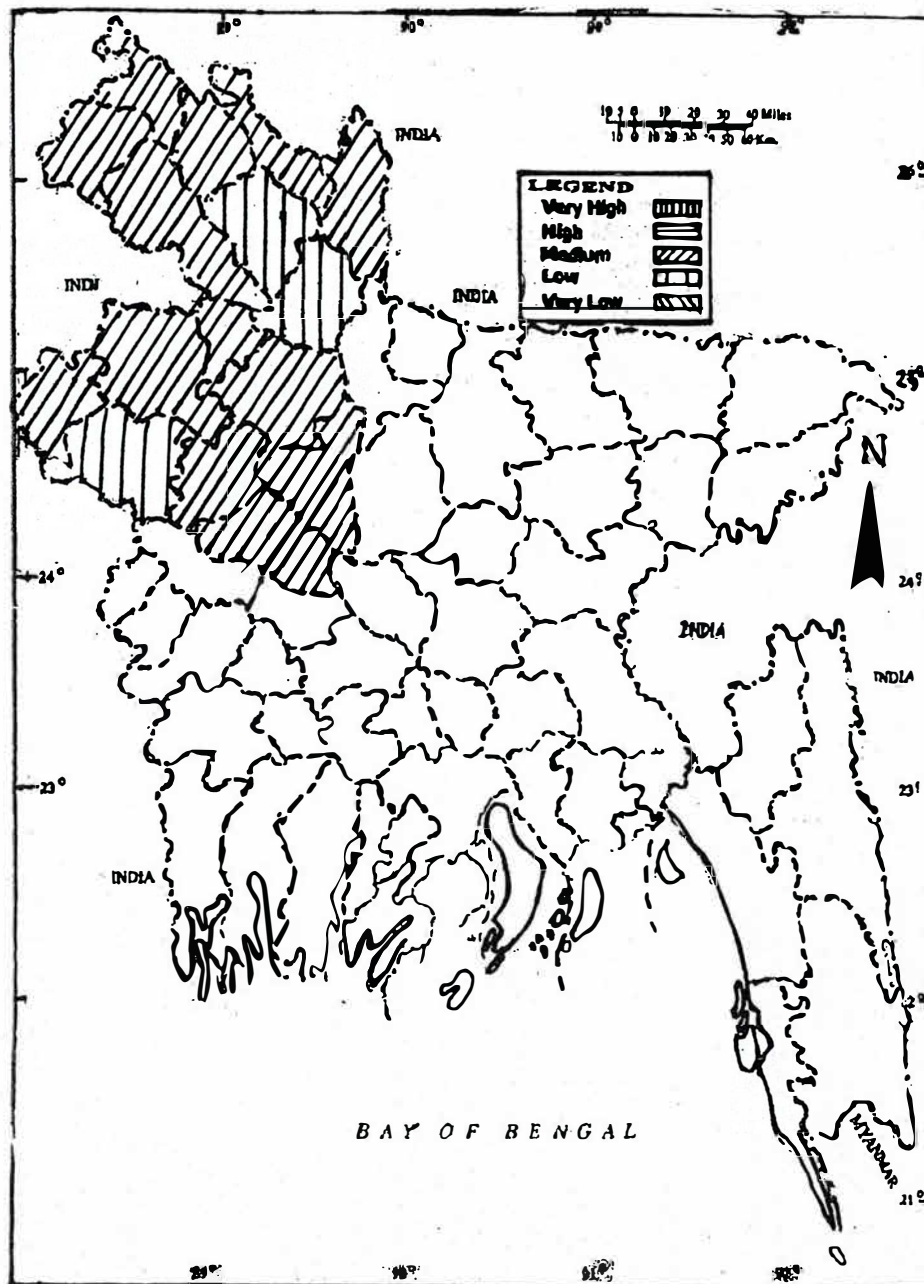
5.14: Spatial Change of Bank Deposits of the Study Area: 1991-2001

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

MYANMAR

Source: Table—5.2.13.

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

MYANMAR
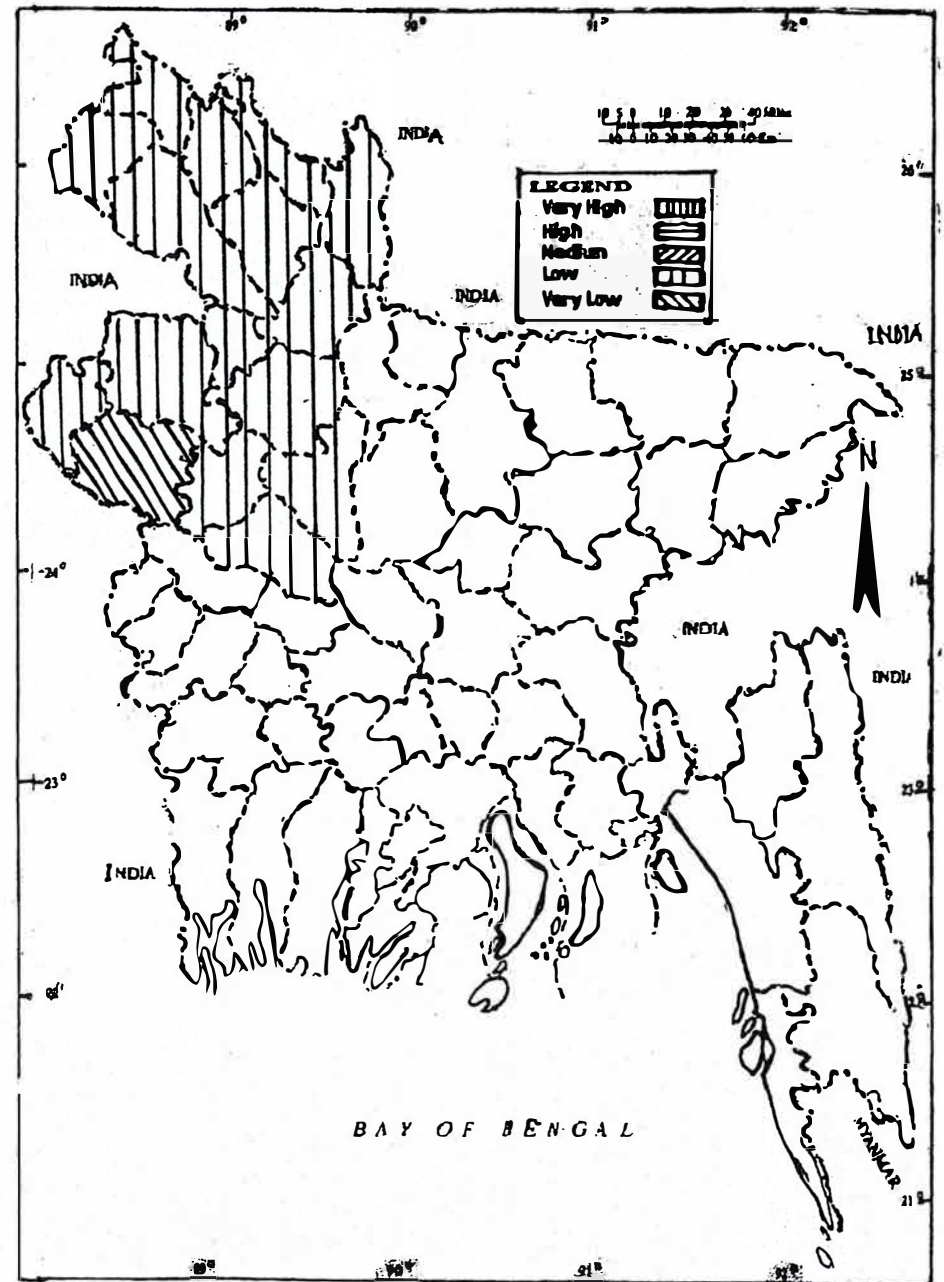
Source: Table—5.2.14.

Table-5.2.16: Spatial Change of Municipalities of the Study Area to the context of the Country based on Davidovich Model (1973) 1991-2001

Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 0.83262	2 (Country total 14)	Rajshahi, Pabna.
2.	High	0.16625-0.83262	3 (Country total 6)	Joypurhat, Gaibandha, Dinajpur.
3.	Medium	-0.50014-0.16624	4 (Country total 9)	Natore, Naogaon, Kurigram, Lalmonirhat.
4.	Low	-1.18824- -0.50013	4 (Country total 18)	Bogra, Rangpur, Nilphamari, Panchagarh.
5.	Very Low	-1.8329- -1.16651	3 (Country total 17)	Sirajganj, Thakurgaon, Nawabganj.
		Total	**16** (Country total 64)	

Source: Based on Appendix-6.15.

From the Table-5.2.16 and Map-5.16, it is evident that the number of Municipalities of 2-districts like Rajshah, Pabna of the study area has been changed remarkably from 1991 to 2001, i.e. the changing rate is very high out of country total 14-districts. It is also found that 3-districts of like Joypurhat, Gaibandha, Dinajpur of the study area are in the high category out of country total 6-districts, 4-districts like Natore, Naogaon, Kurigram, Lalmonirhat of the study area are in the medium category out of country total 9-districts, 4-districts like Bogra, Rangpur, Nilphamari, Panchagarh of the study area are the low category out of country total 18-districts and 3-districts like Sirajganj, Thakurgaon, Nawabganj of the study area are in the very low out of country total 17-districts. So, the changing rate of Municipalities in number is high which indicates the improvement of situation of the study area.

5.15: Spatial Change of Registered Rickshaws of the Study Area: 1991-2001

BAY OF BENGAL

LEGEND
Very High
High
Medium
Low
Very Low
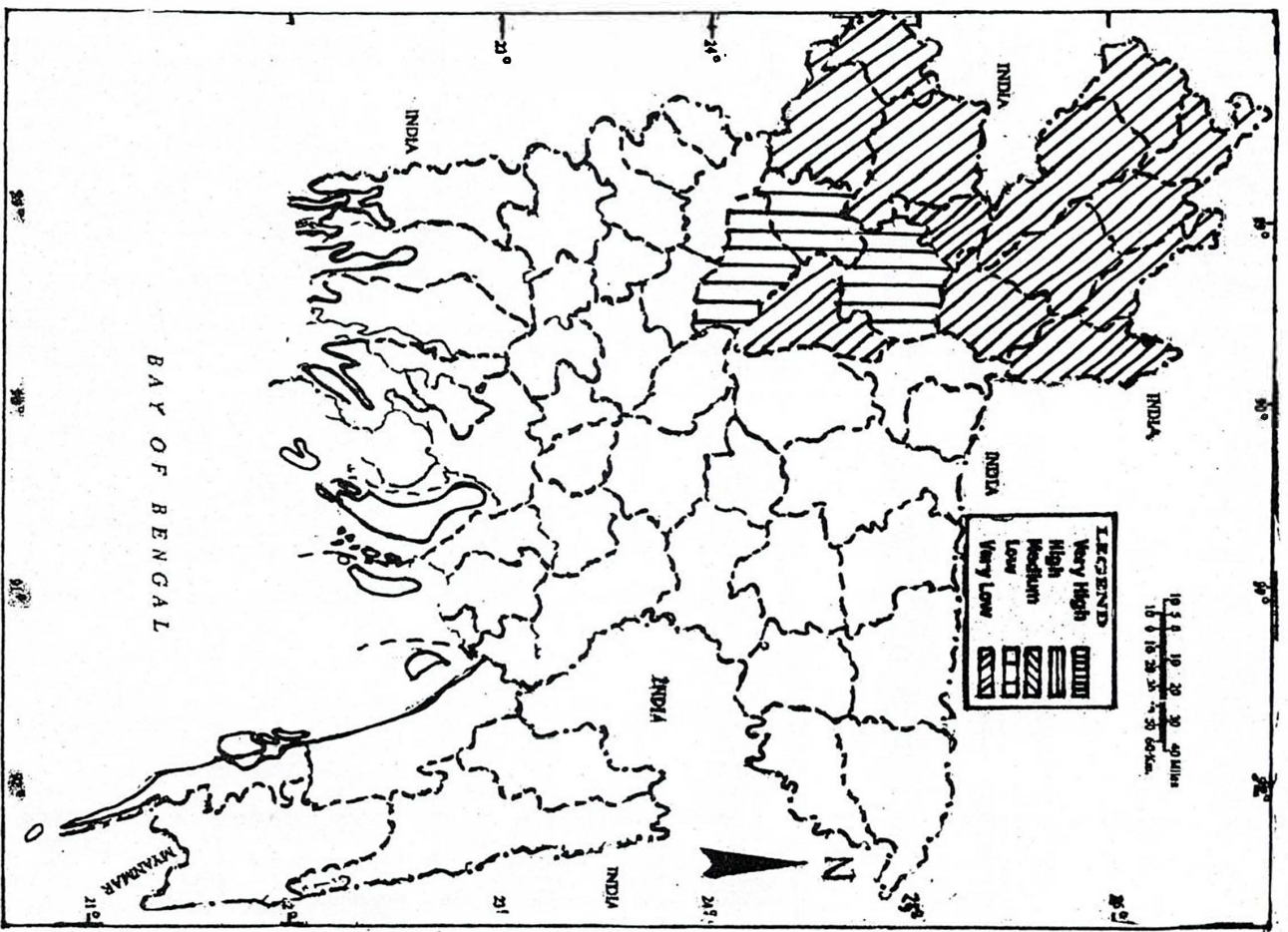
Source: Table-5.2.15.

5.16: Spatial Change of Municipalities of the Study Area: 1991-2001

BAY OF BENGAL

LEGEND
Very High
High
Medium
Low
Very Low
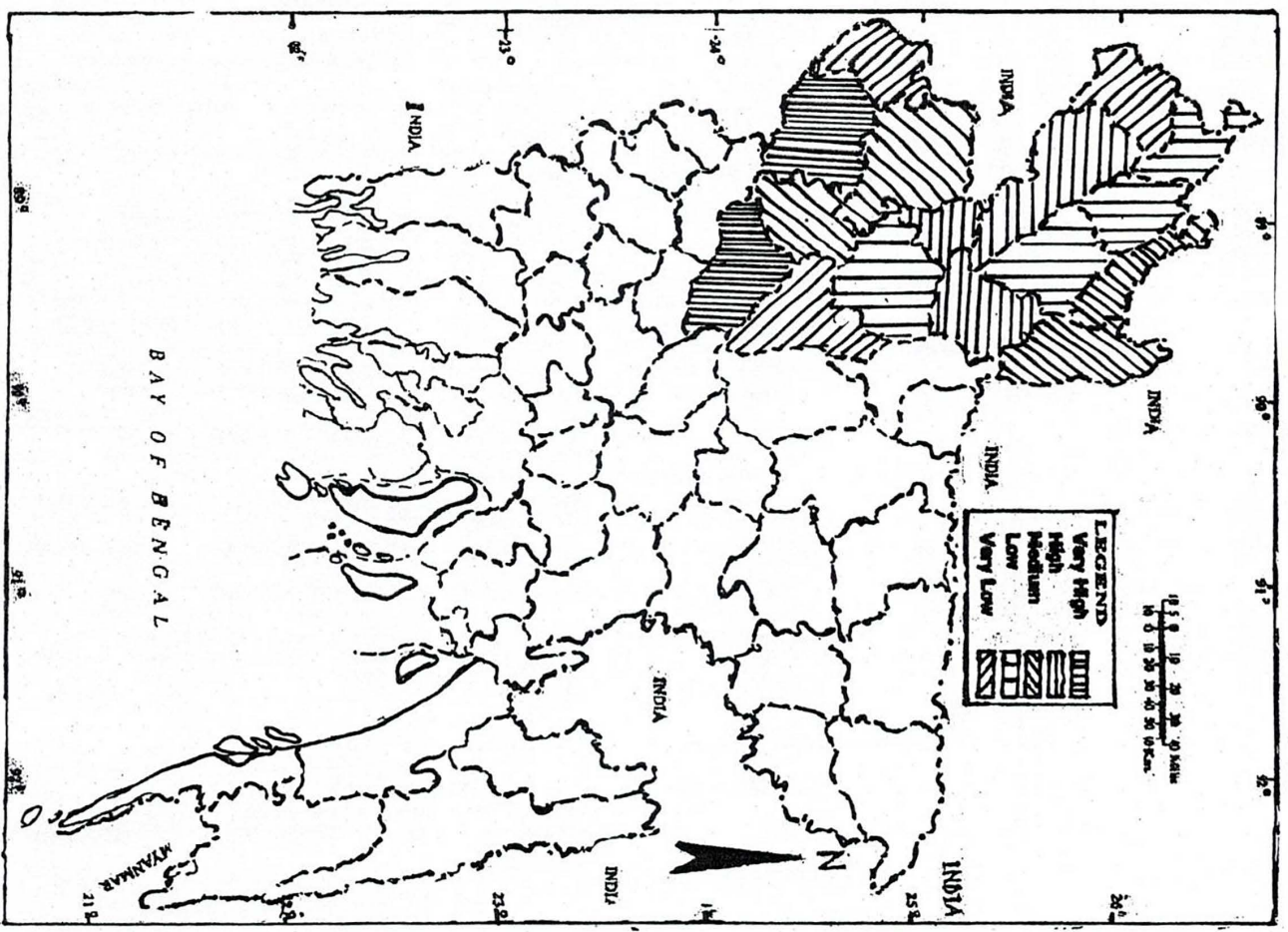
Source: Table-5.2.16.

5.2.17 Spatial Changing Pattern of GDP from Agricultural Sector of the Study Area: 1991-2001

The lion share of contribution to the economy of Bangladesh is the Agricultural-Sector. The economy of Bangladesh is basically based on Agriculture. District-wise changing pattern of contribution of Agricultural sector to the GDP of the Study area to the context of the country from 1991 to 2001 are shown in the following Table- 5.2.17 and Map-5.17.

Table-5.2.17: Spatial Change of GDP from Agricultural Sector of the Study Area to the context of the Country based on Davidovich Model (1973): 1991-2001
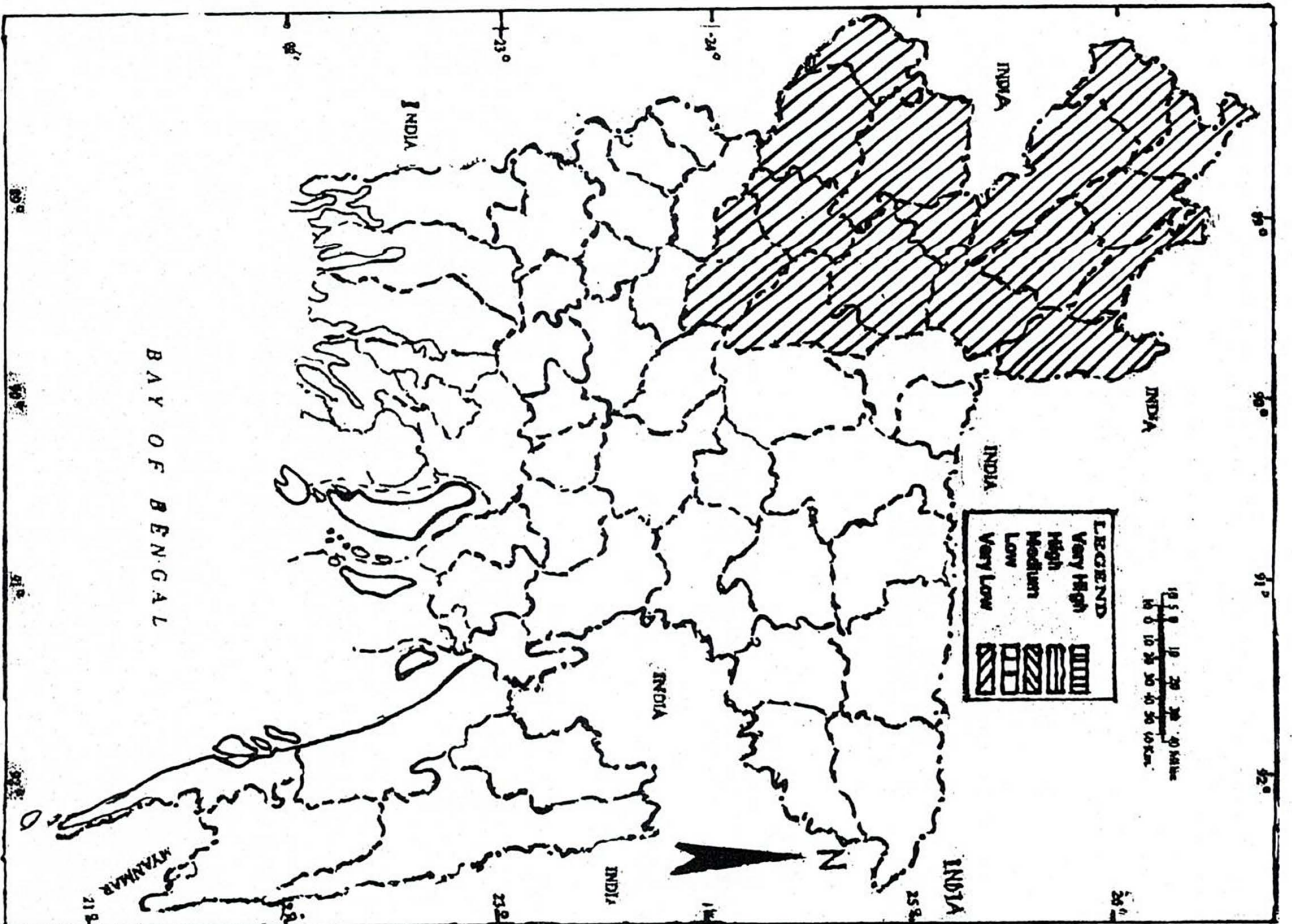
Sl. No.	Z-Score Category	Z-Score Range	No. of Districts of the Study Area	Name of the Districts of the Study Area
1.	Very High	+ 3.7542	--- (Country total 1)	-------
2.	High	2.7143-3.7542	-------	-------
3.	Medium	1.6743-2.7144	-------	-------
4.	Low	0.6343-1.6742	-------	-------
5.	Very Low	-0.4056-0.6342	16 (Country total 63)	Rajshahi, Pabna, Sirajganj, Kurigram, Nawabganj, Naogaon, Lalmonirhat, Joypurhat, Panchagarh, Bogra, Thakurgaon, Natore, Nilphamari, Dinajpur, Gaibandha, Rangpur.
	Total		**16** (Country total 64)	_____

Source: Based on Appendix-6.16.

From the Table-5.2.17 and Map-5.17 found that agricultural contribution to the GDP from 1991 to 2001 of the study area (16-districts like Rajshahi, Pabna, Sirajganj, Kurigram, Nawabganj, Naogaon, Lalmonirhat, Joypurhat, Panchagarh, Bogra, Thakurgaon, Natore, Nilphamari, Dinajpur, Gaibandha, Rangpur) has not been change in a considerable rate, i.e. very low rate changing shows to the context of country total 63-districts, this statistics also indicates that the changing rate of agri-sector contribution to the GDP of the study area is very low due to the transformation of primary economic activities (agriculture) to the secondary and tertiary economic activities (non-agricultural activities) and it is a good picture of the study area.

5.17: Spatial Change of GDP from Agricultural Sector of the Study Area: 1991-2001

LEGEND
Very High
High
Medium
Low
Very Low

INDIA

BAY OF BENGAL

MYANMAR
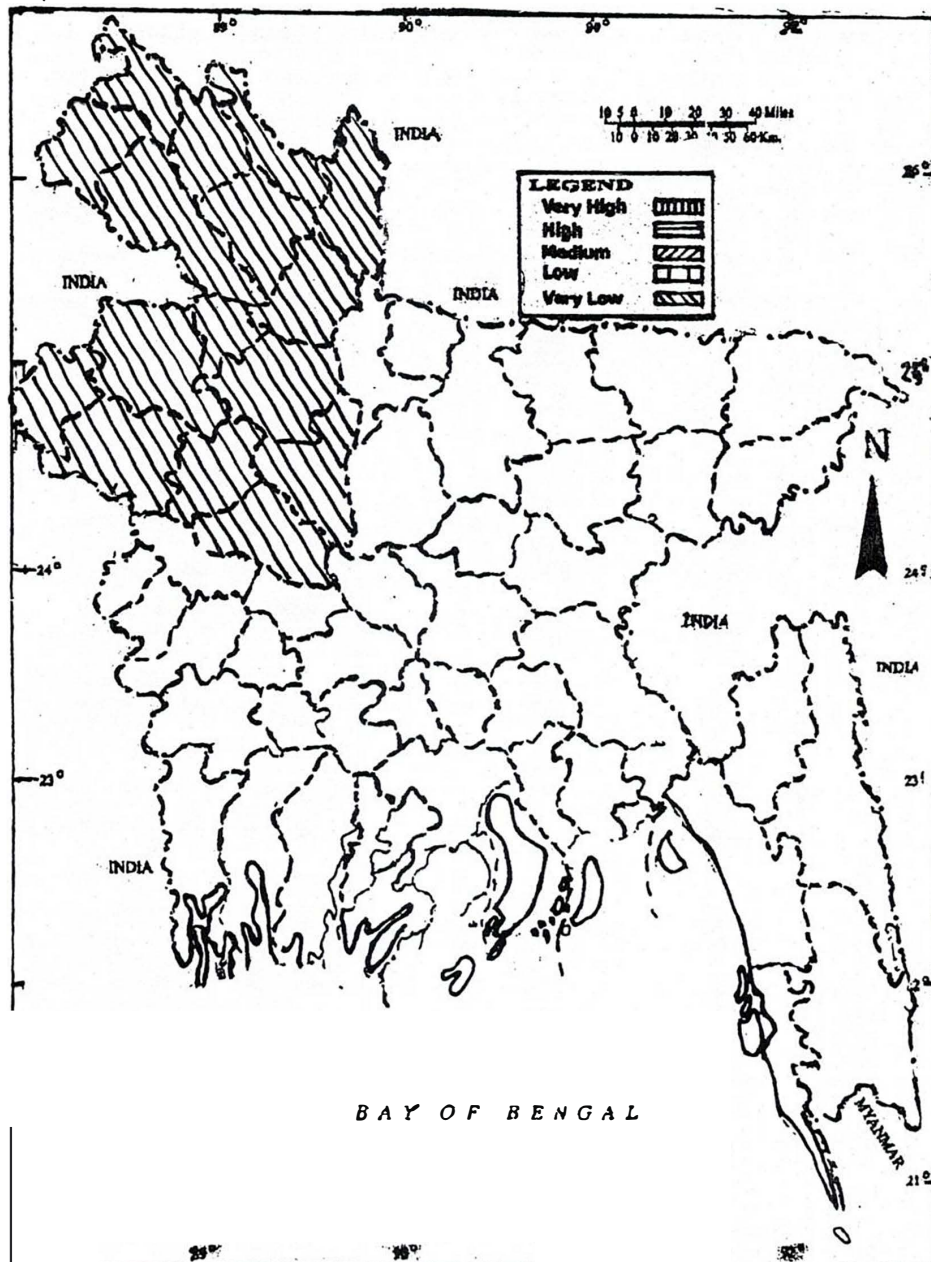
Source: Table-5.2.17.

5.2.18 Ranking in Spatial Changes in Levels of Urbanization of the Study Area: 1991-2001

To measure the spatial pattern and changing pattern of urbanization in the study area from 1991 to 2001. 16-Variables have been used, discussed and analysed in this chapter. The composite rank of the districts of the study area to the context of the country from 1991 to 2001 on the basis of the selected 16-variables are shown in the following Table- 5.18.

Table-5.2.18: Spatial Change of Composite Rank in Levels of Urbanization of the Study Area to the context of the Country based on Davidovich Model (1973): 1991-2001

Sl. No.	Name of the Districts	Rank	Sl. No.	Name of the Districts	Rank
1.	Dhaka	1	33.	**Nilphamari**	**33**
2.	Chittagong	2	34.	Khagrachhari	34
3.	Mymensing	3	35.	Chuandaga	35
4.	Comilla	4	36.	**Thakurgaon**	**36**
5.	**Sirajganj**	5	37.	B. Baria	37
6.	Gazipur	6	38.	**Kurigram**	**38**
7.	Narayanganj	7	39.	**Gaibandha**	**39**
8.	Sylhet	8	40.	Laksmipur	40
9.	**Rajshahi**	**9**	41.	Chandpur	41
10.	**Rangpur**	**10**	42.	**Lalmonirhat**	**42**
11.	**Dinajpur**	**11**	43.	**Natore**	**43**
12.	Jessore	12	44.	**Panchagarh**	**44**
13.	Cox's Bazar	13	45.	Sherpur	45
14.	**Bogra**	**14**	46.	Rajbari	46
15.	Khulna	15	47.	Munshiganj	47
16.	Noakhali	16	48.	Shariatpur	48
17.	Tangail	17	49.	Barisal	49
18.	Satkhira	18	50.	Manikganj	50
19.	Narsingdi	19	51.	Rangamati	51
20.	**Nawabganj**	**20**	52.	Meherpur	52
21.	Sunamganj	21	53.	Magura	53
22.	Faridpur	22	54.	Patuakhali	54
23.	Kishoreganj	23	55.	Feni	55
24.	Jamalpur	24	56.	Bagerhat	56
25.	Netrokona	25	57.	Gopalganj	57
26.	Kushtia	26	58.	**Joypurhat**	**58**
27.	Pabna	27	59.	Barguna	59
28.	Habiganj	28	60.	Madaripur	60
29.	Maulvibazar	29	61.	Bandarban	61
30.	**Naogaon**	**30**	62.	Perojpur	62
31.	Bhola	31	63.	Narail	63
32.	Jhanaidah	32	64.	Jhalokati	64

Source: Based on Appendix-5.

From the Table-5.2.18, it is observed that the urbanization process of sirajgonj, Rajshahi, Rangpur, Dinajpur and Bogra district has been occurred and the ranking of the districts of the study area are 5, 9, 10, 11 and 14 respectively to the context of the country but the inter-districts ranking of the study area are 1, 2, 3, 4 and 5 respectively. The other districts of the study area like Nawabgonj, Pabna, Naogaon, Nilphamari, Thakurgaon, Kurigram, Gaibandha, Lalmonirhat, Natore, Panchagarh, Joypurhat has been occurred the urbanization process in the lower rate and the ranking of the districts are 20, 27, 30, 33, 36, 38, 39, 42, 43, 44, 58 respectively but the inter-districts ranking of the study area are 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 respectively. For the composite ranking of the spatial change pattern of urbanization no specific variable have been given importance and 16-variable have been chosen for the study has given the equal importance. The Spatial changing pattern of urbanization of a district can easily be said from the location of composite ranking Table-5.2.18. The location of a district in the Table-5.2.18 can be determined the spatial changing rate of urbanization, of a district how much i;e if the location of a district in the composite ranking Table- is high, then the spatial changing pattern of the said district is equally high. The computation of composite ranking of the study area to the context of the country in respect of the spatial changes in urbanization has been shown in the appendix-7.

5.3 Conclusion

From the analysis of the spatial changing pattern of urbanization from 1991 to 2001, some inequalities are found. The selected variables under study are not uniformly changed; i. e. the spatial or areal differentiation or inequalities have been found in the inter-district changing pattern of urbanization from 1991 to 2001. In the present study basically the various characteristic features of spatial inequalities of the charging pattern of urbanization of the study area have been examined on the basis of spatial analysis of the selected variables, it has divided into the five classes or categories to show the location of the districts in respect of changing in urbanization to the context of the country.

From the analysis of the selected variables, it is observed that the overall changing rate of the selected variables of Sirajgong districts is higher than the other districts of the study area and this changing rate is very low in the district of Joypurhat among the districts of the study area (Table-5.2.1).

In the next chapter, summary findings of the study concluding remarks and recommendations will be highlighted and discussed in brief.

Chapter Six
Summary, Conclusion and Recommendations

6.1   Introduction

6.2   Summary Findings of the Study

6.3   Conclusion

6.4   Recommendations

6.4.1   Control of Urban Population Increase

6.4.2   Creation of Employment Opportunity

6.4.3   Increase of Infrastructural Development

6.4.4   Formulation and Proper Implementation of Govt. Urban Policy

6.4.5   Increase of Research Works

Chapter Six
Summary, Conclusion and Recommendations

6.1 Introduction

Bangladesh has been facing a rapid trend of urbanization in the recent decades and urbanization in Bangladesh takes the form of rapid growth of urban population, largely due to natural growth, rural-urban migration and growing importance of local resources. Urbanization is an indicator of development and modernization, but it is not uniform in all the urban centres of Bangladesh. When the urbanization becomes over, not uniform, uneven, uncontrolled and unpredictable, it creates various threats to the urban society, further development & urban habitat. The study attempts to provide the level of urbanization, spatial (inter-districts) pattens and changing patterns in the level of urbanization & urban amenities or facilities by and large focusing on the North-Western Regions of Bangladesh. Basically, the main thrust of this study is to present an overview of urbanization in North-Western Regions of Bangladesh based on secondary data sources and previous literatures that generate an understanding on its real picture of study area. Standardized Model (Z-Score) of Davidovich Model have been used as analysis techniques on 16-Variables and it is felt by the researcher that the findings of the study will be helpful further research works to the discipliners, urban development planners and also to the government of Bangladesh for future urban planning & development. Sheer volume of literature review reveals that no study has been found on the title, even on the study area as yet, which has created a high notion of expectation to study on **"Urbanization in North-Western Regions of Bangladesh"**.

6.2 Summary Findings of the Study

It is found from the study that Sirajgonj and Rajshahi districts are in the better position in respect of changing in levels urbanization of the study area. On the other hand, Rajshahi and Sirajgonj districts are also in the better position than that of the other districts of the study area in respect of charge in the share of urban population (Appendix-6.1) from 1991 to 2001.

From the Appendix-6.2, it is found that Bogra district is the 1st position of the study area and 5th position to the context of the country in respect of charge in the sanitary latrine facilities from 1991 to 2001.

In respect of change in the electricity connection, the Rajshahi district is in the higher position of the study area and also hold the 5th position of the country from 1991 to 2001 (Appendix-6.3). In respect of change in the tube-well use as a source of drinking water, Sirajogonj district is in the first position, Rajshahi district is in the 2nd position and Ranjpur district is in the 3rd position of the study area of the country (Appendix-6.4). In respect of change in the literacy rate, the Bogra, Ranjpur and Siraj districts are in the 1st, 2nd and 3rd positions of the study area and also hold the 6th, 7th and 8th positions respectively of the country (Appendix-6.5). In respect of change in urban literacy rate, the Bogra, Gaibandha and Ranjpur district area in the 1st, 2nd and 3rd positions of the study area and also hold the 8th, 10th and 14th position respectively of the country (Appendix-6.6)

In respect of change in the number of primary school, the Kurigram, Noagaon and Ranjpur districts are in the 1st, 2nd and 3rd positions of the study area and also held the 6th, 9th and 10th positions respectively of the country (Appedix-6.7) In respect of change in the number of Secondary school, The Rajshahi, Panchagorh and Thakurgao districts are in the 1st, 2nd and 3rd and 5th positions respectively of the country (Appendix-6.8). In respect of change in the number of are in the 1st, 2nd and 3rd positions

and also hold the 2nd, 3rd and 5th positions respectively of the country. (Appendix 6.9)

In respect of change in the Metal Road, the Ranjpur, Gaibandha and Pabna districts are in the 1st, 2nd and 3rd positions of the study area and also hold the 11th, 15th and 18th positions respectively of the country (Appendix 6.10). In respect of change in the Semi-Metal Road, The Rajshahi, Paban and Bogra districts are in the 1st, 2nd and 3rd and 16th positions respectively of the country (Appendix-6.11). In respect of change in the Kutcha, Road, the Gaibandha, Kurigram and Nilphamari districts are in the 1st, 2nd and 3rd positions of the study area and also hold the 9th, 12th and 13th positions respectively of the country. (Appendix-6.12)

In respect of change in the amount of Bank Deposit, the Kurigram, Gaibandha and Lalmonirhat districts are in the 1sr, 2nd and 3rd positions of the study area and also hold the 18th, 29th and 30th positions respectively of the country. (Appendix-6.13)
In respect of change in the number of Registered Rickshaws, the Bogra, Pabna and Natore districts are in the 1st, 2nd and 3rd position of the study area and also hold the 4th, 5th and 6th positions respectively of the country (Appendix-6.16).

Lastly, in respect of the composite ranking in the spatial changing rate of urbanization on the basis of the selected 16-vairables of the study, the Pabna, Rajshahi and Ranjpur districts are in the 1st, 2nd and 3rd ranks of the study area and also hold the 4th, 8th and 14th ranks respectively of the country (Appendix-7) and this statistics also shows that the overall position of the study area (North-west regions of Bangladesh) in respect of ranking is good to the context of the country both for the level of urbanization and spatial changes in urbanization pattern.

From the study findings, it is observed that most of the cities or urban centres of the study area found low level of urbanization to the context of the country except few cases in 1991 & 2001 and also spatial changing patten of urbanization & urban development indicators are not satisfactory from 1991 to 2001 and the development of urbanization & urban amenities are not uniform in all the districts of the study area.

Despite the urban area of the North-Western Regions of Bangladesh has been developed in respect of level of urbanization, spatial (inter-district) patterns and spatial development of urbanization & urban amenities for the Census Periods from 1991 to 2001, but the level of urbanization, spatial patterns, urban development & urban amenities are not occurred uniformly in all the urban centres of North-Western Regions of Bangladesh, creates various problems to the urban society, even though, over & uncontrolled growth of population, unplanned & unevenness in development & urban facilities has become the great threat for smooth & uniform development of the region.

Thus the study concludes that a goal based & need based urban planning is required for the government & urban planners for equal, uniform & need based development of the region and otherwise, misleading & inappropriate decision will be taken from the government end, which will be unsuccessful planning for sustainable development for the coming days.

6.3 Conclusion

In the present era of urbanization, equal development and equal opportunities are the common goal & expectation to both of the developing (like Bangladesh) and developed countries. But in this unequal world, a common policy "one size fit for all" of urban centres or cities and its abiquitous applicability for as a goal is questionable. From this point of view, the study focuses on the level of urbanization, spatial patterns & changes in the level of urbanization, urban development & urban amenities or facilities of the study area. The characteristic of urbanization in Bangladesh is still low in terms of level and in countrywide perspective is steadily growing; but nature of overall growth is problematic and deserves much attention in all sectors of development authorities. Urbanization in Bangladesh lacks in good governance and we need an honest, democratic & patriotic government. Civil society should come forward with much patriotic vision rather personal or group interests. The conceptual background of this study might be helpful to explore whether the existing urban development & urban facilities should be a goal or principle of sustainable urban development policy in the cities or urban centres of Bangladesh.

6.4   Recommendations

Urbanization of the study area, ever in Bangladesh is in the root level still now, i.e. low in terms of level. The degree and level of urbanization in Bangladesh has increased remarkably in the past few decades but it was unplanned and not uniform. This type of unplanned and uneven urbanization has been creating various problems and threatening the development work of the country. So, some step should be taken from the government of Bangladesh end to check the unplanned and imbalanced urbanization which are depicted below for the betterment of the nation as whole.

6.4.1   Control of Urban Population Increase

The increasing trend of urban population of Bangladesh is excess both in number and rate. So, the uncontrolled urban population growth must be checked and controlled by any means. On the other hand, if it is possible to distribute the urban population equally, the equal urbanization can be censured and inequalities can be reward from the urban area of Bangladesh. For this purpose, the root causes of increasing urban population should be chalked out and necessary steps should be taken. In that case, rural-urban migration should be checked first.

6.4.2   Creation of Employment Opportunities

The people migrated from rural to urban mainly due to lack of employment, control of Rural-urban migration is possible by ensuring employment opportunities in the rural area and if the control of migration is possible, Then the checking increasing of urban population will be easy. The new mills and factories may be established and policy may be implemented to create employment.

6.4.3   Increase of Infrastructural Development

To continue the existing real trend of urbanization and development, infrastructural development is required steps to be taken for infrastructural development including construction and repairing of roads and buildings. To reduce the disparity and inequality on the basis of analyzing existing infrastructural development, policy may be formulated implemented.

6.4.4 Formulation and Proper Implementation of Govt. Urban Policy

Formulation and implementation of government urban policy may be ensured on the basis of existing urbanization position. Confident attitude assessing the nature and trend of existing urbanization, to check out various urban problems, to increase the urban facilities, to formulate and implement the future urban model on the basis of the existing problems etc may be ensured the uniformity in urbanization, development and distribution of urban facilities.

6.4.5   Increase of Research works

Urbanization has become an important issue in the world and for this, studies are required. Some studies have been conducted on urbanization but these are limited with the information, small area or only a one city like Dhaka, On the other hand, limited studies have been conducted on urbanization in Bangladesh due to lack of financial assistance, lack of government steps etc. New research on various aspects of urbanization is yet to be required and by this way and sufficient study, need based and time based research and planning will be possible. The government and civil society should come forward for this study purpose.

Due to limited information, some difficulties have been faced by the researcher but in spite of the obstacles and disfavourable situation, the researcher feel that the out comes of this research will be helpful to the researcher in future study.

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APPENDIX

APPENDIX

Appendix-1: District-wise information of the Selected Variables of Bangladesh, 1991

Sl. No.	Districts	URPOPU	SANTOI	DRIWAT	LITRA	URBLIT	GDPAGR	PRISCH	SECSCH
1	Chittagong	45.45	24.68	66.78	43.20	49.70	5271	35.23	08.93
2	Cox's Bazar	13.59	10.46	85.70	21.90	35.30	9528	36.50	05.77
3	Bandarban	29.72	09.00	25.58	23.80	39.50	1449	134.19	06.49
4	Rangamati	36.39	13.63	32.13	36.50	51.70	2929	138.15	11.22
5	Khagrachhari	32.03	08.72	71.54	26.30	38.00	1233	119.29	09.06
6	Comilla	09.03	14.40	81.81	33.10	49.40	15406	42.32	09.02
7	B. Baria	12.09	12.08	92.31	26.60	44.10	7158	44.25	05.92
8	Chandpur	09.27	08.99	62.31	37.80	49.90	7807	48.17	10.62
9	Noakhali	10.29	08.10	75.11	37.10	50.40	9546	53.04	08.34
10	Feni	08.75	14.20	85.67	40.70	54.00	3675	45.21	12.57
11	Laxmipur	14.13	06.32	72.56	34.30	42.00	7620	49.39	09.83
12	Sylhet	05.44	20.16	70.40	33.80	54.80	8488	59.17	08.36
13	Sunamgonj	07.15	07.66	77.23	22.30	41.70	7492	52.07	04.62
14	Moulvi-Bazar	07.87	12.64	68.75	30.80	56.00	6260	68.33	07.04
15	Habiganj	07.79	09.57	92.92	24.50	43.80	6420	59.98	05.27
16	Dhaka	88.06	55.20	32.15	53.90	56.90	2888	15.73	05.30
17	Gazipur	38.96	19.57	82.14	36.60	43.90	4548	40.01	10.41
18	Narayanganj	51.10	25.31	78.24	39.80	47.60	2164	09.52	02.04
19	Narshingdi	16.01	15.15	85.82	29.60	46.50	4786	41.52	09.07
20	Munshiganj	09.23	08.65	82.73	35.80	45.60	3065	38.04	06.73
21	Manikganj	07.83	07.93	60.82	26.90	42.80	5095	02.04	01.70
22	Faridpur	10.27	08.02	91.55	27.80	50.60	5725	55.37	07.97
23	Rajbari	10.27	05.46	96.05	26.40	50.60	3447	44.67	12.21
24	Gopalganj	07.00	07.06	53.58	38.20	50.50	4176	75.21	13.66
25	Madaripur	07.96	06.38	77.38	32.60	54.10	4325	56.22	08.04
26	Shariatpur	07.23	05.57	64.52	24.40	40.60	3874	44.80	06.40
27	Jamalpur	11.32	05.37	92.70	21.50	38.00	7098	43.48	01.12
28	Sherpur	09.52	03.67	93.71	19.50	38.10	4917	53.38	06.76
29	Mymensing	12.90	06.50	90.15	25.50	44.60	9315	31.32	07.03
30	Kishoreganj	12.30	05.37	89.50	23.30	39.20	9972	46.05	05.33
31	Netrokona	07.84	04.03	79.59	26.00	44.00	9960	56.73	06.23
32	Tangail	09.37	06.83	92.24	29.40	45.20	0953	43.43	08.56
33	Barisal	15.00	16.30	27.26	43.00	58.40	8512	64.38	13.45
34	Bhola	12.85	07.38	41.89	23.90	40.00	9421	66.73	06.63
35	Jhalokati	12.84	10.02	38.47	51.20	59.90	2472	74.32	20.87
36	Perojpur	12.19	15.00	37.99	48.60	60.40	4268	79.77	16.74
37	Jessore	13.40	14.86	92.02	33.40	53.30	0831	54.39	11.29
38	Jhenaidah	12.78	09.06	83.22	25.90	40.90	7313	54.44	08.37
39	Narail	10.18	08.59	85.99	35.70	40.20	4047	106.85	12.07
40	Magura	07.21	08.48	82.21	28.20	44.40	4381	58.01	12.15
41	Khulna	50.10	31.31	64.99	43.90	50.00	9035	42.91	13.27
42	Bagerhat	12.23	12.07	37.03	44.30	53.40	8162	67.71	15.30
43	Satkhira	08.26	11.15	63.31	30.50	45.90	8460	50.34	10.39
44	Kushtia	13.95	10.48	91.86	25.80	52.50	6318	46.60	08.85
45	Chuadanga	25.97	10.33	93.92	25.20	37.90	3859	47.08	07.80
46	Meherpur	09.23	06.68	88.52	23.10	40.90	2536	56.09	08.33
47	Patuakhali	10.39	02.85	76.34	36.40	52.60	9031	82.41	13.89
48	Barguna	08.66	08.56	34.49	40.10	53.80	5158	71.00	12.50
49	Bogra	11.07	11.17	90.40	28.40	52.00	11748	55.55	09.92
50	Joypurhat	10.27	09.04	93.84	30.20	47.20	4251	43.00	10.45
51	Dinajpur	12.76	07.70	93.17	29.80	49.20	11870	65.57	11.99
52	Thakurgaon	09.35	05.78	93.84	27.30	43.50	5606	82.09	11.17
53	Panchagarh	08.20	05.49	91.13	30.60	50.10	3648	82.58	13.34
54	Pabna	17.57	09.99	96.47	26.80	45.70	6709	46.30	06.66
55	Sirajganj	11.26	05.68	93.18	27.00	38.90	6410	56.18	07.55
56	Rajshahi	30.19	12.91	90.21	30.60	44.20	6590	48.27	11.39
57	Natore	11.52	07.16	89.93	27.00	44.70	6920	41.57	08.57
58	Nawabganj	18.67	05.88	88.10	23.87	37.90	4746	48.67	11.44
59	Naogaon	07.93	06.25	79.54	28.40	45.40	12118	45.39	11.21
60	Rangpur	16.70	07.30	91.92	26.70	43.90	8809	51.94	08.75
61	Gaibandha	07.05	04.50	82.49	24.30	43.40	7908	54.02	09.27
62	Kurigram	14.05	05.49	94.29	22.30	32.60	7145	43.04	07.17
63	Lalmonirhat	10.11	04.89	91.38	23.80	37.40	4270	47.53	08.07
64	Nilphamari	13.76	06.91	92.22	25.30	44.80	5724	54.85	07.85

Sources: Compiled from BBS, 1991.

Sl. No.	Districts	COLLEG	METROA	SMETRO	KUTROA	BANDEP	REGRIK	ELECON	MUNICI
1	Chittagong	01.39	839.00	1512.00	6558.00	54653	853.36	553.71	2
2	Cox's Bazar	01.19	256.00	391.00	1289.00	2418	189.07	782.12	2
3	Bandarban	01.29	139.00	111.00	1717.00	330	262.28	1976.44	1
4	Rangamati	01.24	223.00	80.00	2020.00	923	21.84	3569.21	1
5	Khagrachhari	02.04	296.00	210.00	1374.00	414	336.92	1709.47	1
6	Comilla	01.19	1473.00	661.00	7827.00	7561	252.98	1948.55	2
7	B. Baria	00.79	207.00	73.00	1475.00	4334	165.37	1872.97	1
8	Chandpur	01.13	194.00	102.00	2185.00	2902	175.88	1212.33	2
9	Noakhali	01.03	189.00	178.00	3244.00	4002	286.19	1594.54	4
10	Feni	01.00	307.00	158.00	2789.00	2953	425.09	2158.07	1
11	Laxmipur	01.06	74.00	87.00	2030.00	1863	165.31	531.44	3
12	Sylhet	01.16	574.00	34.00	3098.00	15045	224.77	1895.65	1
13	Sunamgonj	00.76	160.00	19.00	1924.00	2005	68.92	562.22	1
14	Moulvi-Bazar	00.87	430.00	57.00	1735.00	4079	333.56	1791.68	2
15	Habiganj	00.78	522.00	49.00	1212.00	1800	181.40	991.10	1
16	Dhaka	01.35	941.00	420.00	1949.00	182485	1826.56	434.61	2
17	Gazipur	01.47	200.00	168.00	2243.00	3330	366.13	4420.82	2
18	Narayanganj	00.85	239.00	97.00	910.00	6647	473.24	609.58	2
19	Narshingdi	01.12	152.00	77.00	1116.00	3455	147.43	2944.98	2
20	Munshiganj	01.17	147.00	173.00	1294.00	2734	80.37	2137.48	2
21	Manikganj	01.97	136.00	61.00	1601.00	1689	172.75	621.65	1
22	Faridpur	01.19	288.00	159.00	2623.00	2051	326.72	959.75	1
23	Rajbari	01.67	166.00	120.00	1394.00	759	181.96	778.69	2
24	Gopalganj	20.07	178.00	357.00	1804.00	851	112.12	483.41	1
25	Madaripur	00.93	105.00	102.00	1281.00	966	173.42	1358.78	1
26	Shariatpur	01.46	23.00	86.00	1705.00	686	84.78	593.59	1
27	Jamalpur	02.24	297.00	578.00	3260.00	1663	366.03	1224.76	2
28	Sherpur	01.05	149.00	95.00	1685.00	544	246.41	735.42	2
29	Mymensing	01.15	209.00	193.00	1520.00	3390	212.01	1355.77	3
30	Kishoreganj	00.78	188.00	128.00	3750.00	1658	277.35	1114.95	3
31	Netrokona	00.98	141.00	139.00	2671.00	790	190.14	707.34	3
32	Tangail	00.99	397.00	182.00	5362.00	3825	185.03	1489.76	3
33	Barisal	01.85	237.00	296.00	3477.00	3959	304.52	1736.64	3
34	Bhola	00.81	302.00	96.00	4603.00	1287	94.17	497.47	3
35	Jhalokati	01.80	75.00	82.00	2545.00	787	235.71	1023.38	2
36	Perojpur	01.59	104.00	141.00	2196.00	1416	106.71	1100.38	1
37	Jessore	03.79	97.00	227.00	5220.00	4647	345.28	2490.90	1
38	Jhenaidah	01.39	339.00	347.00	3195.00	1415	177.92	1003.69	5
39	Narail	01.52	89.00	292.00	2456.00	648	87.71	436.49	2
40	Magura	01.93	73..00	73.00	2532.00	745	106.90	769.96	1
41	Khulna	02.98	201.00	560.00	2593.00	9019	657.44	5648.92	1
42	Bagerhat	01.32	235.00	151.00	5619.00	1980	287.06	1439.72	2
43	Satkhira	01.06	244.00	331.00	3278.00	2033	296.34	975.17	2
44	Kushtia	01.86	215.00	264.00	3152.00	2463	317.76	2859.45	3
45	Chuadanga	00.99	177.00	120.00	1258.00	1136	294.67	2140.81	3
46	Meherpur	01.42	119.00	38.00	1547.00	477	235.52	3080.87	1
47	Patuakhali	01.41	506.00	370.00	4921.00	1344	207.76	582.31	1
48	Barguna	01.15	67.00	64.00	2405.00	561	80.50	639.41	2
49	Bogra	01.68	291.00	277.00	4338.00	4504	432.47	2396.71	3
50	Joypurhat	01.43	110.00	131.00	1687.00	896	215.86	1778.64	1
51	Dinajpur	02.34	687.00	114.00	5515.00	2787	241.95	1933.51	3
52	Thakurgaon	01.87	271.00	15.00	3651.00	900	146.01	1511.25	2
53	Panchagarh	01.96	216.00	15.00	2039.00	495	02.82	536.61	1
54	Pabna	01.35	516.00	190.00	3367.00	3175	300.80	2496.10	3
55	Sirajganj	01.10	234.00	145.00	2789.00	2543	161.01	1495.38	3
56	Rajshahi	03.33	1270.00	546.00	11451.00	5354	382.84	2286.40	2
57	Natore	02.37	266.00	123.00	2494.00	1586	259.83	2285.81	2
58	Nawabganj	01.96	182.00	66.00	1910.00	2246	121.22	1189.92	3
59	Naogaon	00.88	288.00	145.00	4509.00	1504	186.39	826.36	1
60	Rangpur	01.75	360.00	150.00	4553.00	2838	567.92	2258.90	2
61	Gaibandha	01.12	186.00	143.00	2825.00	1150	361.30	709.38	1
62	Kurigram	01.43	327.00	136.00	4212.00	760	89.55	420.07	1
63	Lalmonirhat	01.15	171.00	78.00	3366.00	486	121.36	750.20	1
64	Nilphamari	01.18	250.00	118.00	2807.00	1381	380.78	1284.39	2

Sources: Compiled from BBS, 1991.

Appendix-2: District-wise information of the Selected Variables of Bangladesh, 2001

Sl. No.	Districts	URPOPU	SANTOI	DRIWAT	LITRA	URBLIT	GDPAGR	PRISCH	SECSCH
1	Chittagong	50.30	68.53	66.78	54.90	56.47	17917	34.22	08.77
2	Cox's Bazar	13.10	53.36	85.70	28.90	52.20	11321	34.77	06.43
3	Bandarban	30.70	27.03	25.58	28.00	56.80	1608	125.98	08.19
4	Rangamati	33.00	49.37	32.13	41.80	60.80	3433	86.95	01.18
5	Khagrachhari	31.10	25.12	71.54	42.20	50.30	1429	84.77	07.81
6	Comilla	10.50	70.61	81.81	45.40	60.30	17045	46.50	09.90
7	B. Baria	13.10	65.20	92.31	36.60	52.30	8096	42.82	06.38
8	Chandpur	13.80	71.87	62.31	49.60	54.40	11472	66.51	10.41
9	Noakhali	10.90	64.66	75.11	50.20	60.70	9033	42.95	09.12
10	Feni	14.00	82.29	85.67	53.40	68.60	4341	45.98	12.54
11	Laxmipur	15.10	74.36	72.56	43.00	45.10	9033	44.41	09.80
12	Sylhet	17.90	84.98	70.40	44.70	66.90	8238	51.37	08.87
13	Sunamgonj	09.80	48.45	77.23	33.80	58.80	6790	49.58	06.40
14	Moulvi-Bazar	08.50	76.07	68.75	41.30	56.70	7116	67.21	07.67
15	Habiganj	10.90	55.62	92.92	37.00	59.90	31621	95.43	05.97
16	Dhaka	91.70	83.43	32.15	64.30	62.30	3227	07.01	04.31
17	Gazipur	44.70	73.91	82.14	56.40	58.62	5084	34.99	12.88
18	Narayanganj	55.60	71.05	78.24	50.80	60.20	2402	19.78	06.03
19	Narshingdi	19.10	74.29	85.82	42.70	51.60	5448	39.50	08.67
20	Munshiganj	13.00	73.30	82.73	51.60	49.30	3643	38.73	06.34
21	Manikganj	07.50	68.19	60.82	40.00	49.90	5317	68.87	10.20
22	Faridpur	12.60	77.36	91.55	40.40	66.90	6531	41.35	13.72
23	Rajbari	12.30	67.30	96.05	40.40	54.20	4035	43.39	09.89
24	Gopalganj	09.30	66.20	53.58	50.50	66.90	4822	78.00	12.28
25	Madaripur	12.30	44.51	77.38	40.60	66.10	4388	61.48	10.29
26	Shariatpur	09.30	80.11	64.52	38.20	52.40	4422	48.90	17.12
27	Jamalpur	17.10	34.79	92.70	31.00	43.60	8494	46.81	11.06
28	Sherpur	11.40	69.11	93.71	61.20	47.00	5583	50.78	14.52
29	Mymensing	13.80	54.37	90.15	36.60	60.40	24895	46.02	08.49
30	Kishoreganj	13.10	58.84	89.50	37.60	59.00	11806	77.02	08.12
31	Netrokona	09.30	45.61	79.59	32.30	54.20	11887	57.38	05.73
32	Tangail	13.00	68.07	92.24	38.80	56.00	11654	04.09	01.06
33	Barisal	16.80	86.99	27.26	56.80	65.00	9251	69.33	13.56
34	Bhola	15.00	63.67	41.89	36.50	63.90	10372	57.97	06.02
35	Jhalokati	16.90	85.15	38.47	65.90	67.50	2181	58.47	23.99
36	Perojpur	16.00	86.73	37.99	63.30	60.10	4962	68.09	16.87
37	Jessore	17.30	66.38	92.02	51.20	56.57	12069	41.71	14.22
38	Jhenaidah	12.90	58.29	83.22	44.40	48.90	8379	51.72	11.06
39	Narail	09.70	68.13	85.99	47.70	51.70	4463	66.47	13.64
40	Magura	11.60	54.48	82.21	43.90	47.60	4998	45.24	11.59
41	Khulna	53.30	78.05	64.99	57.40	59.10	10712	42.84	11.01
42	Bagerhat	15.80	32.27	37.03	57.90	59.10	9781	56.67	12.47
43	Satkhira	08.20	67.60	63.31	45.00	59.70	9977	53.39	11.99
44	Kushtia	09.80	70.99	91.86	39.90	64.10	7468	35.31	10.27
45	Chuadanga	26.40	33.41	93.92	40.60	48.00	4578	38.18	04.86
46	Meherpur	10.90	51.90	88.52	37.60	49.40	2976	51.77	08.11
47	Patuakhali	10.40	74.56	76.34	57.60	61.60	10836	102.08	02.40
48	Barguna	11.20	72.84	34.49	53.60	56.60	6342	85.92	14.67
49	**Bogra**	13.00	72.69	90.40	41.70	63.00	13647	45.61	10.00
50	**Joypurhat**	09.20	52.21	93.84	47.90	51.09	4965	31.37	09.23
51	**Dinajpur**	13.40	56.58	93.17	45.60	54.31	13595	59.32	14.55
52	**Thakurgaon**	07.90	42.21	93.84	42.20	58.50	6491	70.21	20.14
53	**Panchagarh**	10.50	64.75	91.13	44.00	52.77	4265	71.50	28.09
54	**Pabna**	21.90	46.92	96.47	41.70	60.10	8269	65.51	09.38
55	**Sirajganj**	10.60	51.36	93.18	39.20	48.00	7855	51.09	09.16
56	**Rajshahi**	34.10	55.64	90.21	47.40	48.69	8196	43.71	17.37
57	**Natore**	13.80	55.01	89.93	40.90	53.81	8001	44.57	13.74
58	**Nawabganj**	22.90	32.68	88.10	34.50	41.20	5690	45.93	12.26
59	**Naogaon**	08.20	55.81	79.54	44.30	48.50	14184	56.91	13.00
60	**Rangpur**	15.90	49.64	91.92	40.00	54.60	9801	58.36	11.13
61	**Gaibandha**	08.50	33.47	82.49	34.50	61.90	8825	60.58	13.74
62	**Kurigram**	14.30	40.70	94.29	32.50	39.90	8495	64.97	09.54
63	**Lalmonirhat**	12.50	46.56	91.38	41.00	47.90	5045	54.64	09.28
64	**Nilphamari**	12.40	58.42	92.22	37.30	42.20	6497	56.49	12.19

Sources: Compiled from BBS, 2001.

Sl. No.	Districts	COLLEG	METROA	SMETRO	KUTROA	BANDEP	REGRIK	ELECON	MUNICI
1	Chittagong	01.57	985.32	912.87	6534.00	95919	67030	6959.12	7
2	Cox's Bazar	01.20	462.00	340.00	176.00	4064	3884	862.68	3
3	Bandarban	00.68	134.00	39.00	205.00	570	884	2068.97	1
4	Rangamati	00.39	310.00	87.00	1916.00	1685	129	3458.34	1
5	Khagrachhari	01.33	296.36	261.00	1224.00	697	1685	1592.50	1
6	Comilla	01.46	1219.00	438.00	587.00	13934	14751	1451.10	5
7	B. Baria	01.23	266.00	86.00	1629.00	8212	5170	1422.73	4
8	Chandpur	01.76	215.00	91.00	1407.00	5349	5170	1435.19	6
9	Noakhali	09.16	804.00	485.00	2274.00	7734	9184	1055.50	5
10	Feni	01.59	339.00	162.00	2703.00	6096	6731	1750.52	2
11	Laxmipur	01.15	243.00	235.00	1822.00	3412	3144	1435.75	3
12	Sylhet	01.36	734.00	39.00	2783.00	29198	7015	2358.95	2
13	Sunamgonj	01.12	150.00	52.00	2279.00	3566	1698	909.24	4
14	Moulvi-Bazar	01.31	832.28	35.00	3610.00	7713	6633	1061.08	4
15	Habiganj	00.80	321.00	205.00	1592.00	3374	3996	1158.58	4
16	Dhaka	01.38	1063.00	340.00	839.00	337168	153947	4889.03	3
17	Gazipur	01.09	600.00	348.00	2692.00	7327	8427	7443.33	2
18	Narayanganj	00.14	225.98	73.00	748.00	12233	11772	1067.95	2
19	Narshingdi	01.16	967.00	372.00	1892.00	5665	3447	2795.99	3
20	Munshiganj	01.24	242.97	127.00	1339.00	4653	1365	2184.71	2
21	Manikganj	01.88	264.00	52.00	2268.00	3147	2874	1007.19	1
22	Faridpur	02.79	540.00	827.00	2119.00	4115	6962	1375.98	4
23	Rajbari	02.55	131.00	51.00	1689.00	1371	2154	1088.94	3
24	Gopalganj	01.86	320.00	184.00	1703.00	1848	1681	927.52	4
25	Madaripur	01.50	163.00	154.00	4010.00	1917	2629	1382.58	3
26	Shariatpur	01.70	174.09	99.64	2066.00	1347	1142	690.52	5
27	Jamalpur	01.20	772.67	120.55	5374.90	3235	9724	1460.73	6
28	Sherpur	01.44	174.09	99.64	2066.43	1048	3973	967.50	2
29	Mymensing	01.40	770.00	406.00	1249.00	6178	11876	1325.52	8
30	Kishoreganj	00.99	280.00	210.00	5043.50	3388	9059	1388.39	4
31	Netrokona	00.98	155.00	75.00	303.00	1674	4656	1043.45	4
32	Tangail	00.16	691.00	222.00	7062.00	3176	7864	1387.23	8
33	Barisal	01.97	362.50	388.00	3133.00	7063	9576	2205.10	5
34	Bhola	01.25	339.00	143.00	4161.00	2183	1974	1056.90	5
35	Jhalokati	03.02	176.00	77.00	1467.00	1560	2238	1936.63	2
36	Perojpur	01.95	160.60	105.00	2051.00	2894	1611	790.04	3
37	Jessore	01.80	455.00	163.82	3628.69	8023	10351	2489.46	4
38	Jhenaidah	02.64	180.00	100.00	6000.00	2656	3455	1671.26	5
39	Narail	02.47	243.00	74.00	215.00	1256	819	760.50	2
40	Magura	01.85	250.00	100.00	3850.00	1343	1099	1237.73	1
41	Khulna	02.01	400.00	350.00	3575.00	15273	19154	8050.43	2
42	Bagerhat	02.05	370.91	259.50	3325.82	3827	5847	1626.85	3
43	Satkhira	02.12	355.00	276.00	3580.00	3810	6727	864.80	2
44	Kushtia	01.93	469.92	540.00	231.70	4216	6794	2827.42	4
45	Chuadanga	01.22	203.00	211.00	1322.00	1941	3401	2420.54	4
46	Meherpur	01.55	160.00	47.00	997.00	869	1647	3168.08	1
47	Patuakhali	02.31	417.00	297.00	5341.00	2504	3758	1141.56	3
48	Barguna	01.54	145.00	96.00	2057.00	1170	886	2123.08	4
49	Bogra	01.47	325.00	354.00	4247.00	7729	16553	1572.66	5
50	Joypurhat	02.01	242.00	64.40	1831.28	1602	2366	1133.98	3
51	Dinajpur	03.06	620.00	151.60	3533.00	4769	7845	2059.63	6
52	Thakurgaon	02.26	158.00	28.00	1955.00	1588	2115	1613.13	2
53	Panchagarh	02.77	305.00	11.00	2499.00	748	26	1032.10	1
54	Pabna	01.58	681.00	100.00	3198.00	5326	8296	2319.49	8
55	Sirajganj	02.99	324.00	91.00	2393.00	4531	5258	1317.32	4
56	Rajshahi	04.86	896.00	686.00	4726.00	9125	10408	3490.85	7
57	Natore	01.45	236.04	35.00	1703.85	2708	5171	1482.88	4
58	Nawabganj	03.03	286.12	206.81	1734.00	4065	2042	1738.60	3
59	Naogaon	01.98	374.77	59.12	3595.00	2519	5736	867.37	2
60	Rangpur	02.53	570.00	109.00	4101.00	4484	17626	1497.02	3
61	Gaibandha	02.08	365.00	93.00	3684.00	2148	10084	825.32	3
62	Kurigram	01.80	241.00	62.00	4532.00	1528	2057	683.40	2
63	Lalmonirhat	01.93	252.46	104.20	2264.00	914	1659	749.37	2
64	Nilphamari	01.63	404.00	49.00	3301.00	1930	7371	1258.80	3

Sources: Compiled from BBS, 2001.

Appendix-3: Z-Score Value of the Selected Variables, 1991

Sl. No.	Districts	URPOPU	SANTOI	DRIWAT	LITRA	URBLIT	GDPAGR	PRISCH	SECSCH
1	Chittagong	2.14273	1.81186	66.78	1.59201	0.53258	-0.29943	-0.87212	-0.07581
2	Cox's Bazar	-0.15792	-0.01303	85.70	-1.17851	-1.73661	1.13124	-0.81832	-0.99004
3	Bandarban	1.00685	-0.20040	25.58	-0.93137	-1.07476	-1.58391	3.31976	-0.78173
4	Rangamati	1.48850	0.39373	32.13	0.72053	0.84774	-1.08652	3.48750	0.58672
5	Khagrachhari	1.17366	-0.23633	71.54	-0.60619	-1.31114	-1.65650	2.68861	-0.03820
6	Comilla	-0.48720	0.49260	81.81	0.27829	0.48530	3.10668	-0.57179	-0.04977
7	B. Baria	-0.26623	0.19487	92.31	-0.56717	-0.34988	0.33474	-0.49004	-0.94664
8	Chandpur	-0.46987	-0.20168	62.31	0.88963	0.56410	0.38482	-0.32399	0.041313
9	Noakhali	-0.39621	-0.31590	75.11	0.79858	0.64289	1.13729	-0.11770	-0.24650
10	Feni	-0.50742	0.46693	85.67	1.26683	1.21018	-0.83581	-0.44937	0.97729
11	Laxmipur	-0.11892	-0.54433	72.56	0.43438	-0.68081	0.49001	-0.27231	0.18457
12	Sylhet	-0.74644	1.23180	70.40	0.36930	1.33625	0.78172	0.14196	-0.24072
13	Sunamgonj	-0.62296	-0.37237	77.23	-1.12648	-0.72808	0.44699	-0.15879	-1.32275
14	Moulvi-Bazar	-0.57096	0.26673	68.75	-0.02087	1.52535	0.03295	0.52997	-0.62261
15	Habiganj	-0.57674	-0.12725	92.92	-0.84032	-0.39716	0.08672	0.17627	-1.13469
16	Dhaka	5.21965	5.72859	32.15	2.98377	1.66717	-1.10030	-1.69813	-1.12601
17	Gazipur	1.67408	1.15608	82.14	0.73354	-0.38140	-0.54241	-0.66964	0.35237
18	Narayanganj	2.55072	1.89271	78.24	1.14977	0.20166	-1.34362	-1.96118	-2.06917
19	Narshingdi	0.01683	0.58885	85.82	-0.17696	0.02832	-0.46243	-0.60568	-0.03531
20	Munshiganj	-0.47276	-0.24532	82.73	0.62948	-0.11351	-1.04081	-0.75309	-0.71230
21	Manikganj	-0.57385	-0.33772	60.82	-0.52815	-0.55474	-0.35858	-2.27803	-2.16754
22	Faridpur	-0.39766	-0.32617	91.55	-0.41109	0.67440	-0.14685	-0.01900	-0.35355
23	Rajbari	-0.39766	-0.65470	96.05	-0.59319	0.67440	-0.91243	-0.47225	0.87314
24	Gopalganj	-0.63379	-0.44937	53.58	0.94165	0.65865	-0.66743	0.82141	1.29264
25	Madaripur	-0.56447	-0.53663	77.38	0.21326	1.22594	-0.61736	0.01700	-0.33330
26	Shariatpur	-0.61718	-0.64058	64.52	-0.85333	-0.90142	-0.76893	-0.46674	-0.80777
27	Jamalpur	-0.32184	-0.66625	92.70	-1.23053	-1.31114	0.31458	-0.52265	-2.33534
28	Sherpur	-0.45182	-0.88442	93.71	-1.49068	-1.29538	-0.41840	-0.10330	-0.70362
29	Mymensing	-0.20774	-0.52123	90.15	-0.71025	-0.27109	1.05965	-1.03774	-0.62550
30	Kishoreganj	-0.25107	-0.66625	89.50	-0.99641	-1.12204	1.28045	-0.41379	-1.11733
31	Netrokona	-0.57313	-0.83822	79.59	-0.64521	-0.36564	1.27642	0.03861	-0.85695
32	Tangail	-0.46265	-0.47888	92.24	-0.20297	-0.17654	-1.75060	-0.52477	-0.18285
33	Barisal	-0.05910	0.73643	27.26	1.56599	1.90355	0.78979	0.36266	1.23188
34	Bhola	-0.21135	-0.40830	41.89	-0.91836	-0.99597	1.09528	0.46220	-0.74123
35	Jhalokati	-0.21208	-0.06950	38.47	2.63258	2.13992	-1.24010	0.78371	3.37858
36	Perojpur	-0.25901	0.56960	37.99	2.29439	2.21871	-0.63651	1.01457	2.18372
37	Jessore	-0.17164	0.55163	92.02	0.31731	1.09988	-1.79160	-0.06051	0.60697
38	Jhenaidah	-0.21641	-0.19270	83.22	-0.65822	-0.85415	0.38683	-0.05840	-0.23782
39	Narail	-0.40416	-0.25302	85.99	0.61648	-0.96445	-0.71079	2.16166	0.82395
40	Magura	-0.61862	-0.26713	82.21	-0.35906	-0.30261	-0.59854	0.09283	0.85578
41	Khulna	2.47851	2.66271	64.99	1.68306	0.57985	0.96555	-0.54680	1.17981
42	Bagerhat	-0.25612	0.19358	37.03	1.73509	1.11563	0.67216	0.50371	1.76711
43	Satkhira	-0.54280	0.07552	63.31	-0.05989	-0.06623	0.77231	-0.23207	0.34659
44	Kushtia	-0.13192	-0.01047	91.86	-0.67123	0.97381	0.05244	-0.39049	-0.09895
45	Chuadanga	-0.73606	-0.02972	93.92	-0.74927	-1.32689	-0.77397	-0.37016	-0.40273
46	Meherpur	-0-.47276	-0.49813	88.52	-1.02242	-0.85415	-1.21860	0.01150	-0.24940
47	Patuakhali	-0.54352	-0.98965	76.34	0.70753	0.98957	0.96421	1.12639	1.35918
48	Barguna	-0.51392	-0.25687	34.49	1.18879	1.17867	-0.33741	0.64307	0.95704
49	**Bogra**	-0.33989	0.07808	90.40	-0.33304	0.89502	1.87732	-0.04438	0.21061
50	**Joypurhat**	-0.39766	-0.19527	93.84	-0.09891	0.13862	-0.64223	-0.54299	0.36395
51	**Dinajpur**	-0.21785	-0.36723	93.17	-0.15094	0.45379	1.91832	0.41306	0.80949
52	**Thakurgaon**	-0.46909	-0.61363	93.84	-0.47612	-0.44443	-0.18685	1.11284	0.57225
53	**Panchagarh**	-0.54714	-0.65085	91.13	-0.04689	0.59561	-0.84488	1.13360	1.20006
54	**Pabna**	0.12948	-0.07335	96.47	-0.54116	-0.09775	0.18384	-.040320	-0.73255
55	**Sirajganj**	-0.32617	-0.62647	93.18	-0.51514	-1.16931	0.08336	0.01531	-0.47506
56	**Rajshahi**	1.04079	0.30138	90.21	-0.04689	-0.33412	0.14385	-0.31975	0.63590
57	**Natore**	-0.30739	-0.43653	89.98	-0.51514	-0.25533	0.25476	-0.60356	-0.17996
58	**Nawabganj**	0.20892	-0.60080	88.10	-0.92227	-1.32689	-0.47587	-0.30281	0.65037
59	**Naogaon**	-0.56663	-0.55332	79.54	-0.33304	-0.14503	2.00167	-0.44175	0.58382
60	**Rangpur**	0.06666	-0.41857	91.92	-0.55416	-0.38140	0.88960	-0.16429	-0.12789
61	**Gaibandha**	-0.63018	-0.77790	82.49	-0.86633	-0.46019	0.58680	-0.07619	0.02256
62	**Kurigram**	-0.12470	-0.65085	94.29	-1.12648	-2.16208	0.33037	-0.54129	-0.58500
63	**Lalmonirhat**	-0.40921	-0.72785	91.38	-0.93137	-1.40569	-0.63584	-0.35110	-0.32462
64	**Nilphamari**	-0.14564	-0.46862	92.22	-0.73626	-0.23957	-0.14719	-0.04103	-0.38827

Sources: Compiled from Appendix-1.

Sl. No.	Districts	COLLEG	METROA	SMETRO	KUTROA	BANDEP	REGRIK	ELECON	MUNICI
1	Chittagong	-0.13946	2.10264	5.98357	2.00426	2.07115	2.37356	-0.94214	0.08717
2	Cox's Bazar	-0.22207	-0.12920	0.87710	-0.92720	-0.15624	-0.32166	-0.71362	0.08717
3	Bandarban	-0.18076	-0.57710	-0.39837	-0.68908	-0.24527	-0.02463	0.48126	-1.02855
4	Rangamati	-0.20142	-0.25553	-0.53959	-0.52050	-0.21999	-1.00017	2.07479	-1.02855
5	Khagrachhari	0.12903	0.02393	0.05260	-0.87991	-0.24169	0.27819	0.21416	-1.02855
6	Comilla	-0.22207	4.52972	2.10703	2.71028	0.06307	-0.06236	0.45335	0.08717
7	B. Baria	-0.38730	-0.31678	-0.57147	-0.82372	-0.07454	-0.41782	0.37774	-1.02855
8	Chandpur	-0.24686	-0.36655	-0.43937	-0.42870	-0.13560	-0.37520	-0.28321	0.08717
9	Noakhali	-0.28816	-0.38569	-0.09317	0.16048	-0.08869	0.07239	0.09918	2.31860
10	Feni	-0.30055	0.06604	-0.18428	-0.09266	-0.13342	0.63592	0.66298	-1.02855
11	Laxmipur	-0.27577	-0.82593	-0.50770	-0.51494	-0.17990	-0.41807	-0.96443	1.20288
12	Sylhet	-0.23446	1.08817	-0.74913	0.07926	0.38220	-0.17683	0.40044	-1.02855
13	Sunamgonj	-0.39969	-0.49671	-0.81746	-0.57391	-0.17385	-0.80916	-0.93363	-1.02855
14	Moulvi-Bazar	-0.35425	0.53691	-0.64436	-0.67906	-0.08541	0.26458	0.29641	0.08717
15	Habiganj	-0.39143	0.88910	-0.68080	-0.97004	-0.18259	-0.35278	-0.50454	-1.02855
16	Dhaka	-0.15598	2.49312	1.00921	-0.56000	7.52211	6.32211	-1.06130	0.08717
17	Gazipur	-0.10641	-0.34358	-0.13872	-0.39643	-0.11735	0.39673	2.92680	0.08717
18	Narayanganj	-0.36251	-0.19428	-0.46215	-1.13806	0.02409	0.83130	-0.88624	0.08717
19	Narshingdi	-0.25099	-0.52733	-0.55325	-1.02345	--0.11202	-0.49062	1.45026	0.08717
20	Munshiganj	-0.23033	-0.54648	-0.11595	-0.92442	-0.14276	-0.76271	0.64238	0.08717
21	Manikganj	0.10012	-0.58859	-0.62614	-0.75362	-0.18732	-0.38787	-0.87417	-1.02855
22	Faridpur	-0.22207	-0.00670	-0.17972	-0.18502	-0.17189	0.23682	-0.53591	-1.02855
23	Rajbari	-0.02380	-0.47374	-0.35738	-0.86878	-0.22698	-0.35050	-0.71706	0.08717
24	Gopalganj	7.57658	-0.42780	0.72222	-0.64067	-0.22306	-0.63386	-1.01248	-1.02855
25	Madaripur	-0.32947	-0.70726	-0.43937	-0.93165	-0.21815	-0.38516	-0.13674	-1.02855
26	Shariatpur	-0.11054	-1.02117	-0.51226	-0.69575	-0.23009	-0.74478	-0.90224	-1.02855
27	Jamalpur	-0.10023	0.02775	1.72894	0.16939	-0.18843	0.39630	-0.27078	0.08717
28	Sherpur	-0.27990	-0.53882	-0.47126	-0.75688	-0.23615	-0.08902	-0.76035	0.08717
29	Mymensing	-0.23859	-0.30913	-0.02484	-0.79868	-0.11479	-0.22859	- 0.13970	1.20288
30	Kishoreganj	-0.39143	-0.38952	-0.32093	0.44200	-0.18865	0.03650	-0.38063	1.20288
31	Netrokona	-0.30881	-0.56944	-0.27083	-0.15831	-0.22566	-0.31733	-0.78844	1.20288
32	Tangail	-.30468	0.41057	-0.07495	1.33885	-0.09624	-0.33804	-0 .0565	1.20288
33	Barisal	0.05055	-0.20194	0.44435	0.29012	-0.09053	0.14673	0.24135	1.20288
34	Bhola	-0.37904	0.04690	-0.46670	0.91658	-0.20788	-0.70671	-0.99841	1.20288
35	Jhalokati	0.02990	-0.82211	-0.53048	-0.22841	-0.22579	-0.13243	-0.47225	0.08717
36	Perojpur	-0.05685	-0.71109	-026171	-0.42258	-0.19897	-0.65581	-0.39522	-1.02855
37	Jessore	0.85190	-0.73789	0.13004	1.25985	-0.06119	0.31212	0.99597	-1.02855
38	Jhenaidah	-0.13946	0.18854	0.67667	0.13322	0.13322	-0.36692	-0.49195	3.43432
39	Narail	-0.08576	-0.76851	0.42613	-0.27793	-0.23171	-0.73292	-1.05942	0.08717
40	Magura	0.08360	-0.82976	-0.57147	-0.23564	-0.22758	-0.65506	- 0.72579	-1.02855
41	Khulna	0.51731	-0.33975	1.64695	-0.20171	0.12524	1.57866	4.15548	-1.02855
42	Bagerhat	-0.16837	-0.20959	-0.21616	1.48184	-0.17492	0.07589	-0.0557 1	0.08717
43	Satkhira	-0.27577	-0.17514	0.60379	0.17940	-0.17266	0.11356	-0.52048	0.08717
44	Kushtia	0.05468	-0.28616	0.29858	0.10930	-0.15432	0.20046	1.36469	1.20288
45	Chuadanga	-0.30468	-0.43163	-0.35738	-0.94445	-0.21090	0.10680	0.64571	1.20288
46	Meherpur	-0.12707	-0.65367	-0.73091	-0.78366	-0.23901	-0.13323	1.58621	-1.20288
47	Patuakhali	-0.13120	0.82785	0.78144	1.09350	-0.20204	-0.24583	-0.91353	-1.20288
48	Barguna	-0.23859	-0.85273	-0.61247	-0.30630	-0.23542	-0.76216	-0.85640	0.08717
49	Bogra	-0.01967	0.00479	0.35780	0.76914	-0.06729	0.66588	0.90173	1.20288
50	Joypurhat	-0.12294	-0.68812	-0.30727	-0.70577	-0.22114	-0.21297	0.28337	-1.20288
51	Dinajpur	0.25295	1.52075	-0.38471	1.42398	-0.14050	-0.10713	0.43831	0.08717
52	Thakurgaon	0.05881	-0.07178	-0.83568	0.38692	-0.22097	-0.49638	0.01585	0.08717
53	Panchagarh	0.09599	-0.28233	-0.83568	-0.50993	-0.23824	-1.07736	-0.95925	-1.02855
54	Pabna	-0.15598	0.86613	-0.03851	0.22892	-0.12396	0.13165	1.00117	1.20288
55	Sirajganj	-0.25925	-0.21342	-0.24349	-0.09266	-0.15091	-0.43145	-0.00003	1.20288
56	Rajshahi	0.66189	3.75259	1.58317	4.72653	-0.03104	0.46449	0.79137	0.08717
57	Natore	0.26534	-0.09092	-0.34371	-0.25679	-0.19172	-0.03459	0.79078	0.08717
58	Nawabganj	0.09599	-0.41249	-0.60336	-0.58170	-0.16357	-0.59693	-0.30563	1.20288
59	Naogaon	-0.37077	-0.00670	-0.24349	0.86428	-0.19521	-0.33252	-0.66937	-1.02855
60	Rangpur	0.00924	0.26893	-0.22072	0.88876	-0.13833	1.21543	0.76385	0.08717
61	Gaibandha	-0.25099	-0.39718	-0.25260	-0.07263	-0.21031	0.37713	-0.78640	-1.02855
62	Kurigram	-0.12294	0.14260	-0.28449	0.69904	-0.22694	-0.72546	-1.07584	-1.02855
63	Lalmonirhat	-0.23859	-0.45460	-0.54870	0.22836	-0.23862	-0.59637	-0.74556	-1.02855
64	Nilphamari	-0.22620	-0.15217	-0.36649	-0.08265	-0.20046	0.45617	-0.21111	0.08717

Sources: Compiled from Appendix-1.

Appendix-4: Z-Score Value of the Selected Variables, 2001

Sl. No.	Districts	URPOPU	SANTOI	DRIWAT	LITRA	URBLIT	GDPAGR	PRISCH	SECSCH
1	Chittagong	2.27592	0.48924	-0.48406	1.20626	0.11259	1.88963	-1.00526	-0.39514
2	Cox's Bazar	-0.32774	-0.47645	0.45924	-1.76563	-0.50093	0.60590	-0.97829	-0.89477
3	Bandarban	0.90410	-2.15256	-2.53818	-1.86850	0.16000	-1.28446	3.53883	-0.51815
4	Rangamati	1.66508	-0.73044	-2.21162	-0.29112	0.73472	-0.92928	1.60594	-2.01530
5	Khagrachhari	0.93209	-2.27414	-0.24674	-0.24540	-0.77392	-1.31930	1.49783	-0.60011
6	Comilla	-0.50972	0.62165	0.26530	0.12038	0.66288	1.71992	-0.39721	-0.15429
7	B. Baria	-0.32774	0.27726	0.78880	-0.88549	-0.48656	-0.02175	-0.57971	-0.90499
8	Chandpur	-0.27875	0.70186	-0.70692	0.60045	-0.18483	0.63529	0.59368	-0.04566
9	Noakhali	-0.48172	0.24288	-0.06875	0.66903	0.72035	0.16061	-0.57331	-0.32077
10	Feni	-0.26475	1.36517	0.45778	1.03480	1.85542	-0.75256	-0.42317	0.40984
11	Laxmipur	-0.18776	0.86036	-0.19588	-0.15395	-1.52105	0.16061	-0.50079	-0.17486
12	Sylhet	0.00821	1.53641	-0.30358	0.04036	1.61117	0.00588	-0.15634	-0.37328
13	Sunamgonj	-0.55871	-0.78901	0.03695	-1.20554	0.44736	-0.27593	-0.24496	-0.90118
14	Moulvi-Bazar	-0.64970	0.96922	-0.38584	-0.34827	0.14563	-0.21248	0.62809	-0.63041
15	Habiganj	-0.48172	-0.33258	0.81921	-0.83977	0.60541	4.55674	2.02577	-0.99200
16	Dhaka	5.17625	1.43774	-2.21062	2.28071	0.95024	-0.96937	-2.35307	-1.34656
17	Gazipur	1.88397	0.83172	0.28175	1.37771	0.42150	-0.60795	-0.96729	0.48276
18	Narayanganj	2.64687	0.64966	0.08730	0.73761	0.64851	-1.12993	-1.72056	-0.97976
19	Narshingdi	0.09220	0.85591	0.46522	-0.18824	-0.58713	-0.53711	-0.74413	-0.41619
20	Munshiganj	-0.33474	0.79289	0.31116	0.82906	-0.91760	-0.88840	-0.78207	-0.97121
21	Manikganj	-0.71969	0.46760	-0.78121	-0.49686	-0.83139	-0.56261	0.71060	-0.09030
22	Faridpur	-0.36274	1.05134	0.75091	-0.45114	1.56806	0.32634	-0.65240	0.66298
23	Rajbari	-0.38374	0.41094	0.97526	-0.45114	-0.21357	-0.81211	-0.55146	0.15599
24	Gopalganj	-0.59571	0.34092	-1.14218	0.70332	1.61117	-0.65895	1.16266	0.35413
25	Madaripur	-0.38374	-1.03982	0.04443	-0.42828	1.49622	-0.74341	0.34439	-0.07050
26	Shariatpur	-0.59371	1.22640	-0.59674	-0.70261	-0.47219	-0.73679	-0.27829	1.38820
27	Jamalpur	-0.04778	-1.65857	0.80824	-1.52559	-1.73657	0.05571	-0.38205	0.09304
28	Sherpur	-0.44673	0.52616	0.85860	1.92637	-1.24806	-0.51084	-0.18528	0.83288
29	Mymensing	-0.27875	-0.41215	0.68111	-0.88549	0.67725	3.24771	-0.42091	-0.45431
30	Kishoreganj	-0.32774	-0.12760	0.64870	-0.77119	0.47610	0.70030	1.11426	-0.53434
31	Netrokona	-0.59371	-096980	0.15461	-1.37700	-0.21357	0.71606	0.14172	-1.04470
32	Tangail	-0.33474	0.45996	0.78531	-0.63403	0.04506	0.67071	-2.49751	-2.04162
33	Barisal	-0.06878	1.66436	-2.45442	1.42344	1.33818	0.20304	0.73317	0.62704
34	Bhola	-0.19476	0.17986	-1.72501	-0.89693	1.18013	0.42121	0.17092	-0.98150
35	Jhalokati	-0.06178	1.54723	-1.89552	2.46360	1.69738	-1.17294	0.19558	2.85555
36	Perojpur	-0.12477	1.64781	-1.91945	2.16641	0.63414	-0.63170	0.67165	1.33375
37	Jessore	-0.03378	0.35238	0.77434	0.78334	0.12695	0.75148	-0.63457	0.76812
38	Jhenaidah	-0.34174	-0.16262	0.33559	0.00607	-0.97507	0.03333	-0.13880	0.09487
39	Narail	-0.56571	0.46378	0.47370	0.38327	-0.57277	-0.72881	0.59170	0.64539
40	Magura	-0.43273	-0.40515	0.28524	-0.05108	-1.16185	-0.62469	-0.45953	0.20672
41	Khulna	2.48589	1.09526	-0.57331	1.49202	0.49046	0.48738	-0.57859	0.08317
42	Bagerhat	-0.13877	-1.81899	-1.96732	1.54917	0.49046	0.30619	0.10628	0.39468
43	Satkhira	-0.74069	0.43004	-0.65707	0.07465	0.57667	0.34433	-0.05633	0.29250
44	Kushtia	-0.55871	0.64584	0.76636	-0.50829	1.20886	-0.14397	-0.95131	-0.07416
45	Chuadanga	-0.60314	-1.74642	0.86907	-0.42828	-1.10438	-0.70643	-0.80927	-1.22981
46	Meherpur	-0.48172	-0.56939	0.59984	-0.77119	-0.90323	-1.01822	-0.13654	--0.53697
47	Patuakhali	-0.51742	0.87310	-0.00742	1.51488	0.84966	0.51151	2.35535	-1.75611
48	Barguna	-0.46073	0.76361	-2.09395	1.05766	0.13127	-0.36312	1.55473	0.86577
49	Bogra	-0.33474	0.75406	0.69357	-0.30255	1.05082	1.05860	-0.44154	-0.13144
50	Joypurhat	-0.60071	-0.54966	0.86508	0.40613	-0.66041	-0.63111	-1.14671	-0.29630
51	Dinajpur	-0.30675	-0.27147	0.83168	0.14324	-0.19776	1.04848	0.23763	0.83990
52	Thakurgaon	-0.69170	-1.18623	0.86508	-0.24540	0.40426	-0.33412	0.77681	2.03359
53	Panchagarh	-0.50972	0.24861	0.72997	-0.03965	-41903	-0.76735	0.84073	3.73133
54	Pabna	0.28818	-0.88640	0.99620	-0.30255	0.63414	0.01192	0.54403	-0.26524
55	Sirajganj	-0.50272	-0.60376	0.83217	-0.58831	-1.10438	-0.06866	-0.17004	-0.31155
56	Rajshahi	1.14207	-0.33131	0.68410	0.34898	-1.00524	-0.00229	-0.53534	1.44143
57	Natore	-0.27875	-0.37141	0.67014	-0.39399	-0.26960	-0.04024	-0.49313	0.66571
58	Nawabganj	0.35817	-1.79289	0.57890	-1.12553	-2.08141	-0.49001	-0.42553	0.34962
59	Naogaon	-0.67070	-0.32049	0.15212	-0.00536	-1.03254	1.16311	0.11836	0.50772
60	Rangpur	-0.13177	--0.71326	0.76935	-0.49686	-0.15609	0.31008	0.18991	0.10821
61	Gaibandha	-0.64970	-1.74260	0.29920	-1.12553	0.89277	0.12013	0.29982	0.66612
62	Kurigram	-0.24375	-1.28236	0.88752	-1.35414	-2.26819	0.05590	0.51751	-0.23105
63	Lalmonirhat	-0.36974	-0.90932	0.74243	-0.38856	-1.11875	-0.61554	0.00586	-0.28723
64	Nilphamari	-0.37674	-0.15434	0.78431	-0.80548	-1.93773	-0.33295	0.09746	0.33481

Sources: Compiled from Appendix-2.

Sl. No.	Districts	COLLEG	METROA	SMETRO	KUTROA	BANDEP	REGRIK	ELECON	MUNICI
1	Chittagong	-0.23350	2.23881	3.82262	2.48451	1.96555	2.84891	5.31107	1.95462
2	Cox's Bazar	-0.54844	0.22553	0.76011	-1.54749	-0.16125	-0.24168	-0.36560	-0.27923
3	Bandarban	-0.97438	-1.03632	-084901	-1.52910	-0.24216	-0.38851	-0.48291	-1.39616
4	Rangamati	-1.21430	-0.35923	-0.59241	-0.44405	-0.21635	-0.42547	-0.33491	-1.39616
5	Khagrachhari	-0.43332	-0.41171	0.33778	-0.88289	-0.23920	-0.34931	-0.45326	-1.39616
6	Comilla	-0.32749	3.13781	1.28401	-1.28685	0.06727	0.29019	-0.29706	0.83769
7	B. Baria	-0.52286	-0.52850	-0.59775	-0.62606	-0.11151	-0.17874	-0.12709	0.27923
8	Chandpur	-0.07476	-0.72471	-0.57102	-0.76684	-0.11991	-0.17874	-0.15210	1.39616
9	Noakhali	6.07358	1.54125	1.53527	-0.21702	-0.07627	0.01772	-0.21631	0.83769
10	Feni	-0.22133	-0.24766	-0.19146	0.05503	-0.11421	-0.10254	-0.29108	-0.83769
11	Laxmipur	-0.58658	-0.61699	0.19879	-0.50366	-0.17635	-0.27790	-0.28721	-0.27923
12	Sylhet	-0.40957	1.27195	-0.84901	0.10577	0.42069	-0.08844	0.22048	-0.83769
13	Sunamgonj	-0.61289	-0.97477	-0.77951	-0.21385	-0.17279	-0.34867	-0.33027	0.27923
14	Moulvi-Bazar	-0.45349	1.65005	-0.87039	0.63050	-0.07677	-0.10714	-0.34162	0.27923
15	Habiganj	-0.87971	-0.31691	0.03841	-0.64952	-0.17724	-23620	-0.29856	0.27923
16	Dhaka	-0.39791	2.53766	0.76011	-1.12704	7.55142	7.10294	4.84411	-0.27923
17	Gazipur	-0.63929	0.75644	0.80288	0.04806	-0.08570	-0.01933	1.38335	-0.83769
18	Narayanganj	-1.42558	-0.68247	-0.66725	-1.18475	0.02790	0.14439	-0.26661	-0.83769
19	Narshingdi	-0.57486	2.15863	0.93118	-0.45927	-0.12418	-0.26307	0.12069	-0.27923
20	Munshiganj	-0.51358	-0.61710	-0.37857	-0.80996	-0.14762	-0.36497	-0.19671	-0.83769
21	Manikganj	0.02339	-0.53620	-0.77951	-0.22083	-0.18249	-0.29112	-0.39551	-1.39616
22	Faridpur	0.77927	0.52561	3.36357	-0.31532	-0.16008	0.09103	-0.25601	0.27923
23	Rajbari	0.58026	-1.04787	-0.78486	-058801	-0.22361	-0.34950	-0.42903	-0.27923
24	Gopalganj	0.00048	-0.32076	-0.07385	-0.57913	-0.21257	0.30311	-0.42567	0.27923
25	Madaripur	-0.29882	-0.92476	-0.23423	0.88388	-0.21096	-0.37589	-0.35838	-0.27923
26	Shariatpur	-0.12627	-0.88209	-0.52483	-0.34866	-0.22416	0.04415	-0.46693	0.83769
27	Jamalpur	-0.54716	1.42072	-0.41305	1.74945	-0.18044	-0.23733	-0.16757	-0.83769
28	Sherpur	-0.34134	-0.88209	-0.52483	-0.34866	-0.23108	0.14948	-0.40556	-1.39616
29	Mymensing	-0.38070	1.41045	1.11294	-0.86704	-0.11229	0.01160	0.19753	-0.83769
30	Kishoreganj	-0.71891	-0.47464	0.06514	1.53929	-0.17690	-0.20390	-0.10904	-0.27923
31	Netrokona	-0.72683	-0.95554	-0.65656	-1.46696	-0.21658	-0.04689	-0.30036	-0.83769
32	Tangail	-1.40940	1.10653	0.12929	2.81934	-0.18181	0.03691	0.02091	0.27923
33	Barisal	0.09893	-0.15726	1.01671	0.32772	-0.09181	-0.33516	0.10161	0.27923
34	Bhola	-0.50059	-0.24766	-0.29304	0.97964	-0.20480	-0.32224	-0.33259	-1.39616
35	Jhalokati	0.96680	-0.87475	-0.64587	-0.72879	-0.21924	-0.35293	-0.38726	-0.27923
36	Perojpur	0.08186	-0.93399	-0.49618	-0.35844	-0.18834	0.07484	-0.44630	0.27923
37	Jessore	-0.04300	0.19860	-0.18173	0.64207	-0.06958	-0.26268	-0.22228	0.83769
38	Jhenaidah	0.65117	-0.85936	0.52291	2.14586	-0.19386	-0.39169	-0.22610	-0.27923
39	Narail	0.50962	-0.61699	-0.66190	-1.52276	-0.22627	-0.37799	-0.49349	1.39616
40	Magura	-0.00438	-0.59006	-0.52291	0.78242	-0.22426	0.50569	-0.43160	-0.83769
41	Khulna	0.13222	-0.01299	0.81357	0.60802	0.09829	-0.14561	1.86165	-1.39616
42	Bagerhat	0.15853	-0.12490	0.32976	0.45000	-0.16674	-0.10254	-0.24312	2.51308
43	Satkhira	0.21740	-0.18611	0.41797	0.61119	-0.16713	-0.09926	-0.35554	0.27923
44	Kushtia	0.05964	0.25600	1.82929	-01.51217	-0.15773	-0.26532	0.06345	1.95462
45	Chuadanga	-0.53153	-0.77087	0.07049	-0.82074	-0.21040	-0.35117	-0.25292	0.27923
46	Meherpur	-0.25073	-0.93630	-0.80624	-1.02685	-0.23524	-0.24785	-0.32434	-0.27923
47	Patuakhali	0.37715	0.05241	0.53023	1.72795	-0.19737	-0.38841	-0.39525	-0.83769
48	Barguna	-0.26281	-0.98762	-0.54429	-0.35464	-0.22827	0.37838	-0.32976	-0.27923
49	Bogra	-0.31785	-0.30152	0.83495	1.03418	-0.07640	-0.31598	0.04489	0.27923
50	Joypurhat	0.13123	-0.62083	-071322	-049778	-0.21826	-0.04782	-0.43753	-0.83769
51	Dinajpur	0.99909	0.83338	-0.24706	0.58139	-0.14492	-0.32826	0.13410	-0.27923
52	Thakurgaon	0.33452	-094399	-0.90781	-0.41932	-0.21859	-0.43051	-0.31222	-0.27923
53	Panchagarh	0.76402	-0.37847	-0.99870	-0.07434	-0.23803	-0.02574	-0.45068	-0.83769
54	Pabna	-0.22950	1.06805	-0.52291	0.36894	-0.13203	-0.17443	0.08305	0.27923
55	Sirajganj	0.94620	-0.30537	-0.57102	-0.14156	-0.15043	0.07763	-0.10131	0.83769
56	Rajshahi	2.50109	1.89519	2.60979	1.33794	-0.04407	-0.17869	0.45718	-0.27923
57	Natore	-0.33964	-0.64376	-0.87039	-0.57859	-0.19264	-0.33184	-0.27019	1.39616
58	Nawabganj	0.97691	-0.45110	0.04809	-0.55947	-0.16122	-0.15104	-0.24286	-0.83769
59	Naogaon	0.10191	-0.11005	-0.74145	0.62071	-0.19702	0.43090	-0.29521	*2.51308*
60	Rangpur	0.55787	0.64102	-0.47480	0.94159	-0.15153	0.06117	-0.07191	0.27923
61	Gaibandha	0.18545	-0.14764	-0.56033	0.67715	-0.20562	-0.33110	-0.33569	1.95462
62	Kurigram	-0.04908	-0.52468	-0.72605	1.21491	-0.21998	-0.35058	-0.40401	0.27923
63	Lalmonirhat	0.06158	-0.58059	-0.50046	-0.22336	-0.23420	-0.17443	-0.45584	-0.83769
64	Nilphamari	-0.14786	0.00240	-0.79555	0.43426	-0.21067	-0.07102	-0.30939	-0.27923

Sources; Compiled from Appendix-2.

Appendix-5: Quantitative Indicators of Change in Level of Urbanization 1991-2001.

Sl. No.	Districts	Ue	Ub	Ku	Kr	Ue%	I=(Ue-Ub)	Rank
1	Chittagong	1.2431	1.0606	1.3577	.00002	1.46	0.1825	2
2	Cox's Bazar	0.3338	.2773	1.3940	.00007	.39	0.0564	13
3	Bandarban	0.0556	.0445	1.4170	.00040	.06	0.0102	59
4	Rangamati	.0963	.0795	1.4041	.00024	.11	0.0169	50
5	Khagrachhari	0.0997	.0675	1.7106	.00028	.12	0.0322	33
6	Comilla	.8712	.7872	1.2819	.00002	1.02	0.084	4
7	B. Baria	.4493	.4187	1.2432	.00004	.52	0.0307	36
8	Chandpur	.4198	.3969	1.2250	.00004	.49	0.0228	40
9	Noakhali	.4812	.4334	1.2862	.00004	.56	0.0478	16
10	Feni	.2272	.2138	1.2307	.00008	.26	0.0134	53
11	Laxmipur	.2810	.2569	1.2669	.00007	.33	0.0241	39
12	Sylhet	.4881	.4213	1.3419	.00004	.57	0.0667	8
13	Sunamgonj	.3739	.3327	1.3016	.00005	.43	0.0412	20
14	Moulvi-Bazar	.3047	.2685	1.3145	.00007	.35	0.0362	28
15	Habiganj	.3338	.2975	1.2995	.00006	.39	0.0363	27
16	Dhaka	1.6287	1.1379	1.6580	.00001	1.91	0.4908	1
17	Gazipur	.3848	.3107	1.4346	.00005	.45	0.0741	6
18	Narayanganj	.4062	.3358	1.4009	.00005	.47	0.0703	7
19	Narshingdi	.3592	.3157	1.3179	.00006	.42	0.0435	18
20	Munshiganj	.2457	.2270	1.2537	.00008	.29	0.0187	46
21	Manikganj	.2421	.2247	1.2484	.00008	.28	0.0175	49
22	Faridpur	.3266	.2877	1.3149	.00006	.38	0.0389	21
23	Rajbari	.1786	.1598	1.2945	.00011	.21	0.0188	45
24	Gopalganj	.2150	.2026	1.2296	.00009	.25	0.0125	55
25	Madaripur	.2160	.2043	1.2243	.00009	.25	0.0116	58
26	Shariatpur	.2008	.1821	1.2775	.00010	.23	0.0187	47
27	Jamalpur	.3968	.3587	1.2815	.00005	.46	0.0381	23
28	Sherpur	.2367	.2177	1.2598	.00008	.27	0.0191	44
29	Mymensing	.8431	.7564	1.2912	.00002	.98	0.0867	3
30	Kishoreganj	.4796	.4410	1.2598	.00004	.56	0.0386	22
31	Netrokona	.3680	.3307	1.2894	.00005	.43	0.0374	24
32	Tangail	.6183	.5739	.1248	.00003	.07	0.045	64
33	Barisal	.4427	.4246	1.2079	.00004	.51	0.0182	48
34	Bhola	.3184	.2829	1.3037	.00006	.37	0.0355	30
35	Jhalokati	.1322	.1282	1.1949	.00014	.15	0.004	62
36	Perojpur	.2140	.2038	1.2160	.00009	.25	0.0101	60
37	Jessore	.4636	.4048	1.3266	.00004	.54	0.0588	12
38	Jhenaidah	.2952	.2621	1.3046	.00007	.34	0.0331	31
39	Narail	.1309	.1259	1.2042	.00015	.15	0.005	61
40	Magura	.1544	.1389	1.2851	.00013	..18	0.0152	52
41	Khulna	.4433	.3934	1.3056	.00004	.52	0.05	15
42	Bagerhat	.2879	.2750	1.2128	.00006	.33	0.0129	54
43	Satkhira	.3501	.3065	1.3231	.00006	.41	0.0436	17
44	Kushtia	.3254	.2885	1.3065	.00007	.38	0.0369	25
45	Chuadanga	.1875	.1558	1.3940	.00012	.22	0.0317	34
46	Meherpur	.1101	.0944	1.3508	.00019	.13	0.0157	51
47	Patuakhali	.2140	.2442	1.0148	.00008	.25	0.0145	63
48	Barguna	.1605	.1486	1.2508	.00012	.19	0.0119	57
49	**Bogra**	.5676	.5168	1.2723	.00003	.66	0.0508	14
50	**Joypurhat**	.1605	.1481	1.2553	.00013	.19	0.0124	56
51	**Dinajpur**	.4972	.4378	1.3155	.00004	.58	0.0594	11
52	**Thakurgaon**	.2272	.1956	1.3455	.00010	.26	0.0316	35
53	**Panchagarh**	.1575	.1377	1.3247	.00013	.18	0.0198	43
54	**Pabna**	.4091	.3724	1.2727	.00005	.48	0.0367	26
55	**Sirajganj**	.5141	.4383	1.3587	.00004	.60	0.0758	5
56	**Rajshahi**	.4297	.3671	1.3560	.00005	.50	0.0626	9
57	**Natore**	.2889	.2687	1.2457	.00007	.34	0.0203	42
58	**Nawabganj**	.2696	.2274	1.3734	.00008	.31	0.0422	19
59	**Naogaon**	.4515	.4156	1.2586	.00004	.53	0.036	29
60	**Rangpur**	.4813	.4190	1.3306	.00004	.56	0.0623	10
61	**Gaibandha**	.4023	.3768	1.2365	.00005	.47	0.0254	38
62	**Kurigram**	.3385	.3103	1.2636	.00006	.39	0.0282	37
63	**Lalmonirhat**	.2068	.1845	1.2982	.00010	.24	0.0223	41
64	**Nilphamari**	.2945	.2614	1.3051	.00007	.34	0.0331	32

Sources: Compiled from Appendix-2 & 3.

Appendix-6

Appendix-6.1: Quantitative Indicators of Change in the Share of Urban Population of the District in the total Urban Population of the Region, 1991-2001.

Sl. No.	Districts	Ce (2001)	Cb (1991)	Ku	Ko	Ko/Ku	Ce%	I=(Ce-Cb)	Rank
1	Chittagong	1.2431	1.0606	1.3577	.85	.8633	.6700	.1825	2
2	Cox's Bazar	.3338	.2773	1.3940	.83	.8633	.1759	.0564	13
3	Bandarban	.0556	.0455	1.4170	.82	.8633	.0290	.0102	61
4	Rangamati	.0963	.0795	1.4041	.82	.8633	.0505	.0169	51
5	Khagrachhari	.0997	.0675	1.7106	.68	.8633	.0467	.03122	34
6	Comilla	.8712	.7872	1.2819	.90	.8633	.4828	.084	4
7	B. Baria	.4493	.4187	1.2432	.93	.8633	.2521	.0307	37
8	Chandpur	.4198	.3969	1.2250	.95	.8633	.2373	.0228	41
9	Noakhali	.4812	.4334	1.2862	.90	.8633	.2653	.0478	16
10	Feni	.2272	.2138	1.2307	.94	.8633	.1279	.0134	55
11	Laxmipur	.2810	.2569	1.2669	.91	.8633	.1558	.0241	40
12	Sylhet	.4881	.4213	1.3419	.86	.8633	.2630	.0667	8
13	Sunamgonj	.3739	.3327	1.3016	.89	.8633	.2046	.0412	21
14	Moulvi-Bazar	.3047	.2685	1.3145	.88	.8633	.1658	.0362	29
15	Habiganj	.3338	.2975	1.2995	.89	.8633	.1828	.0363	28
16	Dhaka	1.6287	1.1379	1.6580	.70	.8633	.7849	.4908	1
17	Gazipur	.3848	.3107	1.4346	.81	.8633	.1998	.0741	6
18	Narayanganj	.4062	.3358	1.4009	.83	.8633	.2137	.0703	7
19	Narshingdi	.3592	.3157	1.3179	.88	.8633	.1953	.0435	19
20	Munshiganj	.2457	.2270	1.2537	.92	.8633	.1370	.0187	47
21	Manikganj	.2421	.2247	1.2484	.93	.8633	.1353	.0175	50
22	Faridpur	.3266	.2877	1.3149	.88	.8633	.1777	.0389	22
23	Rajbari	.1786	.1598	1.2945	.89	.8633	.079	.0188	46
24	Gopalganj	.2150	.2026	1.2296	.94	.8633	.1211	.0125	57
25	Madaripur	.2160	.2043	1.2243	.95	.8633	.1219	.0116	60
26	Shariatpur	.2008	.1821	1.2775	.91	.8633	.1108	.0187	48
27	Jamalpur	.3968	.3587	1.2815	.90	.8633	.2190	.0381	24
28	Sherpur	.2367	.2177	1.2598	.92	.8633	.1317	.0191	45
29	Mymensing	.8431	.7564	1.2912	.90	.8633	.4653	.0867	3
30	Kishoreganj	.4796	.4410	1.2598	.92	.8633	.2673	.0386	23
31	Netrokona	.3680	.3307	1.2894	.90	.8633	.2024	.0374	25
32	Tangail	.6180	.5730	1.2480	93	.8633	.0650	.045	17
33	Barisal	.4427	.4246	1.2079	.96	.8633	.2521	.0182	49
34	Bhola	.3184	.2829	1.3037	.89	.8633	.1740	.0355	31
35	Jhalokati	.1322	.1282	1.1949	.97	.8633	.0755	.004	64
36	Perojpur	.2140	.2038	1.2160	.95	.8633	.1212	.0101	62
37	Jessore	.4636	.4048	1.3266	.87	.8633	.2513	.0588	12
38	Jhenaidah	.2952	.2621	1.3046	.89	.8633	.1613	.0331	32
39	Narail	.1309	.1259	1.2042	.96	.8633	.0744	.005	63
40	Magura	0.1541	.1389	1.2851	.90	.8633	.0847	.0152	53
41	Khulna	.4433	.3934	1.3056	.89	.8633	.2424	.05	15
42	Bagerhat	.2879	.2750	1.2128	.96	.8633	.1634	.0129	56
43	Satkhira	.3501	.3065	1.3231	.88	.8633	.1898	.0436	18
44	Kushtia	.3254	.2885	1.3065	.89	.8633	.1776	.0369	26
45	Chuadanga	.1875	.1558	1.3940	.83	.8633	.0987	.0317	35
46	Meherpur	.1101	.0944	1.3508	.86	.8633	.0589	.0157	52
47	Patuakhali	.2140	.2442	1.0148	1.14	.8633	.1324	.0145	54
48	Barguna	.1605	.1486	1.2508	.93	.8633	.0895	.0119	59
49	Bogra	.5676	.5168	1.2723	.91	.8633	.3150	.0508	14
50	Joypurhat	.1605	.1481	1.2553	.92	.8633	.0893	.0124	58
51	Dinajpur	.4972	.4378	1.3155	.88	.8633	.2709	.0594	11
52	Thakurgaon	.2272	.1956	1.3455	.86	.8633	.1220	.0316	36
53	Panchagarh	.1575	.1377	1.3247	.87	.8633	.0852	.0198	44
54	Pabna	.4091	.3724	1.2727	.91	.8633	.2266	.0367	27
55	Sirajganj	.5141	.4383	1.3587	.85	.8633	.2753	.0758	5
56	Rajshahi	.4297	.3671	1.3560	.85	.8633	.2302	.0626	9
57	Natore	.2889	.2687	1.2457	.93	.8633	.1617	.0203	43
58	Nawabganj	.2696	.2274	1.3734	.84	.8633	.1432	.0422	20
59	Naogaon	.4515	.4156	1.2586	.92	.8633	.2517	.036	30
60	Rangpur	.4813	.4190	1.3306	.87	.8633	.2606	.0623	10
61	Gaibandha	.4023	.3768	1.2365	.94	.8633	.2262	.0254	39
62	Kurigram	.3385	.3103	1.2636	.92	.8633	.1881	.0282	38
63	Lalmonirhat	.2068	.1845	1.2982	.89	.8633	.1132	.0223	42
64	Nilphamari	.2945	.2614	1.3051	.89	.8633	.1608	.0331	33

Source: Appendix - 2 &3.

Appendix-6.2: Quantitative Indicators of Change in the Sanitary Latrine (Toilet) Facilities of the District of the total of the Country, 1991-2001.

Sl. No.	Districts	Ce (2001)	Cb (1991)	Ku	Ko	Ko/Ku	Ce%	I=(Cc-Cb)	Rank
1	Chittagong	2.0342	0.1266	3.5320	16.0658	4.5486	0.0262	1.9075	2
2	Cox's Bazar	0.3773	0.0126	6.5671	29.8710	4.5486	0.0027	0.3646	46
3	Bandarban	0.0386	0.0021	3.9845	18.1237	4.5486	0.0004	0.0364	64
4	Rangamati	0.1234	0.0057	4.7369	21.5462	4.5486	0.0012	0.1177	62
5	Khagrachhari	0.0663	0.0034	4.2698	19.4214	4.5486	0.0007	0.0628	63
6	Comilla	1.4107	0.0540	5.7389	26.1042	4.5486	0.0114	1.3567	3
7	B. Baria	0.6777	0.0239	6.2357	28.3636	4.5486	0.0051	0.6538	21
8	Chandpur	0.7303	0.0175	9.1490	41.6153	4.5486	0.0038	0.7128	15
9	Noakhali	0.7078	0.0171	9.1030	41.4062	4.5486	0.0037	0.6907	17
10	Feni	0.4214	0.0145	6.3720	28.9836	4.5486	0.0031	0.4069	40
11	Laxmipur	0.5152	0.0083	13.6099	61.9060	4.5486	0.0018	0.5069	28
12	Sylhet	0.8592	0.0378	4.9917	22.7054	4.5486	0.0080	0.8214	9
13	Sunamgonj	0.4021	0.0118	7.4676	33.9670	4.5486	0.0025	0.3902	43
14	Moulvi-Bazar	0.5334	0.0168	6.9690	31.6992	4.5486	0.0036	0.5166	26
15	Habiganj	0.4305	0.0140	6.7538	30.7205	4.5486	0.0030	0.4165	39
16	Dhaka	3.5868	0.3144	2.5081	11.4082	4.5486	0.0638	3.2724	1
17	Gazipur	0.7877	0.0338	5.1294	23.3317	4.5486	0.0071	0.7539	12
18	Narayanganj	0.7590	0.0431	3.8744	17.6231	4.5486	0.0090	0.7159	14
19	Narshingdi	0.6924	0.0253	6.0207	27.3860	4.5486	0.0054	0.6671	20
20	Munshiganj	0.4428	0.0096	10.1569	46.1996	4.5486	0.0021	0.4332	38
21	Manikganj	0.4535	0.0096	10.3598	47.1227	4.5486	0.0021	0.4439	35
22	Faridpur	0.6423	0.0120	11.7569	53.4776	4.5486	0.0026	0.6303	23
23	Rajbari	0.3065	0.0043	15.5102	70.5500	4.5486	0.0009	0.3021	49
24	Gopalganj	0.3461	0.0073	10.3951	47.2831	4.5486	0.0016	0.3387	47
25	Madaripur	0.2484	0.0068	8.0582	36.6536	4.5486	0.0015	0.2416	55
26	Shariatpur	0.4107	0.0053	16.9548	77.1209	4.5486	0.0012	0.4054	41
27	Jamalpur	0.4024	0.0110	8.0357	36.5513	4.5486	0.0024	0.3914	42
28	Sherpur	0.4927	0.0046	23.3368	106.1499	4.5486	0.0010	0.4880	30
29	Mymensing	1.2615	0.0268	10.3548	47.0999	4.5486	0.0058	1.2347	4
30	Kishoreganj	0.7473	0.0122	13.4535	61.1948	4.5486	0.0026	0.7351	13
31	Netrokona	0.4453	0.0071	13.7542	62.5625	4.5486	0.0015	0.4382	36
32	Tangail	1.1890	0.0210	12.4197	56.4925	4.5486	0.0045	1.1679	6
33	Barisal	0.9930	0.0366	5.9614	27.1162	4.5486	0.0078	0.9564	7
34	Bhola	0.5029	0.0106	10.3853	47.2386	4.5486	0.0023	0.4923	29
35	Jhalokati	0.2986	0.0069	9.5512	43.4445	4.5486	0.0015	0.2917	50
36	Perojpur	0.4837	0.0166	6.4124	29.1675	4.5486	0.0035	0.4671	32
37	Jessore	0.8320	0.0306	5.9740	27.1732	4.5486	0.0065	0.8014	10
38	Jhenaidah	0.4647	0.0118	8.6783	39.4743	4.5486	0.0025	0.4529	34
39	Narail	0.2293	0.0055	9.1871	45.7884	4.5486	0.0012	0.2238	57
40	Magura	0.2115	0.0057	8.1524	37.0821	4.5486	0.0012	0.2058	59
41	Khulna	0.9281	0.0643	3.1724	14.4302	4.5486	0.0132	0.8688	8
42	Bagerhat	0.2495	0.0180	3.0475	13.8617	4.5486	0.0037	0.2315	56
43	Satkhira	0.6341	0.0176	7.9361	36.0082	4.5486	0.0038	0.6165	25
44	Kushtia	0.6408	0.0155	9.1006	41.3951	4.5486	0.0033	0.6253	24
45	Chuadanga	0.1793	0.0082	4.8179	21.9146	4.5486	0.0017	0.1711	60
46	Meherpur	0.1696	0.0034	11.0888	50.4387	4.5486	0.0007	0.1662	61
47	Patuakhali	0.5173	0.0035	32.2954	146.8992	4.5486	0.0008	0.5138	27
48	Barguna	0.3138	0.0069	10.0601	45.7595	4.5486	0.0015	0.3069	48
49	Bogra	1.2011	0.0314	8.4151	38.2771	4.5486	0.0067	1.1697	5
50	Joypurhat	0.2551	0.0074	7.5499	34.3417	4.5486	0.0016	0.2477	54
51	Dinajpur	0.7840	0.0180	9.5574	43.4729	4.5486	0.0039	0.7660	11
52	Thakurgaon	0.2598	0.0061	9.3775	42.6545	4.5486	0.0013	0.2537	53
53	Panchagarh	0.2769	0.0042	14.6117	66.4630	4.5486	0.0009	0.2728	51
54	Pabna	0.4986	0.0178	6.1757	28.0910	4.5486	0.0038	0.4809	31
55	Sirajganj	0.6954	0.0126	12.1293	55.1714	4.5486	0.0027	0.6828	18
56	Rajshahi	0.6663	0.0253	5.7919	26.3453	4.5486	0.0054	0.6410	22
57	Natore	0.4463	0.0099	9.9123	45.2235	4.5486	0.0021	0.4364	37
58	Nawabganj	0.2162	0.0063	7.5556	34.3675	4.5486	0.0013	0.2099	58
59	Naogaon	0.7243	0.0136	11.6958	53.1997	4.5486	0.0029	0.7107	16
60	Rangpur	0.6919	0.0169	9.0077	40.9725	4.5486	0.0036	0.6751	19
61	Gaibandha	0.3968	0.0091	9.5759	43.5569	4.5486	0.0020	0.3877	44
62	Kurigram	0.3885	0.0089	9.5544	43.4593	4.5486	0.0019	0.3795	45
63	Lalmonirhat	0.2706	0.0049	12.2623	55.7765	4.5486	0.0010	0.2657	52
64	Nilphamari	0.4672	0.0098	10.4594	47.5756	4.5486	0.0021	0.4574	33

Source: Appendix-2 &3.

Appendix-6.3: Quantitative Indicators of Change in the Electricity Connection of the District of the total of the Country 1991-2001

Sl. No.	Districts	Ce (2001)	Cb (1991)	Ku	Ko	Ko/Ku	Ce%	I= (Ce-Cb)	Rank
1	Chittagong	0.2880	0.0131	14.3210	22.0345	0.6499	0.0188	0.2749	2
2	Cox's Bazar	0.0096	0.0048	1.2904	1.9855	0.6499	0.0042	0.0048	37
3	Bandarban	0.0038	0.0020	1.2449	1.9154	0.6499	0.0017	0.0018	55
4	Rangamati	0.0111	0.6583	1.1414	1.7568	0.6499	0.0052	0.0048	38
5	Khagrachhari	0.0053	0.0026	1.3374	2.0577	0.6499	0.0023	0.0027	50
6	Comilla	0.0421	0.0341	0.8012	1.2327	0.6499	0.0234	0.0079	24
7	B. Baria	0.0213	0.0175	0.7925	1.2194	0.6499	0.0119	0.0038	43
8	Chandpur	0.0201	0.0107	1.2171	1.8726	0.6499	0.0090	0.0093	19
9	Noakhali	0.0169	0.0154	0.7145	1.0994	0.6499	0.0099	0.0015	56
10	Feni	0.0132	0.0103	0.8378	1.2891	0.6499	0.0072	0.0030	48
11	Laxmipur	0.0134	0.0030	2.87261	4.4198	0.6499	0.0035	0.0104	14
12	Sylhet	0.0383	0.0178	1.4014	2.1562	0.6499	0.0160	0.0206	6
13	Sunamgonj	0.0113	0.0042	1.7667	2.7182	0.6499	0.0041	0.0072	27
14	Moulvi-Bazar	0.0108	0.0107	0.6533	1.0052	0.6499	0.0065	0.0001	60
15	Habiganj	0.0129	0.0066	1.2749	1.9616	0.6499	0.0057	0.0063	30
16	Dhaka	0.8973	0.0110	52.9871	81.5268	0.6499	0.0166	0.8863	1
17	Gazipur	0.0954	0.0306	2.0271	3.1189	0.6499	0.0315	0.0648	4
18	Narayanganj	0.0144	0.0046	2.0597	3.1691	0.6499	0.0047	0.0099	15
19	Narshingdi	0.0334	0.0207	1.0501	1.6156	0.6499	0.0163	0.0127	10
20	Munshiganj	0.0179	0.0108	1.0754	1.6547	0.6499	0.0086	0.0071	28
21	Manikganj	0.0081	0.0031	1.6975	2.6118	0.6499	0.0038	0.0050	34
22	Faridpur	0.0150	0.0061	1.5821	2.4342	0.6499	0.0058	0.0088	21
23	Rajbari	0.0065	0.0028	1.5193	2.3376	0.6499	0.0026	0.0037	46
24	Gopalganj	0.0066	0.0022	1.9800	3.0465	0.6499	0.0022	0.0045	40
25	Madaripur	0.0099	0.0062	1.0456	1.6087	0.6499	0.0049	0.0038	44
26	Shariatpur	0.0046	0.0024	1.2474	1.9190	0.6499	0.0021	0.0022	51
27	Jamalpur	0.0193	0.0098	1.2827	1.9735	0.6499	0.0085	0.0095	17
28	Sherpur	0.0076	0.0036	1.3910	2.1402	0.6499	0.0032	0.0041	41
29	Mymensing	0.0372	0.0228	1.0594	1.6301	0.6499	0.0181	0.0144	9
30	Kishoreganj	0.0222	0.0109	1.3166	2.0258	0.6499	0.0096	0.0112	11
31	Netrokona	0.0128	0.0052	1.5963	2.4561	0.6499	0.0049	0.0076	26
32	Tangail	0.0285	0.0109	0.9749	1.5000	0.6499	0.0145	0.0095	18
33	Barisal	0.0325	0.0164	1.2872	1.9805	0.6499	0.142	0.0161	7
34	Bhola	0.0112	0.0031	2.3245	3.5766	0.6499	0.0034	0.0081	22
35	Jhalokati	0.0085	0.0029	1.8978	2.9200	0.6499	0.0029	0.0056	31
36	Perojpur	0.0056	0.0050	0.7327	1.1273	0.6499	0.0032	0.0006	57
37	Jessore	0.0384	0.0224	1.1127	1.7121	0.6499	0.0182	0.0160	8
38	Jhenaidah	0.0164	0.0059	1.8232	2.8051	0.6499	0.0058	0.0186	13
39	Narail	0.0033	0.0012	1.7608	2.7091	0.6499	0.0012	0.0021	53
40	Magura	0.0063	0.0024	1.7337	2.6675	0.6499	0.0023	0.0040	42
41	Khulna	0.1188	0.0495	1.5615	2.4026	0.6499	0.0464	0.0694	3
42	Bagerhat	0.0156	0.0088	1.1501	1.7696	0.6499	0.0073	0.0068	29
43	Satkhira	0.0101	0.0067	0.9847	1.5151	0.6499	0.0051	0.0034	47
44	Kushtia	0.0129	0.0184	0.4575	0.7039	0.6499	0.0089	-0.0054	63
45	Chuadanga	0.0151	0.0074	1.3228	2.0353	0.6499	0.0065	0.0077	25
46	Meherpur	0.0053	0.0065	0.5308	0.8167	0.6499	0.0035	-0.0012	62
47	Patuakhali	0.0081	0.0032	1.6697	2.5690	0.6499	0.0030	0.0050	35
48	Barguna	0.0113	0.0021	3.4855	5.3629	0.6499	0.0025	0.0092	20
49	**Bogra**	0.0297	0.0276	0.7007	1.0781	0.6499	0.0175	0.0022	52
50	**Joypurhat**	0.0061	0.0059	0.6717	1.0334	0.6499	0.0036	0.0002	59
51	**Dinajpur**	0.0025	0.0188	0.0855	0.1316	0.6499	0.0023	-0.0164	64
52	**Thakurgaon**	0.0059	0.0066	0.5808	0.8937	0.6499	0.0037	-0.0007	61
53	**Panchagarh**	0.0054	0.0016	2.1384	3.2902	0.6499	0.0017	0.0038	45
54	**Pabna**	0.0316	0.0207	0.9925	1.5271	0.6499	0.0159	0.0109	12
55	**Sirajganj**	0.0225	0.0146	1.0045	1.5456	0.6499	0.0112	0.0080	23
56	**Rajshahi**	0.0499	0.0187	1.7375	2.6734	0.6499	0.0182	0.0313	5
57	**Natore**	0.0143	0.0137	0.6782	1.0435	0.6499	0.0085	0.0006	58
58	**Nawabganj**	0.0156	0.0060	1.6841	2.5911	0.6499	0.0058	0.0096	16
59	**Naogaon**	0.0130	0.0076	1.1087	1.7059	0.6499	0.0062	0.0054	32
60	**Rangpur**	0.0240	0.0211	0.7401	1.1387	0.6499	0.0138	0.0029	49
61	**Gaibandha**	0.0111	0.0059	1.2073	1.8576	0.6499	0.0050	0.0051	33
62	**Kurigram**	0.0077	0.0029	1.7252	2.6544	0.6499	0.0028	0.0048	39
63	**Lalmonirhat**	0.0052	0.0031	1.0883	1.6745	0.6499	0.0025	0.0021	54
64	**Nilphamari**	0.0123	0.0075	1.0735	1.6517	0.6499	0.0060	0.0049	36

Source: Appendix - 2 & 3

Appendix-64 Quantitative Indicators of change in the **Drinking Water** of the District to the total of the Country, 1991– 2001

Dist	Ce	Cb	Ku	K₀	K₀/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	3.7318	3.6791	1.1225	1.0143	.9036	2.1288	.0527	16
Cox- Bazar	.8889	.8659	1.0505	1.0265	.9772	.4528	.0230	24
Bandarban	.1794	.1695	.8532	1.0579	1.2399	.0704	.0098	29
Rangamati	.3143	.3014	1.5417	1.0428	.6764	.2281	.0129	28
Khagrachhari	.3316	.2806	1.3251	1.1819	.8920	.1709	.0510	17
Comilla	2.5118	2.6913	1.0279	.9333	.6080	1.4705	-.1795	64
B. Baria	1.3069	1.4185	1.0642	.9213	.8657	.7970	-.1117	60
Chandpur	1.2776	1.4000	1.0966	.9126	.8322	.8141	-.1224	61
Noakhali	1.3762	1.5134	.8538	.9093	1.0650	.6872	-.1372	62
Feni	.6439	.7343	1.0158	.8768	.8632	.4004	-.0905	57
Lakshmipur	.8711	.9444	1.0100	.9224	.9133	.5009	-.0733	53
Sylhet	1.2711	1.3461	1.0371	.9443	.9105	.7278	-.0750	54
Sunamganj	1.0433	1.1082	1.0319	.9415	.9123	.5956	-.0649	51
Maulvi Bazar	.8815	.9547	1.0722	.9234	.8612	.5373	-.0731	52
Habiganj	.9731	1.0501	1.1075	.9267	.8367	.6100	-.0770	55
Dhaka	5.4051	4.0846	.7590	1.3233	1.7435	1.3912	1.3204	1
Gazipur	1.3399	1.2372	1.1244	1.0830	.9632	.6762	.1027	5
Narayanganj	1.3430	1.2202	1.0382	1.1006	1.0601	.6106	.1227	2
Narshingdi	1.1718	1.1968	1.0691	.9791	.9158	.6544	-.0250	38
Munshiganj	.7595	.7946	1.1273	.9558	.8479	.4617	-.0351	44
Manikganj	.8362	.8704	.6779	.9607	1.4172	.3036	-.0342	42
Faridpur	1.0438	1.0740	1.0720	.9719	.9067	.5902	-.0301	39
Rajbari	.5725	.5706	1.0113	1.0034	.9922	.2897	.0020	31
Gopalganj	.6572	.7434	.7630	.8840	1.1586	.3034	-.0862	56
Madaripur	.7016	.7617	.9370	.9211	.9830	.3744	-.0601	50
Shariatpur	.6445	.6856	.7272	.9401	1.2926	.2588	-.0411	47
Jamalpur	1.4543	1.4703	1.1618	.9891	.8513	.8716	-.0160	37
Sherpur	.8963	.9070	1.0713	.9882	.9224	.4932	-.0107	33
Mymensingh	2.9171	2.9550	1.1182	.9872	.8828	1.7135	-.0380	45
Kishorganj	1.5968	1.6309	1.0114	.9791	.9681	.8473	-.0341	41
Netrokona	1.2276	1.2667	.9594	.9691	1.0101	.6251	-.0391	46
Tangail	2.1960	2.2099	1.1610	.9937	.8559	1.3159	-.0139	36
Barisal	1.4352	1.6112	.5161	.8908	1.7260	.4470	-.1760	63
Bhola	.9931	1.0345	.4852	.9599	1.9785	.2588	-.0415	48
Jhalokati	.4409	.4919	.6467	.8962	1.3794	.1694	-.0510	49
Perojpur	.7012	.7928	.5779	.8844	1.5304	.2451	-.0917	58
Jessore	1.5758	1.4776	1.0539	1.0664	1.0118	.7649	.0982	7
Jhenaidah	1.0023	.9318	.9220	1.0756	1.1666	.4178	.0705	10
Narial	.4232	.4582	.9512	.9237	.9711	.2276	-.0350	43
Magura	.4881	.4823	.9367	1.0119	1.0803	.2256	.0057	30
Khulna	1.4949	1.4731	.8118	1.0148	1.2502	.6024	.0218	25
Bagerhat	.9721	1.0695	.7702	.9089	1.1802	.4362	-.0974	59
Satkhira	1.1793	1.1298	.6904	1.0438	1.5119	.3860	.0495	19
Kushtia	1.1348	1.0592	1.0989	1.0713	.9749	.5680	.0756	9
Chuadanga	.6747	.5680	1.0731	1.1879	1.1069	.2802	.1067	4
Meherpur	.4108	.3609	.9435	1.1381	1.2063	.1598	.0498	18
Patuakhali	.8723	.8861	1.0284	.9844	.9572	.4633	-.0138	35
Barguna	.5416	.5745	.4790	.9428	1.9683	.1425	-.0329	40
Bogra	2.0773	2.0145	1.0028	1.0312	1.0283	1.0150	.0628	13
Joypurhat	.6143	.5893	1.0003	1.0424	1.0421	.2903	.0250	23
Dinajpur	1.7422	1.6797	1.0474	1.0372	.9902	.8730	.0625	14
ThaKurgaon	.7739	.7557	1.1510	1.0240	.8896	.4330	.0181	27
Panchagarh	.5377	.5443	1.7325	.9879	.5702	.4770	-.0066	32
Pabna	1.3361	1.2742	1.1090	1.0485	.9455	.6987	.0619	15
Sirajganj	1.7022	1.5914	1.0492	1.0697	1.0195	.8198	.1109	3
Rajshahi	1.5057	1.4050	1.1159	1.0717	.9603	.7676	.1007	6
Natore	1.0200	.9885	.9926	1.0319	1.0396	.4877	.0316	22
Nawabganj	.8316	.7671	1.0958	1.0841	.9893	.4064	.0645	12
Naogaon	1.6316	1.5622	.9140	1.0445	1.1427	.7095	.0694	11
Rangpur	1.7525	1.6590	1.1687	1.0563	.9038	.9588	.0934	8
Gaibandha	1.4904	1.4517	.9905	1.0267	1.0365	.7200	.0387	20
Kurigram	1.2000	1.1676	1.0813	1.0277	.9504	.6300	.0324	21
Lalmonirhat	.7306	.7114	1.3133	1.0270	.7816	.4644	.0192	26
Nilphamari	1.0054	1.0191	1.4968	.9865	.6591	.7758	-.0137	34

Source: Appendix – 2 &3.

Appendix 6.5: Quantitative Indicators of change in the *Literacy Rate* of the District to the total of the Country, 1991 – 2001

Dist	Ce	Cb	Ku	K$_0$	K$_0$/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	0.288	0.0131	22.0345	14.3210	.6499	.0188	0.3818	2
Cox- Bazar	0.0096	0.0048	1.9855	1.2904	.6499	.0042	0.0921	36
Bandarban	0.0038	0.002	1.9154	1.2449	.6499	.0017	0.0191	64
Rangamati	0.0111	0.0063	1.7568	1.1418	.6499	.0052	0.0331	63
Khagrachhari	0.0053	0.0026	2.0577	1.3374	.6499	.0023	0.0389	60
Comilla	0.0421	0.0341	1.2327	.8012	.6499	.0234	0.2336	4
B. Baria	0.0213	0.0175	1.2194	.7925	.6499	.0113	0.1196	26
Chandpur	0.0201	0.0107	1.8726	1.2171	.6499	.0090	0.1155	28
Noakhali	0.0169	0.0154	1.0994	.7145	.6499	.0099	0.1238	23
Feni	0.0132	0.0103	1.2891	.8378	.6499	.0072	0.0551	55
Lakshmipur	0.0134	0.003	4.4108	2.8726	.6499	.0035	0.0798	45
Sylhet	0.0383	0.0178	2.1562	1.4014	.6499	.0160	0.12	25
Sunamganj	0.0113	0.0042	2.7182	1.7667	.6499	.0041	0.0981	34
Maulvi Bazar	0.0108	0.0107	1.0052	.6533	.6499	.0065	0.0809	42
Habiganj	0.0129	0.0066	1.9616	1.2749	.6499	.0057	0.0897	38
Dhaka	0.8973	0.011	81.5268	52.9871	.6499	.0166	0.6878	1
Gazipur	0.0954	0.0306	3.1189	2.0271	.6499	.0315	0.1462	17
Narayanganj	0.0144	0.0046	3.1691	2.0597	.6499	.0047	0.1486	16
Narshingdi	0.0334	0.0207	1.6156	1.0501	.6499	.0163	0.1154	29
Munshiganj	0.0179	0.0108	1.6547	1.0754	.6499	.0086	0.0727	48
Manikganj	0.0081	0.0031	2.6118	1.6975	.6499	.0030	0.0806	43
Faridpur	0.015	0.0061	2.4342	1.5821	.6499	.0058	0.1019	32
Rajbari	0.0065	0.0028	2.3376	1.5193	.6499	.0026	0.0579	53
Gopalganj	0.0066	0.0022	3.0465	1.9800	.6499	.0022	0.0569	54
Madaripur	0.0099	0.0062	1.6087	1.0456	.6499	.0049	0.0642	50
Shariatpur	0.0046	0.0024	1.9190	1.2472	.6499	.0021	0.0605	52
Jamalpur	0.0193	0.0098	1.9735	1.2827	.6499	.0085	0.1448	18
Sherpur	0.0076	0.0036	2.1402	1.3910	.6499	.0032	0.0892	39
Mymensingh	0.0372	0.0228	1.6301	1.0594	.6499	.0181	0.2898	3
Kishorganj	0.0222	0.0109	2.0258	1.3166	.6499	.0096	0.1572	13
Netrokona	0.0128	0.0052	2.4561	1.5963	.6499	.0049	0.1195	27
Tangail	0.0285	0.019	1.5000	.9749	.6499	.0145	0.2198	5
Barisal	0.0325	0.0164	1.9805	1.2872	.6499	.0142	0.1255	20
Bhola	0.0112	0.0031	3.5766	2.3245	.6499	.0034	0.0956	35
Jhalokati	0.0085	0.0029	2.9200	1.8978	.6499	.0029	0.0389	61
Perojpur	0.0056	0.005	1.1273	.7327	.6499	.0032	0.0667	51
Jessore	0.0384	0.0224	1.7121	1.1127	.6499	.0182	0.1694	11
Jhenaidah	0.0164	0.0059	2.8051	1.8232	.6499	.0058	0.1086	30
Narial	0.0033	0.0012	2.7091	1.7608	.6499	.0012	0.0389	62
Magura	0.0063	0.0024	2.6675	1.7337	.6499	.0023	0.0498	58
Khulna	0.1188	0.0495	2.4026	1.5615	.6499	.0464	0.153	15
Bagerhat	0.0156	0.0088	1.7696	1.1501	.6499	.0073	0.0874	40
Satkhira	0.0101	0.0067	1.5151	.9847	.6499	.0051	0.1242	22
Kushtia	0.0129	0.0184	.7039	.4575	.6499	.0089	0.1225	24
Chuadanga	0.0151	0.0074	2.0353	1.3228	.6499	.0065	0.0796	46
Meherpur	0.0053	0.0065	.8167	.5308	.6499	.0035	0.0468	59
Patuakhali	0.0081	0.0032	2.5690	1.6697	.6499	.0030	0.0864	41
Barguna	0.0113	0.0021	5.3629	3.4855	.6499	.0025	0.051	57
Bogra	0.0297	0.0276	1.0781	.7007	.6499	.0175	0.2161	6
Joypurhat	0.0061	0.0059	1.0334	.6717	.6499	.0036	0.0646	49
Dinajpur	0.0025	0.0188	.1316	.0855	.6499	.0023	0.1823	9
ThaKurgaon	0.0100	0.0066	.8937	.5808	.6499	.0037	0.0799	44
Panchagarh	0.0054	0.0016	3.2902	2.1384	.6499	.0017	0.0535	56
Pabna	0.0316	0.0207	1.5271	.9925	.6499	.0159	0.1413	19
Sirajganj	0.0225	0.0146	1.5456	1.0045	.6499	.0112	0.1835	8
Rajshahi	0.0499	0.0187	2.6734	1.7375	.6499	.0182	0.1626	12
Natore	0.0143	0.0137	1.0435	.6782	.6499	.0085	0.1062	31
Nawabganj	0.0156	0.006	2.5911	1.6841	.6499	.0058	0.0908	37
Naogaon	0.013	0.0076	1.7059	1.1087	.6499	.0062	0.1719	10
Rangpur	0.024	0.0211	1.1387	.7401	.6499	.0138	0.1807	7
Gaibandha	0.0111	0.0059	1.8576	1.2073	.6499	.0050	0.1544	14
Kurigram	0.0077	0.0029	2.6544	1.7252	.6499	.0028	0.1244	21
Lalmonirhat	0.0052	0.0031	1.6745	1.0883	.6499	.0025	0.0757	47
Nilphamari	0.0123	0.0075	1.6517	1.0735	.6499	.0060	0.0998	33

Source: Appendix – 2 & 3.

Appendix 66: Quantitative Indicators of change in the *Urban Literacy Rate* of the District to the total of the Country, 1991–2001

Dist	Ce	Cb	Ku	K_0	K_0/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	1.6711	1.2438	1.5427	1.3435	.8709	.8290	.4273	2
Cox- Bazar	.4147	.2310	2.0614	1.7953	.8709	.1708	.1837	17
Bandarban	.0752	.0424	2.0376	1.7746	.8709	.0311	.0328	57
Rangamati	.1394	.0969	1.6512	1.4381	.8709	.0667	.0425	52
Khagrachhari	.1194	.0605	2.2643	1.9720	.8709	.0462	.0588	47
Comilla	1.2505	.9176	1.5647	1.3628	.8709	.6133	.3329	4
B. Baria	.5594	.4357	1.4743	1.2840	.8709	.2825	.1237	26
Chandpur	.5436	.4674	1.3354	1.1631	.8709	.2899	.0762	39
Noakhali	.6953	.5154	1.5490	1.3491	.8709	.3416	.1799	18
Feni	.3710	.2725	1.5635	1.3617	.8709	.1809	.0985	32
Lakshmipur	.3017	.2546	1.3605	1.1848	.8709	.1589	.0471	50
Sylhet	.7773	.5448	1.6381	1.4267	.8709	.3698	.2325	6
Sunamganj	.5234	.3274	1.8354	1.5985	.8709	.2320	.1960	13
Maulvi Bazar	.4112	.3548	1.3309	1.1591	.8709	.2195	.0564	49
Habiganj	.4759	.3075	1.7772	1.5478	.8709	.2151	.1684	20
Dhaka	2.4155	1.5279	1.8153	1.5810	.8709	1.0913	.8877	1
Gazipur	.5370	.3219	1.9156	1.6683	.8709	.2318	.2151	9
Narayanganj	.5821	.3772	1.7717	1.5430	.8709	.2638	.2048	11
Narshingdi	.4412	.3464	1.4624	1.2736	.8709	.2236	.0948	33
Munshiganj	.2883	.2442	1.3554	1.1805	.8709	.1522	.0441	51
Manikganj	.2876	.2269	1.4555	1.2676	.8709	.1460	.0607	46
Faridpur	.5178	.3435	1.7306	1.5072	.8709	.2379	.1742	19
Rajbari	.2304	.1908	1.3866	1.2076	.8709	.1201	.0396	54
Gopalganj	.3424	.2414	1.6289	1.4187	.8709	.1629	.1010	30
Madaripur	.3398	.2608	1.4959	1.3028	.8709	.1699	.0790	38
Shariatpur	.2505	.1744	1.6488	1.4360	.8709	.1183	.0760	41
Jamalpur	.4119	.3216	1.4703	1.2805	.8709	.2080	.0902	35
Sherpur	.2649	.1957	1.5541	1.3535	.8709	.1295	.0692	44
Mymensingh	1.2122	.7960	1.7486	1.5229	.8709	.5561	.4162	3
Kishorganj	.6736	.4079	1.8962	1.6514	.8709	.2929	.2657	5
Netrokona	.4749	.3433	1.5882	1.3832	.8709	.2296	.1316	25
Tangail	.8082	.6121	1.1546	1.1347	.8709	.0839	.1962	12
Barisal	.6850	.5851	1.3444	1.1709	.8709	.3645	.1000	31
Bhola	.4844	.2671	2.0827	1.8138	.8709	.1982	.2173	7
Jhalokati	.2124	.1811	1.3466	1.1727	.8709	.1125	.0313	58
Perojpur	.3061	.2905	1.2099	1.0537	.8709	.1716	.0156	63
Jessore	.6243	.5091	1.4080	1.2263	.8709	.3236	.1152	28
Jhenaidah	.3437	.2530	1.5598	1.3585	.8709	.1677	.0907	34
Narial	.1611	.1194	1.5486	1.3487	.8709	.0788	.0416	53
Magura	.1746	.1455	1.3777	1.1999	.8709	.0912	.0291	50
Khulna	.6237	.4641	1.5432	1.3440	.8709	.3070	.1596	22
Bagerhat	.4050	.3465	1.3422	1.1690	.8709	.2152	.0586	48
Satkhira	.4975	.3319	1.7209	1.4988	.8709	.2294	.1656	21
Kushtia	.4965	.3574	1.5951	1.3892	.8709	.2395	.1391	23
Chuadanga	.2143	.1394	1.7655	1.5376	.8709	.0971	.0749	42
Meherpur	.1294	.0911	1.6315	1.4209	.8709	.0614	.0383	55
Patuakhali	.3137	.3031	1.1885	1.0351	.8709	.1776	.0106	64
Barguna	.2162	.1887	1.3159	1.1460	.8709	.1159	.0276	61
Bogra	.8513	.6341	1.5415	1.3425	.8709	.4199	.2172	8
Joypurhat	.1951	.1649	1.3588	1.1834	.8709	.1028	.0302	49
Dinajpur	.6428	.5083	1.4522	1.2647	.8709	.3276	.1346	24
ThaKurgaon	.3164	.2008	1.8095	1.5759	.8709	.1413	.1156	27
Panchagarh	.1979	.1628	1.3953	1.2152	.8709	.1027	.0350	56
Pabna	.5853	.4015	1.6737	1.4576	.8709	.2745	.1838	16
Sirajganj	.5875	.4023	1.6766	1.4602	.8709	.2753	.1851	15
Rajshahi	.4981	.3828	1.4938	1.3009	.8709	.2495	.1152	29
Natore	.3701	.2834	1.4996	1.3060	.8709	.1848	.0867	36
Nawabganj	.2644	.2034	1.4929	1.3002	.8709	.1323	.0611	45
Naogaon	.5213	.4452	1.3446	1.1710	.8709	.2769	.0761	40
Rangpur	.6256	.4341	1.6549	1.4413	.8709	.2955	.1916	14
Gaibandha	.5927	.3859	1.7636	1.5359	.8709	.2694	.2068	10
Kurigram	.3215	.2387	1.5465	1.3469	.8709	.1577	.0828	37
Lalmonirhat	.2358	.1629	1.6626	1.4480	.8709	.1108	.0730	43
Nilphamari	.2959	.2763	1.2293	1.0707	.8709	.1645	.0195	62

Source: Appendix - 2 & 3.

Appendix-6.7 : Quantitative Indicators of change in the **Primary School** of the District to the total of the Country, 1991-2001

Dist	Ce	Cb	K_u	K_0	K_0/K_u	Ce %	I = (Ce-Cb)	Rank
Chittagong	1.8086	1.8156	.9715	.9961	1.0254	.8999	-.01	23
Cox- Bazar	.4933	.4919	.9526	1.0029	1.0528	.2351	.00	21
Bandarban	.2979	.2995	.9388	1.0047	1.0702	.1393	.00	22
Rangamati	.3561	.5535	.6294	.6674	1.0604	.2025	-.18	56
Khagrachhari	.3593	.3914	.7106	.9181	1.2919	.1456	-.03	35
Comilla	1.7222	1.6189	1.0988	1.0638	.9682	.8761	.10	11
B. Baria	.8179	.9003	.9676	.9085	.9389	.4606	-.08	45
Chandpur	1.1069	.9291	1.3808	1.2774	.9252	.5686	.25	7
Noakhali	.8785	1.1169	.8097	.7865	.9714	.5119	-.24	59
Feni	.4441	.4698	1.0170	.9453	.9295	.2468	-.03	32
Lakshmipur	.5305	.6165	.8992	.8604	.9569	.2999	-.09	46
Sylhet	1.0658	1.2114	.8681	.8702	1.0134	.5663	-.15	53
Sunamganj	.7890	.8419	.9521	.9360	.9831	.4176	-.05	41
Maulvi Bazar	.8704	.8914	.9835	.9764	.9928	.4476	-.02	30
Habiganj	1.3540	.8671	1.5910	1.5615	.9815	.5433	.49	4
Dhaka	.4853	.8698	.4455	.5579	1.2522	.2509	-.38	63
Gazipur	.5725	.6042	.8746	.9475	1.0835	.2729	-.03	34
Narayanganj	.3415	.1554	2.0778	2.1983	1.0580	.1011	.19	8
Narshingdi	.6031	.8370	.9513	.9468	.9953	.3133	-.03	36
Munshiganj	.4045	.4196	1.0182	.9641	.9469	.2184	-.02	28
Manikganj	.7089	.0223	33.7608	31.8316	.9429	.0229	.69	1
Faridpur	.5741	.774	.7468	.7416	.9931	.3345	-.20	57
Rajbari	.3294	.3469	.9713	.9496	.9777	.1734	-.02	29
Gopalganj	.7130	…53	1.0371	.9631	.9287	.3940	-.03	33
Madaripur	.5644	.5582	1.0935	1.0112	.9247	.3052	.01	19
Shariatpur	.4174	.3963	1.0916	1.0532	.9649	.2116	.02	17
Jamalpur	.7897	.7579	1.0766	1.0419	.9678	.4026	.03	16
Sherpur	.5111	.5646	.9513	.9052	.9515	.2835	-.05	40
Mymensingh	1.6496	1.1512	1.4695	1.4330	.9752	.7034	.50	3
Kishorganj	1.5704	.9868	1.6726	1.5915	.9515	.6433	.58	2
Netrokona	.8979	.9115	1.0115	.9850	.9738	.4688	-.01	26
Tangail	.1075	1.2111	.0942	.0888	.9422	.1061	-1.10	64
Barisal	1.3048	1.3282	1.0769	.9824	.9123	.7312	-.02	31
Bhola	.7848	.9174	.8688	.8554	.9846	.4336	-.13	50
Jhalokati	.3286	.4628	.7868	.7100	.9025	.2139	-.13	51
Perojpur	.6193	.7901	.8535	.7838	.9184	.3810	-.17	55
Jessore	.8220	1.0698	.7669	.7684	1.0019	.4689	-.25	60
Jhenaidah	.6492	.6935	.9500	.9361	.9853	.3427	-.04	37
Narail	.3698	.6536	.6221	.5658	.9094	.2614	-.28	61
Magura	.2963	.30..	.7799	.7570	.9706	.1745	-.10	47
Khulna	.8074	.8202	.9984	.9844	.9861	.4160	-.01	25
Bagerhat	.6936	.9047	.8369	.7666	.9160	.4325	-.21	58
Satkhira	.7945	.7497	1.0605	1.0597	.9993	.3889	.04	15
Kushtia	.4885	.6533	.7578	.7477	.9867	.2851	-.16	34
Chuadanga	.3044	.3565	.8110	.8536	1.0528	.1565	-.05	39
Meherpur	.2422	.2573	.9229	.9415	1.0202	.1226	-.02	27
Patuakhali	.9…	.9780	1.2387	.9494	.7665	.6276	-.05	38
Barguna	.5862	.5128	1.2101	1.1431	.9447	.2910	.07	12
Bogra	1.1005	1.3949	.8210	.7889	.9609	.6492	-.29	62
Joypurhat	.2140	.3094	.7295	.6916	.9481	.1338	-.10	48
Dinajpur	1.2509	1.3950	.9047	.8989	.9936	.6740	-.14	52
Thakurgaon	.6782	.7804	.8553	.8691	1.0162	.3599	-.10	49
Panchagarh	.4788	.5527	.8658	.8663	1.0005	.2576	-.07	43
Pabna	1.1393	.8377	1.4149	1.3599	.9612	.5065	.30	5
Sirajganj	1.1167	1.1966	.9094	.9332	1.0262	.5697	-.08	44
Rajshahi	.7985	.8610	.9056	.9274	1.0241	.4080	-.06	42
Natore	.5474	.5428	1.0721	1.0086	.9408	.2913	.00	20
Nawabganj	.5264	.5378	.9437	.9789	1.0372	.2579	-.01	24
Naogaon	1.0024	.9166	1.2539	1.1919	.9506	.5292	.18	9
Rangpur	1.1942	1.0576	1.1236	1.1291	1.0049	.5641	.14	10
Gaibandha	1.0359	.9892	1.1214	1.0472	.9339	.5473	.05	14
Kurigram	.9350	.6490	1.5096	1.4406	.9543	.4041	.29	6
Lalmonirhat	.4804	.4262	1.1496	1.1272	.9605	.2313	.05	13
Nilphamari	.7073	.6967	1.0299	1.0152	.9857	.3586	.01	18

Source: Appendix - 2&3.

Appendix-6.8: Quantitative Indicators of change in the **Secondary School** of the District to the total of the Country, 1991-2001

Dist	Ce	Cb	Ku	K_0	K_0/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	.4635	.4602	.9821	1.0070	1.0254	.2262	.0032	41
Cox- Bazar	.0912	.0778	1.1144	1.1733	1.0528	.0399	.0135	30
Bandarban	.0194	.0143	1.2625	1.3511	1.0702	.0077	.0050	38
Rangamati	.0048	.0433	.1054	.1118	1.0604	.0041	-.0385	60
Khagrachhari	.0331	.0297	.8620	1.1137	1.2919	.0121	.0034	40
Comilla	.3666	.3450	1.0973	1.0624	.9682	.1842	.0215	26
B. Baria	.1219	.1204	1.0781	1.0122	.9389	.0646	.0015	43
Chandpur	.1857	.2048	.9799	.9066	.9252	.1055	-.0191	55
Noakhali	.1865	.1756	1.0933	1.0620	.9714	.0933	.0109	32
Feni	.1211	.1306	.9976	.9273	.9295	.0677	-.0095	50
Lakshmipur	.1171	.1227	.9971	.9541	.9569	.0627	-.0056	45
Sylhet	.1841	.1712	1.0613	1.0756	1.0134	.0877	.0129	31
Sunamganj	.1017	.0747	1.3853	1.3619	.9831	.0438	.0270	23
Maulvi Bazar	.0993	.0918	1.0892	1.0814	.9928	.0481	.0075	36
Habiganj	.0848	.0762	1.1338	1.1127	.9815	.0409	.0086	35
Dhaka	.2987	.2931	.8141	1.0194	1.2522	.1185	.0057	37
Gazipur	.2107	.1572	1.2374	1.3406	1.0835	.0832	.0535	13
Narayanganj	.1042	.0333	2.9570	3.1285	1.0580	.0239	.0709	9
Narshingdi	.1324	.1392	.9560	.9516	.9953	.0683	-.0067	47
Munshiganj	.0662	.0742	.9419	.8919	.9469	.0370	-.0080	49
Manikganj	.1050	.0186	5.9985	5.6557	.9429	.0167	.0864	6
Faridpur	.1906	.1114	1.7221	1.7101	.9931	.0709	.0791	7
Rajbari	.0751	.0948	.8100	.7919	.9777	.0429	-.0197	56
Gopalganj	.1122	.1344	.8989	.8348	.9287	.0660	-.0222	58
Madaripur	.0945	.0798	1.2799	1.1835	.9247	.0468	.0146	28
Shariatpur	.1461	.0566	2.6752	2.5811	.9649	.0423	.0895	4
Jamalpur	.1865	.0195	9.8714	9.5538	.9678	.0183	.1670	1
Sherpur	.1461	.0715	2.1480	2.0438	.9515	.0505	.0746	8
Mymensingh	.3044	.2584	1.2081	1.1781	.9752	.1437	.0460	18
Kishorganj	.1655	.1142	1.5231	1.4492	.9515	.0711	.0513	16
Netrokona	.0896	.1001	.9194	.8953	.9738	.0486	-.0105	52
Tangail	.0278	.2387	.1238	.1166	.9422	.0265	-.2109	64
Barisal	.2551	.2775	1.0079	.9195	.9123	.1461	-.0223	59
Bhola	.0815	.0912	.9086	.8946	.9846	.0438	-.0096	51
Jhalokati	.1348	.1300	1.1496	1.0375	.9025	.0734	.0049	39
Perojpur	.1534	.1658	1.0075	.9253	.9184	.0869	-.0124	54
Jessore	.2802	.2221	1.2593	1.2617	1.0019	.1239	.0581	11
Jhenaidah	.1389	.1066	1.3219	1.3025	.9853	.0613	.0323	21
Narial	.0759	.0737	1.1331	1.0305	.9094	.0411	.0022	42
Magura	.0759	.0820	.9538	.9257	.9706	.0406	-.0061	46
Khulna	.2075	.2536	.8297	.8181	.9861	.1160	-.0461	61
Bagerhat	.1526	.2044	.8149	.7465	.9160	.0956	-.0518	62
Satkhira	.1784	.1547	1.1540	1.1532	.9993	.0831	.0237	24
Kushtia	.1421	.1241	1.1608	1.1454	.9867	.0672	.0180	27
Chuadanga	.0388	.0591	.6232	.6562	1.0528	.0222	-.0203	57
Meherpur	.0379	.0382	.9736	.9932	1.0202	.0187	-.0003	44
Patuakhali	.0218	.1648	.1726	.1323	.7665	.0252	-.1430	63
Barguna	.1001	.0903	1.1740	1.1090	.9447	.0503	.0098	33
Bogra	.2414	.2491	1.0085	.9691	.9609	.1279	-.0077	48
Joypurhat	.0630	.0752	.8835	.8376	.9481	.0362	-.0122	53
Dinajpur	.3076	.2551	1.2138	1.2060	.9936	.1407	.0525	15
ThaKurgaon	.1946	.1062	1.8033	1.8325	1.0162	.0677	.0884	5
Panchagarh	.1881	.0893	2.1060	2.1070	1.0005	.0606	.0988	3
Pabna	.1631	.1205	1.4081	1.3535	.9612	.0722	.0426	19
Sirajganj	.2002	.1608	1.2134	1.2452	1.0262	.0871	.0394	20
Rajshahi	.3173	.2032	1.5250	1.5619	1.0241	.1212	.1141	2
Natore	.1688	.1119	1.6030	1.5081	.9408	.0716	.0569	12
Nawabganj	.1405	.1264	1.0715	1.1114	1.0372	.0642	.0141	29
Naogaon	.2495	.2264	1.1595	1.1022	.9506	.1251	.0231	25
Rangpur	.2277	.1782	1.2717	1.2779	1.0049	.0996	.0495	17
Gaibandha	.2350	.1697	1.4822	1.3842	.9339	.1057	.0652	10
Kurigram	.1373	.1081	1.3303	1.2696	.9543	.0634	.0291	22
Laimonirhat	.0815	.0724	1.1494	1.1269	.9805	.0391	.0092	34
Nilphamari	.1526	.0997	1.5526	1.5304	.9857	.0612	.0529	14

Source: Appendix-2&3.

Appendix-69: Quantitative Indicators of change in the **College** of the District to the total of the Country, 1991 – 2001

Dist	Ce	Cb	Ku	K0	K0/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	.0632	.0716	1.1322	1.1609	1.0254	.0376	.0115	13
Cox- Bazar	.0170	.0160	1.0042	1.0573	1.0528	.0078	.0009	43
Bandarban	.0016	.0029	.5293	.5665	1.0702	.0010	-.0012	55
Rangamati	.0016	.0048	.3180	.3372	1.0604	.0011	-.0032	56
Khagrachhari	.0057	.0067	.6536	.8445	1.2919	.0024	-.0010	53
Comilla	.0541	.0455	1.2275	1.1884	.9682	.0255	.0086	15
B. Baria	.0234	.0161	1.5516	1.4568	.9389	.0102	.0073	18
Chandpur	.0315	.0218	1.5616	1.4447	.9252	.0139	.0097	14
Noakhali	.1873	.0217	8.8909	8.6365	.9714	.0200	.1656	1
Feni	.0153	.0104	1.5883	1.4764	.9295	.0067	.0050	27
Lakshmipur	.0137	.0132	1.0841	1.0373	.9569	.0070	.0005	47
Sylhet	.0283	.0237	1.1741	1.1899	1.0134	.0127	.0045	28
Sunamganj	.0178	.0123	1.4704	1.4455	.9831	.0074	.0055	25
Maulvi Bazar	.0170	.0113	1.5048	1.4940	.9928	.0068	.0056	24
Habiganj	.0113	.0113	1.0214	1.0024	.9815	.0058	.0000	49
Dhaka	.0953	.0746	1.0193	1.2763	1.2522	.0335	.0206	6
Gazipur	.0178	.0222	.7386	.8002	1.0835	.0091	-.0044	57
Narayanganj	.0024	.0139	.1650	.1746	1.0580	.0019	-.0114	59
Narshingdi	.0178	.0172	1.0386	1.0337	.9953	.0088	.0006	45
Munshiganj	.0129	.0129	1.0572	1.0010	.9469	.0068	.0000	50
Manikganj	.0194	.0189	.9556	1.0253	1.0729	.0089	.0005	48
Faridpur	.0388	.0166	2.3458	2.3295	.9931	.0117	.0221	4
Rajbari	.0194	.0130	1.5283	1.4942	.9777	.0079	.0064	20
Gopalganj	.0170	.1975	.0924	.0858	.9287	.0168	-.1806	64
Madaripur	.0137	.0092	1.6077	1.4866	.9247	.0060	.0045	29
Shariatpur	.0145	.0129	1.1662	1.1252	.9649	.0071	.0016	42
Jamalpur	.0202	.0178	1.0036	1.1340	.9317	.0198	.0024	38
Sherpur	.0145	.0111	1.3753	1.3086	.9515	.0066	.0034	35
Mymensingh	.0501	.0423	1.2145	1.1844	.9752	.0235	.0078	16
Kishorganj	.0202	.0167	1.2692	1.2077	.9515	.0096	.0035	34
Netrokona	.0163	.0157	1.0005	.9743	.9738	.0080	-.0004	51
Tangail	.0042	.0276	.1613	.1520	.9422	.0039	-.0234	62
Barisal	.0371	.0382	1.0667	.9731	.9123	.0206	-.0010	54
Bhola	.0170	.0111	1.5463	1.5226	.9846	.0068	.0058	22
Jhalokati	.0170	.0112	1.6761	1.5127	.9025	.0075	.0057	23
Perojpur	.0178	.0157	1.2282	1.1280	.9184	.0091	.0020	41
Jessore	.0355	.0745	.4757	.4766	1.0019	.0240	-.0390	63
Jhenaidah	.0331	.0177	1.8975	1.8696	.9853	.0117	.0154	9
Narial	.0137	.0093	1.6232	1.4762	.9094	.0061	.0044	30
Magura	.0121	.0130	.9581	.9299	.9706	.0065	-.0009	52
Khulna	.0379	.0570	.6757	.6662	.9861	.0231	-.0190	61
Bagerhat	.0250	.0176	1.5493	1.4191	.9160	.0113	.0074	17
Satkhira	.0315	.0158	1.9961	1.9947	.9993	.0105	.0157	8
Kushtia	.0266	.0261	1.0356	1.0218	.9867	.0134	.0006	46
Chuadanga	.0097	.0075	1.2276	1.2925	1.0528	.0040	.0022	39
Meherpur	.0073	.0065	1.0936	1.1157	1.0202	.0034	.0008	44
Patuakhali	.0210	.0167	1.6369	1.2546	.7665	.0122	.0043	31
Barguna	.0105	.0083	1.3378	1.2638	.9447	.0049	.0022	40
Bogra	.0355	.0422	.8764	.8421	.9609	.0201	-.0067	58
Joypurhat	.0137	.0103	1.4072	1.3341	.9481	.0062	.0034	36
Dinajpur	.0646	.0498	1.3059	1.2975	.9936	.0283	.0148	11
ThaKurgaon	.0218	.0178	1.2068	1.2263	1.0162	.0096	.0040	33
Panchagarh	.0186	.0131	1.4149	1.4156	1.0005	.0077	.0055	26
Pabna	.0275	.0244	1.1693	1.1239	.9612	.0135	.0030	37
Sirajganj	.0654	.0234	2.7202	2.7914	1.0262	.0168	.0420	2
Rajshahi	.0888	.0594	1.4600	1.4953	1.0241	.0348	.0294	3
Natore	.0178	.0309	.6102	.5741	.9408	.0120	-.0132	60
Nawabganj	.0347	.0217	1.5455	1.6030	1.0372	.0129	.0131	12
Naogaon	.0379	.0168	2.3820	2.2642	.9506	.0122	.0212	5
Rangpur	.0517	.0356	1.4430	1.4501	1.0049	.0210	.0160	7
Gaibandha	.0355	.0205	1.8549	1.7322	.9339	.0139	.0150	10
Kurigram	.0258	.0216	1.2556	1.1982	.9543	.0123	.0043	32
Lalmonirhat	.0170	.0103	1.6770	1.6442	.9805	.0065	.0066	19
Nilphamari	.0210	.0150	1.4209	1.4006	.9857	.0089	.0060	21

Source: Appendix - 2 &3.

Appendix 6.10: Quantitative Indicators of change in the **Metal Road** of the District to the total of the Country, 1991 –2001

Dist	Ce	Cb	Ku	K_0	K_0/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	4.7373	4.1448	1.1744	1.1429	1.1429	2.3697	.5925	26
Cox- Bazar	2.2213	1.2647	1.8047	1.7564	1.7564	.8386	.9566	12
Bandarban	.6443	.6867	.9640	.9382	.9382	.3439	-.0424	52
Rangamati	1.4905	1.1017	1.3901	1.3529	1.3529	.6581	.3888	36
Khagrachhari	1.4249	1.4623	1.0012	.9744	.9744	.7525	-.0374	50
Comilla	5.8609	7.2769	.8276	.8054	.8054	3.5974	-1.4161	63
B. Baria	1.2789	1.0226	1.2850	1.2506	1.2506	.5899	.2563	42
Chandpur	1.0337	.9584	1.1082	1.0786	1.0786	.5159	.0753	48
Noakhali	3.8656	.9337	4.2540	4.1400	4.1400	.7800	2.9319	2
Feni	1.6299	1.5166	1.1042	1.0747	1.0747	.8197	.1132	46
Lakshmipur	1.1683	.3656	3.2838	3.1958	3.1958	.2872	.8027	16
Sylhet	3.5290	2.8357	1.2787	1.2445	1.2445	1.6627	.6933	21
Sunamganj	.7212	.7904	.9375	.9124	.9124	.3906	-.0692	53
Maulvi Bazar	4.0015	2.1243	1.9355	1.8837	1.8837	1.4568	1.8772	6
Habiganj	1.5433	2.5788	.6149	.5985	.5985	1.0183	-1.0355	62
Dhaka	5.1108	4.6488	1.1296	1.0994	1.0994	2.6234	.4621	31
Gazipur	2.8848	.9880	3.0000	2.9197	2.9197	.7638	1.8967	5
Narayanganj	1.0865	1.1807	.9455	.9202	.9202	.5883	-.0942	54
Narshingdi	4.6493	.7509	6.3618	6.1915	6.1915	.6693	3.8983	1
Munshiganj	1.1682	.7262	1.6529	1.6086	1.6086	.4635	.4420	32
Manikganj	1.2693	.6719	1.9412	1.8892	1.8892	.4545	.5974	25
Faridpur	2.5963	1.4228	1.8750	1.8248	1.8248	.9580	1.1735	10
Rajbari	.6298	.8201	.7892	.7680	.7680	.3691	-.1902	56
Gopalganj	1.5385	.8794	1.7978	1.7496	1.7496	.5800	.6592	22
Madaripur	.7837	.5187	1.5524	1.5108	1.5108	.3224	.2650	40
Shariatpur	.8370	.1136	7.5691	7.3664	7.3664	.1029	.7234	19
Jamalpur	3.7149	1.4672	2.6016	2.5319	2.5319	1.0969	2.2477	4
Sherpur	.8370	.7361	1.1684	1.1371	1.1371	.4054	.1009	47
Mymensingh	3.7021	1.0325	3.6842	3.5855	3.5855	.8382	2.6696	3
Kishorganj	1.3462	.9288	1.4894	1.4495	1.4495	.5700	.4175	33
Netrokona	.7452	.6966	1.0993	1.0699	1.0699	.3725	.0487	49
Tangail	3.3223	1.9613	1.7406	1.6939	1.6939	1.2925	1.3610	8
Barisal	1.7429	1.1708	1.5295	1.4886	1.4886	.7281	.5720	27
Bhola	1.6299	1.4919	1.1225	1.0925	1.0925	.8125	.1379	44
Jhalokati	.8462	.3705	2.3467	2.2838	2.2838	.2658	.4757	30
Perojpur	.7722	.5138	1.5442	1.5029	1.5029	.3186	.2584	41
Jessore	2.1876	.4792	4.6907	4.5651	4.5651	.4059	1.7084	7
Jhenaidah	.8654	1.6747	.5310	.5168	.5168	.5963	-.8093	61
Narial	1.1683	.4397	2.7303	2.6572	2.6572	.3297	.7286	17
Magura	1.2020	.3606	3.4247	3.3329	3.3329	.2861	.8413	14
Khulna	1.9232	.9930	1.9900	1.9368	1.9368	.6796	.9302	13
Bagerhat	1.7833	1.1610	1.5783	1.5361	1.5361	.7310	.6224	23
Satkhira	1.7068	1.2054	1.4549	1.4160	1.4160	.7348	.5014	28
Kushtia	2.2593	1.0621	2.1857	2.1271	2.1271	.7503	1.1972	9
Chuadanga	.9760	.8744	1.1469	1.1162	1.1162	.4781	.1016	46
Meherpur	.7693	.5879	1.3445	1.3085	1.3085	.3444	.1814	43
Patuakhali	2.0049	2.4998	.8241	.8020	.8020	1.1725	-.4948	59
Barguna	.7164	.3310	2.2239	2.1643	2.1643	.2334	.3854	37
Bogra	1.5626	1.4376	1.1168	1.0869	1.0869	.7806	.1250	45
Joypurhat	1.1635	.5434	2.2000	2.1411	2.1411	.3827	.6201	24
Dinajpur	2.9809	3.3939	.9025	.8783	.8783	1.6880	-.4130	57
ThaKurgaon	.7597	1.3388	.5830	.5674	.5674	.5047	-.5791	60
Panchagarh	1.4664	1.0671	1.4120	1.3742	1.3742	.6415	.3993	35
Pabna	3.2742	2.5492	1.3198	1.2844	1.2844	1.5112	.7250	18
Sirajganj	1.5578	1.1560	1.3846	1.3475	1.3475	.6898	.4018	34
Rajshahi	4.3079	6.2741	.7055	.6866	.6866	2.8001	-1.9662	64
Natore	1.1349	1.3141	.8874	.8636	.8636	.6340	-.1792	55
Nawabganj	1.3756	.8991	1.5721	1.5300	1.5300	.5638	.4765	29
Naogaon	1.8019	1.4228	1.3013	1.2664	1.2664	.8287	.3791	38
Rangpur	2.7405	1.7785	1.5833	1.5409	1.5409	1.1283	.9620	11
Gaibandha	1.7549	.9189	1.9624	1.9098	1.9098	.6254	.8360	15
Kurigram	1.1587	1.6155	.7370	.7173	.7173	.7047	-.4567	58
Lalmonirhat	1.2138	.8448	1.4764	1.4368	1.4368	.5162	.3690	39
Nilphamari	1.9424	1.2351	1.6160	1.5727	1.5727	.7855	.7073	20

Source: Appendix – 2 & 3.

Appendix -6-11: Quantitative Indicators of change in the *Semi Metal Road* of the District to the total of the Country, 1991 – 2001

Dist	Ce	Cb	Ku	K₀	K₀/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	6.8543	11.9046	.6038	19.7177	32.6588	.3938	19.7177	1
Cox- Bazar	2.5529	3.0785	.8696	3.5403	4.0713	.6083	3.5403	9
Bandarban	.2928	.8739	.3514	2.4874	7.0795	.0888	2.4874	23
Rangamati	.6532	.6299	1.0875	.5792	.5326	.4365	.5792	41
Khagrachhari	1.9597	1.6534	1.2429	1.3303	1.0704	.8967	1.3303	29
Comilla	3.2887	5.2043	.6626	7.8540	11.8527	.4109	7.8540	2
B. Baria	.6457	.5748	1.1781	.4879	.4141	.4577	.4879	45
Chandpur	.6833	.8031	.8922	.9002	1.0090	.3801	.9002	35
Noakhali	3.6416	1.4015	2.7247	.5144	.1888	2.5574	.5144	57
Feni	1.2164	1.2440	1.0253	1.2133	1.1833	.5835	1.2133	31
Lakshmipur	1.7645	.6850	2.7011	.2536	.0939	1.4861	.2536	59
Sylhet	.2928	.2677	1.1471	.2334	.2035	.2496	.2334	54
Sunamganj	.3904	.1496	2.7368	.0547	.0200	.3888	.0547	60
Maulvi Bazar	.2628	.4488	.6140	.7309	1.1903	.1599	.7309	36
Habiganj	1.5393	.3858	4.1837	.0922	.0220	1.4835	.0922	62
Dhaka	2.5529	3.3068	.8095	4.0849	5.0461	.5445	4.0849	6
Gazipur	2.6130	1.3227	2.0714	.6386	.3083	1.6946	.6386	51
Narayanganj	.5481	.7637	.7526	1.0148	1.3484	.2875	1.0148	34
Narshingdi	2.7932	.6063	4.8312	.1255	.0260	2.6182	.1255	64
Munshiganj	.9536	1.3621	.7341	1.8555	2.5275	.3550	1.8555	19
Manikganj	.3904	.4803	.8525	.5634	.6609	.2631	.5634	39
Faridpur	6.2096	1.2519	5.2013	.2407	.0463	5.3147	.2407	63
Rajbari	.3829	.9448	.4250	2.2231	5.2308	.1258	2.2231	24
Gopalganj	1.3816	2.8108	.5154	5.4536	10.5811	.2310	5.4536	8
Madaripur	1.1563	.8031	1.5098	.5319	.3523	.7979	.5319	48
Shariatpur	.7482	.6771	1.1586	.5844	.5044	.4985	.5844	42
Jamalpur	.9052	4.5508	.2086	21.8198	104.6191	.0436	21.8198	3
Sherpur	.7482	.7480	1.0488	.7131	.6799	.4614	.7131	38
Mymensingh	3.0485	1.5196	2.1036	.7224	.3434	1.8846	.7224	44
Kishorganj	1.5768	1.0078	1.6406	.6143	.3744	1.0347	.6143	47
Netrokona	.5631	1.0944	.5396	2.0283	3.7591	.1972	2.0283	21
Tangail	1.6669	1.4330	1.2198	1.1748	.9631	.8154	1.1748	32
Barisal	2.9133	2.3305	1.3108	1.7779	1.3564	1.1259	1.7779	14
Bhola	1.0737	.7558	1.4896	.5074	.3406	.7526	.5074	50
Jhalokati	.5782	.6456	.9390	.6875	.7322	.3616	.6875	37
Perojpur	.7884	1.1101	.7447	1.4908	2.0019	.3356	1.4908	30
Jessore	1.2301	1.7873	.7217	2.4765	3.4317	.3778	2.4765	13
Jhenaidah	.7509	2.7321	.2882	9.4803	32.8966	.0772	9.4803	7
Narial	.5556	2.2990	.2534	9.0719	35.7970	.0592	9.0719	11
Magura	.7509	.5748	1.3699	.4196	.3063	.5578	.4196	52
Khulna	2.6280	4.4091	.6250	7.0546	11.2873	.3579	7.0546	4
Bagerhat	1.9485	1.1889	1.7185	.6918	.4025	1.2222	.6918	43
Satkhira	2.0724	2.6061	.8338	3.1254	3.7482	.5408	3.1254	12
Kushtia	4.0546	2.0786	2.0455	1.0162	.4968	2.1535	1.0162	33
Chuadanga	1.5843	.9448	1.7583	.5373	.3056	1.0909	.5373	53
Meherpur	.3529	.2992	1.2368	.2419	.1956	.2989	.2419	55
Patuakhali	2.2300	2.9132	.8027	3.6292	4.5212	.5203	3.6292	10
Barguna	.7208	.5039	1.5000	.3359	.2240	.5686	.3359	56
Bogra	2.6580	2.1809	1.2780	1.7065	1.3353	1.0528	1.7065	16
Joypurhat	.4836	1.0314	.4916	2.0981	4.2678	.1654	2.0981	22
Dinajpur	1.1383	.8976	1.3298	.6750	.5075	.7191	.6750	40
ThaKurgaon	.2102	.1181	1.8667	.0633	.0339	.2076	.0633	58
Panchagarh	.0826	.1181	.7333	.1610	.2196	.0747	.1610	46
Pabna	.7509	1.4959	.5263	2.8423	5.4004	.2080	2.8423	15
Sirajganj	.6833	1.1416	.6276	1.8191	2.8986	.2571	1.8191	25
Rajshahi	5.1509	4.2989	1.2564	3.4216	2.7233	1.2764	3.4216	5
Natore	.2628	.9684	.2846	3.4033	11.9603	.0632	3.4033	18
Nawabganj	1.6528	.5196	3.1335	.1658	.0529	1.4040	.1658	61
Naogaon	.4439	1.1416	.4077	2.8000	6.8675	.1239	2.8000	17
Rangpur	.8184	1.1810	.7267	1.6252	2.2366	.3308	1.6252	28
Gaibandha	.6983	1.1259	.6503	1.7312	2.6620	.2711	1.7312	27
Kurigram	.4655	1.0708	.4559	2.3488	5.1522	.1473	2.3488	20
Lalmonirhat	.7824	.6141	1.3359	.4597	.3441	.5655	.4597	49
Nilphamari	.3679	.9291	.4153	2.2373	5.3879	.1203	2.2373	26

Source: Appendix - 2&3.

Appendix-6.12: Quantitative Indicators of change in the *Kutcha Road* of the District to the total of the Country, 1991 – 2001

Dist	Ce	Cb	Ku	K_0	K_0/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	4.2483	3.4670	.9963	1.2254	1.2299	1.6080	.7813	11
Cox- Bazar	.1144	.6815	.1365	.1679	1.2299	.0802	-.5670	55
Bandarban	.1333	.9077	.1194	.1468	1.2299	.0954	-.7744	58
Rangamati	1.2458	1.0679	.9485	1.1665	1.2299	.4726	.1779	34
Khagrachhari	.7958	.7264	.8908	1.0956	1.2299	.3110	.0694	41
Comilla	.3817	4.1379	.0750	.0922	1.2299	.2964	-3.7562	64
B. Baria	1.0592	.7798	1.1044	1.3583	1.2299	.3681	.2794	28
Chandpur	.9148	1.1551	.6439	.7920	1.2299	.4199	-.2403	50
Noakhali	1.4785	1.7150	.7010	.8621	1.2299	.6569	-.2365	49
Feni	1.7575	1.4745	.9692	1.1919	1.2299	.6617	.2830	27
Lakshmipur	1.1846	1.0732	.8975	1.1039	1.2299	.4628	.1115	39
Sylhet	1.8095	1.6378	.8983	1.1048	1.2299	.7106	.1717	36
Sunamganj	1.4818	1.0172	1.1845	1.4568	1.2299	.4954	.4646	20
Maulvi Bazar	2.3475	.9172	2.0809	2.5593	1.2299	.5412	1.4302	5
Habiganj	1.0351	.6407	1.3135	1.6155	1.2299	.3239	.3944	23
Dhaka	.5455	1.0304	.4305	.5294	1.2299	.2930	-.4849	54
Gazipur	1.7503	1.1858	1.2002	1.4761	1.2299	.5817	.5645	17
Narayanganj	.4863	.4811	.8220	1.0109	1.2299	.1976	.0053	44
Narshingdi	1.2302	.5900	1.6953	2.0850	1.2299	.3261	.6402	14
Munshiganj	.8706	.6841	1.0348	1.2726	1.2299	.3136	.1865	33
Manikganj	1.4746	.8464	1.4166	1.7422	1.2299	.4410	.6282	15
Faridpur	1.3778	1.3867	.8079	.9936	1.2299	.5698	-.0089	45
Rajbari	1.0982	.7370	1.2116	1.4901	1.2299	.3612	.3612	24
Gopalganj	1.1073	.9537	.9440	1.1610	1.2299	.4206	.1536	37
Madaripur	2.6073	.6772	3.1304	3.8499	1.2299	.4401	1.9300	2
Shariatpur	1.3436	.9014	1.2120	1.4906	1.2299	.4426	.4422	22
Jamalpur	3.4947	1.7235	1.6487	2.0277	1.2299	.9550	1.7713	3
Sherpur	1.3436	.8908	1.2264	1.5083	1.2299	.4395	.4528	21
Mymensingh	.8121	.8036	.8217	1.0106	1.2299	.3311	.0085	43
Kishorganj	3.2792	1.9825	1.3449	1.6541	1.2299	1.0249	1.2967	6
Netrokona	.1970	1.4121	.1134	.1395	1.2299	.1426	-1.2151	61
Tangail	4.5916	2.8347	1.3170	1.6198	1.2299	1.4667	1.7569	4
Barisal	2.0370	1.8382	.9011	1.1082	1.2299	.8004	.1989	31
Bhola	2.7054	2.4335	.9040	1.1118	1.2299	1.0677	.2720	29
Jhalokati	.9538	1.3455	.5764	.7089	1.2299	.4600	-.3916	52
Perojpur	1.3335	1.1610	.9340	1.1487	1.2299	.5106	.1726	35
Jessore	2.3593	2.7596	.6952	.8549	1.2299	1.0635	-.4003	53
Jhenaidah	3.9011	1.6891	1.8779	2.3096	1.2299	.9749	2.2121	1
Narial	.1398	1.2984	.0875	.1077	1.2299	.1040	-1.1586	60
Magura	2.5032	1.3386	1.5205	1.8701	1.2299	.7188	1.1646	7
Khulna	2.3244	1.3708	1.3787	1.6956	1.2299	.7109	.9536	8
Bagerhat	2.1624	2.9706	.5919	.7279	1.2299	1.0487	-.8082	59
Satkhira	2.3277	1.7330	1.0921	1.3432	1.2299	.8220	.5947	16
Kushtia	.1506	1.6664	.0735	.0904	1.2299	.1142	-1.5157	62
Chuadanga	.8596	.6651	1.0509	1.2924	1.2299	.3069	.1945	32
Meherpur	.6482	.8178	.6445	.7926	1.2299	.2965	-.1696	47
Patuakhali	3.4727	2.6016	1.0853	1.3348	1.2299	1.2416	.8711	10
Barguna	1.3374	1.2714	.8553	1.0519	1.2299	.5336	.0660	42
Bogra	2.7614	2.2934	.9790	1.2041	1.2299	1.0426	.4680	19
Joypurhat	1.1907	.8919	1.0855	1.3351	1.2299	.4183	.2988	26
Dinajpur	2.2971	2.9156	.6406	.7879	1.2299	1.0761	-.6185	56
ThaKurgaon	1.2711	1.9302	.5355	.6586	1.2299	.6354	-.6590	57
Panchagarh	1.6248	1.0780	1.2256	1.5073	1.2299	.5327	.5469	18
Pabna	2.0793	1.7800	.9498	1.1681	1.2299	.7939	.2993	25
Sirajganj	1.5559	1.4745	.8580	1.0552	1.2299	.6248	.0815	40
Rajshahi	3.0728	6.0538	.4127	.5076	1.2299	1.7641	-2.9810	63
Natore	1.1078	1.3185	.6832	.8402	1.2299	.4960	-.2107	48
Nawabganj	1.1274	1.0098	.9079	1.1165	1.2299	.4375	.1177	38
Naogaon	2.3374	2.3838	.7973	.9806	1.2299	.9830	-.0463	46
Rangpur	2.6664	2.4070	.9007	1.1078	1.2299	1.0540	.2594	30
Gaibandha	2.3953	1.4935	1.3041	1.6038	1.2299	.7593	.9018	9
Kurigram	2.9467	2.2267	1.0760	1.3233	1.2299	1.0547	.7199	12
Lalmonirhat	1.4720	1.7795	.6726	.8272	1.2299	.6669	-.3075	51
Nilphamari	2.1463	1.4840	1.1760	1.4463	1.2299	.7241	.6623	13

Source: Appendix – 2 & 3.

Appendix-6.13: Quantitative Indicators of change in the **Bank Deposit** of the District to the total of the Country, 1991-2001

Dist	Ce	Cb	Ku	K_o	K_o/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	13.5133	14.0409	1.7551	.9624	.5484	14.6083	-.5276	63
Cox-Bazar	.5726	.6212	1.6809	.9218	.5484	.5467	-.0486	53
Bandarban	.0802	.0848	1.7250	.9459	.5484	.0753	-.0046	40
Rangamati	.2373	.2372	1.8248	1.0007	.5484	.2168	.0002	32
Khagrachhari	.0983	.1063	1.6862	.9246	.5484	.0932	-.0080	42
Comilla	1.9630	1.9424	1.8429	1.0106	.5484	1.8157	.0205	16
B. Baria	.8752	1.1134	1.4335	.7861	.5484	.9036	-.2382	62
Chandpur	.8241	.7456	2.0154	1.1052	.5484	.7192	.0784	5
Noakhali	1.0896	1.0280	1.9328	1.0599	.5484	.9746	.0616	6
Feni	.8587	.7585	2.0645	1.1321	.5484	.7401	.1002	4
Lakshmipur	.4807	.4785	1.8318	1.0045	.5484	.4394	.0022	31
Sylhet	4.1134	3.8651	1.9407	1.0642	.5484	3.7799	.2483	2
Sunamganj	.5023	.5152	1.7781	.9751	.5484	.4662	-.0128	43
Maulvi Bazar	1.0866	1.0480	1.8907	1.0368	.5484	.9831	.0386	11
Habiganj	.4753	.4624	1.8744	1.0279	.5484	.4294	.0129	23
Dhaka	47.5010	46.8823	1.8476	1.0132	.5484	81.0033	.6187	1
Gazipur	1.0323	.8554	2.2007	1.2068	.5484	.8604	.1769	3
Narayanganj	1.7235	1.7078	1.8403	1.0092	.5484	1.5914	.0157	20
Narshingdi	.7981	.8876	1.6397	.8992	.5484	.7732	-.0895	58
Munshiganj	.6555	.7023	1.7019	.9333	.5484	.6226	-.0468	52
Manikganj	.4433	.4340	1.8627	1.0214	.5484	.4017	.0093	26
Faridpur	.5797	.5270	2.0059	1.1000	.5484	.5061	.0527	7
Rajbari	.1931	.1949	1.8064	.9906	.5484	.1773	-.0018	35
Gopalganj	.2603	.2186	2.1717	1.1909	.5484	.2171	.0417	10
Madaripur	.2701	.2482	1.9841	1.0880	.5484	.2365	.0218	15
Shariatpur	.1898	.1763	1.9633	1.0766	.5484	.1669	.0135	22
Jamalpur	.4558	.4272	1.9457	1.0670	.5484	.4039	.0286	14
Sherpur	.1477	.1397	1.9274	1.0569	.5484	.1311	.0080	27
Mymensingh	.8704	.8710	1.8225	.9994	.5484	.8009	-.0005	34
Kishorganj	.4774	.4260	2.0432	1.1205	.5484	.4123	.0513	8
Netrokona	.2359	.2028	2.1206	1.1629	.5484	.1993	.0330	12
Tangail	.4475	.9826	.8305	.4554	.5484	.5662	-.5351	64
Barisal	.9951	1.0170	1.7843	.9785	.5484	.9266	-.0219	47
Bhola	.3076	.3101	1.8089	.9919	.5484	.2825	-.0025	37
Jhalokati	.2197	.2023	1.9807	1.0862	.5484	.1925	.0174	19
Perojpur	.4077	.3639	2.0435	1.1206	.5484	.3519	.0439	9
Jessore	1.1303	1.1938	1.7266	.9468	.5484	1.0716	-.0635	54
Jhenaidah	.3741	.3635	1.8770	1.0293	.5484	.3374	.0107	24
Narial	.1770	.1666	1.9375	1.0625	.5484	.1567	.0104	25
Magura	.1892	.1913	1.8031	.9888	.5484	.1738	-.0021	36
Khulna	2.1517	2.3170	1.6935	.9287	.5484	2.0828	-.1653	61
Bagerhat	.5391	.5086	1.9332	1.0601	.5484	.4797	.0306	13
Satkhira	.5368	.5223	1.8741	1.0277	.5484	.4853	.0145	22
Kushtia	.5940	.6329	1.7115	.9386	.5484	.5623	-.0389	50
Chuadanga	.2735	.2919	1.7087	.9370	.5484	.2582	-.0184	45
Meherpur	.1224	.1226	1.8206	.9984	.5484	.1118	-.0002	33
Patuakhali	.3528	.3452	1.8636	1.0220	.5484	.3193	.0076	28
Barguna	.1648	.1442	2.0832	1.1424	.5484	.1404	.0205	17
Bogra	1.0888	1.1571	1.7160	.9410	.5484	1.0349	-.0683	56
Joypurhat	.2257	.2302	1.7878	.9804	.5484	.2083	-.0045	39
Dinajpur	.6719	.7159	1.7115	.9385	.5484	.6366	-.0440	51
ThaKurgaon	.2237	.2311	1.7648	.9678	.5484	.2078	-.0075	41
Panchagarh	.1054	.1271	1.5117	.8290	.5484	.1052	-.0217	46
Pabna	.7504	.8157	1.6775	.9199	.5484	.7186	-.0653	55
Sirajganj	.6384	.6533	1.7820	.9772	.5484	.5927	-.0149	44
Rajshahi	1.2855	1.3755	1.7043	.9346	.5484	1.2287	-.0899	59
Natore	.3815	.4075	1.7076	.9364	.5484	.3608	-.0259	48
Nawabganj	.5727	.5771	1.8097	.9924	.5484	.5272	-.0044	38
Naogaon	.3549	.3863	1.6754	.9187	.5484	.3386	-.0314	49
Rangpur	.6317	.7292	1.5798	.8663	.5484	.6218	-.0975	60
Gaibandha	.3026	.2953	1.8686	1.0247	.5484	.2734	.0073	29
Kurigram	.2152	.1952	2.0105	1.1025	.5484	.1870	.0200	18
Lalmonirhat	.1287	.1249	1.8792	1.0305	.5484	.1157	.0038	30
Nilphamari	.2719	.3547	1.3977	.7665	.5484	.2816	-.0828	57

Source: Appendix-2&3.

Appendix-6.14: Quantitative Indicators of change in the **Registered Rickshaws** of the District to the total of the Country, 1991- 2001

Dist	Ce	Cb	Ku	Ko	Ko/Ku	Ce %	i = (Ce-Cb)	Rank
Chittagong	11.8728	11.8732	1.3675	1.0000	.7312	9.2121	-.0004	63
Cox- Bazar	.6880	.6879	1.3676	1.0001	.7312	.4736	.0000	26
Bandarban	.1566	.1565	1.3684	1.0007	.7312	.1072	.0001	9
Rangamati	.0228	.0228	1.3723	1.0035	.7312	.0156	.0001	10
Khagrachhari	.2985	.2984	1.3677	1.0001	.7312	.2047	.0000	27
Comilla	2.6128	2.6127	1.3676	1.0001	.7312	1.8344	.0002	6
B. Baria	.9157	.9083	1.3787	1.0081	.7312	.6293	.0074	1
Chandpur	.9157	.9159	1.3674	.9999	.7312	.6320	-.0001	41
Noakhali	1.6267	1.6270	1.3673	.9998	.7312	1.1308	-.0003	61
Feni	1.1922	1.1925	1.3673	.9998	.7312	.8251	-.0002	52
Lakshmipur	.5569	.5571	1.3670	.9996	.7312	.3830	-.0002	53
Sylhet	1.2425	1.2424	1.3677	1.0001	.7312	.8602	.0002	7
Sunamganj	.3008	.3008	1.3671	.9997	.7312	.2063	-.0001	42
Maulvi Bazar	1.1749	1.1748	1.3676	1.0001	.7312	.8129	.0001	11
Habiganj	.7078	.7080	1.3671	.9997	.7312	.4875	-.0002	54
Dhaka	27.2682	27.2679	1.3675	1.0000	.7312	25.6350	.0003	5
Gazipur	1.4927	1.4926	1.3676	1.0000	.7312	1.0361	.0001	12
Narayanganj	2.0851	2.0851	1.3676	1.0000	.7312	1.4561	.0001	13
Narshingdi	.6106	.6107	1.3673	.9998	.7312	.4201	-.0001	43
Munshiganj	.2418	.2393	1.3816	1.0103	.7312	.1649	.0025	2
Manikganj	.5091	.5092	1.3673	.9998	.7312	.3499	-.0001	44
Faridpur	1.2332	1.2332	1.3675	1.0000	.7312	.8537	.0000	28
Rajbari	.3815	.3815	1.3676	1.0001	.7312	.2619	.0000	29
Gopalganj	.2978	.2979	1.3667	.9994	.7312	.2043	-.0002	55
Madaripur	.4657	.4648	1.3700	1.0018	.7312	.3196	.0008	3
Shariatpur	.2023	.2025	1.3660	.9989	.7312	.1387	-.0002	56
Jamalpur	1.7224	1.7225	1.3675	.9999	.7312	1.1984	-.0001	45
Sherpur	.7037	.7037	1.3676	1.0001	.7312	.4846	.0001	14
Mymensingh	2.1036	2.1037	1.3674	.9999	.7312	1.4693	-.0002	57
Kishorganj	1.6046	1.6045	1.3676	1.0001	.7312	1.1150	.0001	15
Netrokona	.8247	.8248	1.3674	.9999	.7312	.5686	-.0001	46
Tangail	1.3929	1.3930	1.3674	.9999	.7312	.9659	-.0001	47
Barisal	1.6962	1.6961	1.3676	1.0001	.7312	1.1798	.0001	16
Bhola	.3496	.3495	1.3680	1.0003	.7312	.2399	.0001	17
Jhalokati	.3964	.3963	1.3680	1.0003	.7312	.2721	.0001	18
Perojpur	.2854	.2853	1.3676	1.0000	.7312	.1957	.0000	30
Jessore	1.8334	1.8334	1.3676	1.0000	.7312	1.2770	.0000	31
Jhenaidah	.6120	.6119	1.3678	1.0002	.7312	.4210	.0001	19
Narial	.1451	.1449	1.3696	1.0015	.7312	.0993	.0002	8
Magura	.1947	.1947	1.3669	.9996	.7312	.1334	-.0001	48
Khulna	3.3927	3.3926	1.3676	1.0000	.7312	2.4012	.0001	20
Bagerhat	1.0357	1.0355	1.3677	1.0001	.7312	.7155	.0001	21
Satkhira	1.1915	1.1915	1.3676	1.0000	.7312	.8245	.0000	32
Kushtia	1.2034	1.2027	1.3684	1.0006	.7312	.8326	.0007	4
Chuadanga	.6024	.6024	1.3675	1.0000	.7312	.4144	.0000	33
Meherpur	.2917	.2916	1.3679	1.0003	.7312	.2000	.0001	22
Patuakhali	.6656	.6656	1.3675	1.0000	.7312	.4582	.0000	34
Barguna	.1569	.1570	1.3673	.9998	.7312	.1075	.0000	35
Bogra	2.9320	2.9319	1.3676	1.0000	.7312	2.0653	.0001	23
Joypurhat	.4191	.4193	1.3668	.9995	.7312	.2878	-.0002	58
Dinajpur	1.3896	1.3897	1.3674	.9999	.7312	.9636	-.0001	49
ThaKurgaon	.3746	.3747	1.3672	.9997	.7312	.2572	-.0001	50
Panchagarh	.0046	.0051	1.2381	.9054	.7312	.0033	-.0005	64
Pabna	1.4694	1.4693	1.3676	1.0001	.7312	1.0197	.0001	24
Sirajganj	.9313	.9316	1.3671	.9997	.7312	.6429	-.0003	62
Rajshahi	1.8435	1.8436	1.3675	1.0000	.7312	1.2842	.0000	36
Natore	.9159	.9159	1.3676	1.0001	.7312	.6320	.0001	25
Nawabganj	.3617	.3616	1.3677	1.0001	.7312	.2482	.0000	37
Naogaon	1.0160	1.0161	1.3673	.9999	.7312	.7019	-.0001	51
Rangpur	3.1220	3.1221	1.3675	1.0000	.7312	2.2035	.0000	38
Gaibandha	1.7862	1.7862	1.3675	1.0000	.7312	1.2435	.0000	39
Kurigram	.3644	.3646	1.3668	.9995	.7312	.2501	-.0002	59
Lalmonirhat	.2939	.2938	1.3677	1.0001	.7312	.2015	.0000	40
Nilphamari	1.3056	1.3058	1.3673	.9998	.7312	.9046	-.0002	60

Source: Appendix- 2 & 3.

Appendix-6.15: Quantitative Indicators of change in the *Municipality* of the District to the total of the Country, 1991 – 2001

Dist	Ce	Cb	Ku	K₀	K₀/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	3.1250	1.6260	3.5000	1.9219	.5491	1.9799	1.4990	1
Cox-Bazar	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	33
Bandarban	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	41
Rangamati	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	42
Khagrachhari	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	43
Comilla	2.2321	1.6260	2.5000	1.3728	.5491	1.7415	.6061	15
B. Baria	1.7857	.8130	4.0000	2.1964	.5491	1.0257	.9727	9
Chandpur	2.6786	1.6260	3.0000	1.6473	.5491	1.8731	1.0526	7
Noakhali	2.2321	3.2520	1.2500	.6864	.5491	2.4915	-1.0199	61
Feni	.8929	.8130	2.0000	1.0982	.5491	.7813	.0798	24
Lakshmipur	1.3393	2.4390	1.0000	.5491	.5491	1.6138	-1.0997	62
Sylhet	.8929	.8130	2.0000	1.0982	.5491	.7813	.0798	25
Sunamganj	1.7857	.8130	4.0000	2.1964	.5491	1.0257	.9727	10
Maulvi Bazar	1.7857	1.6260	2.0000	1.0982	.5491	1.5755	.1597	21
Habiganj	1.7857	.8130	4.0000	2.1964	.5491	1.0257	.9727	11
Dhaka	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	34
Gazipur	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	53
Narayanganj	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	54
Narshingdi	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	35
Munshiganj	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	55
Manikganj	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	44
Faridpur	1.7857	.8130	4.0000	2.1964	.5491	1.0257	.9727	12
Rajbari	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	36
Gopalganj	1.7857	.8130	4.0000	2.1964	.5491	1.0257	.9727	13
Madaripur	1.3393	.8130	3.0000	1.6473	.5491	.9289	.5263	16
Shariatpur	2.2321	.8130	5.0000	2.7455	.5491	1.0942	1.4191	3
Jamalpur	2.6786	1.6260	3.0000	1.6473	.5491	1.8731	1.0526	8
Sherpur	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	56
Mymensingh	3.5714	2.4390	2.6667	1.4643	.5491	2.7053	1.1324	4
Kishorganj	1.7857	2.4390	1.3333	.7321	.5491	1.9244	-.6533	48
Netrokona	1.7857	2.4390	1.3333	.7321	.5491	1.9244	-.6533	49
Tangail	3.5714	2.4390	2.6667	1.4643	.5491	2.7053	1.1324	5
Barisal	2.2321	2.4390	1.6667	.9152	.5491	2.1756	-.2069	30
Bhola	2.2321	2.4390	1.6667	.9152	.5491	2.1756	-.2069	31
Jhalokati	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	57
Perojpur	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	37
Jessore	1.7857	.8130	4.0000	2.1964	.5491	1.0257	.9727	14
Jhenaidah	2.2321	4.0650	1.0000	.5491	.5491	2.7353	-1.8329	64
Narial	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	58
Magura	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	45
Khulna	.8929	.8130	2.0000	1.0982	.5491	.7813	.0798	26
Bagerhat	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	38
Satkhira	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	59
Kushtia	1.7857	2.4390	1.3333	.7321	.5491	1.9244	-.6533	50
Chuadanga	1.7857	2.4390	1.3333	.7321	.5491	1.9244	-.6533	51
Meherpur	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	46
Patuakhali	1.3393	.8130	3.0000	1.6473	.5491	.9289	.5263	17
Barguna	1.7857	1.6260	2.0000	1.0982	.5491	1.5755	.1597	22
Bogra	2.2321	2.4390	1.6667	.9152	.5491	2.1756	-.2069	32
Joypurhat	1.3393	.8130	3.0000	1.6473	.5491	.9289	.5263	18
Dinajpur	2.6786	2.4390	2.0000	1.0982	.5491	2.3830	.2395	20
ThaKurgaon	.8929	1.6260	1.0000	.5491	.5491	1.0670	-.7332	66
Panchagarh	.4464	.8130	1.0000	.5491	.5491	.5291	-.3666	47
Pabna	3.5714	2.4390	2.6667	1.4643	.5491	2.7053	1.1324	6
Sirajganj	1.7857	2.4390	1.3333	.7321	.5491	1.9244	-.6533	52
Rajshahi	3.1250	1.6260	3.5000	1.9219	.5491	1.9799	1.4990	2
Natore	1.7857	1.6260	2.0000	1.0982	.5491	1.5755	.1597	23
Nawabganj	1.3393	2.4390	1.0000	.5491	.5491	1.6138	-1.0997	63
Naogaon	.8929	.8130	2.0000	1.0982	.5491	.7813	.0798	27
Rangpur	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	39
Gaibandha	1.3393	.8130	3.0000	1.6473	.5491	.9289	.5263	19
Kurigram	.8929	.8130	2.0000	1.0982	.5491	.7813	.0798	28
Lalmonirhat	.8929	.8130	2.0000	1.0982	.5491	.7813	.0798	29
Nilphamari	1.3393	1.6260	1.5000	.8237	.5491	1.3595	-.2867	40

Source: Appendix-2&3.

Appendix-6.16: Quantitative indicators of change in the *GDP from Agriculture Sector* of the District to the total of the Country, 1991-2001

Dist	Ce	Cb	Ku	Ko	Ko/Ku	Ce %	I = (Ce-Cb)	Rank
Chittagong	3.5539	3.5155	1.1733	1.0109	.8616	2.1258	.0384	16
Cox-Bazar	2.2456	2.1934	1.1882	1.0238	.8616	1.3167	.0522	11
Bandarban	.3190	.3336	1.1097	.9562	.8616	.1899	-.0146	37
Rangamati	.6809	.6743	1.1721	1.0099	.8616	.3959	.0067	27
Khagrachhari	.2834	.2838	1.1590	.9986	.8616	.1651	-.0004	33
Comilla	3.3809	3.5466	1.1064	.9533	.8616	2.0827	-.1656	60
B. Baria	1.6059	1.6478	1.1310	.9745	.8616	.9597	-.0419	50
Chandpur	2.2755	1.6821	1.5700	1.3528	.8616	1.1417	.5934	2
Noakhali	1.7917	2.1975	.9463	.8153	.8616	1.1712	-.4058	64
Feni	.8611	.8460	1.1812	1.0178	.8616	.4995	.0150	
Lakshmipur	1.7917	1.7542	1.1854	1.0214	.8616	1.0471	.0376	17
Sylhet	1.6340	1.9540	.9705	.8363	.8616	1.0534	-.3200	62
Sunamganj	1.3468	1.7247	.9063	.7809	.8616	.8931	-.3779	63
Maulvi Bazar	1.4115	1.4411	1.1367	.9795	.8616	.8397	-.0296	47
Habiganj	6.2721	1.4779	4.9254	4.2439	.8616	1.4090	4.7942	1
Dhaka	.6601	.6648	1.1174	.9628	.8616	.3810	-.0247	45
Gazipur	1.0084	1.0470	1.1179	.9632	.8616	.6025	-.0385	49
Narayanganj	.4764	.4982	1.1100	.9564	.8616	.2841	-.0217	42
Narshingdi	1.0806	1.1018	1.1383	.9808	.8616	.6402	-.0211	40
Munshiganj	.7226	.7056	1.1886	1.0241	.8616	.4173	.0170	24
Manikganj	1.0546	1.1729	1.0436	.8992	.8616	.6521	-.1183	56
Faridpur	1.2954	1.3179	1.1408	.9829	.8616	.7683	-.0225	43
Rajbari	.8004	.7935	1.1706	1.0086	.8616	.4661	.0068	26
Gopalganj	.9565	.9613	1.1547	.9949	.8616	.5618	-.0049	35
Madaripur	.8704	.9956	1.0146	.8742	.8616	.5444	-.1253	58
Shariatpur	.8771	.8918	1.1415	.9835	.8616	.5178	-.0147	38
Jamalpur	1.6848	1.6340	1.1967	1.0311	.8616	.9787	.0508	12
Sherpur	1.1074	1.1319	1.1354	.9783	.8616	.6571	-.0245	44
Mymensingh	4.9380	4.4464	1.2889	1.1106	.8616	2.8417	.4916	3
Kishorganj	2.3418	2.2956	1.1839	1.0201	.8616	1.3770	.0461	13
Netrokona	2.3578	2.2929	1.1935	1.0283	.8616	1.3808	.0650	9
Tangail	2.3115	2.5214	1.0640	.9168	.8616	1.4359	-.2098	
Barisal	1.8350	1.9595	1.0868	.9364	.8616	1.1218	-.1245	57
Bhola	2.0573	2.1688	1.1009	.9486	.8616	1.2525	-.1114	55
Jhalokati	.4326	.5691	.8823	.7602	.8616	.2869	-.1365	59
Perojpur	.9842	.9825	1.1626	1.0017	.8616	.5763	.0017	32
Jessore	2.3939	2.4934	1.1143	.9601	.8616	1.4537	-.0994	54
Jhenaidah	1.6620	1.6835	1.1458	.9872	.8616	.9873	-.0215	41
Narial	.8853	.9316	1.1028	.9502	.8616	.5318	-.0464	51
Magura	.9914	1.0085	1.1408	.9830	.8616	.5861	-.0172	39
Khulna	2.1248	2.0799	1.1856	1.0216	.8616	1.2457	.0449	14
Bagerhat	1.9401	1.8789	1.1984	1.0325	.8616	1.1290	.0612	10
Satkhira	1.9790	1.9475	1.1793	1.0161	.8616	1.1618	.0314	19
Kushtia	1.4813	1.4544	1.1820	1.0185	.8616	.8613	.0269	20
Chuadanga	.9081	.8884	1.1863	1.0222	.8616	.5258	.0197	22
Meherpur	.5903	.5838	1.1735	1.0111	.8616	.3427	.0065	28
Patuakhali	2.1494	2.0790	1.1999	1.0338	.8616	1.2525	.0704	8
Barguna	1.2580	1.1874	1.2295	1.0594	.8616	.7174	.0706	7
Bogra	2.7069	2.7045	1.1616	1.0009	.8616	1.6137	.0025	31
Joypurhat	.9848	.9786	1.1680	1.0064	.8616	.5753	.0062	29
Dinajpur	2.6966	2.7325	1.1453	.9869	.8616	1.6194	-.0359	48
ThaKurgaon	1.2675	1.2905	1.1579	.9977	.8616	.7578	-.0030	34
Panchagarh	.8460	.8398	1.1691	1.0074	.8616	.4933	.0062	30
Pabna	1.6402	1.5445	1.2325	1.0620	.8616	.9377	.0957	5
Sirajganj	1.5581	1.4756	1.2254	1.0559	.8616	.9027	.0824	6
Rajshahi	1.6257	1.5171	1.2437	1.0716	.8616	.9248	.1086	4
Natore	1.5870	1.5930	1.1562	.9962	.8616	.9376	-.0060	36
Nawabganj	1.1286	1.0926	1.1989	1.0330	.8616	.6514	.0361	18
Naogaon	2.8134	2.7896	1.1705	1.0085	.8616	1.6723	.0238	21
Rangpur	1.9441	2.0279	1.1126	.9587	.8616	1.1758	-.0838	53
Gaibandha	1.7505	1.8205	1.1160	.9615	.8616	1.0549	-.0700	52
Kurigram	1.6850	1.6443	1.1889	1.0244	.8616	.9822	.0402	15
Lalmonirhat	1.0007	.9830	1.1815	1.0180	.8616	.5812	.0177	23
Nilphamari	1.2887	1.3177	1.1350	.9780	.8616	.7662	-.0290	46

Source: Based on Appendix -2 & 3.

Appendix-7: Composite Ranking of the Changing Pattern of Urbanization of the District of the total of the Country: 1991-2001.

Sl.	District	RPOPU	SANTOI	ELECON	DRIWAT	LITERA	URBLIT	PRISCH	SECSCH	COLLEG	METROA	MEROA	KUTROA	REGRIK	BANDEP	G.PAGR	MUNICI	Σ	X	Composite Rank
1	Chittagong	2	2	2	16	2	2	23	41	13	26	1	11	63	63	16	1	284	17.75	1
2	Cox's Bazar	13	46	37	24	45	17	21	30	43	12	9	55	26	53	11	33	475	29.69	22
3	Bandarban	60	64	55	29	64	57	22	38	55	52	23	58	9	40	37	41	703	43.94	64
4	Rangamati	51	62	38	28	63	52	56	60	56	36	41	34	10	32	27	42	687	42.94	59
5	Khagrachhari	34	63	50	17	52	47	35	40	53	50	29	41	27	42	33	43	655	40.94	55
6	Comilla	4	3	24	64	3	4	11	26	15	63	2	64	6	16	60	15	380	23.75	9
7	B. Baria	37	21	43	60	30	26	45	43	18	42	45	28	1	62	50	9	559	34.94	37
8	Chandpur	41	15	19	61	31	39	7	55	14	48	35	50	41	5	2	7	469	29.31	21
9	Noakhali	16	17	56	62	15	18	59	32	1	2	57	49	61	6	64	61	576	36.00	43
10	Feni	54	40	48	57	51	32	32	50	27	46	31	27	52	4	25	24	599	37.44	48
11	Laxmipur	40	28	14	53	57	50	46	45	47	16	59	39	53	31	17	62	656	41.00	56
12	Sylhet	8	9	6	54	18	6	53	31	28	21	54	36	7	2	62	25	420	26.25	16
13	Sunamgonj	21	43	27	51	26	13	41	23	25	53	60	20	42	43	63	10	560	35.00	38
14	Moulvi-Bazar	29	26	60	52	39	49	30	36	24	6	36	5	11	11	47	21	481	30.06	23
15	Habiganj	28	39	30	55	28	20	4	35	49	62	62	23	54	23	1	11	523	32.69	28
16	Dhaka	1	1	1	1	1	1	63	37	6	31	6	54	5	1	45	34	288	18.00	2
17	Gazipur	6	12	4	5	6	9	34	13	57	5	51	17	12	3	49	53	336	21.00	7
18	Narayanganj	7	14	15	2	19	11	8	9	59	54	34	44	13	20	42	54	405	25.31	13
19	Narshingdi	19	20	10	38	23	33	36	47	45	1	64	14	43	58	40	35	525	32.81	29
20	Munshiganj	47	38	28	44	38	51	28	49	50	32	19	33	2	52	24	55	589	36.81	47
21	Manikganj	50	35	34	42	43	46	1	6	48	25	39	15	44	26	56	44	553	34.56	36
22	Faridpur	22	23	21	39	27	19	57	7	4	10	63	45	28	7	43	12	426	26.63	17
23	Rajbari	46	49	46	31	48	54	29	56	20	56	24	24	29	35	26	36	608	38.00	49
24	Gopalganj	56	47	40	56	56	30	33	58	64	22	8	37	55	10	35	13	619	38.69	50
25	Madaripur	59	55	44	50	61	38	19	28	29	40	48	2	3	15	58	16	564	35.25	39
26	Shariatpur	48	41	51	47	46	41	17	4	42	19	42	22	56	22	38	3	538	33.63	32
27	Jamalpur	24	42	17	37	33	35	16	1	38	4	3	3	45	14	12	8	331	20.69	6
28	Sherpur	45	30	41	33	4	44	40	8	35	47	38	21	14	27	44	56	526	32.88	30
29	Mymensing	3	4	9	45	5	3	3	18	16	3	44	43	57	34	3	4	294	18.38	3
30	Kishoreganj	23	13	11	41	14	5	2	16	34	33	47	6	15	8	13	48	328	20.50	5
31	Netrokona	25	36	26	46	55	25	26	52	51	49	21	61	46	12	9	49	588	36.75	46
32	Tangail	17	6	18	36	22	12	64	64	62	8	32	4	47	64	61	5	569	35.56	40
33	Barisal	49	7	7	63	25	31	31	59	54	27	14	31	16	47	57	30	547	34.19	33
34	Bhola	31	29	22	48	29	7	50	51	22	44	50	29	17	37	55	31	551	34.44	35
35	Jhalokati	63	50	31	49	60	58	51	39	23	30	37	52	18	19	59	57	695	43.44	62
36	Perojpur	61	32	57	58	50	63	55	54	41	41	30	35	30	9	32	37	684	42.75	58
37	Jessore	12	10	8	7	7	28	60	11	63	7	13	53	31	54	54	14	432	27.00	20
38	Jhenaidah	32	34	13	10	20	34	37	21	9	61	7	1	19	24	41	64	426	26.63	18
39	Narail	62	57	53	43	62	53	61	42	30	17	11	60	8	25	51	58	692	43.25	61
40	Magura	53	59	42	30	49	50	47	46	52	14	52	7	48	36	39	45	668	41.75	57
41	Khulna	15	8	3	25	16	22	25	61	61	13	4	8	20	61	14	26	382	23.88	10
42	Bagerhat	55	56	29	59	44	48	58	62	17	23	43	59	21	13	10	38	634	39.63	52
43	Satkhira	18	25	47	19	21	21	15	24	8	28	12	16	32	22	19	59	385	24.06	11
44	Kushtia	26	24	63	9	24	23	34	27	46	9	33	62	4	50	20	50	503	31.44	27
45	Chuadanga	35	60	25	4	40	42	39	57	39	46	53	32	33	45	22	51	622	38.88	51
46	Meherpur	52	61	62	18	59	55	27	44	44	43	55	47	22	33	28	46	695	43.44	63
47	Patuakhali	64	27	35	35	53	64	38	63	31	59	10	10	34	28	8	17	575	35.94	42
48	Barguna	58	48	20	40	58	61	12	33	40	37	56	42	35	17	7	22	585	36.56	45
49	Bogra	14	5	52	13	10	8	62	48	58	45	16	19	23	56	31	32	492	30.75	26
50	Joypurhat	57	54	59	23	47	49	48	53	36	24	22	26	58	39	29	18	641	40.06	54
51	Dinajpur	11	11	64	14	8	24	52	15	11	57	40	56	49	51	48	20	531	33.19	31
52	Thakurgaon	36	53	61	27	34	27	49	5	33	60	58	57	50	41	34	66	690	43.13	60
53	Panchagarh	44	51	45	32	54	56	43	3	26	35	46	18	64	46	30	47	639	39.94	53
54	Pabna	27	31	12	15	17	16	5	19	37	18	15	25	24	55	5	6	326	20.38	4
55	Sirajganj	5	18	23	3	11	15	44	20	2	34	25	40	62	44	6	52	404	25.25	12
56	Rajshahi	9	22	5	6	9	29	42	2	3	64	5	63	36	59	4	2	360	22.50	8
57	Natore	43	37	58	22	32	36	20	12	60	55	18	48	25	48	36	23	572	35.75	41
58	Nawabganj	20	58	16	12	41	45	24	29	12	29	61	38	37	38	18	63	490	30.63	24
59	Naogaon	30	16	32	11	12	40	9	25	5	38	17	46	51	49	21	27	428	26.75	19
60	Rangpur	10	19	49	8	13	14	10	17	7	11	28	30	38	60	53	39	406	25.38	14
61	Gaibandha	39	44	33	20	37	10	14	10	10	15	27	9	39	29	52	19	406	25.38	15
62	Kurigram	38	45	39	21	42	37	6	22	32	58	20	12	59	18	15	28	491	30.69	25
63	Lalmonirhat	42	52	54	26	35	43	13	34	19	39	49	51	40	30	23	29	578	36.13	44
64	Nilphamari	33	33	36	34	36	62	18	14	21	20	26	13	60	57	46	40	548	34.25	34

The End

Source: Appendix-2 & 3.